Notes

A SPECIMEN OF *"COCHLEARIA CONFERTA"* IN THE HERBARIUM OF THE UNIVERSITY OF BIRMINGHAM

When examining material of the genus *Cochlearia* in **BIRM**, as part of my work for an MSc dissertation, I came across a specimen named "*Cochlearia conferta*" by E. S. Marshall. This was not a name I was familiar with and which did not occur in *Flora Europaea* (Tutin *et al.*, 1993), Stace (1997), Dalby (in Rich 1992) or any of the editions of CTW. Extensive Internet searches also drew a blank. In the absence of ripe capsules I initially identified the plants as *C. pyrenaica* DC. using the keys in Rich (1992). Subsequent work proved this identification to be incorrect and I felt that a note detailing the background might save others who find this material some nugatory effort as well as putting the name in the public domain for any future Internet searches.

DESCRIPTION

The specimen, consisting of 2 plants on one sheet, was from the Augustin Ley bequest, 1911, and was labelled in manuscript:

"Cochlearia conferta mihi, ined.

Originally from Ben Lawers, VC88, Mid Perth.

Fl garden Milford 9.5.1893

ESM legit E. S. Marshall"

In addition it was stamped "The Botanical Exchange Club of the British Isles. See Report for 1893".

Plant one was some 14 cm tall, plant two around 11 cm tall. The roots of both plants were thick and slightly woody. The basal leaves were orbicular to slightly deltate, having long petioles and their bases truncate or slightly cordate. The basal leaves on plant one were 7·5–9 mm wide while those on plant two were 4–5 mm wide. The lower stem leaves were shortly petiolate, the petiole being about as long as the lamina, deltate to ovate in shape and most having a tooth on each side. The upper stem leaves were a similar shape but had no petioles. They clasped the stem and had minute auricles. The petals were white and 4–4·5 mm long. The plants had unripe, more or less globose fruits, which were 2·5–3 mm in diam and 3–3·2 mm long.

In the "Report" for 1893 (Groves 1894) Marshall says "This is the plant (from Ben Lawers) for which the name *C. arctica*, Fries, has been suggested; but it does not agree with specimens from Th. M. Fries in **BM**. I have cultivated this since 1887, and found it very constant, also coming true from seed. "There is no species name in the report as the editor, J. Groves, said that "… I will not be an accessory to the mischievous practice of publishing names without any valid descriptions." There is, however, a footnote in the report to suggest that Marshall had later described the plant as *C. micacea* in the *Journal of Botany* in 1894.

The *Journal of Botany* for October 1894 contains a description of *Cochlearia micacea* E. S. Marshall (Marshall, 1894) for which Marshall gives the synonym "*C. conferta* mihi, *in sched*" even though the name had not been validly published merely, as indicated, annotated on the herbarium sheet and thus, technically, a nomen nudum. He rejected the name *conferta* as "… being equally applicable to other species (eg *C. alpina* Watson), and have substituted that of *micacea*, since the plant above described has as yet only been detected on micaceous debris near the summits of some of the higher Breadalbane hills." The paper is illustrated by a rather poor figure, which shows pointed basal leaves and rather odd elliptical stem leaves, none of which are petiolate. The rather squat habit depicted is also nothing like the plants on the herbarium sheets and the shape of the ripe fruits not typical. Marshall designates no type but gives the location as Ben Lawers, Am Binnein and Ben Dothaidh. I found that in their report to "Plantlife" on *C. micacea*, Dalby and Rich (1994) also identified this problem and suggest that material from Ben

Lawers, grown in Milford (as the Birmingham specimen was), pressed in 1892 and held in **BM**, be regarded as the type. This would make the cultivated material, rather than the original gathering, the type. There is an illustration of a specimen of *C. micacea* on the **PTH** website with the suggestion that this is the type. In fact, what Perth Museum have is a series of duplicates of the cultivated Marshall material plus some sheets of specimens from Am Binnen and The Cairnwell (M. J. Simmonds, **PTH**, pers comm 2003).

C. micacea is a member of the *C. officinalis* L. complex which is notoriously variable. Dalby (in Rich 1992) says that taxa in this group "… form a very complex group where species limits are not easily drawn, and authors do not agree on the number present in Britain and Ireland". Indeed, although *C. micacea* is generally recognised as a "good" species in this country (eg by Stace 1997), it still only merits a footnote under *C. pyrenaica* in both editions of *Flora Europaea* (Chater & Heywood in, Tutin *et al.* 1964, Wyse Jackson & Akeroyd in, Tutin *et al.* 1993). Marshall himself admits that the species might be confused with *C. alpina* (= *C. pyrenaica*) and says, "Dried flowering specimens of the two are not always readily separable…" (Marshall 1894). It is a pity then that the material in the herbarium specimen does not show well formed ripe fruit which, together with the unique 2n=26 chromosome number (not available in dried material!), are the diagnostic features of the plant (Dalby in Rich 1992); certainly in fully mature herbarium specimens the shape of the fruit is very distinctive. Presumably Marshall was content to name his distributions to the Botanical Exchange Club on the strength of his knowledge of the plant's origin despite the fact that they are poor examples of the species. Given this, it is, I believe, appropriate to treat specimens named *C. conferta* nom. nud. as *C. micacea* E. S. Marshall.

