

## Short Notes

## CONTRIBUTIONS TO A CYTOLOGICAL CATALOGUE OF THE BRITISH AND IRISH FLORA, 3

This note continues our series presenting the results of a cytological survey of British and Irish vascular plants (Hollingsworth *et al.* 1992). Here we report the chromosome numbers of 88 species from 95 populations. A suffix 'S' denotes supernumerary chromosomes. Only one plant per population was counted, except where stated. All counts were made on squashes of root-tips. Voucher specimens have been deposited in LTR.

- Ajuga reptans* L., 2n = 32: Leics., v.c. 55, Swithland Wood, SK/53.12.  
*Alchemilla glaucescens* Wallr., 2n = c. 110: Westmorland, v.c. 69, Crosby Gill, NY/61.11.  
*Alchemilla xanthochlora* Rothm., 2n = c. 107: W. Lancs., v.c. 60, near Carnforth, SD/507.706.  
*Allium scorodoprasum* L., 2n = 16: W. Lancs., v.c. 60, Potts Corner, SD/41.57.  
*Andromeda polifolia* L., 2n = 48: Westmorland, v.c. 69, Meathop Moss, 3 km N.E. of Lindale, SD/44.81.  
*Apium inundatum* (L.) Reichb.f., 2n = 22: Caerns., v.c. 49, Cilan, near Abersoch, SH/29.24.  
*Barbarea vulgaris* R.Br., 2n = 16: W. Lancs., v.c. 60, River Lune, near Lancaster, SD/488.640.  
*Brassica napus* L. subsp. *oleifera* (DC.) Metzger, 2n = 38: Dorset, v.c. 9, c. 1.5 km W. of Burton Bradstock, SY/47.89.  
*Calystegia soldanella* (L.) R.Br., 2n=22: Caerns., v.c. 49, Pwllheli, SH/37.34.  
*Cardamine amara* L., 2n = 16: W. Lancs., v.c. 60, near Carnforth, SD/507.706.  
*Carex acutiformis* Ehrh., 2n = 38: W. Lancs., v.c. 60, Lancaster University campus, SD/48.57.  
*Chrysosplenium oppositifolium* L., 2n=42: W. Lancs., v.c. 60, near Millbeck footbridge, SD/648.638.  
*Circaea lutetiana* L., 2n = 22: Dorset, v.c. 9, Kingcombe Meadows, c. 1.5 km N.E. of Toller Porcorum, SY/55.99; W. Lancs., v.c. 60, near Millbeck footbridge, SD/648.638.  
*Crataegus monogyna* Jacq. subsp. *nordica* Franco, 2n = 34: Caerns., v.c. 49, Penarwel valley, near Llanbedrog, SH/32.32.  
*Crithmum maritimum* L., 2n = 20: Dorset, v.c. 9, Weymouth, landward side of Fleet Lagoon, SY/66.76.  
*Dactylorhiza purpurella* (T. & T. A. Stephenson) Soó, 2n = 80: W. Lancs., v.c. 60, SD/5.7.  
*Daphne laureola* L., 2n = 18: Dorset, v.c. 9, Todber, ST/79.19.  
*Dryopteris filix-mas* (L.) Schott, 2n = 164: W. Lancs., v.c. 60, near Yealand Conyers, SD/509.745.  
*Equisetum telmateia* Ehrh., 2n = c. 216: Caerns., v.c. 49, track from Carreg to Porth Oer (Whistling Sands), SH/16.29.  
*Eryngium maritimum* L., 2n = 16: Caerns., v.c. 49, Pwllheli, south beach, SH/37.34.  
*Euonymus europaeus* L., 2n = 32: Dorset, v.c. 9, Winterborne Kingston, SY/86.97.  
*Euphorbia peplus* L., 2n = 16: Dorset, v.c. 9, Portland, Church Ope Cove, SY/69.70.  
*Fraxinus excelsior* L., 2n = 46: Leics., v.c. 55, Outwoods, Jubilee Wood, SK/511.165; Leics., v.c. 55, Swithland Wood, SK/53.12; W. Lancs., v.c. 60, Gait Barrows N.N.R., near Silverdale, SD/480.776.  
*Geum rivale* L., 2n = 42: W. Lancs., v.c. 60, near Forton, SD/486.534.  
*Geum urbanum* L., 2n = 42: W. Lancs., v.c. 60, near Lancaster, SD/473.594.  
*Glaucium flavum* Crantz, 2n = 12: Dorset, v.c. 9, c. 1.5 km W. of Burton Bradstock, SY/47.89.  
*Hydrocotyle vulgaris* L., 2n = 96: W. Lancs., v.c. 60, Leighton Moss R.S.P.B. reserve, near Silverdale, SD/488.757.  
*Hypericum androsaemum* L., 2n = 40: W. Lancs., v.c. 60, near Lancaster, SD/473.594.  
*Hypericum elodes* L., 2n = 16: S. Devon, v.c. 3, Dartmoor, SX/66.80.

