

Short Notes

HIERACIUM BRITANNICUM F. J. HANB. IN WALES

This taxon was described by Hanbury (1892). The description is clear, and conveys an accurate image of the plant that at the present time grows commonly on limestone rocks in Derbyshire. The distribution given by Hanbury (1892) mentions three vice-counties: Derbys. (v.c. 57), Staffs. (v.c. 39), and Mid-W. Yorks. (v.c. 64), and a possible fourth, Fife (v.c. 85). It is apparent from Hanbury's comments that the Yorkshire plant was slightly different.

Within a few years Hanbury (1895) was able to record the plant from at least ten vice-counties on the strength of specimens in his own or Mr Backhouse's herbarium. Unfortunately the details have not been published but it is reasonable to assume that specimens from some localities, particularly those in Wales, would have been assigned at a later date either to *H. subbritannicum* (A. Ley) Sell & West, first described as a variety of *H. stenolepis* in 1909, or *H. britanniciforme* Pugsley, described in 1941. The latter was first recognised as distinct by field botanists more than 40 years earlier.

The next expert to publish a summary of distribution was Linton (1905) who added Westmorland (v.c. 69) and Caerns. (v.c. 49) to the vice-counties given by Hanbury (1892). Hanbury had personally confirmed the identifications for these additional vice-counties, which were published in *J. Bot., Lond.* 32: 304 (1894), and *Rep. botl Soc. Exch. Club Br. Isl.* 2: 17 (1901), although from the description given the latter record refers to specimens of *H. britanniciforme*. This is confirmed by a specimen in herb. E. S. Marshall at CGE.

Hyde & Wade (1934) listed *H. britannicum* as occurring in two Welsh vice-counties, Brecs. (v.c. 42) and Caerns. (v.c. 49). It is clear from the opinions of Ley (1909) and Pugsley (1948) that the plants from Brecs. are correctly referred to the taxon now known as *H. subbritannicum*. The Caerns. record was based on specimens at the National Museum of Wales; examination of the specimens from Caerns. determined as *H. britannicum* now at NMW shows that they are *H. britanniciforme*, with the exception of two sheets, which remain undetermined due to their condition. The next expert to publish a statement about *H. britannicum* in Wales was Pugsley (1948) who on p. 117 stated when speaking of *H. britanniciforme*, "Both species grow on different parts of the Great Orme, *H. britannicum* as a very dwarf form."

Sell & West in Perring (1968) mapped the distribution of *H. britannicum* and showed many localities, but only in Staffs. and Derbys. Following this expert opinion, Ellis (1983) omitted any mention of this taxon as a Welsh plant, despite the record in Pugsley (1948).

On a visit to Llandudno on 13th and 14th May 1988, the writer had the good fortune to discover both species. A walk on the evening of the 13th led to the discovery of a small colony of *H. britannicum* on the limestone outcrops below Mynydd Pant. The following day *H. britanniciforme* was seen in quantity on the Great Orme, although *H. britannicum* was not observed.

It is interesting to note that Griffith (1895) recorded *H. britannicum* f. from Great Orme's Head and rocks above Bodafon, thus recording both areas where the taxa still occur. *H. britannicum* has also been discovered recently on one of the limestone outcrops between Llandudno and Derbyshire, paralleling the distribution of *H. holophyllum* and its variety *dentulum*. The former occurs in v.cc. 49 and 57, and the latter in v.cc. 36, 51, 57 and 64. *H. britannicum* is at present only known to occur in v.cc. 39, 49, 50 and 57.

The Cambridge University Herbarium (CGE) was examined in an attempt to discover any specimens supporting the early literature records of *H. britannicum* in the Llandudno area. The following specimens in the *H. britanniciforme* folders were considered by the writer to be *H. britannicum*:-

Caerns., v.c. 49: cliffs on Great Orme's Head, July 1871, S. H. Bickham 5; rock near Little Orme's Head, July 1893, J. E. Griffith; Great Orme's Head, August 1894, J. E. Griffith (a similar plant from the same gathering ex herb. Wheldon, now at NMW, is *H. britanniciforme*); near Glodaeth, lime rocks, 19th June 1901, A. Ley; Little Orme, lime rocks, 19th June 1901, A. Ley. (This sheet

has four specimens, three being *H. britannicum*, the remaining specimen possibly being *H. britanniciforme* although dark papillae are present on the styles.); south west side of the Great Orme's Head, exposed limestone rocks, 9th July 1912, *E. S. Marshall*. (This sheet has four specimens, and it may be that the two small flowering plants are *H. britanniciforme* as are the four small specimens collected by W. A. Shoolbred, on the same day, and now at NMW).
Denbighs., v.c. 50: GR. 23/832.797, Bryn Ewyn, Colwyn Bay, numerous, growing in cracks on south-facing limestone, altitude 350 ft., 15th June 1968, *J. M. Brummit*.

The characters used to diagnose *H. britanniciforme* in the field are the spotting on the broad, thick leaves which are purple on the underside, together with the relatively short peduncles and the large pale heads; the paleness of the heads is due to floccum (stellate hairs en masse) on the phyllaries. In *H. britannicum*, in contrast, spotting is absent, leaves are narrower and thinner with large basal teeth, which, when the plant is large, are very large. The heads are much darker in appearance because few stellate hairs are present and the peduncles are generally longer. In *H. britanniciforme* the styles are pure yellow, whereas in *H. britannicum* they are yellow but with dark papillae present, giving an overall impression of a dingy off-yellow. Examination of plants growing in situ is the easiest way to appreciate the differences between the taxa.

In herbarium material which has been poorly prepared it is difficult to separate the species. The spotting may have almost disappeared and large heads can shrink during drying if sufficient pressure is not maintained while the specimen is in the press. However, the simple hairs on the leaves are unaffected by drying and, in *H. britannicum*, are much thinner than in *H. britanniciforme*, where the hairs are nearly setose. The phyllaries, particularly of specimens collected late in the season, can look very similar, but in *H. britannicum* they are longer, thinner and tend to twist at the apex and have fewer glands or hairs on the section behind the apex, which is also often tinged faintly pink. *H. britannicum* is illustrated in Butcher (1961), from a specimen collected on Little Orme. The accompanying description indicates the identity to be correct.

To conclude, *H. britannicum* occurs at three sites on limestone in two vice-counties (49 and 50) in North Wales. It has persisted unnoticed by nearly all botanical visitors for 117 years, and should be looked for at suitable localities, particularly in Flints. (v.c. 51).