ACKNOWLEDGMENTS

I would like to thank Dr Tim Rich and Sarah Whild for valuable comments on the manuscript. In addition I would like to thank Dr Richard Lester and Sarah Whild for access to specimens, the Herbarium of the National Museum and Art Gallery, Liverpool for help with historic literature, the Perth Museum and Art Gallery for records of *"C. conferta"* and *C. micacea* and "Plantlife" for a copy of Dalby and Rich's report.

REFERENCES

DALBY, D. H. & RICH, T. C. G. (1994). *The history, taxonomy, distribution and ecology of Mountain scurvy-grass (*Cochlearia micacea *Marshall)*. Plantlife project report no.94.

GROVES, J. (1894). Cochlearia. *The Botanical Exchange Club of the British Isles, Report* **1893**: 401.

MARSHALL, E. S. (1894). On an apparently undescribed *Cochlearia* from Scotland. *Journal of Botany* **32**: 289–292.

DALBY, D. H. (1992). *Cochlearia officinalis* group, in RICH, T. C. G. *Crucifers of Great Britain and Ireland*: 264–273. Botanical Society of the British Isles, London.

STACE, C. A. (1997). *New Flora of the British Isles*, 2nd Ed. Cambridge University Press, Cambridge.

CHATER, A. O. & HEYWOOD, V. H. (1964). *Cochlearia*, in TUTIN, T. G. *et al*., eds., *Flora Europaea* **1**: 313–314, 1st Ed. Cambridge University Press, Cambridge.

WYSE JACKSON, P. S. & AKEROYD, J. R. (1993) *Cochlearia*, in TUTIN, T. G. *et al.*, eds., *Flora Europaea* **1**:378–380, 2nd Ed. Cambridge University Press, Cambridge.

M. F. GODFREY
6, Darnford Close, Parkside, Stafford, ST16 1LR

CAREX MURICATA L. SUBSP. *MURICATA* (CYPERACEAE) IN SHROPSHIRE

Carex muricata subsp. *muricata* is listed by Wigginton (1999) as Critically Endangered in Britain. Foley & Porter (2000) reported that it had been recorded in no more than eight sites prior to its discovery in Shropshire (v.c. 40) in 1999 (Whild & Lockton 1999), and that at all those sites it was either extinct or the population size was very small. Since then a second site in Shropshire has been discovered (Lockton 1999, 2000). Both have sizeable populations. Details of these sites are given below, together with some observations on its ecology.

JONES'S ROUGH

This is a small (4·3 ha) Shropshire Wildlife Trust reserve situated at SJ247247, on a south-western facing slope near the eastern end of the hill called Moelydd, near the village of Nantmawr in the parish of Oswestry Rural in Shropshire. It comprises several formerly enclosed, steeply-sloping parcels of land between 185–225 m OD. At the top of the reserve is a low cliff, below which there are several patches of natural Carboniferous limestone block scree covering a few hundred square metres of slope.

The reserve is now largely woodland and scrub, but the 1901 Ordnance Survey map shows the area as rough grazing. On the lower slopes there is a stand of Yew, *Taxus baccata*, which makes up a small area of mature woodland that seems to be of the N.V.C. community W13 *T. baccata* woodland, although this is outside the range given for this community in Rodwell (1991). The remainder is W8 *Fraxinus excelsior–Acer campestre-Mercurialis perennis* woodland, in various stages of succession towards high forest.

Only on the screes and the cliffs is there any grassland remaining, which is closest in character to CG2 *Festuca ovina-Avenula pratensis* community (although Meadow Oat-grass, *Helictotrichon pratensis*, does not occur in Shropshire (Lockton & Whild 1997)). This is where *Carex muricata* subsp. *muricata* was discovered by one of us (S.J.W.) on 15 May 1999, whilst undertaking a survey of the reserve on behalf of the Wildlife Trust. The identification was subsequently confirmed by A. O. Chater, D. A. Pearman and A. C. Jermy, and specimens have been deposited at **BM**, **LTR** and **NMW**. The population at this site was estimated in June 2002 to number some 350 individual plants. The total area occupied by the sedge is approximately 10×10 m, and it does not appear to occur elsewhere on the reserve, even in apparently similar habitats.

The grassland at Jones's Rough is maintained by rabbit grazing and, occasionally, by a few sheep that escape through the fence from the fields above. This grazing pressure is insufficient to prevent the development of scrub, even in the dry soil on the block scree, and there is evidence of the gradual encroachment of the woodland from below and to the sides of the clearing where the sedge occurs. Species closely associated with *Carex muricata* include *Festuca ovina*, *Helianthemum nummularium*, *Briza media* and, most noticeably, a dwarf form of *Silene dioica* which regularly appears in close proximity to it. Patches of sedge are found immediately below yew trees, in areas of bare soil, and the largest clumps occur where these yews have been pollarded during the last five years.