- Kickxia elatine* (L.) Dumort., 2n = 36: Dorset, v.c. 9, near Blandford Forum, ST/88.06.
- Lamium album* L., 2n = 18: W. Lancs., v.c. 60, W. of Heysham, SD/427.616.
- Lemna gibba* L., 2n = 40: Cambs., v.c. 29, River Delph, bridge c. 6 km E. of Chatteris, TL/470.858.
- Lemna minor* L., 2n = 40: Cambs., v.c. 29, River Delph, bridge c. 6 km E. of Chatteris, TL/470.858.
- Ligustrum vulgare* L., 2n = 46: W. Lancs., v.c. 60, Gait Barrows N.N.R., near Silverdale, SD/483.775.
- Lithospermum officinale* L., 2n = 28 + 1S: W. Lancs., v.c. 60, Gait Barrows N.N.R., near Silverdale, SD/479.776.
- Littorella uniflora* (L.) Asch., 2n = 24: Caerns., v.c. 49, Mynydd Cilan, SH/29.24.
- Lotus pedunculatus* Cav., 2n = 12: W. Lancs., v.c. 60, River Lune, near Lancaster, SD/483.628; Westmorland, v.c. 69, Lowick Common, SD/292.847.
- Luzula pilosa* (L.) Willd., 2n = 66: W. Lancs., v.c. 60, near Millbeck footbridge, SD/648.638.
- Lysimachia nummularia* L., 2n = 43: W. Lancs., v.c. 60, near Capernwray, SD/528.714.
- Lysimachia vulgaris* L., 2n = 84: W. Lancs., v.c. 60, River Lune, near Lancaster, SD/484.641.
- Malva sylvestris* L., 2n = 42: Dorset, v.c. 9, c. 1.5 km W. of Burton Bradstock, SY/47.89; W. Lancs., v.c. 60, near Bank Houses, W. of Cockerham, SD/430.531.
- Marrubium vulgare* L., 2n = 34: Dorset, v.c. 9, Bats Head, SY/79.80.
- Medicago lupulina* L., 2n = 16: Dorset, v.c. 9, c. 1.5 km W. of Burton Bradstock, SY/47.84 (two plants); W. Lancs., v.c. 60, River Lune estuary, edge of new sports centre, near Lancaster, SD/463.624.
- Menyanthes trifoliata* L., 2n = 54: W. Lancs., v.c. 60, near Lancaster, SD/458.612.
- Myosotis stolonifera* (DC.) Gay ex Leresche & Levier, 2n = 24: Westmorland, v.c. 69, Lowick Common, SD/292.847.
- Myrica gale* L., 2n = 48: Dorset, v.c. 9, Hartland Moor N.N.R. (W. side of road), c. 4 km S.E. of Wareham, SY/96.85.
- Nepeta cataria* L., 2n = 36: Dorset, v.c. 9, between Blandford Forum and Thornicombe, ST/87.04.
- Nymphoides peltata* Kuntze, 2n = 54: Cambs., v.c. 29, Block Fen gravel pit, near Chatteris, TL/431.839.
- Oenanthe crocata* L., 2n = 22: W. Lancs., v.c. 60, estuary of River Lune, near Lancaster, SD/460.621.
- Ononis repens* L. subsp. *repens*, 2n = 60: Caerns., v.c. 49, Abersoch, N. end of Porth Fawr, SH/31.27.
- Oxalis acetosella* L., 2n = 22: Dorset, v.c. 9, Kingcombe Meadows, c. 1.5 km N.E. of Toller Porcorum, SY/55.99.
- Parietaria judaica* L., 2n = 26: Dorset, v.c. 9, Portland Church Ope Cove, SY/69.70.
- Persicaria amphibia* (L.) Gray, 2n = 96: W. Lancs., v.c. 60, near Carnforth, SD/507.706.
- Persicaria bistorta* (L.) Samp., 2n = 48: S. Lancs., v.c. 59, Rochdale, Norden, Lower Mancroft Gate Farm, SD/841.148; Westmorland, v.c. 69, near Arnside, SD/457.767.
- Persicaria maculosa* Gray, 2n = 22: W. Lancs., v.c. 60, near Lancaster, SD/465.624.
- Petasites hybridus* (L.) P. Gaertner, B. Mey. & Scherb., 2n = 60: W. Lancs., v.c. 60, near Quernmore, SD/508.599.
- Pimpinella saxifraga* L., 2n = 40: Dorset, v.c. 9, Fontmell Down, c. 5 km S.S.E. of Shaftesbury, ST/88.18.
- Polystichum aculeatum* (L.) Roth, 2n = 164: W. Lancs., v.c. 60, near Lancaster, SD/473.594.
- Populus nigra* L. subsp. *betulifolia* (Pursh) W. Wettst., 2n = 38: W. Lancs., v.c. 60, near Lancaster, SD/454.615.
- Potentilla palustris* (L.) Scop., 2n = 35: Westmorland, v.c. 69, Lowick Common, SD/292.847.
- Primula veris* L., 2n = 22: W. Lancs., v.c. 60, near Silverdale, SD/470.749.
- Prunella vulgaris* L. (white-flowered), 2n = 28: Westmorland, v.c. 69, Broughton Beck, SD/285.825.
- Ranunculus flammula* L. subsp. *flammula*, 2n = 32: W. Lancs., v.c. 60, Heysham Moss, dismantled sidings, SD/422.604.
- Ranunculus penicillatus* (Dumort.) Bab. subsp. *pseudofluitans* (Syme) S. Webster var. *vertumnus* C. Cook, 2n = 48: Mid-W. Yorks., v.c. 64, Bishop Monkton, SE/32.66.
- Ribes nigrum* L., 2n = 16: Westmorland, v.c. 69, near Arnside, SD/477.782.
- Ribes rubrum* L., 2n = 16: W. Lancs., v.c. 60, near Lancaster, SD/473.594.

