

Notes

CARDAMINE \times FRINGSII F. WIRTGEN (BRASSICACEAE) IN THE BRITISH ISLES

The hybrid *Cardamine flexuosa* With. \times *pratensis* L. = *C. \times fringsii* F. Wirtgen (= *C. \times haussknechtiana* O. E. Schulz) has been reasonably widely recorded in the British Isles, but is probably overlooked. In this note the records are summarised and mapped for the first time.

The main characters separating *C. \times fringsii* from its parents are given in Table 1. *Cardamine \times fringsii* can be easily picked out from both parents at flowering by the intermediate size of the petals and their lilac or more rarely white coloration, and its failure to set fruit (it should be noted that *C. pratensis* is self-incompatible and often does not set seed). The plants can reproduce vegetatively and spread to form patches of clones (Allen in Jones 1975; Bevan & Rich 1991). The clones may differ depending on which race of the polymorphic and cytologically complex *C. pratensis* (Hussein 1955; Lövkvist 1956; Allen 1981) was involved. In the past, many specimens were incorrectly and inconsistently referred to *C. pratensis* L. var. *hayneana* (Welwitsch) Schur, a taxon now regarded as meriting subspecific rank but probably confined to central Europe.

Except where stated otherwise, the records below have been determined by one or other of us. Pollen fertility examined using Alexander's Stain (Alexander 1969) ranged from 0% to c. 20% unless otherwise stated.

v.c. 5, South Somerset. Higher Mill, Exford, undated, C. P. Amhurst (**BM**).

v.c. 9, Dorset. Island in the Stour, Shapwick Vicarage, Shapwick, subsequently cultivated in garden, 3 April 1892, 23 April 1893, 4 May 1893, labelled as E. F. Linton (**BM**, **CGE**, **DBN**) but he later attributed the record to W. R. Linton (Linton 1900).

[There is a record for Lydlinch Common, ST7313, 2001, H. J. M. Bowen in his card index of Dorset records but no voucher has been seen. A Biological Records Centre record for SY88 tetrad U, 1987+, is not included in Bowen's files and is assumed to be an error.]

v.c. 13, West Sussex. Parkhurst, by brook towards North Chapel, 25 April 1924, J. E. Little & R. J. Burdon (**CGE**). Roadside near Bignor, 9 May 1930, P. M. Hall (**BM**).

v.c. 14, East Sussex. Chailey Common, by pond, 5 May 1933, J. E. Lousley (**RNG**). Roadside, Chailey Common, 23 May 1936, A. H. Wolley-Dod (**BM**, Wolley-Dod 1937; det. H. W. Pugsley as 'first parent uncertain'). Chailey Common, grassy heathland in a slightly moist pit, 26 April 1952, D. P. Young (**BM**). Horncastle Wood, Twyford, TQ394315, one plant on woodland ride with very pale pink flowers with both parents, 1994, D. Bevan & T. C. G. Rich; it did not persist into 1995 (Rich *et al* 1996). Meres Farm, Five Ashes, TQ575252, 27 April 1994 (still present in 2002), Miss E. J. Rich (**BM**). Ditch by track, Meres Farm, Five Ashes, 20 May 1997, O. M. Stewart (**E**). Paiges Wood, Haywards Heath, TQ317248, 23 April 1993, Miss G. Barter (specimen not retained). Wakehurst Place, marshy ground by the lake, 24 April 1967, J. P. M. Brenan (**K**). Waldron 'flowers mauve; a good intermediate', E. D. Morgan (**BM**, Wolley-Dod 1937).

TABLE 1. MAIN CHARACTERS SEPARATING *CARDAMINE FLEXUOSA*, *C. PRATENSIS* AND THEIR HYBRID *C. \times FRINGSII*

	<i>C. flexuosa</i>	<i>C. \timesfringsii</i>	<i>C. pratensis</i>
Habit	Annual or biennial (rarely perennial)	Perennial	Perennial
Stems	Usually hairy	Usually glabrous	Usually glabrous
Upper leaf surface	Hairy	Hairy to glabrous	Sparsely hairy to glabrous
Sepal length	1.5–2.5 mm	2.1–3.7 mm	2.7–5.3 mm
Petals	2.1–4.4(–5.0) mm long, white	4.4–10.3 mm, white, pale lilac or lilac	6.1–15.5(–18) mm long, purple, pink, lilac or white
Seed set	Good	Not set	Variable