MOELYDD

Beyond the western edge of the reserve is an open expanse around the summits of Moelydd (SJ2425), an area of grassland and bracken of about 35 ha, rising to an altitude of 285 m. Apart from a few enclosed fields within and around the hill, the area is owned by an estate based in the nearby village of Nantmawr, and managed as a mountain bike centre, with made and unmade tracks dissecting the grassland. There are moderate levels of sheep grazing, which maintains an open sward throughout, but there is little evidence of agricultural improvement.

Carex muricata subsp. *muricata* was tentatively recorded here by C. Walker of English Nature in 1999. On 18 June 2000, we set out to identify and map this species, which indeed turned out to be the rare subspecies (conf. Pearman & Chater, **BM**). Subsequently on 14 June 2002, a group from the B.S.B.I. and the Shropshire Botanical Society mapped its precise distribution. In total, 15 separate localities have been identified, mostly on the north-eastern side of the hill. A rough estimate of the number of plants is 1000 (Lockton 2002).

The habitat of *C. muricata* subsp. *muricata* at Moelydd is in some ways different to that at Jones's Rough. Few of the populations are on natural screes; most are in grassy pits 3–5 m in diameter and 1–2 m deep. Each pit is surrounded by limestone spoil of irregular lumps with a main axis of 0·1–0·5m. The origin of the pits is uncertain, but they are considered by the University of Birmingham archaeologist Roger White (pers. comm.) to be of great antiquity, possibly resulting from copper extraction in Roman times. The sedge occurs either on the lip of these pits or in the base. In several locations it also occurs on the edges of tracks, probably in locations where there were formerly pits.

As at Jones's Rough, the *C. muricata* grows in close association with the dwarf *Silene dioica* in CG2 grassland, a community that is not typical of the sward at Moelydd, which is generally more acidic in character.

TABLE 1. VEGETATION SAMPLES FROM JONES'S ROUGH AND MOELYDD. EACH QUADRAT WAS 2 X 2M SQUARE. ABUNDANCE IS GIVEN USING THE DOMIN SCALE. Q1: JONES'S ROUGH, SJ247247, 5 JULY 1999. Q2: JONES'S ROUGH, SJ247247, 21 MAY 2001. Q3: MOELYDD, SJ244252, 18 JUNE 2000.

Species	Quadrat		
	Q1	Q2	Q3
Tortella tortuosa	3	3	-
Climacium dendroides	-	-	1
Homalothecium lutescens	4	-	-
Scleropodium purum	-	1	-
Rhytidiadelphus squarrosus	-	-	5
Pteridium aquilinum	-	-	1
Arenaria serpyllifolia	1	-	-
Cerastium fontanum	3	6	3
Silene dioica	-	4	2
Rumex acetosella	-	-	4
Rumex acetosa	-	2	-
Helianthemum nummularium	7	-	-
Prunus spinosa	5	-	-
Anthyllis vulneraria	4	-	-
Lotus corniculatus	2	-	-
Trifolium repens	-	-	2
Linum catharticum	3	-	-
Pimpinella saxifraga	-	2	-
Teucrium scorodonia	1	4	-
Thymus polytrichus	4	3	3
Plantago lanceolata	4	5	4
Campanula rotundifolia	-	2	-
Galium verum	3	-	3
Centaurea nigra	1	-	-
Pilosella officinarum	3	-	-
Bellis perennis	2	-	-
Achillea millefolium	3	-	-
Carex muricata subsp. *muricata*	2	7	5
Carex flacca	2	-	-
Carex caryophyllea	2	-	2
Festuca rubra	-	-	1
Festuca ovina	8	6	9
Briza media	5	-	-
Poa pratensis	2	-	-
Arrhenatherum elatius	-	2	-
Trisetum flavescens	3	-	-
Bromopsis erecta	4	-	-

Correlation with CG2d using Match (Malloch 1997): 50·1%

DISCUSSION

At present the conditions at the two Shropshire sites for *C. muricata* subsp. *muricata* appear to be ideal. A large proportion of the known British population is present there, and it appears to be thriving. Both sites are to be incorporated into a new S.S.S.I. However, it does not necessarily follow that maintaining the present conditions will guarantee its long-term survival. At some other sites in Britain inappropriate management has led to a decline in populations sizes leading inexorably towards extinction (David & Kelcey 1985; Foley & Porter 2000), but at Minera in Denbighshire tree clearance has increased the population from two clumps to some 320 since 1999 (J. A. Green, pers. comm.). The problem seems to be in maintaining habitats at an early stage of succession: allowing tree cover to develop leads to too much shade, whereas cutting back the trees leads to excessive ground cover. Devising management plans for very rare species is often difficult because of the lack of examples from which to draw conclusions. Hopefully the populations in Shropshire are large enough to enable a detailed study and some experimental management, which may lead to better protection for this rare species at its other sites.