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CARDAMINE AMARA L.: ITS OCCURRENCE IN MONTANE HABITATS IN BRITAIN

C. amara is usually considered to be a lowland species in Britain and Ireland although known to occur up to 450 m in Scotland (Clapham 1987). This altitudinal limit refers to Buchanan White's Perthshire record: "ascends to 1500 feet in lowland Forth" (White 1898). During the past five years for the *Flora of Cumbria* survey, the author has found this species very locally up to 540 m in the northern Pennines in Cumberland (v.c. 70) and up to 488 m in the eastern Lake District in Westmorland (v.c. 69). As it appeared likely that the Perthshire (v.c. 87) record was sited in the Ochil Hills, a search was made in 1989 and the altitudinal limit of *C. amara* extended to 610 m.

In the montane habitats of the northern Pennines and Lake District, *C. amara* is present in

bryophyte-dominated springs and flushes, and along the rills and streams issuing from them. *Epilobium alsinifolium* is an almost constant associate from 244 m upwards. *Chrysosplenium oppositifolium* and *Cochlearia officinalis* are usually present and *Cardamine pratensis*, *Montia fontana*, *Stellaria alsine* and *Veronica beccabunga* commonly so. The abundant bryophytes include *Bryum pseudotriquetrum*, *Cratoneuron commutatum*, *C. filicinum* and *Philonotis fontana*. *Saxifraga stellaris* is an associate at the highest Lake District site and *Carex rostrata* at one of the higher Pennine sites. Although *Saxifraga aizoides* occurs in some of the flush systems, it keeps to the bare gravelly areas from which *C. amara* is absent. In the Ochils, *C. amara* is locally common in similar spring and flush communities and on mossy rocks by burn sides, being associated with *Epilobium alsinifolium* from 228 m upwards. *Saxifraga hypnoides* is a not uncommon associate and *Epilobium anagallidifolium* with the rare moss *Splachnum vasculosum* occur at the highest site.

Elsewhere, *C. amara*, associated with *Epilobium alsinifolium*, has been noted at 228 m in the Howgill Fells in West Yorks. (v.c. 65) (G. Halliday pers. comm.). However in the Southern Uplands of Scotland, where *C. amara* ascends to 312 m in Selkirks. (v.c. 79) and 358 m in Roxburghs. (v.c. 80) in similar base-rich flushes, *E. alsinifolium* is absent.

There are obvious similarities between these British habitats and those described by Ellenberg (1988) from Central Europe, where *C. amara* is present in subalpine and alpine spring swamp communities up to over 2000 m. They are described under the *Montio-Cardamineta* and *Montio-Cardametalia* and have *Epilobium alsinifolium* and several other British higher plants present. The associated bryophytes are also similar.

Intensive sheep grazing occurs at all the British sites so that plants are dwarfed and rarely flower, although they have been seen to do so at 457 m on a flushed Pennine ledge, inaccessible to sheep. The winter-green basal leaves can be recognised throughout the year but care is needed to distinguish them from some variants of *Cardamine pratensis*, which ascends to the highest flushes and is the commonest *Cardamine* in this habitat in Britain. *C. amara* has a patchy distribution in Britain, being very rare in Wales and the Scottish Highlands, so that it is unlikely to occur there as a montane species. It is absent from the Moorhouse national nature reserve in the northern Pennines, and so is undescribed from the plant communities there (Eddy, Welch & Rawes 1969), although it occurs close to the western boundaries. This very local and sporadic occurrence, mostly as a stunted and sterile variant, explains why its presence as a montane British species has been overlooked for so long.

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THE DISTRIBUTION OF *CAREX APPROPINQUATA* SCHUMACHER (*C. PARADOXA* WILLD.) IN GREAT BRITAIN AND IRELAND

Carex appropinquata Schumacher is widespread in the wetlands of central and northern Europe, including Scandinavia, and extends into Asia as far as the Urals. Its distribution is, however, more scattered than that of its close ally *C. paniculata* L., for reasons not yet fully substantiated.

Ellenberg (1988) cites a survey by E. Bálátova-Tulačkova in Czechoslovakia as evidence that *C. appropinquata* requires more acid conditions than does *C. paniculata*, a view already taken by Jermy & Tutin (1968) and carried over, for lack of clear evidence to the contrary, into Jermy, Chater & David (1982). The conclusion is nevertheless surprising for, while *C. paniculata* is tolerant of a variety of soils, the greatest concentrations of *C. appropinquata* in the British Isles are in the basic fens of East Anglia and County Westmeath.

Observations in the field suggest that *C. appropinquata* is less tolerant of drought, shade and competition than is *C. paniculata*. When, as has frequently happened in East Anglia, a site dries out as a result of improved drainage, increased water extraction, or invasion by scrub, *C. appropinquata* is the first of the two to disappear.

The presence of this sedge in the British Isles was first established in 1841 when R. Spruce recorded it (as *C. paradoxa* Willdenow) from Heslington Fields near York. A year later D. Moore found it in Ireland at Ladestown near Lough Ennell, County Westmeath; and between then and the end of the century it was also recognised in a number of East Anglian fens as well as on canal sides where the counties of Middlesex, Hertfordshire and Buckinghamshire meet. A new chapter opened in 1928 when W. A. Sledge showed that a colony of sedge at Malham Tarn was this species (Turrill 1929), and in the last 25 years Dr R. W. M. Corner has found it in several places in the Scottish border counties, while the explorations of the late Miss E. Booth, C. Breen and Miss M. Scannell have doubled the total of Irish records. *Carex appropinquata* has also been reported from Pembrokeshire, but erroneously (Evans 1989).

This sedge may still have been overlooked elsewhere in the British Isles, for it is not always easy to distinguish it from *C. paniculata*. Depauperate variants of the latter may come very close to *C. appropinquata*, and a hybrid (almost wholly sterile) generally appears wherever the two grow together. In addition a tussocky form of *C. diandra* known as *C. pseudoparadoxa* S. Gibson, with a branched inflorescence, may confuse the issue (Sledge 1937), and it was this taxon that was responsible for the false reports from Wales.