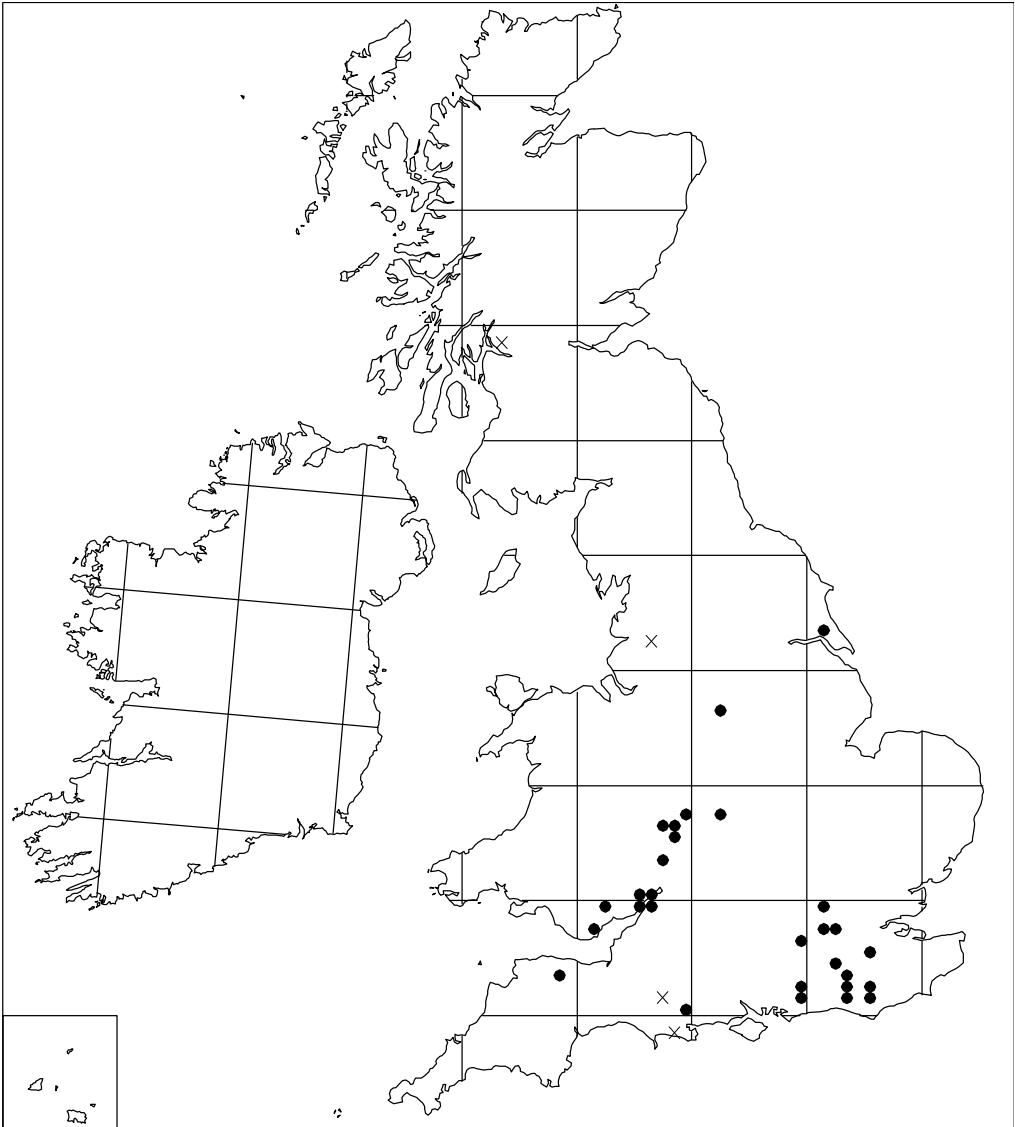


FIGURE 1. Distribution of *Cardamine xfringsii* F. Wirtgen (= *C. flexuosa* With. × *pratensis* L.) in the British Isles (●). Probable errors or unconfirmed (X).

- v.c. 16, West Kent. Verge, Sevenoaks Common, Hopgarden Lane, TQ524533, 10 May 2001, E. G. Philp (NMW).
- v.c. 17, Surrey. Kew, bank of Thames near iron railway bridge, 1879–1882, G. Nicholson (**ABD, BIRM, BM, CGE**). Mortlake, banks of Thames, willow beds, 26 May 1879, 1880 and 1882, G. Nicholson (**ABD, BM, K, NMW, OXF**, some of which is cultivated material). Damp ditch close to Povey's Cross, Horley, 30 April 1882, W. H. Beeby (**ABD, BM, CGE**).
- v.c. 21, Middlesex. Bentley Priory, flush, April 1989, D. Bevan & T. C. G. Rich (NMW; see Bevan & Rich 1991).

- v.c. 22, Berks. Ascot, 5 July 1932, A. H. Carter (**BM**). Ascot, 12 July 1932, A. J. Wilmott (**BM**). Under trees in meadow very near Ascot station, 8 July 1933, J. E. Lousley (**RNG**).
- v.c. 34, West Gloucester. Forest of Dean near Bream, 7 April 1878, W. A. Shoolbred (**NMW**). Meadow, Stone, 1959, P. G. Munro-Smith (Sandwith & Sandwith 1959; no material traced). Wet meadows about Anwards Farm and Pighole, Tidenham, 30 April 1908, W. A. Shoolbred & H. J. Riddelsdell (**BM, NMW**).
- v.c. 35, Monmouth. Barnett Woods, 7 May 1890, W. A. Shoolbred (**NMW**). Pontnewydd, marshy field, 3 June 1946, A. E. Wade (**K, NMW, OXF**; Wade 1948).
- v.c. 36, Hereford. Bronsil, marshy stream side, one plant, 1955, C. E. A. Andrews (possibly in **BIRM**, untraced).
- v.c. 37, Worcester. Bromsgrove, near, 1901, H. S. Thompson (**BM**). Hindlip Church, F. R. Jeffrey (Rea 1920; accepted on basis of following record). Near Hindlip Church, 1 May 1921, C. Rea (**BM**). Near Ockeridge Wood, F. R. Jeffrey (Rea 1920; no material traced). Lane near Lineholt, Stourport-on-Severn, 28 May 1949, C. M. Goodman (**LTN**).
- v.c. 38, Warwick. Balsall Street, swampy meadow, SP223763, 22 April 1989, J. W. Partridge (**NMW**). Still present in 2002.
- v.c. 41, Glamorgan. St Fagans, Cardiff, petals small, white with purple tips, 13 April 1972, J. W. Davis (**NMW**).
- v.c. 57, Derby. Wet meadow bordering stream, white-flowered with both parents, Darley Dale, D. Dupree, May 2004, 2005 (**NMW**).
- [v.c. 59, South Lancaster. There is a single BSBI Maps Scheme record for the 10-km square SD62 in the v.c. 59 card index without any further details (V. Gordon, D. P. Earl, pers. comm. 2001); the record is not accepted.]
- v.c. 61, South-east York. Gibraltar Farm, Swine, Hull, meadow with both parents, 23 May 1904, J. F. Robinson (**BM**; petals noted as pure white; pollen c. 40% fertile). This appears to be the material noted as *C. amara* × *pratensis* by Robinson (1906); oddly both W. Whitwell and A. Bennett had seen the material and suggested *C. flexuosa* × *pratensis* but Robinson appears to have ignored them, perhaps on the basis of the pure white flowers. It appears to have persisted from at least 1898 to 1910.
- [v.c. 99, Dunbarton. There is a single record cited for v.c. 99 in Jones (1975) but its origin is unknown (A. Rutherford, C. A. Stace, pers. comms. 2001) and it is not accepted.]