ACKNOWLEDGMENTS

We would like to thank Arthur Chater, Clive Jermy and David Pearman for identifying specimens and providing field observations. Shropshire Wildlife Trust and Caroline Williams have frequently allowed us access to their land. Members of the Shropshire Botanical Society helped with the monitoring visit. The original survey by Whild Associates on behalf of the Shropshire Wildlife Trust was sponsored by the Heritage Lottery Fund.

REFERENCES

DAVID, R. W. & KELCEY, J. G. (1985). Biological Flora of the British Isles, 159. *Carex muricata* L. aggregate. *Journal of Ecology* **73**:1021–1039.

FOLEY, M. J. Y. & PORTER, M. S. (2000). *Carex muricata* L. subsp. *muricata* (Cyperaceae) – a review of its present status in Britain. *Watsonia* **23**: 279–286.

LOCKTON, A. & WHILD, S. J. (1997). *Rare Plants of Shropshire*, 2nd ed. Shropshire Flora Group, Shrewsbury.

LOCKTON, A. J. (1999). New Records. *Shropshire Botanical Society Newsletter* **2**:3–4.

LOCKTON, A. J. (2000). Rare Plants. *Shropshire Botanical Society Newsletter* **4**:6.

LOCKTON, A. J. (2002). Reports on Field Meetings. *Shropshire Botanical Society Newsletter* **7**:8–9.

MALLOCH, A. J. C. (1997). *Match 2.1– a computer program to aid the assignment of vegetation data to the communities and sub-communities of the National Vegetation Classification*. University of Lancaster.

WIGGINTON, M. J. (ed.) (1999). *British Red Data Books 1: Vascular Plants*, 3rd ed. Joint Nature Conservation Committee, Peterborough.

RODWELL, J. S. (ed.) (1991). *British Plant Communities, Vol. 1: Woodlands and Scrub*. Cambridge University Press, Cambridge.

RODWELL J. S. (1992). *British Plant Communities, Vol. 3: Grasslands and montane communities.* Cambridge University Press, Cambridge.

WHILD, S. J. & LOCKTON, A. J. (1999). *A botanical survey of Jones's Rough Nature Reserve*. Report to Shropshire Wildlife Trust by Whild Associates, Shrewsbury.

S. J. WHILD
School of Biosciences, University of Birmingham, B15 2TT

A. J. LOCKTON
Whild Associates, 66 North Street, Shrewsbury, SY1 2JL

A NEW HYBRID BINOMIAL IN *NARCISSUS* L.

Many of the numerous hybrids in the genus *Narcissus* L. have hybrid binomials, and recently, to ensure that binomials were available for all the hybrids naturalised in Great Britain and Ireland, Sell & Murrell (1997) published names for *N. cyclamineus* DC. × *N. moschatus* L. (*N.* × *dichromus* P. D. Sell) and *N. cyclamineus* DC. × *N. pseudonarcissus* L. (*N.* × *monochromus* P. D. Sell). It is now apparent that another hybrid of *N. cyclamineus* lacking a binomial is naturalised in West Kent and in Cardiganshire, and probably in many other areas. This is *N. cyclamineus* DC. × *N. tazetta* L., of which the naturalised populations mostly belong to the cultivar 'Tête à Tête', currently the most widely grown of all miniature daffodils in Britain. The story of the breeding of this cultivar by the daffodil grower Alec Gray is well known (Gray 1965, 1985; Wells 1989; etc.). In the early 1920s a hybrid between *N. cyclamineus* and the cultivar known as 'Soleil d'Or' occurred in A. W. Tait's garden in Portugal and the resulting plants were given the name 'Cyclataz'. Whether this occurrence was natural or the result of a deliberate cross is uncertain, and Gray's two accounts differ in some details. 'Cyclataz' is a normally sterile diploid (2n = 17), but in the late 1940s Gray found a single capsule on one of his plants of it which contained three seeds, and these developed into plants to which in due course he gave the cultivar names 'Tête à Tête', 'Jumblie' and 'Quince', all of which are triploids (2n = 24) (Brandham 1992). Gray says that "the history of 'Soleil d'Or' is shrouded in mystery. It is generally held that it is of North African origin, but as far as I know it has never been found wild there". Bowles (1934) and Kington (1998) consider that 'Soleil d'Or', which was in existence in the early eighteenth century, was possibly derived from *N. bertolonii* Jordan. Blanchard (1990) agrees, but mentions a belief by Moggridge that it is the same as *N. aureus* Loisel. At all events, there is general agreement that it belongs within *N. tazetta* L. as circumscribed by Webb (1980) whom we follow in this respect, and who gives *N. bertolonii* Jordan as a synonym of *N. tazetta* subsp. *aureus* (Loisel.) Baker (*N. aureus* Loisel). The description that follows is of 'Tête à Tête'; as in many such cases where various cultivars of a hybrid exist, it would be difficult to provide a description covering all the variation, especially as the origins of some of the cultivars are uncertain. The holotype is also this cultivar, and was kindly made available by Lady Skelmersdale from the Broadleigh Gardens, Taunton, which holds the national collection of Alec Gray miniature daffodils. Illustrations of 'Tête à Tête' can be found in many works, including Gray (1965, fig. 165), Wells (1989, p.126) and Phillips & Rix (1989, p.126, fig. g). So far as is known it is always sterile, and its dispersal in the wild must be by disturbance of the bulbs.