The character usually cited as the main distinction between *C. appropinquata* and *C. paniculata* is the nature of the basal sheaths, which in *C. paniculata* are entire, red- to dark-brown and shiny, while in *C. appropinquata* they are black, matt, and eventually split into separate hair-like fibres; but the splitting hardly occurs until the sheath is dry and the plants are often growing in standing water. The leaves of *C. appropinquata* are a bright yellow-green and less than 2 mm broad, but those of a poor specimen of *C. paniculata* may be no wider than this. The glumes of *C. appropinquata* have a reddish tinge but this only becomes pronounced when the plant is dried. The safest guide is the shape of the utricle, more or less triangular with a broad serrated wing in *C. paniculata*, ovoid in *C. appropinquata* and abruptly narrowed into an unwinged beak. The utricle of *C. diandra* is narrowly winged, and the beak is split with the edges of the split overlapping.

All recorded stations in the British Isles have been visited since 1980, by myself or by botanists who may be considered wholly reliable. The state of each colony so observed is indicated in the following list by the letters A = up to 20 plants, B = 21 to 100, C = 101 to 1000, D = over 1000. Where the sedge has not been refound, the date and authority for the most recent sightings are given. The authenticity of specimens cited is confirmed by me.

[W. Sussex, v.c. 13: 51/2.1, Henfield, 1939, *J. E. Lousley* (RNG). In Borrer's garden and clearly one of the 'foreign' plants introduced there by him.]

Herts., v.c. 20: 51/0.9, Harefield, meadow near Copper Mills, 1885, *J. Benbow* (BM); [52/1.2, Hitchin, Oughton Head, 1921, *J. E. Little* (CGE), a puzzling sedge but certainly not *C. appropinquata*.]

Middlesex, v.c. 21: 51/0.7, West Drayton, canal, 1873, *J. L. Warren* (BM, CGE); 51/0.8, Uxbridge Moor, 1910, *C. B. Green* (CGE); 51/0.9, Harefield, formerly abundant in several places from Springfield Lock towards Rickmansworth but finally destroyed by gravel-digging c. 1936 (Kent 1975).

Bucks., v.c. 24: 51/0.8, near Denham, 1905, *G. C. Druce* (BM, CGE), destroyed by railway works c. 1925.

W. Suffolk, v.c. 26: 52/7.7, Icklingham Poors Fen (B); Cavenham, 'fen valley wood' (= Ash Plantation), 1952, *S. M. Walters* (CGE); between Mildenhall and Eriswell, 1938, *E. Nelmes* (K), probably same as 'Bombay Fen', since destroyed; 52/7.8, Eriswell, Caudle Fen (Trist 1979), ploughed in the 1970s; Brandon, Fenhouse Heath, 1956, F. Rose, and Palmer's Heath, 1975, A.

- O. Chater & Mrs G. Crompton, now gone; 52/9.7, Market Weston Fen, last seen 1960 (Simpson 1982).
- E. Norfolk, v.c. 27: 62/4.9, between Haddiscoe and Somerleyton, 1955, F. Rose, exact site not traceable; 63/0.0, Hingham, Seamere (A), declining; 63/3.0, Aldercarr Fen (C), Wheatfen (C), and Parish Marsh (C); Strumpshaw (B); 63/3.1, Hoveton Great Broad (A); Hoveton Little Broad, 1975, F. Rose; Ranworth, west (C), east (D); Upton Broad, south (D), north (C); Woodbastwick Fen, three areas (A, B, C); Horning Fen, 1950, F. Rose; 63/3.2, Dilham Broad Fen (C); Barton Great Fen, 1902, *C. E. Salmon* (BM), may = Catfield Great Fen (C); Stalham, Wood Marsh, 1902, *C. E. Salmon* (BM); Longmoor Point, Middle Fen (C) and Sutton Broad Fen (D); 63/4.0, Acle Decoy Carr, 1955, F. Rose; 63/4.1, Thurne, Shallam Dyke, 1956, *J. F. M. & M. J. Cannon* (BM), now drained; 63/4.2, Hickling, 1888, *A. H. Evans* (BM); between Palling Wood and Horsey, 1956, T. G. Tutin, exact site not traceable.
- W. Norfolk, v.c. 28: 52/9.8, Middle Harling (A); Overa Heath, 1963 (Petch & Swann 1969), area since reclaimed; 52/9.9, Hockham, Cranberry Rough (B); Thompson Common (A); Stow Bedon Fen, 1926, *T. J. Foggitt* (BM); 53/6.1, Wormegay, Mow Fen (B); Shouldham Warren, east end, 1919, *J. E. Little* (CGE), extinct by 1943 (Petch & Swann 1969); 53/8.0, Great Cressingham, 1966, E. L. Swann, access now denied; 53/9.0, Scoulton Mere, before 1926, H. D. Hewitt (Petch & Swann 1969); 53/9.2, Guist Fen (C); 53/9.3, Sculthorpe Moor, 1985, C. P. Petch, one plant, formerly more plentiful; 62/0.9, Swangey Fen (A); Old Buckenham Fen, 1956, F. Rose.
- Cambs., v.c. 29: 52/5.7, Wicken Fen (B), formerly "abundant", 1885, *A. Fryer* (BM).
- [Pemb., v.c. 45: 12/7.2, the records for Pwll Trefeiddan, Dowrog Common and Caerfarchell are all referable to *C. diandra*.]
- [Derbys., v.c. 57: 43/2.4, near Shirley Mill, error for *C. paniculata* (Linton 1903).]
- E. Yorks., v.c. 61: 44/6.4, Heslington Fields, 1846, *W. W. Newbould* (BM); Langwith Common, 1852, *S. Thompson* (BM), both sites drained by end of century; 54/0.4, Beverley, Pulfin Bog, 1968, R. W. David (A), now almost certainly lost under carpeting *Phragmites* and *Glyceria*; [54/0.5, of two specimens from Driffield, collected 1898 and 1903 by C. Waterfall and in BM determined by A. Bennett as *C. appropinquata*, the first is *C. diandra* and the second *C. disticha*; while a recent report from the same area is not supported by a specimen;] 54/1.4, Leven Canal, 1953, Miss M. E. Crackles (A), now gone; 54/1.7 or 2.7, Flamborough Head, 1912 (Robinson 1914), never confirmed.
- Mid-W. Yorks., v.c. 64: 34/8.6, Malham Tarn Fen, east (B), west (D); 44/5.4, between Heelaugh and Askham Richard (Lees 1888); Askham Bog (B).
- [N. W. Yorks or Co. Durham, v.c. 65 or 66: 35/9.2, unlocalised, 1947, N. Brownbridge, 10-km card at Biological Record Centre, not accepted by Perring & Walters (1962).]
- Peebles., v.c. 78: [36/1.4, Medwen, a specimen collected 1979 by D. J. McCosh and at first thought to be *C. appropinquata* has now been determined as *C. paniculata*;] 36/2.3, Innerleithen, The Glen, 1858, Lyell (Balfour 1925), never confirmed.
- Selkirks., v.c. 79: 36/3.1, Clearburn Loch, one plant; Alemoor Back Loch, two places (A,B); Alemoor Loch, north (B).
- Roxburghs., v.c. 80: 36/3.1, Alemoor Loch, south (B); 36/4.1, Branxholme Wester Loch (B); 36/4.2, Dunhog Moss (B); 36/5.1, Adderstonlee Moss (B).
- [Mid Ebudes, v.c. 103: Mull, the record in Clapham, Tutin & Warburg (1952) is an error (Jermy & Crabbe 1978).]
- [N. Ebudes, v.c. 104: 17/1.5, Gunna, 1940 (Heslop-Harrison 1941) is almost certainly an error.]
- Co. Clare, v.c. H.9: 11/3.7, Dromoland (C).
- Co. Carlow, v.c. H.13: 21/8.8, Rahill Bog, 1973, Miss E. M. Booth, site destroyed before 1978.
- Offaly, v.c. H.18: 22/0.1, Lough Coura (B).
- Westmeath, v.c. H.23: 22/0.4, Killinure Lough, west (A); 22/1.4, Twy Bog (B); Lough Makeegan (C); 22/2.4, south-east of Lough Sawdy (C); 22/2.5, Lough Sawdy, west side (A); near Glencarry House (A); 22/2.6, Ballynacarrow, reported 1958 but specimen in TCD is *C. diandra*; 22/3.4, Lough Ennell, western shore (C); 22/3.5, Monroe (B); Mount Dalton Lake (C); south of Kenny (C); Royal Canal, Kilpatrick Bridge (A); 22/3.6, Lough Iron (C); Lough Owel, Bunbrosna (D); 22/4.4, Lough Ennell, eastern shore, two plants; Lough Ennell, Ladestown (C); 22/4.5, Lough Ennell, Bog of Linn (C); Tullaghan Bog (D); Lough Owel, south-eastern corner (C); Royal Canal, east of Mullingar (C); Scraw Bog (B); 22/4.6, Ballinafid Lough (C).