- Rosa arvensis* Hudson, 2n = 14: W. Lancs., v.c. 60, near Lancaster, SD/459.613.  
*Rumex obtusifolius* L. subsp. *transiens* (Simonkai) K. H. Rech., 2n = 40: Surrey, v.c. 17, Richmond, River Thames, TQ/1.7.  
*Ruppia maritima* L., 2n = 20: W. Lancs., v.c. 60, near Carnforth, SD/482.702.  
*Salix viminalis* L., 2n = 38: W. Lancs., v.c. 60, W. of Heysham, SD/428.612.  
*Samolus valerandi* L., 2n = 26: W. Lancs., v.c. 60, near Carnforth, SD/483.704.  
*Sanguisorba minor* Scop. subsp. *minor*, 2n = 28: W. Lancs., v.c. 60, Leighton Moss R.S.P.B. Reserve, near Silverdale, SD/489.758.  
*Sanicula europaea* L., 2n = 16: W. Lancs., v.c. 60, Leighton Moss R.S.P.B. Reserve, near Silverdale, SD/489.759.  
*Scirpus sylvaticus* L., 2n = 62: W. Lancs., v.c. 60, River Lune, near Lancaster, SD/485.638.  
*Sedum forsterianum* Smith, 2n = c. 90: Rads., v.c. 43, Stanner Rock, 4 km N.W. of Kington, SO/26.58.  
*Silene vulgaris* Garcke subsp. *vulgaris*, 2n = 24: W. Lancs., v.c. 60, River Lune, near Lancaster, SD/488.640.  
*Sonchus oleraceus* L., 2n = 32: Dorset, v.c. 9, c. 1.5 km W. of Burton Bradstock, SY/47.89.  
*Sorbus aucuparia* L., 2n = 34: W. Lancs., v.c. 60, Gait Barrows N.N.R., near Silverdale, SD/481.776.  
*Spirodela polyrhiza* (L.) Schleiden, 2n = 40: Cambs., v.c. 29, River Delph, bridge c. 6 km E. of Chatteris, TL/470.858.  
*Stachys arvensis* (L.) L., 2n = 10: Dorset, v.c. 9, Chamberlayne's Heath, c. 8 km N. of Wool, SY/83.91.  
*Stachys officinalis* (L.) Trev., 2n = 16: W. Lancs., v.c. 60, Gait Barrows N.N.R., near Silverdale, SD/478.773.  
*Taxus baccata* L., 2n = 24: Dorset, v.c. 9, Hod Hill, near Blandford Forum, ST/85.10.  
*Thalictrum flavum* L., 2n = 84: W. Lancs., v.c. 60, estuary, near Carnforth, SD/493.714.  
*Trifolium medium* L., 2n = 80: W. Lancs., v.c. 60, Gait Barrows N.N.R., near Silverdale, SD/478.772.  
*Valeriana dioica* L., 2n = 16: W. Lancs., v.c. 60, above Saltmire Bridge, by canal, SD/519.754.  
*Veronica anagallis-aquatica* L., 2n = 36: Dorset, v.c. 9, near Sydling St Nicholas, ST/63.00.  
*Veronica beccabunga* L., 2n = 18: Westmorland, v.c. 69, near Arnside, SD/477.782.  
*Veronica officinalis* L., 2n = 36: Caerns., v.c. 49, Garn Fadryn, SH/27.35.

## ACKNOWLEDGMENTS

We should like to thank English Nature and the R.S.P.B. for permission to collect plant material from their reserves.

## REFERENCES

- HOLLINGSWORTH, P. M., GORNALL, R. J. & BAILEY, J. P. (1992). Contributions to a cytological catalogue of the British and Irish flora, 2. *Watsonia* **19**: 134-137.

A.-K. K. A. AL-BERMANI, K. I. A. AL-SHAMMARY, J. P. BAILEY & R. J. GORNALL  
*Botany Department, The University, Leicester, LE1 7RH*

*POLYGONUM MARITIMUM* L. IN EAST SUSSEX (V.C. 14)

On 18 June 1992 a number of plants of *Polygonum maritimum* L. (Polygonaceae), Sea Knotgrass, were discovered growing on the beach at Brighton, East Sussex by one of us (A. S.). This was an exciting find as this very rare plant has never before, to our knowledge, been recorded from East Sussex (v.c. 14) and was last recorded in West Sussex (v.c. 13) by W. Borrer, although no station is given and there is apparently no specimen in his herbarium. A previous record from Bognor in 1854

by Professor I. B. Balfour was thought by H. C. Watson to be *Polygonum oxyspermum* C. A. Meyer & Bunge ex Ledeb. subsp. *raii* (Bab.) D. A. Webb & Chater, and consultation of the herbarium of the Royal Botanic Garden, Edinburgh (E) confirms this.

Following notification to English Nature, under the terms of the Wildlife & Countryside Act 1981, as a fully protected species under Schedule 8, a specimen was collected (herb. P. A. Harmes) and confirmed by Dr J. R. Akeroyd. About 14 plants were found, of which eleven or so were growing together in a clump, seeming at first glance to be a single plant. They ranged in size from seedlings, with stems no more than 8 cm, up to mature plants with stems 60 cm in length. The plants were procumbent and were in flower and fruit, which continued throughout the summer and they were still flowering in late November. They grew well above the high tide mark and seemed to have a preference for areas of fine shingle. The presence of a number of plants growing in a clump suggests that this species may have been flowering here un-noticed in previous years, and had seeded itself.