It is noteworthy that the generally southern distribution of the hybrid (Fig. 1) coincides with the area of relative high frequency of tetraploid *C. pratensis* (with aneuploid chromosome number of $2n = 30$) in southern Britain as reported by Hussein (1955). This might be expected from the results of Lövkvist (1956), who found that *C. flexuosa* × tetraploid *C. pratensis* was relatively easy to synthesise, but only with *C. flexuosa* as the female parent; crosses with higher chromosome races were unsuccessful.

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WHAT IS *ROSA ALBA* L.?

The name *R. alba* L. is traditionally applied to the white rose of York, the badge of the Yorkist faction in the 15th century Wars of the Roses. Early accounts considered it a separate species but now the general consensus of opinion is that it is a garden plant of ancient hybrid origin.

There have been a number of opinions propounded by various authors (cf. references) as to the parentage of this hybrid rose, most often involving the species *R. arvensis*, *R. gallica*, *R. canina* and others. In such an ancient hybrid it is likely that introgression and back-crossing have occurred. It is generally accepted that *R. xalba* has a chromosome number of $2n = 42$. This could result from a cross between a tetraploid ($2n = 28$) as male and an unbalanced polyploid ($2n = 35$) as female. It could also be an amphidiploid ($2n = 42$) derived from a triploid ($2n = 21$) hybrid such as *R. arvensis* × *R. gallica*.

There are three original elements for this Linnaean name: a Herb. Burser specimen in **UPS** seen by Linnaeus, a **LINN** specimen and an illustration by Besler (1613). The latter is grossly inaccurate in detail – for example the pedicel is about 6 cm long, has a pair of stipules at the base and a leaf with no stipules arising half way along it. Linnaeus's protologue allows for both single and *flore pleno* forms, the specimen in **LINN** being *flore pleno*.

We have examined the specimen in **LINN** (No. 652.44 LINN.), and Cafferty & Jarvis (2002) used this specimen with our description as the lectotype. They referred to Stearn (1978), who noted that Linnaeus' name refers to an ancient garden rose, and that the material in his herbarium (652.44 LINN) is “an authentic specimen” and agrees with the modern usage of the name.

R. xalba occurs in Britain mainly as a naturalized garden escape and Stace *et al.* (2003) list it as recorded from ten vice-counties. We have examined specimens from four of these plus one additional locality – v.c. 9 (Bere Heath), v.c. 37 (Bentley), v.c. 58 (Prestbury and Gawsworth), v.c. 61 (Driffield) and v.c. 71 (Ramsey). We have also examined specimens at The Gardens of the Rose, St. Albans, Hertfordshire, where we took the opportunity to examine *R. gallica*. Fresh material in fruit was examined from all these places. These specimens, the specimen in **LINN**, a description of the Burser specimen kindly supplied from **UPS**, and the description in Graham & Primavesi (1993) are basically consistent in important characters such as leaf pubescence, glandulosity, armature, hip shape etc., allowing for the inevitable variation in cultivars of an ancient garden rose, and the difficulty of discerning all the characters in the two herbarium specimens.

In our experience, after having examined thousands of specimens in the field and herbaria, the characters of rose hybrids are always intermediate between the two parents. We consider at present that the true parentage of this hybrid is unknown, but we are certain that it is not a hybrid between *R. arvensis* and *R. gallica* as has been suggested by Graham & Primavesi (1993), as examination of these two taxa does not seem compatible with this parentage, the principal differences being:–

- a) *R. xalba* has a distinctly grooved stem, absent in both the other two species.
- b) *R. gallica* has stems with many glands, pricklets and acicles. We would have expected that some of these to have appeared in *R. xalba* but they are absent in all the specimens examined.
- c) *R. gallica* has both glandular leaves and stipules; again these are absent in *R. xalba*.
- d) *R. arvensis* has small and simple sepals, in *R. gallica* they are short, broadly triangular, pinnate and glandular, whereas in *R. xalba* they are distinctly longer than either species (up to 3.5 cm), pinnate with long leafy tips and eglandular.
- e) *R. arvensis* has a very narrow styler orifice, about 1/6 the diameter of the disc, in *R. gallica* the orifice is slightly wider, between 1/4 and 1/3 the diameter. It would be expected that, in at least some of the specimens of *R. xalba*, the width of the orifice would be intermediate in size, but we have found none with the orifice less than 1/2 the diameter of the disc.

In our opinion considerable research would be necessary to establish what is the original parentage of this hybrid, and this would involve close cytological and morphological examination of at least a number of continental species.

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ERICA MACKAIANA BAB. AND *ERICA* ×*STUARTII* (MACFARL.) MAST.
(ERICACEAE): TWO HEATHERS NEW TO SOUTH KERRY (V.C. H1), IRELAND

The flora of County Kerry (which is divided into two vice-counties, v.c. H1 South Kerry, and v.c. H2 North Kerry) is comparatively well-known – some of the earliest records of Irish native plants were from that county and it was the subject of one of the finest twentieth-century Irish county Floras, by Dr Reginald Scully (1916). It is, therefore, not only surprising but also of considerable phytogeographic interest to report two new heathers from South Kerry: *Erica mackaiana* Bab. (Mackay's heath), and its hybrid with *E. tetralix* L. (Cross-leaved heath), the Irish endemic *E. ×stuartii* (Macfarl.) Mast. (Praeger's heath) (for discussion of the authority of *E. ×stuartii*, see Nelson 1995). *Erica mackaiana* is a member of the so-called Hiberno-Lusitanian element of the flora of Ireland (cf. Praeger 1934): Preston & Hill (1997) placed this species in the Oceanic Temperate element. Hitherto *E. mackaiana* has been recorded from two separate localities in West Galway (v.c. H16) (see e.g. Praeger 1909; Scannell & McClintock 1974; Webb & Scannell 1983; for distribution map see Nelson 1981), from bogland in West Mayo (v.c. H27) (van Doorslaer 1990), and from the environs of Upper Lough Nacung, West Donegal (v.c. H35) (for distribution map see Webb 1954). Its distribution in Ireland is markedly disjunct, a feature emphasised by the population reported here. Figure 1 is a revised distribution map for the species and its hybrid.