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THE CUMBRIAN HERBARIUM OF W. H. YOUDALE

Liverpool Museum (LIV) recently acquired W. H. Youdale's herbarium of Cumbrian flowering plants and ferns. Youdale was a draper who lived in Cockermouth, Cumbria (Collins & Pound 1988). Little was hitherto known of Youdale's botanical activities and, although he was a contemporary of W. Hodgson of Workington, the author of *Flora of Cumberland*, there is no reference to Youdale in this Flora, nor to his published records from Silloth (Youdale 1892). However, his herbarium specimens provide ample evidence that he undertook a thorough survey of the Cockermouth and Allonby areas of Cumberland (v.c. 70), with occasional forays further afield to St Bees, Sellafield, Honister Pass and Coniston.

Youdale's herbarium is well preserved and is mounted on standard-sized sheets. A short note appeared in *B.S.B.I. News* (Allen 1987) which gave the size of the collection as no more than 175 sheets; the correct number, excluding undetermined scraps and a small collection made by Miss McGlasson from Hyères, S. France in December 1894, is 314 sheets.

The collections were amassed over a period of 18 years. Youdale's own gatherings cover the years 1891 to 1908 (excluding 1901 and 1905). His collaborators were as follows:

T. Brown, 1892, 1894; J. P. Dalton, September 1891; James Dobbins, 1892, 1893; Rev. Hilderic Friend, 1894–96; Mr Postgate, July 1902; J. Scott, August 1907; W. West jnr, May, June & August 1891; F. Yeomans, June 1901; George Yeomans, 1891–93, 1895, 1901, 1904, 1908; L. M. Youdale, August & September 1893; Mrs W. H. Youdale, July 1892.

It is possible that the last two collectors listed are the same person. Of the eleven or twelve collectors represented in the herbarium, only two, Rev. Hilderic Friend and William West jnr, are listed in Kent & Allen (1984). William West's specimens were collected from Caernarvonshire, Hertfordshire and Surrey. The Rev. Hilderic Friend was a Methodist minister who was allotted the Cockermouth circuit for three years around 1895 (Friend 1943), and he botanised widely in Britain. His collections occur in a number of public herbaria (Kent & Allen 1984). With these exceptions, the botanists whose collections are represented in Youdale's herbarium confined their activities to western Cumberland, an area for which few collections exist from this period. The relevant tetrads, and those visited by Youdale himself, are shown in Fig. 1.

From a total of 314 named and localised specimens, 246 were collected by Youdale alone; a small

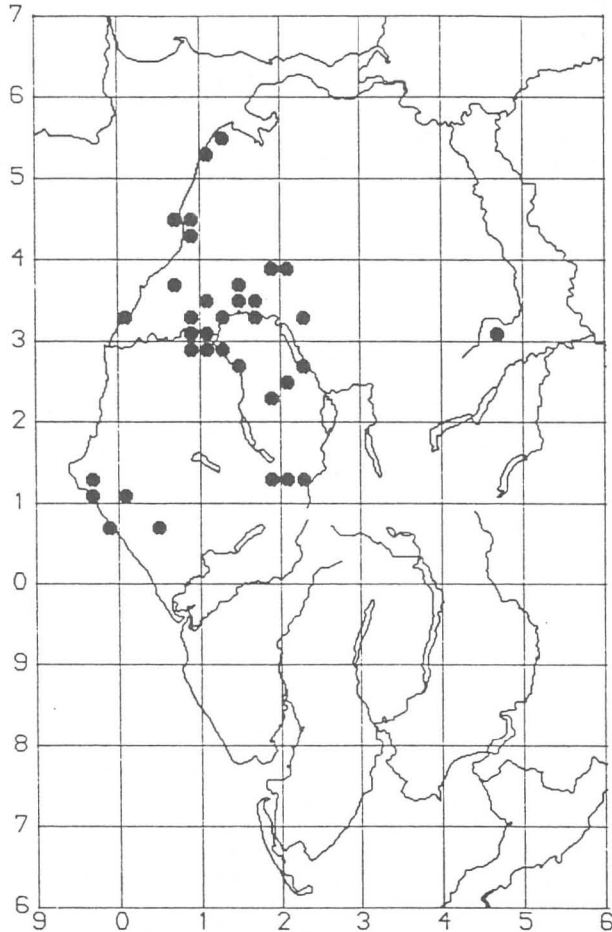


FIGURE 1. Distribution of localities of Cumbrian specimens represented in the W. H. Youdale herbarium, shown as tetrads.

number was collected jointly by Youdale and Friend. The majority of specimens are of widespread native species. There are, however, a small number of aliens present, some of which were collected from around the docks in Silloth (GR 35/12.52). An example is *Hesperis matronalis* L. Other records from Silloth Docks include two species now extinct in v.c. 70: *Agrostemma githago* L. and *Arabis glabra* (L.) Bernh. The latter species was also recorded by Friend (1895, 1896) as *Turritis glabra* L. from near Cockermouth, where he claimed it was native.