The small shingle beach where the plants were found was already well-known for its botanical interest and supports a number of plants found nowhere else along this coast. Species recorded here already include *Atriplex glabriuscula*, *A. littoralis*, *A. portulacoides* (*Halimione portulacoides*), *Crambe maritima*, *Cakile maritima*, *Raphanus raphanistrum* subsp. *maritimus*, *Beta vulgaris* subsp. *maritima*, *Honkenya peploides*, *Spergularia media*, *Calystegia soldanella*, *Crithmum maritimum*, *Glaucium flavum*, *Tripleurospermum maritimum*, *Parapholis strigosa*, *Elymus atherica* (*E. pycnanthus*) and *Catapodium marinum*. Nomenclature follows Stace (1991).

The beach is largely composed of flint pebbles with patches of fine shingle or sand, as well as areas with some humus cover. It is only about 110 m in length and, at its widest, about 50–60 m down to the high tide mark, with vegetation restricted to about half of the area. For such a small site it has a surprisingly rich maritime flora. The beach is enclosed on three sides by a groyne, the sea wall and the western breakwater of Brighton Marina. This breakwater is about 640 m long and was completed in about 1972. The beach in its present form and position probably dates from this time and if this is the case, then all the plants here are recent colonists.

A build-up of shingle above the high tide mark has probably occurred here as the western breakwater prevents its eastern drift. It seems also that this breakwater traps great amounts of jetsam which is washed or blown on to the beach above the shingle ridge, where it tends to accumulate. The jetsam consists of plastic, polystyrene, wood, ropes, nets, tar and cans as well as plant material, including *Fucus vesiculosus* L. (Bladder-wrack), fruit and seeds, and accumulates in lower-lying parts of the beach to form a rich mulch in which seeds can be seen germinating. As the Channel current (North Atlantic Drift) and the prevailing wind through the summer come from the south-west, it seems quite possible that seed of *P. maritimum* could have originated from sites in Cornwall or S. Hants., or from the Channel Isles or Northern France. Less likely is the possibility that seeds were brought in by birds; Greenfinches are the only seed-eating species (apart from Sparrows) which frequent the beach.

*P. maritimum* is a characteristic species of the coasts of the Mediterranean region and is at the northerly edge of its range in southern England. The recent confirmation of this plant at three other stations in mainland Britain, together with records from S. E. Ireland and the Netherlands, suggest that it may be extending, or at least consolidating, its range and this might be related to the hotter, more Mediterranean-type summers that we have experienced in the south of England in recent years (Akeroyd 1991). If this is the case, then we may see it turning up on other suitable beaches in this country in the future. Table 1 shows the number of plants known in mainland Britain (excluding the Channel Isles).

TABLE 1. *POLYGONUM MARITIMUM* L. IN BRITAIN

Location	Number of plants in colony
W. Cornwall (v.c. 1), Gunwalloe	250
E. Cornwall (v.c. 2), Lantic Bay	1
S. Hants. (v.c. 11), Christchurch	49
E. Sussex (v.c. 14), Brighton	14

There are other factors which have enabled coastal plants to become established at this locality. Unlike many other shingle beaches in Brighton, this one is not regularly bulldozed, perhaps because there is no access. It is not used much by the public and the amount of sea-borne rubbish as well as the tar deter most people. Past threats to the beach have come from plans to extend Volk's Electric Railway, from Southern Water's proposal to dump chalk, as well as from over-zealous beach cleaning. These are hopefully no longer a threat, though beach parties and camp fires still occur. Brighton Borough Council has, however, recently declared the beach a Site of Nature Conservation Importance and there is a proposal to extend the adjacent S.S.S.I. to include this site. We hope these measures will protect the plants here and we will be monitoring the site to see if *P. maritimum* survives and increases.

## ACKNOWLEDGMENTS

We should like to express our gratitude to the following for their assistance in the compilation of this note: Dr J. R. Akeroyd, Mrs M. Briggs, P. Bowman, Miss R. Murphy, D. Pearman, Mrs O. M. Stewart and R. Walls. Mrs C. J. Tatar kindly typed the manuscript.

## REFERENCES

- AKEROYD, J. R. (1991). Wildlife Reports. Higher Plants. *British Wildlife* 2: 182–183.  
STACE, C. A. (1991). *New Flora of the British Isles*. Cambridge.

P. A. HARMES

10 Hillcroft, Mile Oak Road, Portslade, East Sussex, BN4 2QD

A. SPIERS

69 Elm Grove, Brighton, East Sussex, BN2 3ET

WHITE-BLOSSOMED *PINGUICULA GRANDIFLORA* LAM. (LENTIBULARIACEAE) IN  
THE BURREN, COUNTY CLARE, IRELAND

*Pinguicula grandiflora* Lam. (Leith Uisce, Kerry (or Large-flowered) Butterwort) has been reported occasionally from Ireland with white flowers. There are late 19th century records, the earliest by 'Veronica' (a nom-de-plume used by Frederick W. Burbidge, curator of Trinity College Botanic Garden, Dublin (cf. Nelson 1987)) being published in *The Garden* on 11 September 1886: "As peculiar to Ireland, or nearly so, we have . . . *Pinguicula vulgaris* var. *grandiflora* [i.e. *P. grandiflora*], in white, rosy lavender and dark violet forms" ([Burbidge] 1886). Scully (1916) recorded that in Co. Kerry while "colour variants are very rarely met with . . . forms with pure white flowers are . . . occasionally seen and have been gathered in the Gap of Dunloe by *Lady Godfrey* and on the east side of Caragh Lake by *Capt. Creaghe-Haward* . . . pale lilac forms . . . by Mrs. Jenner from the Gap of Dunloe, and are recorded in the *Irish Nat[uralist]* 1906, p. 154, as occurring also on the shores of the Lower Lake, Killarney." No one has reported white-blossomed Kerry Butterwort in more recent decades.