The most extensive population, ranging through an area approximately 8 km from north to south and 5 km from west to east, is that in West Galway (Nelson 1981). The population at Lough Nacung, West Donegal, is the next most extensive, ranging about 2.6 km west to east and north to south (Figure 1 is deceptive: by a quirk of the positions of the 10-km grid lines, the more extensive Connemara population exists within just two 10-km squares, whereas the much less extensive Donegal one occupies twice as many squares.) The West Mayo and Carna (West Galway) populations each occupy only a few hundred square metres, and so are the smallest.

In July 2003, Mr David Edge (Forest Edge Nurseries, Wimborne, Dorset) was on holiday in County Kerry when he noticed a patch of an unusual heather. He collected a few small specimens which eventually reached the present author, and I identified them as *E. mackaiana*. Mr Edge was unable at that time to provide exact details of the locality but when he returned to Ireland in November 2003 he retraced his previous route and sent me the necessary precise details as well as some further specimens which, incidentally, included *E. ×stuartii*, thereby also adding that taxon to the county's Flora.

I visited County Kerry between 22 and 24 July 2004 to examine the population that Mr Edge had discovered and to attempt to determine its exact limits. This note reports the results of my research, during which I traced these two heathers within an area extending approximately 2.5 km north to south and an equal distance east to west, and within two separate river catchments. Voucher specimens of the heaths have been deposited in the National Botanic Gardens, Glasnevin, Dublin (DBN).

The habitat of the two heathers on the Iveragh Peninsula lies around 5–6 km due east of Cahersiveen, at an altitude ranging between c. 110 m and c. 150 m asl. Mr Edge found *E. mackaiana* growing in the narrow roadside reservation/firebreak on the northern side of the third-class road that links Cahersiveen, via Raheens townland, and Ballaghisheen Pass. The site of discovery (grid reference V574779) lies between two mountain streams, tributaries of Kealafreaghane River (itself a tributary of the River Inny), that flow south from the hill named Caunoge (502 m asl; grid reference V583800). The site is sandwiched between two substantial forestry plantations. *Erica ×stuartii* also grows in this reservation, which was evidently deeply ploughed when the plantations were established in the early 1970s (Denis O'Sullivan, Coillte Teoranta, Cahersiveen, pers. comm., 25 August 2004).

On the south side of the road there is a wide (c. 100 m) firebreak through which runs a high-tension electricity transmission line. The blanket peat which covers the terrain in the firebreak under the electricity lines is much less disturbed – it has not been deeply ploughed. In this wide reservation, I was able quickly to find numerous plants that resembled *E. mackaiana* (see below).

I traced both *E. mackaiana* and *E. ×stuartii* c. 0.7 km to the east of the original site, to a forestry road (closed by a barrier, grid reference V 580776) that runs north into the plantation. A single shrub of *E. ×stuartii* was growing on the western edge of the forestry road, about 30 m from the barrier. A remarkably large plant of *E. mackaiana* was growing in the reservation a few metres to

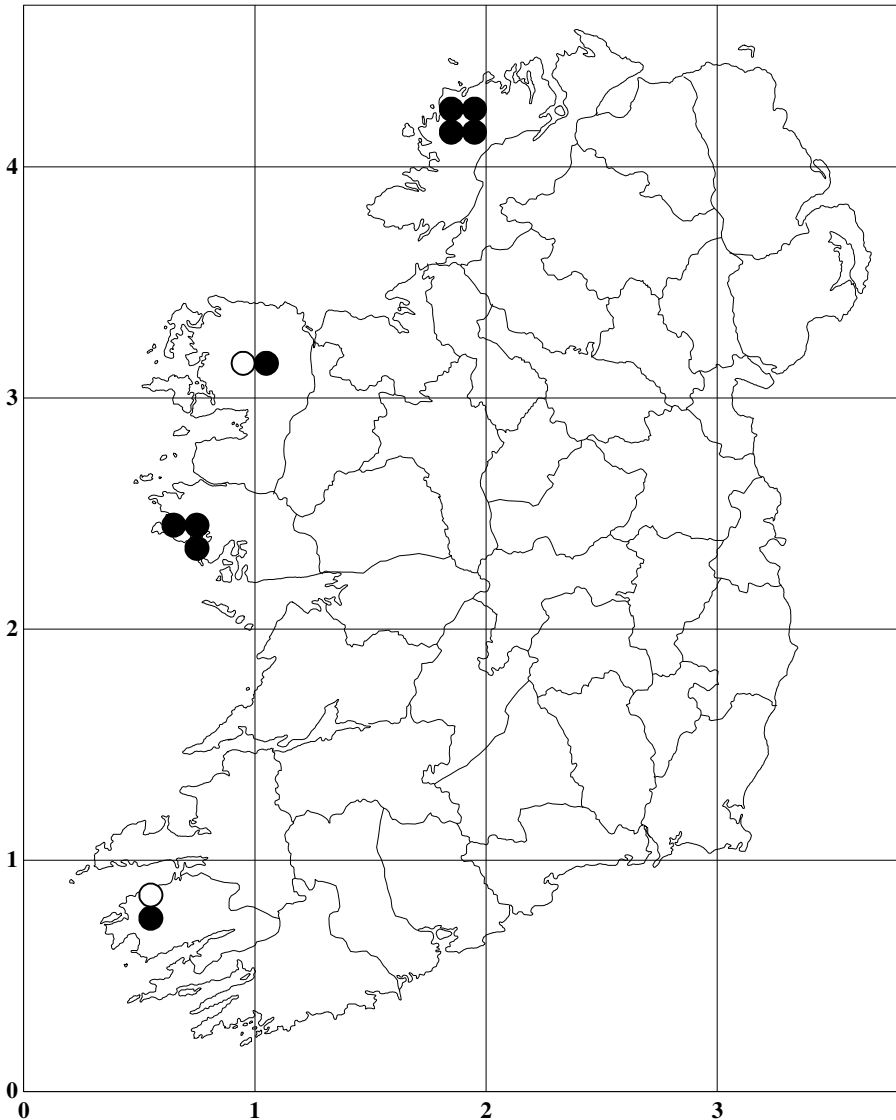


FIGURE 1. 10-km square distribution of *Erica* \times *stuartii* and *E. mackaiana*, amended and updated from that published in *New atlas of the British and Irish flora* (Preston *et al.*, 2002). ● Squares with both *Erica mackaiana* and *E. xstuartii*, ○ squares with *Erica xstuartii* only.