There are a number of records of non-native species from "wood behind South Lodge, Cockermouth, *T. Brown*" which are the first records for v.c. 70. These are all species which could be expected to have persisted in, or escaped from, gardens: *Centaurea montana* L., *Euphorbia lathyris* L., *Laburnum anagyroides* Medic., *Ruta graveolens* L. and *Salvia argentea* L., the latter two not having been subsequently recorded in the county. *Turgenia latifolia* (L.) Hoffm. from "Stackyard, Dubb Mill, Allonby, August 1894, W. H. Youdale" is also the first record for v.c. 70, the only other record being from Carlisle in 1905 where it was found by T. S. Johnstone. Another first record is of *Prunus lusitanica* L., collected by W. H. Youdale from a plantation at Holmwood, Cockermouth in June 1894.

Youdale's record of *Centaureum littorale* (D. Turner) Gilmour is, surprisingly, from an inland

site, "near the summit of the Hay, Cockermouth, September 16, 1891, alt. 700 ft". *Atriplex glabriuscula* Edmondston from "sea shore near Dubb Mill, Allonby, August 1894, W. H. Youdale" is the first v.c. 70 voucher specimen for this scarce seaside plant. *Salvia verticillata* L. was recorded for v.c. 70 by Youdale from Skinburness in July 1896 and from Silloth Docks in August 1907. It still occurs at Silloth Docks, its only extant locality in the vice-county.

Among the notable records published in Youdale's only known botanical article (Youdale 1892) was *Crithmum maritimum* L. from the coast south of Silloth. This is the only Cumberland record from north of St Bees Head, but there is no voucher specimen in his herbarium.

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ALOPECURUS BULBOSUS GOUAN IN DORSET

Alopecurus bulbosus Gouan is relatively easy to see for two or three weeks from mid-May when it is flowering, but very hard to find later in the season. FitzGerald (1989) showed that it still survives at many sites in south-eastern England where it had not been recorded for many years. Inspired by knowledge of her fieldwork, I searched for the plant in Dorset (v.c. 9) in the summer of 1989. The results were similarly encouraging, showing that, while the grass has certainly been lost at some sites because of urban expansion, agricultural improvement and reduced salinity, much of the apparent decline is because the plant is not actually looked for.

Another reason for the search was to look for the hybrid *Alopecurus* × *pletkei* Mattfeld (*A. bulbosus* × *geniculatus*), reported from as far west as Christchurch Harbour (Trist & Wilkinson 1989). In both of the Dorset sites where the hybrid was found it was growing both a little further from the sea and a little higher above HWMOT in a less open community.

The results of the searches are given below. In addition, all the likely salt-marsh areas of the Fleet were investigated, but with no success other than at the new site at Rodden. Though it may seem rash to say so, there are few other likely sites in the county, although it is odd that there are no other records from the southern shores of Poole Harbour. The following list details the Dorset sites searched for the occurrence of *Alopecurus bulbosus* in 1989 in grid reference order from the west. (The names in brackets refer to field records collected and held at the Dorset Environmental Record Office in Dorchester, with the exception of those of Mansel-Pleydell referred to below.)

Seatown, GR 30/42.91 (*H. J. M. Bowen* 1950). Not refound. Site now a car park.

West Bay, GR 30/463.905 (*R. Good* 1936). Many thousands of plants over meadow apparently now used only for a summer fair. By far the best site in the county (**herb. D.P.**).

Burton Bradstock, GR 30/476.897 (*R. Payne* 1981). In small quantity amongst caravans behind shingle bar (**herb. D.P.**).

Burton Mere, GR 30/509.878 (*Graveson* 1956). Many hundreds of plants over 0.5 km but all specimens examined were the hybrid *A. × pletkei* (**herb. D.P.**).

West Bexington, GR 30/528.867 & 523.871 (*R. McGibbon* 1985 – this is Mansel-Pleydell's "Swyre" site). In small quantity to the east of the extensive reedbed, and in greater quantity to the west (**herb. D.P.**).

- Abbotsbury, GR 30/572.842 & 568.842 (*R. Walls 1986*). In abundance in open field to north-west of Swannery. The next field to the west produced only the hybrid – this field was much more overgrown with richer vegetation (both **herb. D.P.**).
- Rodden Hive, GR 30/604.823. A new site. Abundant both on edge of Fleet and at the seaward end of a newly ploughed field with no other vegetation (**herb. D.P.**).
- Radipole, GR 30/67.79 (*H. J. M. Bowen 1963*). Not refound. The salinity is dropping as a result of sluices, although *Carex divisa* still present. All of the other old sites in Weymouth are long since built over.
- Lodmoor, GR 30/688.814 (*H. J. M. Bowen 1955*). Refound in one small area, but as access to this R.S.P.B. reserve is very difficult there may well be more.
- Piddle Marshes, GR 30/93.88 (*D. Ranwell 1965*). Not visited, access is very difficult.
- Redcliffe, GR 30/939.873 (*R. Good 1936, etc.*). Only a few plants were found in one area. The rest of the grazing marshes have been steadily improved.
- Swineham, GR 30/943.879 (*D. Ranwell 1965*). A few plants.
- Keysworth, GR 30/947.897 (*R. McGibbon 1985*). A very few plants in one small area. It is odd that the vast areas of grassland on the north-western shore of Poole Harbour produces only this one patch.
- The Moors, Arne, GR 30/94.89 (*D. Ranwell 1965*). Ranwell described this in 1965 (Card Index at I.T.E., Furzebrook) as ‘‘Optimum development over several areas, almost pure sward locally’’. As mentioned above the grazing marshes have been improved and although there are still patches of *Juncus maritimus* with a poor grass flora, there was no sign of any *A. bulbosus*.
- Poole, GR 40/01.90 (Mansel-Pleydell 1895). Marsh near Railway Station. Presumably long since built over.
- Swanage, GR 40/02.79 (Mansel-Pleydell 1895). Presumably long since built over.