Narcissus × ***cyclazetta*** Chater & Stace, **hybr. nov.**
(*Narcissus cyclamineus* DC. × *N. tazetta* L.)

HOLOTYPUS: Broadleigh Gardens, Bishops Hull, Taunton, Somerset, v.c. 5, ST195250, 27 February 2003, A. O. Chater. **BM**.
Isotypes are in **LTR** and **NMW**.

Hybrida inter *Narcissum cyclamineum* DC. et *N. tazettam* L., characteribus inter parentes intermedia: caules 15–25 cm; folia grandiora 8–15(–25) mm lata, magis minusve plana; flores 1–2 (–3) in umbella; tubus hypanthialis 11–14 mm, conicus; tepala 13–20 mm, patentia vel aliquantum reflexa, lutea; corona 11–19 mm, lateribus rectis vel ad orem leviter dilatata, perlutea.

Bulb c. 3·5 × 3 cm, ovoid, with orange-brown scales. Stems 15–25 cm, c. 7 mm wide near base, 4·5–5 mm wide near apex, slightly flattened with 2 sharp angles and several ribs. Larger leaves 15–20(–25) cm × 8–15 mm, more or less flat, mid-green, not twisted, obtuse. Flowers 1–2(–3) per stem, held horizontally, scented. Spathe 5–5·5 cm. Pedicels 2–6 cm, 2–3 mm thick, straight, subterete. Ovary in flower 9–12 × 5–6 mm, dark green. Hypanthial tube 11–14 mm, c. 4 mm wide at base, c. 10 mm wide at apex, conical, slightly concave-sided, yellowish-green. Tepals 13–20 × 10–15 mm, ovate-elliptic, overlapping only slightly at base, acute, patent or more often slightly reflexed, yellow (R.H.S. 8A). Corona 11–19 × 11–17 mm, straight-sided or slightly widened at mouth, somewhat fluted, crenate-dentate at rim, deep, almost orange-yellow (near R.H.S. 14B). Stamens all the same length, the free part 13–14 mm, the anthers 6–6·5 mm and reaching nearly half-way up the corona.

ACKNOWLEDGMENTS

We would like to thank Philip Oswald for translating the diagnosis into Latin, and Sally Kington for advice and references.

REFERENCES

BLANCHARD, J. W. (1990). *Narcissus. A guide to wild daffodils*. Alpine Garden Society, Woking.
BRANDHAM, P. (1992). Chromosome numbers in *Narcissus* cultivars and their significance to the plant breeder. *The Plantsman* **14**: 133–168.
BOWLES, E. A. (1934). *A handbook of Narcissus*. Martin Hopkinson, London.
GRAY, A. (1965). Small hybrid daffodils. *Journal of the Royal Horticultural Society* (*London*) **90**: 372–381, figs. 160–170.
GRAY, A. (1985). The history of 'Tête è Tête'. *The Royal Horticultural Society daffodil yearbook* **1985–6**: 13–15 (1985).
KINGTON, S. (1998). *The international daffodil register*. Royal Horticultural Society, London.
PHILLIPS, R. & M. RIX (1989). *Bulbs*, revised ed. Pan Books, London.
SELL, P. D. & MURRELL, G. (1997). *Flora of Great Britain and Ireland* **5**: 285–293. Cambridge University Press, Cambridge.
WEBB, D. A. (1980). *Narcissus*, in TUTIN, T. G. *et al.*, eds., *Flora Europaea* **5**: 78–84. Cambridge University Press, Cambridge.
WELLS, J. S. (1989). *Modern miniature daffodils*. Timber Press, Portland, Oregon.

A. O. CHATER
Windover, Penyrangor, Aberystwyth SY23 1BJ

C. A. STACE
Department of Biology, University of Leicester, Leicester LE1 7RH

THE TYPIFICATION AND CORRECT CITATION OF THE NAME *GERANIUM PURPUREUM* VILL. SUBSP. *FORSTERI* (WILMOTT) H. G. BAKER

INTRODUCTION

Geranium purpureum Vill. is an early-flowering annual similar in appearance to *G. robertianum* but with much smaller petals, more strongly ribbed fruits and a somatic chromosome number of 32 (instead of 64). It is abundant in the Mediterranean region and beyond and is a rare and very local plant of the Channel Isles, southern England and southern Ireland, usually on the coast (for map see Baker, 1955).