In 1903 *P. grandiflora* was discovered by Professor Ambrose Birmingham at Lisdoonvarna, Co. Clare (Nelson & Walsh 1991), a habitat to the north of the long-known ones in counties Cork and Kerry. In 1949, even further north, near Ballyvaughan, another colony was found (Heslop-Harrison 1949), and in 1973, at about the same latitude, yet another (Roden 1984). These latter colonies, growing in the environs of springs issuing from Carboniferous limestone, are within the region known as The Burren (Webb & Scannell 1983; Nelson & Walsh 1991).

In 1956, D. A. Webb collected a plant of *P. grandiflora* "with very pale, almost white flowers" near Ballyvaughan and sent it to Steiger (1987) – nothing more is recorded about this plant, although Webb & Scannell (1983) reported that "for several years around 1970, a small proportion of the plants . . . had flowers of a very pale lilac colour, but searches in 1974 and 1975 failed to rediscover them."

During the summers of 1989, 1990, and 1991 in one of The Burren populations, white-flowered plants were seen and photographed by the present author, on the first occasion in company with Mr and Mrs J. Leonard. The flowers were entirely white, without any purple or pink marks or tints; however in 1990 a very young bud of one particular plant, just as it began to rise above the rosette, had a light pink flush but this was not apparent on the fully open flowers at anthesis. In 1989 and 1990 plenty of seed was produced and shed by the white-blossomed plants.

Steiger (1987) published a photograph of a series of flowers of *P. grandiflora* variants, including examples named *P. grandiflora* f. *pallida* (Gaudin) Casper and *P. grandiflora* subsp. *rosea* (Mutel) Casper. In f. *pallida* the corolla throat was purple, and in subsp. *rosea* not only was the calyx purple but the corolla throat was lined with darker pink. The white-blossomed Burren examples did not have coloured markings on the corolla and the calyx is entirely devoid of red pigment. A search of the literature (see e.g. Casper 1962, 1966) suggests that no entirely white variant of *P. grandiflora* has been described hitherto. *P. grandiflora* subvar. *albescens* Rouy (1909: "corolle blanche lavée de rose") could be interpreted as including The Burren variant. (Schlauer (1986) listed "*P. grandiflora* Lam. var. *albescens* Rouy" but I can find no trace of any legitimate publication of the combination at varietal level.) However Rouy's subvariety has been relegated to synonymy under *P. grandiflora* subsp. *rosea* (Casper 1962, 1966) which certainly cannot encompass white-flowered plants ("corollae . . . fauce violacea vel pallida violacea-pilosa . . ."; Casper 1962: 85).

To designate the variant with a white corolla as a variety is extravagant, and thus I proposed elsewhere (Nelson & Walsh 1991: 214, 318) that these occasional white-flowered plants should be placed within a distinct form, *P. grandiflora* f. *chionopetra*. I suggest (without having any specimens to confirm the proposition) that f. *chionopetra* may also still occur in Co. Kerry, having been reported from that county before 1903 by Scully (1916).

***Pinguicula grandiflora* Lam. forma *chionopetra* E. C. Nelson forma nova.**

Corolla candidissima, vel aliquando alabastrum novellum colore roseo suffusum; calyx flavovirens nihil rufescens vel purpurascens.

Corolla pure white, or at most the very young unopened flowers tinted pink; calyx yellow-green without red or purple tints.

HOLOTYPE: 35 mm Kodachrome 64 colour transparency (no. 16, 25.05.90; accession number 1991.1) [precise locality withheld], County Clare, 12 May 1990, E. C. Nelson (DBN).

The epithet *chionopetra* is derived from *chion* (snow) and *petra* (rock), alluding to the white flowers and the unique rocky habitat; it is equally appropriate for plants from Co. Kerry should this form be collected there again.

A colour photograph is designated as the holotype because, for conservation reasons, I considered it was unacceptable to remove material from the solitary plant for preservation as an herbarium specimen. This is permissible under the *International Code of Botanical Nomenclature*, Art. 9, whereby an illustration may be a type of an infraspecific name.