There is little to be added to FitzGerald’s (1989) excellent notes on associations. Suffice it to say that *Carex divisa* was found in most of the western sites, but *Ranunculus baudotii* only at the hybrid site at Burton Mere. The other associates were much as described by her. The Rodden site (colonizing a ploughed field) was most interesting: the site abutted closed *Phragmites* marsh on the other side of the stream to the main colony, and it seemed as though saline turf had been ploughed. However, the site must have been too saline for the new ley to germinate, as opposed to the rest of the field inland, and the result was that there was no vegetation other than *A. bulbosus*, which is scattered over an area of 10 m². Its fate is awaited with interest.

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I would like to thank Robin Walls and Anne Horsfall for assistance; P. J. O. Trist for identifying all the specimens that are now in **herb. D.P.**; C. D. Preston for comments and advice and above all Rosemary FitzGerald for inspiration and encouragement.

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THE ORIGIN AND TAXONOMY OF *SPARTINA* × *NEYRAUTII* FOUCAUD

The salt marsh grass *Spartina* × *townsendii* H. & J. Groves is well known as the hybrid progenitor of *Spartina anglica* Hubbard, the ‘classic’ example of a recently evolved allopolyploid species. Marchant (1967, 1968) concluded that the available historical, morphological, and cytological

evidence on the status of *S. × townsendii* is entirely consistent with it being a hybrid between *S. maritima* (Curtis) Fernald, a native of England, and *S. alterniflora* Loiseleur, a species introduced into Southampton Water from the United States in the early 1800s. The hybridisation appears to have occurred at Hythe, Hampshire, presumably just before the first discovery of *S. × townsendii* in 1870. The nature of the origin has recently been confirmed beyond all reasonable doubt by the use of isozyme markers (Raybould 1989; Raybould *et al.*, in press.).

What appears to be a similar event has been recorded from the coasts of south-western France and northern Spain. *S. maritima* is a native of the area, and *S. alterniflora* was introduced by shipping (presumably independently of the English introduction); the first record is from 1806 near the mouth of the River Bidassoa (Hubbard, Grimes & Marchant 1978). In 1892 Neyraut collected plants at Hendaye (Mobberley 1956), which he believed to be identical to *S. × townsendii* (Chevalier 1923). However, Foucaud (1984) described the variants found by Neyraut as a new species, *S. neyrautii* Foucaud.

Since the discovery of *S. neyrautii* there has been doubt over its true status (see Marchant (1977) for a full discussion of the arguments), the most generally accepted conclusion being that the taxon is a hybrid between *S. maritima* and *S. alterniflora*, but that it can be distinguished from British *S. × townsendii* on morphological grounds. One possible explanation for this difference is that *S. × townsendii* and *S. × neyrautii* are reciprocal hybrids (Arber 1934). To investigate the matter further, a search was made for *S. × neyrautii* in 1970 (Hubbard, Grimes & Marchant 1978). Apparently the only remaining site for *S. × neyrautii* was in a small area of salt marsh adjacent to San Sebastian airport. Marchant (1977) compared the morphology of these plants with *S. × townsendii* from England and concluded that *S. × neyrautii* was "not referable to *S. × townsendii*". However, for each of the vegetative characters considered, the range given for each taxon overlaps in every instance. Marchant also presented cytological data from the two taxa. They both have the same

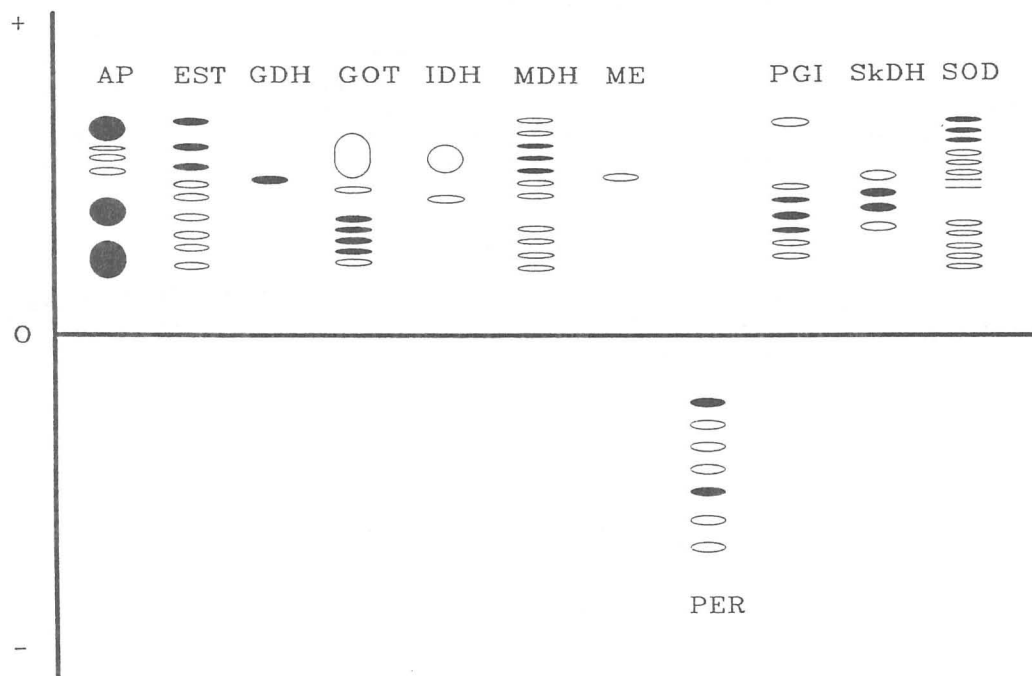


FIGURE 1. Common phenotype of *Spartina × townsendii* and *S. × neyrautii* for eleven isozyme systems. Abbreviations: AP – acid phosphatase, EST – esterase, GDH – glutamate dehydrogenase, GOT – glutamate oxalacetate transaminase, IDH – isocitrate dehydrogenase, MDH – malate dehydrogenase, ME – malic enzyme, PER – peroxidase, PGI – phosphoglucose isomerase, SkdDH – shikimic acid dehydrogenase, SOD – superoxide dismutase.

chromosome number of $2n=62$ and very similar chromosome pairing behaviour, although *S. × neyrautii* has a slightly higher frequency of multivalents. These data strongly support the idea that, like *S. × townsendii*, *S. × neyrautii* is a hybrid between *S. maritima* and *S. alterniflora*.