HISTORY

Specimens from the South Hampshire locality of Stokes Bay (sometimes written Stoke's Bay), collected by William Borrer, were the subject of a coloured engraving published in 1830 in J. E. Smith, *Sowerby's English Botany, Supplement 1*, edited by W. J. Hooker. The plate was numbered 2648, and the subject was named *G. purpureum* Vill. The account of this plant was written by T. F. Forster, who had died in 1825. He stated that *G. purpureum* had been long known as a British plant, and treated as a distinct species until Hudson united it with *G. robertianum* (as an unnamed variety). Forster had observed it over many years in his garden without its undergoing alteration. He concluded that Villars was right to treat it as a species. (The name of his brother, E. Forster, who survived him, appears at the end of the account.) Nevertheless, in Sowerby (*op. cit.*), ed. 3b, vol. 2 (1864) (editor J. T. Boswell or J. T. I. Boswell-Syme), the same plate appeared, now as tab. CCCVI, with a cross-reference to its previous appearance), but the taxon was presented as a

variety of *G. robertianum* (p. 204). (Sowerby's *English Botany* has a very complicated history of publication.)

Syme said that the plate in *English Botany Supplement* was the source of confusion in this group for much of the 19th century whereas Wilmott (1921) blamed the confusion on Syme. Baker (1955) did likewise, adding that British authors misapplied the name *G. purpureum* to the prostrate maritime populations of *G. robertianum*, a mistake that could not really be attributed to the re-appearance of this plate that clearly shows the small flowers of *G. purpureum*.

In the early part of the 20th Century it became apparent that there were two variants of *G. purpureum* in the British Isles, an erect-growing one and a prostrate one. The first hint of this was given by Evans (1920). He had grown *G. purpureum* from various sources, but remarked that doubt attached to specimens collected by J. E. Little on the coast near Bognor, in West Sussex (between Littlehampton and Bognor, 20.ix.1913, Bot. Soc. Exch. Club distribution, specimen in **CGE**). A. J. Wilmott went especially to the Sussex site in 1919 and collected specimens. In the very detailed paper written afterwards (Wilmott 1921) he distinguished the prostrate variant as *G. purpureum* var. *forsteri*, with a Latin diagnosis. Wilmott recognized William Borrer's material from Stokes Bay as also belonging to the new variety. *G. purpureum* var./subsp. *purpureum* is absent from the Hampshire sites and seems to have been recorded at only two Sussex sites, one of which was lost long ago (Baker 1955). Small groups of *G. purpureum* now surviving in Sussex require subspecific identification (Yeo 2003).

NOMENCLATURE

The name for the prostrate variety was proposed as "*G. purpureum* var. *forsteri* Wilmott, *nomen novum*", based on "*G. purpureum* T. F. Forster". As the latter name does not exist (see paragraph 2) the *nomen novum* does not exist either. We have to regard Wilmott's action as that of proposing a new taxon, a "*varietas nova*". Wilmott provided plenty of descriptive matter to validate the publication of this name. Probably because he thought he was not publishing a new taxon he did not designate a type, but he mentioned specimens that can be regarded as syntypes and from which a lectotype can be chosen.

Baker (1955), in a thorough survey, proposed to raise the rank of the British taxon to that of subspecies. His comments provide some help in choosing a lectotype. The correct citation and my lectotypification are as follows:

Geranium purpureum Vill. in L., Systema Plantarum Europae **1**, Flora Delphinalis 72 (1786).

Geranium robertianum L. var. *purpureum* (Vill.) DC., *Flore Française* **4**: 853 (1805)

Geranium purpureum subsp. *forsteri* (Wilmott) H. G. Baker, *Watsonia* **3**: 165 (1955)

BASIONYM *G. purpureum* Vill. var. *forsteri* Wilmott, *Journal of Botany* **59**: 95 (1921)

TYPE "Geranium purpureum Forster", Sussex: shingle beach near Middleton, A. J. Wilmott, 1919, LECTO., designated here, and ISOLECTO. (4 additional sheets, with minor differences of wording) **BM**.

Geranium purpureum Vill. var. *purpureum* (autonym)

Geranium purpureum Vill. subsp. *purpureum* (autonym)

TYPIFICATION

Baker (1955) referred to syntypes at Kew (**K**) and the Natural History Museum, London (**BM**), and a 'type' at the latter (though he did not actually designate a lectotype). He also said that Clymping (i.e. Climping, W. Sussex, also called Middleton) was the type locality. It seems he considered that one of Wilmott's specimens from Middleton (1919) should be the type (lectotype). There are five such specimens in **BM** and in 1999 I found that they and other specimens connected with Forster had been labelled as syntypes of *G. purpureum* var. *forsteri* Wilmott. On one

specimen from Hampshire and one of those from Middleton Wilmott himself has written this name followed by 'mihi'. To the latter a copy of Wilmott's diagnosis has been attached, suggesting that this is the one that Baker thought of as a lectotype. However, it is derived from W. C. Barton's herbarium, and consists of three fragments, so is less suitable for selection as a lectotype than the one I have chosen (under the previous heading). The lectotype and isolectotype have been bar-coded as type material by the Museum.

Specimens of this taxon collected by William Borrer at the South Hampshire locality of Stokes Bay have also been potential lectotypes and one has been bar-coded by the Museum. They are important because they were the subject of the coloured engraving published in the 1830 supplement to Sowerby's *English Botany*, cited in paragraph 2.