REFERENCES

- [BURBIDGE, F. W.] 'Veronica' (1886). The Irish flora . . . *The Garden* 30: 239.  
 CASPER, S. J. (1962). *Pinguicula grandiflora*, in Revision der Gattung *Pinguicula* in Eurasien. *Feddes Repertorium Specierum novarum* 66: 74–87.  
 CASPER, S. J. (1966). *Pinguicula grandiflora*, in Monographie der Gattung *Pinguicula*. *Bibliotheca botanica* 127–128: 163–168.  
 HESLOP-HARRISON, J. (1949). *Pinguicula grandiflora* Lam. in N. Clare. *Ir. Nat. J.* 9: 311.  
 NELSON, E. C. (1987). Who was Veronica of *The Garden*? *Garden History Society Newsletter* 20: 3–4.  
 NELSON, E. C. & WALSH, W. F. (1991). *The Burren. A companion to the wildflowers of an Irish limestone wilderness*. Aberystwyth & Kilkenny.  
 RODEN, C. M. (1984). New stations for *Pinguicula grandiflora* Lam. and *Saxifraga × polita* (Haw.) Link in the west of Ireland. *Ir. Nat. J.* 21: 369.  
 ROUY, G. C. C. (1909). *Pinguicula grandiflora*, in *Flore de France* 11, 199–200. Paris.  
 SCHLAUER, J. (1986). Nomenclatural synopsis of carnivorous phanerogamous plants. A world carnivorous plant list. *Carnivorous Plant Newsletter* 15: 59–117.

SCULLY, R. W. (1916). *Flora of County Kerry*. Dublin.

STEIGER, J. F. (1987). Pale-flowered varieties of *Pinguicula grandiflora*. *Carnivorous Plant Newsletter* 16: 104–105.

WEBB, D. A. & SCANNELL, M. J. P. (1983). *Flora of Connemara and the Burren*. Cambridge.

E. C. NELSON

National Botanic Gardens, Glasnevin, Dublin 9, Ireland

CORKSCREW RUSH (*JUNCUS EFFUSUS* L. FORMA *SPIRALIS* (J. McNAB) HEGI)  
(JUNCACEAE) IN IRELAND AND BRITAIN

Henderson (1992) suggested that the spiral-stemmed variant of *Juncus effusus* L. (Juncaceae), found in western Scotland and the Northern Isles of Scotland, represents a taxon different from the "original", long-cultivated one variously called, in common parlance, Corkscrew Rush, Irish Rush, or Spiral Rush. He also stated, incorrectly, that the latter had only been reported once from the wild.

The corkscrew rush (*J. effusus* var. *spiralis* J. McNab) was first collected by David Bishop (a Scot, one-time curator of Belfast Botanic Garden – see Anon. 1849; Nelson 1984, 1987) in "the wilds of Connemara", western Ireland, before 1849 and not in "Northern Ireland . . . in 1869" as noted by Henderson (1992) repeating McNab's (1873a, 1873b) faulty recollection. The exact date of discovery cannot now be ascertained but Bishop died in 1849, so he must have collected the Corkscrew Rush some time earlier. Indeed, the first report of the variant appeared in an obituary of Bishop (Anon. 1849):

"this extraordinary plant was exhibited at a meeting of the Botanical Society of Edinburgh, from the collection at Dalkeith, by Mr. James M'Nab, and created great interest . . ."

I cannot trace a report of this particular exhibit. Several decades later, in April 1873, James McNab read a brief account of the Corkscrew Rush to the Botanical Society in Edinburgh (McNab 1873a, 1873b), and indicated that it had been on display at the British Association for the Advancement of Science's 1871 meeting in Edinburgh; again I cannot trace any specific mention of the rush's appearance at the Association.

Henderson (1992) separated the western Scottish Spiral Rush from the Irish one by stating that the latter has "quite erect [stems] . . . much more obviously spiral six to eight turns as against two or three [in Scottish plants]", but this is not the case. I have examined living individuals of the Irish Corkscrew Rush, as cultivated in the National Botanic Gardens, Glasnevin, and nursery-grown plants (source unknown) (September 1992); these possessed stems with as many as 14 complete rotations in the spiral, ranging to stems with a single attenuated rotation (the stem was merely curved), as well as erect, untwisted stems. The largest proportion of the spiral stems (50%) had fewer than five rotations; only 33% had 5–9 rotations. The stems projected at all angles, the less spiralled ones tending to spread almost horizontally (i.e. these were suberect) because of the spiral. Thus cultivated plants, propagated vegetatively from long-established Irish stock, do not have the characteristics suggested by Henderson (1992); his variety is dubiously distinct from the cultivated plant.

Several herbarium specimens in the Royal Botanic Garden, Edinburgh (see below), have remarkable corkscrewing stems, but clearly these particular stems were selected because of their form; they do not represent accurately the habit and range of spiralling in the original clone. The earliest illustration of the Corkscrew Rush from Ireland (*The Gardeners' Chronicle and Agricultural Gazette*, 10 May 1873: 647 (McNab 1873a; reprinted in McNab 1873b: 503)) showed a plant with erect and spreading stems, some markedly spiralled but many merely curved (Fig. 1), exactly as in those cultivated plants I have examined. A photograph published by Tutenberg (1905) also clearly displays variation in habit. Those authors presumably had plants derived from Bishop's original collection.