To confirm this hypothesis we obtained isozyme phenotypes from a clone of *S. × neyrautii* which had been collected in Spain by Hubbard *et al.* and has since been kept in cultivation first at the Coastal Ecology Research Station in Norwich and subsequently at the John Innes Institute. We have previously shown (Raybould *et al.*, in press) that twelve clones of *S. × townsendii* from the Hythe population when examined for eleven isozyme systems showed no variation and phenotypes which are entirely consistent with *S. × townsendii* being a hybrid between *S. maritima* and *S. alterniflora*. The isozyme phenotypes of *S. × neyrautii* for these eleven systems were obtained using the same methodology and were found to be completely identical with those of *S. × townsendii*. These systems resolved into over 70 bands and may well represent the products of at least 50 loci (Fig. 1). This extensive evidence confirms the nature of *S. × neyrautii* as a hybrid between *S. maritima* and *S. alterniflora* and also shows that the actual parents of the two hybrids were identical with respect to these isozyme systems.

This result raises three points. First, it at least suggests that *S. maritima* may be highly uniform genetically throughout its whole range. It has previously been shown that this species has very low levels of genetic variability in Britain (Raybould 1989). Second, the two introductions of *S. alterniflora* into Europe appear also to be very similar genetically. Third, *S. × townsendii* and *S. × neyrautii* are synonyms because they have the same parentage; the former has priority.

ACKNOWLEDGMENTS

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RUMEX ACETOSA L. SUBSP. *BIFORMIS* (LANGE) VALDÉS-BERMEJO
 & CASTROVIEJO IN BRITAIN

Many years ago I described and illustrated a coastal cliff ecotype of *Rumex acetosa* L., based on the following specimen in the Cambridge University herbarium (CGE): Cornwall, Zennor, 20 July

1839, *C. C. Babington* (Rechinger 1961). I wrote: "a very similar if not identical plant observed by myself in July 1959 in similar habitats along the north coast of Spain, Cabo Penas near Santander . . . it looks very distinctive, especially when alive, but I still hesitate to give it taxonomic recognition as my field experience is limited to one locality in northern Spain and as I have seen only one good herbarium specimen from Britain."

Since then, the Spanish plant in question has been identified by Valdés-Bermejo & Castroviejo (1977) as *R. acetosa* subsp. *biformis* (Lange) Valdés-Bermejo & Castroviejo. There are beautiful full-page illustrations of this taxon by Lange (1861, 1867).

When recently visiting north-western Spain I was fortunate to observe and collect subsp. *biformis* at the following localities in the province of La Coruña:

Cabo Finisterre, littoral siliceous rocks, 7.7.1988, *K. H. Rechinger 64750* (W); Cabo Toriniana, littoral siliceous rocks, 17.7.1988, *K. H. Rechinger 64784* (W); Cabo Vilano, 5km NW Carmarinas, granitic rocks, 18.7.1988, *K. H. Rechinger 64842* (W).

As can be seen from the type locality quoted below, my Spanish specimens come from the classical area. Here follows a description of my plants from the ditio classica.

Rumex acetosa* L. subsp. *biformis (Lange) Valdés-Bermejo & Castroviejo in *Anales Inst. Bot. A. J. Cavanilles* 34: 326 (1977).

R. biformis Lange in *Index Sem. Hort. Haun.* 26 (1857). TYPE: In rupibus maritimis prope oppidum La Coruña Galiciae, 10. vii. 1852, *Lange*.

Stems (10–)15–30 cm high, usually several ascending from an indurate branching rootstock; base sometimes horizontally elongated. Basal leaves thick, fleshy and shiny when alive, thick leathery when dried, (20–)30–40(–50) × (8–)15–20(–30) mm, ovate-hastate, with very short, acute, sometimes obtuse and reduced basal lobe; petiole as long as or up to 1.5 times as long as the blade. Stem leaves few (1–)2–4, oblong-hastate, up to 4 times as long as broad, with very short acutish or obtuse basal lobes, short petiolate to sessile. Inflorescence short and dense, with few undivided erect or slightly divergent branches, only the lower ones sometimes remote. Valves 4–5 × 3–5.5 mm.

In all the Spanish localities of the littoral subspecies, the populations appeared to be completely isolated from any inland populations of *R. acetosa*. No transitional variants have been observed.

It might be worthwhile for British botanists to revisit the old Cornish locality and to look for new ones along the south-western coasts of Britain. I have no doubts about the identity of the Cornish plant with the northern Spanish *R. acetosa* subsp. *biformis*, which evidently is an Atlantic geographical race. Its distribution is comparable to that of *R. rupestris* Le Gall, a relative of *R. conglomeratus* Murr. (section *Rumex*).

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A NEW HYBRID BINOMIAL IN *MIMULUS* L.

As was shown by Roberts (1964), the hybrid between *M. guttatus* DC. and *M. luteus* L. s.l. is widespread in Britain and frequently confused with its parents. It occurs in extensive, clonal

populations independently of its parents and clearly merits its own binomial epithet. Although the present author is currently preparing a full account of *Mimulus* in Britain, there is a need for early publication of a name for this hybrid. The view is taken here that the 'luteus' parent is *M. luteus* var. *rivularis* Lindley, though there are good reasons for considering this taxon as not being conspecific with the typical *M. luteus*, which does not occur in Britain.

In view of the fundamental contribution made by R. H. Roberts to the understanding of naturalised *Mimulus* taxa, and since he published an account of this particular hybrid, it is appropriate that he be commemorated by the choice of epithet.

***Mimulus* × *robertsii* Silverside, hybr. nov.**

HOLOTYPE: Hethpool, College Burn, Northumberland, v.c. 68, GR 36/895.280, in hill stream, 10th August 1989, *Silverside 1989/159* (E).

Hybrida ex *M. guttatus* DC. et *M. luteus* var. *rivularis* Lindley orta. Planta sterilis. Corollae flavae, palatis rubro-guttatis, lobis frequenter rubro-maculatis. Calyces basibus sparse hispidulis. Pedicelli sparse hispiduli, infimi calycibus 1–3plo longiores. Folia ovata vel ovato-rhombea apicibus acutis vel subacutis, dentata, saepe dentibus acutis, patentibus vel subantrorsis, et obscuris alternantibus. Bractee late ovatae, dentatae. Stolones crassi breves, foliis mediocribus.