ACKNOWLEDGMENTS

I am grateful to the authorities in charge of the herbaria at the Natural History Museum, London, (**BM**) and Royal Botanic Gardens, Kew, (**K**), for access to the collections. I am also grateful to Professor John Parker, Director of the University Botanic Garden, Cambridge, and his predecessor, Dr Donald Pigott, for facilitating my work during and after my employment there. The late Mr Paul Bowman and Dr Francis Rose kindly took me to some relevant sites in Hampshire and Sussex. I am grateful to Peter Sell for improving the wording of my discussion of types.

REFERENCES

BAKER, H. G. (1955). *Geranium purpureum* Vill. and *G. robertianum* L. in the British flora I. *Geranium purpureum*. *Watsonia* **3**: 160–167.

EVANS, A. H. (1920). On *Geranium purpureum* and *G. robertianum*. *Report Botanical Exchange Club British Isles* **5**: 724–729.

WILMOTT, A. J. (1921). *Geranium purpureum* T. F. Forster. *Journal of Botany* **59**: 93–101.

YEO, P. F. (2003). The taxonomic and conservation status of *Geranium purpureum* subsp. *forsteri* (Wilmott) H. G. Baker. *BSBI News* **93**: 30–33.

P. F. YEO
71 Grantchester Meadows, Cambridge, CB3 9JL

OBSERVATIONS ON *BROMOPSIS BENEKENII* (LANGE) HOLUB IN BRITAIN

Bromopsis benekenii (Lange) Holub is a Eurasian grass that is closely related to *Bromopsis ramosa* (Huds.) Holub, and Britain is on the western edge of its range. Stewart *et al*. (1994) list *B. benekenii* as a Nationally Scarce plant in Britain. In southern Britain the grass is found in or near deciduous woodland (mainly *Fagus*} on shallow calcareous soils and frequently growing near *B. ramosa*. In northern Britain it occurs in rocky gorges and ravines.

Some botanists have often found it difficult to distinguish *B. benekenii* from *B. ramosa*. This is not a new problem. Although W. Hudson described *B. ramosa* in 1762, it was not until 1871 that J. Lange described *B. benekenii*. Acedo & Llamas (1999) have pointed out that the autonomy of *B. benekenii* was not clear because Lange's material and protologue of *B. benekenii* coincided with those that define *B. ramosa*. In Britain, Stace (1997) suggested that the distinction between the two species needed investigation and this study endeavours to do this.

European Floras use similar characters to separate the two taxa and the following couplets in *Flora Europaea*, (Smith, 1980), are typical:

"Panicle large, very lax; branches long, nodding, with pendent spikelets; lowest panicle-node with 2 branches, each with several spikelets; scale at lowest panicle-node ciliate ..... *B. ramosa*"

"Panicle lax; branches and spikelets patent; lowest panicle-node with 3–5 branches, some with one spikelet; scale at lowest panicle-node not ciliate ..... *B. benekenii*"

Sixty-one specimens of *B. benekenii* (54 from herbaria) and 192 specimens of *B. ramosa* (157 from herbaria) were examined. All had been collected in Britain. 39 of the 61 specimens of *B. benekenii* were selected as definitely being *B. benekenii*. These specimens, which had also been determined as *B. benekenii* by H. J. M. Bowen (1), A. Copping (1), C. E. Hubbard (10), A. Melderis (11), E. W. B. H. Milne-Redhead (1), R. C. Palmer (1), or T. C. G. Rich (14), were used in a comparative morphological study with *B. ramosa*.

The number of panicle branches at the lowest panicle-node and the number of spikelets on each branch from the lowest panicle-node were counted, and the resultant data are in Table 1. From these data it was concluded that the number of panicle branches at the lowest panicle-node and also the number of spikelets on each branch from the lowest panicle-node were not reliable to separate the two taxa in Britain and therefore should be considered, at best, as only secondary indicative characters.

TABLE 1. PANICLE STRUCTURE OF *B. BENEKENII* AND *B. RAMOSA*

	B. ramosa	*B. benekenii*
No. of branches at lowest panicle-node	%	%
1	10·1	12·9
2	86·4	59·1
3	3·5	10·2
4	–	12·8
5	–	2·4
6	–	2·6
Flora Europaea:	"two branches"	"3 to 5 branches"
This study:	86·4%	72% not so
No. of spikelets on each branch at lowest panicle-node	%	%
1	14·3	39·8
2	21·4	35·7
3	25·0	13·3
4	12·5	8·2
5	17·8	1·0
6	–	–
7	5·4	2·0
8	–	–
9	1·8	–
10	1·8	–
Flora Europaea:	"each with several spikelets"	"some with one spikelet"
This study:	35·7% with only one or two	60·2% not so
Shape of 'scale'	%	%
Scale	–	12·5
Collar	26·5	82·4
Culm edge	73·5	5·1
Indumentum of culm edge	%	%
Glabrous	2·0	56·2
A few cilia	24·6	26·4
Several cilia	73·4	17·4
Flora Europaea:	"ciliate"	"not ciliate"
This study	98%	cilia found in 43·8%