As for Irish populations, Praeger (1934: 406), repeating records of this taxon from Inishturk (Co. Mayo, v.c. H27) off the Connemara coast (Praeger 1907: 123 – "the form with spreading stems was several times observed"), stated that it had

"spreading loosely spiral stems . . . The spiral rush just mentioned would appear to be an Atlantic

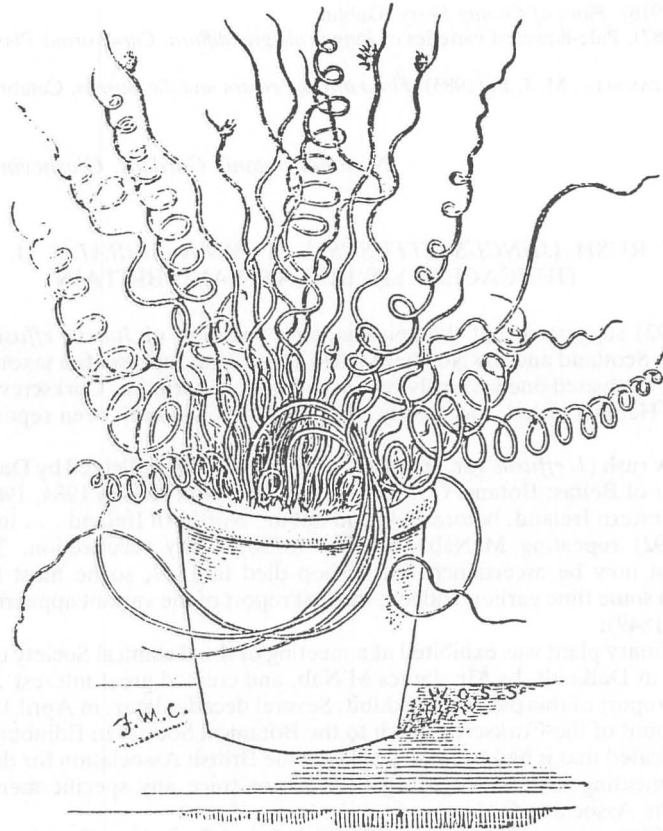


FIGURE 1. Corkscrew Rush, *Juncus effusus* L. forma *spiralis* (McNab) Hegi; illustration published in *The Gardeners' Chronicle and Agricultural Gazette*, 10 May 1873: 647 (designated as neotype herein).

form: it is common on many of the Irish western islands, and is stated to be abundant in Orkney . . .”

Praeger (1934: 424) also repeated records from Inishmurray (Co. Sligo, v.c. H28) –

“Perhaps the most curious plant of the island was a diffuse form of *Juncus conglomeratus* [= *J. effusus*; fide Praeger (1934)], the stems of which, instead of growing erect in a compact clump as usual, spread out at every angle, from horizontal to vertical, giving the whole plant a very strange appearance . . . this curious rush was abundant in damp places with the typical form.” (Praeger 1896: 178)

– and from Achill Island (Co. Mayo, v.c. H27; Praeger 1934: 408) –

“Near Sraheens village occurred a form with widely spreading stems, many of them spirally curved, with several convolutions. I have gathered the same form from Inishmurray, Co. Sligo. Mr Beeby informs me that in Orkney these spiral forms are frequent.” (Praeger 1904: 285)

Spence (1906, 1914, 1919) reported spiral-stemmed *J. effusus* from Orkney (v.c. 111), and Druce (1922: 524) and Scott & Palmer (1987: 343) recorded this variant from Shetland (v.c. 112); the latter authors suggested that the spiralling stems are deformed by wind –

“‘*Juncus effusus* var. *spiralis* McNab’, recorded from various localities by Druce [1922], was surely no more than a wind-blown state with slightly curved stems, not the monstrosity with corkscrew-like stems which James McNab grew . . .”

The Spiral Rush has been recorded in Surrey (v.c. 17) (see list of specimens below, and Leslie 1981), and collected in Carmarthenshire (v.c. 44, see below).



For at least a century, botanists have assigned to McNab's variant all plants of *J. effusus* producing spiral stems. Having examined herbarium material and living plants, I have been unable to detect any difference between the variable Irish original and Henderson's newly described taxon. Perhaps a case can be made on the basis of habit – that western Scottish plants lack any erect stems – but the range of variation within 'populations' of vegetatively propagated plants is so substantial that such an argument could not be justified. I conclude, therefore, that all plants of this species with spiral stems, irrespective of the degree of spiralling or angle of inclination, should be placed, as generally done by previous authors, within the same taxon. Henderson's varietal epithet is deemed unnecessary and is here relegated to synonymy.

The status of the Spiral Rush is debatable. McNab (1873b) and Henderson (1992) reported that seedlings have spiralling stems so it is a distinct genotype. While horticulturists have considered it little more than a cultivar (*J. effusus* 'Spiralis' is then the valid name; cf. Nelson 1984), its occurrence in the wild, especially in western Ireland and Scotland, suggests that it deserves recognition as a botanical variety or form. As the variant is clearly distinguished from the common rush only by its spiral stems, both erect and spreading, I suggest it is best treated as a botanical form; it does not warrant recognition at varietal level.

Hegi (1909: Bd 2: 147, fig. 274) was the first author to employ the epithet 'spiralis' at form level (*Juncus effusus* f. *spiralis*). Hegi did not attribute the epithet to any author and did not cite McNab's original paper, but it is unlikely that he was doing anything other than employing McNab's well-known epithet for the cultivated Irish plant at a revised rank; he was not describing a new taxon. To argue that Hegi was describing a new taxon is unhelpful, because his epithet 'spiralis' becomes illegitimate (Arts. 24. note 1: 64.4) and a new epithet becomes necessary for the form. Praeger (1934: entry no. 406) also used *J. effusus* f. *spiralis*; he did not acknowledge Hegi but did refer to Spence's note (1919) which in turn referred to an earlier account (Spence 1906) that contains explicit mention of McNab's description (1873b). The synonymy may be summarised as follows:

*Juncus effusus* L. forma *spiralis* (J. McNab) Hegi, *Illustrierte Flora von Mittel-Europa*, 1909: Bd. 2(16), 147.