the west of the barrier. This particular plant, a mass of intertwined stems and twigs, formed hummocks around 1.5 m in height: where it was supported against the trunks of two birch trees, the flowering shoots reached at least 1.7 m. I also found scattered plants of *E. xstuartii* in the wide firebreak on the southern side of the road.

A bog-road, situated in the townland of Knockaneden and leading south-south-east (from grid reference V561780) allowed limited access to the peatlands of the Kealafreaghane valley. There are abandoned and active turbarry banks in this area. Approximately 0.5 km along this road, on the western side, is a small “quarry”, and scattered plants of *E. xstuartii* were found on the blanket bog to the east and also to the west of this. The individual shrubs were very widely separated, and the hybrid appeared to peter out to the west. In an area where modern peat-cutting machinery has

been working only *E. tetralix* could be found – it was abundant, indeed dominant, on the debris of the turbary workings.

In the field, using a $\times 20$ hand-lens, I attempted to determine whether the plants that *looked* like Mackay's heath exactly matched that species. The diagnostic character that I used was a glabrous ovary; any plants that have hairs on the ovary are either *E. \times stuartii* (sparse, usually very short hairs) or *E. tetralix* (dense, long, shaggy hairs) (see Nelson 2001). It soon became clear that *E. \times stuartii* was much more common than *E. mackaiana*. In an attempt to assess the relative abundance of the hybrid *versus* Mackay's heath, I traversed the blanket peat of the wide firebreak beneath the transmission lines, to the east of the two mountain streams. Pausing every three paces, I gathered a flowering shoot from whatever heather belonging to the *E. tetralix/mackaiana/* *\times stuartii* complex was at my feet; the total number of specimens was 86. Subsequently the ovaries were examined using a binocular microscope. Of those 86 specimens, 59 (69%) had sparsely hirsute ovaries indicating that they were of hybrid origin (i.e. *E. \times stuartii*), whereas only 2 (2.3%) had glabrous ovaries (i.e. *E. mackaiana*). The other specimens were identified as *E. tetralix*, due to their densely hirsute ovaries. There was remarkable variation in the density and disposition of the hairs on the ovaries of the *E. \times stuartii* specimens, suggesting that the hybrid has arisen many times in this area, and perhaps also that back-crossing has occurred.

The westernmost locality traced for *E. mackaiana* was a rocky bluff (grid reference V559786) due north of the "cross-roads" (named Knockaneden Cross on sheet 20 (Dingle Bay) 1975 ½-inch Ordnance Survey map). On the bluff is a dense patch of Mackay's heath (perhaps representing a single plant, and certainly a single clone) extending about 10 m along the road and ranging perhaps 5 m up the slope. At this site, *E. mackaiana* was growing with *E. cinerea* L. (Bell heather), *Euphorbia hyberna* L. (Irish spurge), and *Ulex* spp. (gorse). *Erica \times stuartii* occurs close by, to the south between the bluff and the "cross-roads", on wet blanket peat. I also found the hybrid at a site c. 1.2 km to the north of this in Teernahila townland: a single plant on a peat bank beside a fence (grid reference V561801). Thus *E. mackaiana* apparently occupies a very narrow strip (perhaps only 100 m wide) that extends c. 2 km east-west, whereas the area of occurrence of *E. \times stuartii* exceeds this with a north/south range of c. 2.5 km and an east/west range of c. 2 km. In this, the Kerry populations resemble the Mayo ones reported by van Doorslaer (1990); there *E. mackaiana* is restricted to two small areas (one extending only 100 m along the sides of a drainage ditch), whereas the hybrid ranges through an area 2.5 km long and 0.5 km wide (van Doorslaer 1990; and pers. comm.).

Whereas the site discovered by David Edge, as well as the others to the east and south which I have reported here, lie within the catchment of the River Inny (which includes the Kealafreaghane River), the plants located to the north of Knockaneden Cross lie within the quite separate catchment of the River Ferta which flows west into the Valentia River.

Having seen Mackay's heath and Praeger's heath in South Kerry, and despite the close proximity of forestry plantations, I am convinced that *E. mackaiana* is a native species in the county, and that *E. \times stuartii* is also indigenous, having arisen *in situ* through cross-pollination of *E. tetralix* by *E. mackaiana*, or *vice versa*. The phytogeographic implications of this will require further analysis – it is highly desirable that pollen and macrofossil data are obtained from the blanket and raised bogs in this area to establish whether *E. mackaiana* has grown in the region throughout the post-glacial era. It is worth repeating that in South Kerry Mackay's heath and the Irish spurge coexist, and also noting that both species are now known from the northern and southern extremities of Ireland. *Euphorbia hyberna* grows in the Owenerk River valley at Dunree, East Donegal (v.c. H34), approximately 50 km to the east-north-east of the most northerly habitat of *Erica mackaiana* at Lough Nacung, West Donegal.

E. \times stuartii invariably accompanies *E. mackaiana* in Ireland. A report (Lamb 1964) of *E. \times stuartii* occurring without *E. mackaiana* nearby is enigmatic and needs to be treated with the greatest caution. Neither van Doorslaer (1990) nor the present author has found any signs of *E. \times stuartii* (formerly *E. \times praegeri* Ostenf.) at Lamb's carefully described locality at Portacloy in northwest West Mayo (I visited Portacloy during the late 1970s and again on 26 July 2004). However, an unusual variant of *E. tetralix* with almost glabrous foliage is predominant there (see also Synnott 1986). (Unfortunately, as noted by Coker & Nelson (2004), Lamb's (1964) paper had been misconstrued and was the basis of the erroneous "dot" in northwest Mayo (at F84) on the distribution map of *E. mackaiana* published in *New atlas of the British and Irish flora* (Preston *et al.* 2003).)