A sterile hybrid, variably intermediate between the parents. Corollas yellow, palates red-spotted, lobes commonly unmarked, as in *M. guttatus*, or else blotched with red on the labellum or on all five lobes. Pedicels and calyx-bases minutely and usually sparsely hispid. Lower pedicels up to three times as long as their calyces at maturity. Leaves ovate or ovate-rhomboid with acute or subacute apices, dentate, often with acute, patent to subantrorse teeth alternating with shallow, indistinct teeth. Bracts broadly ovate, dentate. Stolons short and thick, with the leaves not noticeably different in size from other cauline leaves.

M. guttatus normally differs from superficially similar clones of the hybrid in its more rounded, crenately toothed leaves, its small, suborbicular, entire-margined upper bracts, its more elongated inflorescences, the horizontally held labella of newly-opened flowers and in its conspicuously inflated fruiting calyces. This last character may, however, be seen in some clones of the hybrid, though no seed is matured. The long, slender, small-leaved stolons produced in some abundance by *M. guttatus* in the late summer and autumn have not yet been observed in any clone of its hybrids.

M. luteus var. *rivularis*, a very local plant of hill streams in north-eastern England and southern and central Scotland, is a smaller, neater, mat-forming plant, with usually paler, more darkly blotched corollas, few-flowered inflorescences, pedicels often more than five times the length of their fruiting calyces and with leaf-teeth often more than twice as long as wide and somewhat twisted. The pedicels and calyces are normally entirely glabrous but in hot weather and in greenhouse cultivation they become minutely glandular-puberulent.

The type of material of *M. × robertsii* is from a clone with blotches on all five corolla-lobes and with rather blunt leaf-teeth somewhat approaching those of *M. guttatus*.

M. × robertsii is widespread in northern and western Britain and is often the only taxon present along upland river systems. It is only very locally established in the south-east and is apparently rare, or under-recorded, in Ireland. *Mimulus* 'A. T. Johnson' is a horticultural clone of the hybrid, frequently sold for bog and rock gardens, collected by Mr Johnson from a boggy stream in the Welsh hills before 1935 (Thomas 1980).

The above description must be taken to exclude certain plants with large, very broad leaves and with very heavily blotched, broader corollas. These plants, locally established in a few areas of Scotland, are hybrids involving *M. variegatus* J. St-Hil. (Silverside 1981).

Although *M. × robertsii* is described above as sterile, Parker (1975) reported a *Mimulus* population from the Llyn peninsula in N. Wales with pollen fertility exceeding 70% and which on cytological grounds he regarded as a variant of this hybrid.

CHOICE OF TYPE MATERIAL

The hybrid of *M. cupreus* Dombrian and *M. luteus* var. *rivularis* (i.e. *M. × maculosus* T. Moore) is at least partially fertile and can be further crossed with *M. guttatus* to produce a sterile triple hybrid.

Roberts (1968) found that some artificially produced clones of this hybrid were indistinguishable from what is here called *M. × robertsii*. The present author has carried out similar crosses and has also produced plants that would be taken to be *M. × robertsii*, though most such triple hybrids are instantly recognisable. It follows that type material for *M. × robertsii* has had to be carefully selected. The College Valley, Northumberland, is a site where *M. luteus* var. *rivularis* occurs, along with at least three different clones of *M. × robertsii*. The occurrence of multiple clones of *M. × robertsii* is a phenomenon that is also linked with the presence of *M. luteus* var. *rivularis* in other localities, and it appears highly probable that they represent spontaneous local hybridisation. Living material of *M. luteus* var. *rivularis* collected in the College Valley by J. E. Halfhide and the author in 1975 was subsequently used for much experimental work and at least two generations of plants were obtained through self-fertilisation. No segregation of *cupreus*-characters was observed. Artificial hybridisations using this material and *M. guttatus* produced a range of products including one closely similar to the College Valley clone that has been selected as the source of the type material.

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NEW NAMES AND COMBINATIONS IN THE BRITISH FLORA

The six following names are required for forthcoming floristic publications:

1. ***Ulmus minor* Miller subsp. *sarniensis* (C. Schneider) Stace, **comb. et stat. nov.**
U. glabra f. *sarniensis* C. Schneider, *Ill. Handb. Laubholz.* **1**: 220 (1904).**

This new combination was made invalidly by Stace (1989), the basionym given there being a *nomen nudum*.

2. ***Mentha × villosa* Hudson var. *nicholsoniana* (Strail) R. Harley, **comb. nov.**
M. nicholsoniana Strail in *Rep. botl Soc. Exch. Club Br. Isl.* **1**: 186 (1888).**

M. × villosa Hudson is the correct name for the hybrid combination *M. spicata* L. × *M. suaveolens* Ehrh., of which var. *nicholsoniana* is a distinctive pubescent variant with lanceolate-oblong leaves with a more or less acuminate apex and teeth that are not or scarcely folded under.

3. ***× Tripleurothemis* Stace, **nothogenus nov.****

Hybridae inter *Tripleurospermum* Schultz Bip. et *Anthemis* L.

This intergeneric combination is the only British one known to me that does not already have a nothogeneric name.

4. ***× Tripleurothemis maleolens* (P. Fourn.) Stace, **comb. nov.****

× *Anthemimatricaria maleolens* P. Fourn., *Fl. Compl. Plaine Franç.* 274 (1928).

This appears to be the correct binomial for *Tripleurospermum inodorum* (L.) Schultz-Bip. × *Anthemis cotula* L., the only combination so far recorded in Britain in the nothogenus × *Tripleurothemis*.

5. *Veronica reptans* Kent, **nom. nov.** pro *Veronica repens* Clarion ex DC. in Lam. & DC., *Fl. Franç.*, 3rd ed., **3**: 727 (1805); non *V. repens* Gilib., *Fl. Lit. Inch.* **1**: 108 (1781), **nom. illegit.**

6. *Schoenoplectus* × *kuekenthalianus* (Junge) Kent, **comb. nov.**

Scirpus × *scheuchzeri* Bruegger in *Jahresber. Naturf. Ges. Graubündens* **23/24**: 119 (1878–1880), non Vitman, *Summa pl.* **1**: 150 (1790).

S. × *kuekenthalianus* Junge in *Jahrb. Hamburg Wiss. Anst.* **22**, Beih. **3**: 73 (1905).

Schoenoplectus × *scheuchzeri* Palla ex Janchen, *Cat. fl. austr.* **1(4)**: 752 (1960).

This new combination is required for the hybrid *Schoenoplectus tabernaemontani* × *S. triqueter*.

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