Basionym: *J. effusus* var. *spiralis* J. McNab, *Gard. Chron.* 10 May 1873: 647, fig. 125; *Trans. bot. Soc. Edinb.* 11 (1873): 502–504.

Neotype: [here designated] icon in *Gard. Chron.* 10 May 1873: 647, fig. 125.

Synonym: *J. effusus* var. *suberectus* D. M. Henderson, *Watsonia* 19 (1992): 133–134.

Holotype: Big Sand, Gairloch, W. Ross, v.c. 105, 6 December 1988, *D. M. Henderson* (E!).

#### Other specimens examined:

Sandy edge of site of Frensham Great Pond, Surrey, v.c. 17, [19 August 1943], *A. J. Wilmott* 19430819 (BM); "grouse moor . . . Carmarthenshire Vans", v.c. 44, 12 August 1904, *E. Milner-Jones* (K); Orkney, v.c. 111, 1 September 1906, *M. Spence* (E); Deerness, Orkney, v.c. 111, September 1908, *M. Spence* (BM); Rannsdale, Orphir, Mainland, Orkney, v.c. 111, 10 September 1923, *H. H. Johnston* 2474 (E, BM, K); Sutherland, Flotta, Orkney, v.c. 111, 15 August 1932, *J. Sinclair* 762 (E); Mainland, Shetland, v.c. 112, June 1890, *R. M. Barrington* (DBN); roadside, Lax Firth, Mainland, Shetland, v.c. 112, 27 July 1950, *J. E. Lousley* (K); by burn of Sandibanks, Scalloway, Mainland, Shetland, v.c. 112, 25 July 1950, *J. E. Lousley* (K); near Sraheens, Achill Island, v.c. H27, 30 July 1904, *R. Ll. Praeger* (DBN); boggy place centre of island [Inishtrahull, Co. Donegal], v.c. H34, 16 August 1939, *D. J. Sullivan* (DBN).

#### Cultivated specimens:

Edin[burgh] Bot. Garden, September 1876, *F. M. W.* (E); Botanic Garden [Edinburgh], 1886, (E); Wakehurst Place, Sussex (acc. no. 000–69–19251), 20 July 1980, *S. Andrews* (K); sine loc. ('Herb. Hort. Kew'), Aug. 1881 (K).

#### ACKNOWLEDGMENTS

I must express my gratitude to Arthur Chater, Dr R. K. Brummitt, C. D. Preston and Dr John Edmondson for their helpful comments on a draft of this paper, and to the Royal Botanic Garden,

Edinburgh, the National Museums & Galleries on Merseyside, Liverpool, the Royal Botanic Gardens, Kew, and the Natural History Museum, London, for loans of herbarium specimens.

## REFERENCES

- ANONYMOUS (1849). "Mr David Bishop . . . [obituary]". *Cottage Gardener* 2: 306–307.
- DRUCE, G. C. (1922). Flora zetlandica. *Rep. botl Soc. Exch. Club Brit. Isl.* 6: 457–526.
- HEGI, G. (1909). [*Juncus effusus* f. *spiralis*]. *Illustrierte Flora von Mittel-Europa*. Bd. 2(16): 147, fig. 274. Munich.
- HENDERSON, D. M. (1992). A new spiral variant of *Juncus effusus* L. (Juncaceae). *Watsonia* 19: 133–134.
- LESLIE, A. C. (1981). The flora of Wisley and Ockham Commons, with Chantley Heath, Surrey. *London Naturalist* 60: 21–26.
- McNAB, J. (1873a). Remarks on *Juncus effusus spiralis* and the varieties of ferns. *Gard. Chron.* 10 May 1873: 647.
- McNAB, J. (1873b). Remarks on *Juncus effusus spiralis* and the varieties of ferns. *Trans. bot. Soc. Edinb.* 11: 502–504.
- NELSON, E. C. (1984). [*Juncus effusus* 'Spiralis'] in *An Irish flower garden*, pp. 23–24. Kilkenny.
- NELSON, E. C. (1987). Scottish connections in Irish botany and horticulture. *Scottish Nat.* 1987: 3–31.
- PRAEGER, R. L. (1896). The plants of Inishmurray, Co. Sligo. *Irish Nat.* 5: 177–178.
- PRAEGER, R. L. (1904). The flora of Achill Island. *Irish Nat.* 13: 265–289.
- PRAEGER, R. L. (1907). The flora of Inishturk. *Irish Nat.* 16: 113–125.
- PRAEGER, R. L. (1934). *The botanist in Ireland*, entry number 406. Dublin.
- SCOTT, W. & PALMER, R. (1987). *The flowering plants and ferns of the Shetland Islands*. Lerwick.
- SPENCE, M. (1906). Note on *Juncus effusus*, var. *spiralis*. *Trans. bot. Soc. Edinb.* 23: 233.
- SPENCE, M. (1914). *Flora orcadensis*, p. 78. Kirkwall.
- SPENCE, M. (1919). *Juncus effusus spiralis*. *J. Bot., Lond.* 57: 69.
- TUTTENBERG, F. (1905). *Juncus effusus* var. *spiralis*. *Gartenflora* 54: 406–407, abb. 53.

E. C. NELSON

National Botanic Gardens, Glasnevin, Dublin 9, Ireland