The Inny and Ferta valleys contain substantial areas of blanket and raised bogs which, while being harvested for peat, are not yet either covered by forestry plantations or intensively used for grazing cattle and sheep. My fieldwork was restricted to the peatlands adjacent to roads and tracks, although I did scan a substantial area using binoculars – *E. xstuartii* plants stand out very clearly, and *E. tetralix* can easily be distinguished too. A more detailed survey of the valleys is clearly desirable, and such a survey could extend the range of both *E. mackaiana* and *E. xstuartii* within the Iveragh Peninsula.

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RUBUS RADULICAULIS SUDRE (ROSACEAE) IN THE SOLENT REGION

In the late 1880s a distinctive, shortly glandular-aciculate bramble with deep pink concave petals and elliptical or obovate, often cuneate-based terminal leaflets was found to be widely distributed and locally abundant in shady habitats over much of Herefordshire, v.c. 36. Known for many years subsequently as *R. sertiflorus* P. J. Mueller on the strength of a determination by Babington, its eventual distribution under that name as no. 90 in the historic Set of British Rubi led one of the recipients of that, Sudre (1904), to identify that as a nomenclatural error: it matched instead another, seemingly undescribed bramble of which he had come across a specimen in Mueller’s

herbarium and for which he had coined the name *R. radulicaulis*. Though Watson (1958) was to adopt a broader interpretation of the taxon, in his monograph placing under it material from nine further English counties and two regions of France, Edees & Newton (1988) concluded that that was misconceived and returned to Sudre's narrow definition, a treatment that has met with general assent. The species has accordingly reverted to its original status as a narrowly regional one, exclusive to the southern half of the Welsh Borders as far as Britain is concerned, with the adjoining vice-counties of Monmouth, v.c. 35, and Brecon, v.c. 42, alone added to the Herefordshire headquarters (Edees & Newton 1988; Newton & Randall 2004).

Never having had an opportunity of seeing *R. radulicaulis* in the living state, I did not connect it till 2004 with an unnamed bramble "H1056" (c.f. Allen 2003) that I had been encountering increasingly frequently in the Isle of Wight, v.c. 10, and South Hampshire, v.c. 11, during the previous decade and a half. The great distance of those from the Welsh Borders and their more maritime climate gave no ground for suspecting that this trans-Solent plant and *R. radulicaulis* were one and the same. The plentiful Herefordshire material of the latter in herbaria, moreover, is on the whole deceptively more robust. It was only after specimens similar to those increasingly began to be met with in the Solent region that the identity of the two eventually suggested itself, a conclusion with which A. Newton has subsequently concurred.

In the Isle of Wight the species is mainly found thinly scattered through what was clearly once a continuous belt of woodland across the north-east corner of the Island in the triangle of country between the towns of Newport, Ryde and Brading. Of the numerous separately-named fragments of that belt now surviving, nine have so far produced *R. radulicaulis*, usually on their margins but also in lightly-shaded areas within, on Palaeogene clays and Quaternary gravels alike. From the northernmost of those fragments, Quarr Wood, there is a specimen in CGE collected by T. Bell Salter as long ago as 1845 (later misdetermined by Rogers as the related member of series *Radula* now known as *R. rufescens* Lef. & P. J. Mueller). In K there is also one collected by J. G. Baker in 1869 in Shanklin Chine, by the coast some 7 km south-east of the southernmost point of that woodland belt. Mount Farm Copse, Ningwood (SZ391800), in the far west of the Island, has recently been the site of an even more isolated find.

The Hampshire populations tend to be larger but more remote from one another. With one exception all are in various fragments of the Forest of Bere that formerly covered most of the south-east of the county (topographically, the counterpart of the Isle of Wight woodland belt), three within a 10 km radius of Havant, the other close to Southampton Water, far to the west (Thatcher's Coppice, near Titchfield, SU528038). A solitary clump in the west half of the vice-county, on the edge of a section of planted conifers in Ampfield Wood (at SU411233), may be the product of a stray, accidental introduction with forestry saplings.

In all, *R. radulicaulis* is so far on record in the Solent region from seven hectads: SZ50, 58 and 59 in v.c. 10 and SU42, 50, 60 and 71 in v.c. 11. This doubles the hectad total for Britain known at the time the Atlas of British and Irish Brambles (Newton & Randall 2004) was compiled. The Solent region is thus revealed as not only a second area of occurrence fully as large as the one from which the species has hitherto been known, but as also gratifyingly filling a substantial gap in what may otherwise be a markedly disjunct European range.

Unfortunately, the extent of the Continental part of that range is at present uncertain. At the time he published the name of the taxon Sudre (1904) mentioned having seen specimens of it from "Alsace" – then in Germany – as well as three (named) French *départements* with "etc" added, implying several more. If the sole basis for his listing of Alsace, however, was the specimen he mentioned having found in Mueller's herbarium, that can only have been an informed guess – Alsace having been where Mueller lived and did at least most of his extensive collecting of *Rubus* – for re-inspection of the specimen in question at Lausanne (LAU), which has necessarily led to its being chosen as the lectotype, has revealed that it is unlocalised as well as undated (Edees & Newton 1988). It cannot therefore be excluded that it came from some quite other area, possibly received from another collector. By the time his eventual monograph began appearing (Sudre 1911) the original list of areas from which Sudre indicated having determined specimens of *R. radulicaulis* had altered considerably, a Bavarian locality having displaced *dép.* Saône-et-Loire and the "etc" having disappeared, with the result that Alsace-cum-Bavaria was now no better represented than two *départements* in south-west Brittany. The climatic difference between those two Continental regions is so great that one cannot help suspecting that Sudre had conflated two

different entities, a suspicion, however, that cannot be checked until and unless the specimens he so determined can be located, a task which has generally proved frustrating for present-day *Rubus* taxonomists. On balance, south-west Brittany seems more consonant with the British range of the species as now known (another species, *R. neomalacus* Sudre, has a distribution apparently shared virtually exclusively by the mouth of the River Loire and the western two-thirds of Surrey, v.c. 17), but the other region can by no means be discounted. On present knowledge all that can be safely asserted is that *R. radulicaulis* putatively occurs also in mainland Europe but the only specimen currently authenticated believed to be from there is of uncertain provenance.