According to most Floras, there is a scale at the lowest panicle-node which is ciliate in *B. ramosa* but not ciliate in *B. benekenii*. Maire (1955) described the 'scale' as a rudimentary bract and Tzvelev (1976) as an upper leaf rudiment. Some British botanists have been unable to find this 'scale' and a reason for this became apparent in the present study. In most of the British specimens of *B. benekenii* examined the 'scale' was reduced to a narrow collar (white in dried material). In most specimens of *B. ramosa* even the collar was absent, but there were often several cilia on the upper edge of the culm at the node (Table 1). The cilia were very thick and varied widely in length and were quite different from the hairs on the adjacent culm and rhachis. Some cilia were present on the edge of the culm at the lowest panicle-node in 98% of the specimens of *B. ramosa*. In 82·6% of the specimens of *B. benekenii* the culm-edge was either glabrous or with only a few cilia, but in 17·4% there were several cilia. It was concluded from these data that the absence of cilia was strongly indicative of *B. benekenii*, but if cilia were present, this became a secondary indicative character that depended on the number of cilia present.

Some botanists are confident that they can distinguish the two taxa by their general appearance and this was probably the main character used by the botanists, named earlier, to determine specimens as *B. benekenii*. In this study most mature specimens could be distinguished by:

A tall robust grass. Upper leaf-sheath usually with long soft hairs. Panicle very lax and wide spreading, with long patent branches, eventually drooping with pendent spikelets. Several thick cilia usually present on the edge of the culm at the lowest panicle-node .....*B. ramosa*

A shorter less robust grass. Upper leaf-sheath usually with minute patent hairs (30×). Panicle lax, narrow and erect; with shorter panicle branches often swept to one side, drooping at maturity. Thick cilia usually absent (or only a few) on the edge of the culm at the lowest panicle-node ..... *B. benekenii*

However, the separation of these two taxa before maturity was not possible, as some immature specimens of *B. ramosa* resembled *B. benekenii* and indeterminates were found.

It is interesting that these taxa in Britain differ from the description in European Floras. As Britain is on the western edge of the range of these species, it is possible that panicle branching, the number of spikelets, and the absence of 'scales' at the lowest panicle-node may have been affected by the British wet atlantic climate with its mild winters. It is also possible that this may have occurred in other *Bromus* taxa. In a separate study of 136 specimens of *Bromus hordeaceus* subsp. *ferronii* from many herbaria, it was found that all but two of the specimens had been collected on the West and South Coasts of Britain and there was only two from the East Coast. This distribution was also reported by Perring (1978). In Britain, *Bromus commutatus* var. pubens is the more frequent variety and much of the *Bromus secalinus* here is var. *hirtus*. These two varieties are very rare, nearly absent, in Germany (H. Scholz, pers. comm. 2001), in France (Portal 1995), in Iberia (Acedo & Llamas 1999), in Sweden (G. Holmstrom, pers. comm. 2002) and in the former Soviet Union (Tzvelev 1976).

Seed or roots of British *Bromopsis benekenii* are sought for isozyme analyses and new chromosome counts.

ACKNOWLEDGMENTS

I thank Arthur Copping, Tim Rich and Clive Stace for valuable comments on an earlier draft of the manuscript, the curators of **E**, **K**, **LTR**, **NMW**, **OXF**, and **RNG** for the loan of specimens from their herbaria and the many botanists who have sent me specimens of *Bromeae*. I hope that they will continue to do so.

REFERENCES

ACEDO, C. & LLAMAS, F. (1999). *The genus* Bromus *L. (Poaceae) in the Iberian Peninsula*. J. Cramer, Berlin.
HUDSON, W. (1762). *Bromus* L., in *Flora Anglica* **3**. London.
LANGE, J. (1871). *Schenodorus benekenii* in Flora Danica. Hanniae.
MAIRE, R. (1955). *Flore de 1 'Afrique du Nord* **3**. Paul Chevalier, Paris.

PERRING. F. H. (1978). *Critical Supplement to the Atlas of the British Flora*. Botanical Society of the British Isles, London.
PORTAL, R. (1995). *Bromus de France*. 16 Rue Louis Brioude, 43750 Vals-pres-Le Puy, France.
SMITH, P. M. (1980). *Bromus,* in TUTIN, T. G., *et al.*, eds., *Flora Europaea* **5**. Cambridge University Press, Cambridge.
STACE, C. A. (1997). *A New Flora of the British Isles*, 2nd ed. Cambridge University Press, Cambridge.
STEWART, A., PEARMAN, D., & PRESTON, C. D. (1994). *Scarce Plants in Britain*. Joint Nature Conservation Committee, Peterborough.
TZVELEV, N. N.(1976). *Grasses of the Soviet Union*. English translation by A. A. Balkema, Rotterdam.

L. M. SPALTON
6 Marine Parade, Budleigh Salterton, Devon EX9 6NS