Representative material from both v.c. 10 and v.c. 11 has been donated to **BM** and **HCMS**.

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A HITHERTO UNDESCRIBED BRAMBLE *RUBUS* SECT. *CORYLIFOLII* (ROSACEAE)
OF CHALKY BOULDER CLAY IN EAST ANGLIA

On 6 July 1973 ALB collected a pink-flowered member of the Section *Corylifolii* (then Section *Triviales*) at Ringstead Downs in north-west Norfolk, TF64, v.c. 28, which was abundant there but was unknown to E. S. Eedes to whom it was submitted. The same plant was collected from the car park at R.S.P.B. Titchwell, TF74, in 1990 and from Ken Hill Estate at Snettisham, TF63, in 1996. These were all designated 'North West Norfolk Corylifolian'.

Whilst attending a B.S.B.I. *Rubus* meeting based on Colchester, v.c. 19, also in 1996, R. D. Randall presented ALB with a *Rubus* specimen that he had collected from nearby Daisy Green, TL9325, which agreed in the main with the Norfolk plant, though the stem was rather more pilose and glandular.

Both authors were visiting Borley Wood near Linton, Cambs., v.c. 29, on 16 July 2003 when a bramble was discovered which was immediately recognised as being the same as the plant from Ringstead *et al.* ACL then stated that the same plant occurred widely in Cambs. and that he had dubbed it the 'Wicken bramble'. It was then decided to visit various sites in Cambs. in 2004.

I noticed a sheet which stood out as part of the missing link between v.cc. 19, 29, and 28 whilst going through folders of indet. Suffolk *Rubi* during the winter of 2003/4 in **Herb. A. L. Bull**. This was collected in July 1977 from Bull's Wood where it was abundant 'because we had noted it to be frequent in the roadside hedges almost everywhere we had been that day'.

As a result of the discovery of the sheet from Cockfield, a specimen was sent to Dr. David Allen who is a frequent visitor to the *Rubus* section of the Herbarium at **BM** asking if he would be kind enough to look through indet. Corylifolian material when next he visited, to see if he could find any which matched our plant.

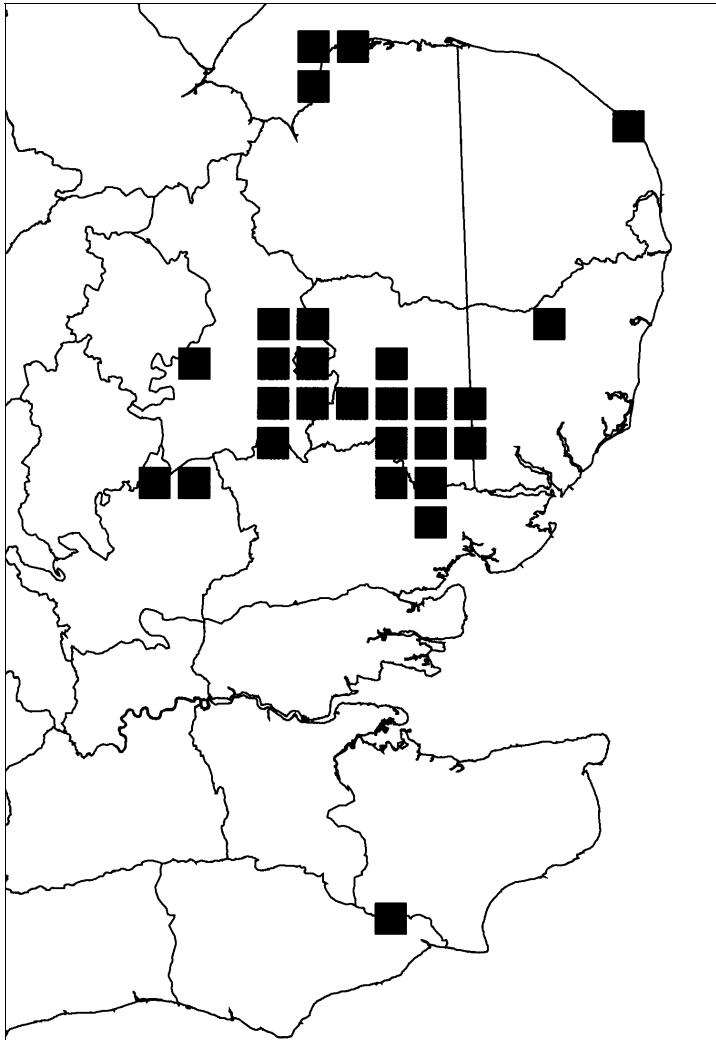
Several sheets were subsequently received on loan, mainly collected by the Rev. J. D. Gray from the vicinity of Nayland on the Suffolk/Essex border in the 1890s, but also, interestingly, a sheet from Little Boxhurst, Kent, TQ82, v.c. 15 collected by R. J. Pankhurst in 1973.

On 23 June 2004, the joint authors met at the Devil's Dyke, Newmarket, Suffolk, though in v.c. 29, and examined several clumps of the 'new' blackberry, and then went on to Horse Fen Drove near Wicken in Soham parish where, after due deliberation, type specimens were taken.

On 5 and 28 July 2004, ALB did two trips down through West Suffolk and into North Essex, stopping randomly once or twice in each hectad to, in the main, search the roadside hedgerows which in most areas on the clay contain little more than *Rubus ulmifolius*. By this method the plant was plotted in 11 hectads and, wherever it was present, it was found within 100 m of the parked car. Only 3 hectad stops drew blank and these were on more acidic soils. One of the sites where it was found was at Wissington Road, Nayland, where it had been collected by the Rev. J. D. Gray in 1898.

On 29 June 2004, whilst visiting E. Philp in Kent, a visit was paid to R. J. Pankhurst's grid reference at Boxhurst, and the site was found to have become overgrown and shaded. One weak stem corresponding to specimens of the new bramble was discovered, but insufficient to provide a voucher specimen. During visits to Herts., v.c. 20, during July 2004, whilst helping T. J. James with the Brambles for his forthcoming county Flora, the plant was found at several sites in TL23 and TL33, again on chalky boulder clay.

It was then decided that we ought to search through the indet. Corylifolium sheets in the Herbarium at CGE, so ACL arranged for us to pay a visit during December 2004. A certain



10-km records of *Rubus cantabrigiensis*.

number of sheets were discovered among the indet. folders, but even more were located when it was decided to look at all the Corylifolium material in the Herbarium. e.g., a sheet collected by J. D. Gray from Polstead, Suffolk, had been assigned to *Rubus balfourianus*(=*R. nemorosus*), which our plant very definitely was not.

The best sheet found amongst the earlier collections was one made by the Rev. W. M. Hind, from Long Melford in Suffolk, v.c. 28, TL84, on 16 July 1886. Curiously, the plant did not appear to have been collected by Babington.

Coming a little nearer in time, the plant obviously intrigued W. H. Mills who went back to Dry Drayton, v.c. 29 and collected it half a dozen times between 1947 and 1957, as well as from other sites in South Cambs. However, he named it incorrectly as *Rubus tuberculatus*, which is a densely glandular and prickly bramble with white flowers.

Sites have also been found for the plant in East Suffolk, v.c. 25 and East Norfolk, v.c. 27.

It has been mutually agreed that the plant will be named *Rubus cantabrigiensis*, the latinised name for Cambridge.

In addition, two sheets were sent to Professor H. E. Weber in Germany for a European opinion which was 'that the plant is not known in north-west Europe, but clearly belongs to the Corylifolii Ser. Subthyrsoidei and may have developed with *Rubus ulmifolius* as one of its ancestors.'

***Rubus cantabrigiensis* A.L. Bull & A.C. Leslie sp. nov.**

Turio arcuatus, apice radicans, acutangulus, glauciviridis, postea obscure purpurascens, pruinosis, glaber vel aliquando pilis simplicibus glandulisque brevistipitatis paucissimis, raro aculeolis sparsissimis praeditus; *aculei* 8–12 per 5 cm, validi, (5–)6–7(–8) mm, apice gracili patenti vel sursum curvato, e basi longa (4 mm) prolongato, sicut turio colorati, acumine luteo. *Folia* pedata; *foliola* terna vel quina, supra saepe aliquantum obscure cinereoviridia, pilis simplicibus sparsim strigosa, infra viridicinea, coacta, pilis simplicibus stellatisque brevibus molliter pubescentia, in venis pilis simplicibus longioribus vestita; *foliolium terminale* 6–8 × 5–7 cm, aut elliptico-obovatum acuminatum lateribus rotundatis basique integra aut oblongo-obovatum lateribus infra medium rectis apice abrupte cuspidato 1 cm basique aliquantum emarginata, semper marginibus serratis dentes principales prominentes ferentibus, petiolulo lamina sua triplo brevior; foliolorum genera ambo in fructe eadem inveniuntur; foliola basalia petiolulis 1 mm vel nullis praedita; *petiolus* foliolis basalibus longior, sicut turio coloratus, aculeis aliquot declinatis vel curvatis circa 3 mm munitus. *Ramus florifer* rectus vel interdum aliquantum flexuosus, usque ad apicem foliatus, foliis aliquot ternatis et plerumque folio uno simplice vestitus, paniculae terminalis foliolis saepe longe ellipticis vel aliquantum obovatis, fere duplo longioribus quam latioribus; *inflorescentia* plerumque corymbus densus ramulis inferioribus erectis vel ascendentibus instructus, aculeis longis gracilibus sursum versis, ad 5(–6–7) mm, e basi rubra luteolis, et in pedicellis aculeis gracillimis multis armatus; *rhachis* sicut turio colorata, per totam longitudinem coacta, in inflorescentia pilis longis simplicibus caespitosisque nonnullis vestita, sed his minus conspicuis quam glandulis stipitatis paucis vel satis numerosis, in pedicellis multum auctis. *Flores* 2.5 cm diametro; *sepala* cinerascens spisse coacta longicuspida, glandulis stipitatis paucis aciculisque sparsissimis praedita, primo patentia vel laxa reflexa, tandem fructum maturum laxa amplectentia; *petala* 10–12 × 6–8 mm, plerumque rosea, late elliptica vel infra medium latissima, saepe emarginata; *filamenta* alba, stylos rubros vel basi rubra aequantia vel excedentia; *antherae* glabrae; *carpella* juvenia glabra; *receptaculum* glabrum; *fructus* maturi nigri, perfecte formati, modice grandes bonique. Panicula secundaria e basi rhachidis principalis saepe crescens, primam superans et florescentiam e fine Maii in initium Augusti prorogans.

Stem arching, with rooting tip, sharply angled, glaucous-green becoming dull purplish, pruinose, glabrous or occasionally with very few simple hairs and short stalked glands, rarely with very sparse pricklets; *prickles* 8–12 per 5 cm, strong, (5–)6–7(–8) mm, with slender patent or upcurved tip from a long base (4 mm), coloured like the stem with a yellow point. *Leaves* pedate; *leaflets* 3–5, often rather dull greyish-green and sparsely strigose with simple hairs above, greenish-grey, felted and softly pubescent with short simple and stellate hairs below, with longer simple hairs on the veins; *terminal leaflet* 6–8 × 5–7 cm, either elliptic-obovate, acuminate, with rounded sides and entire base, or oblong-obovate with sides straight below the middle, abruptly cuspidate apex 1 cm and somewhat emarginate base, always with serrate margins, with the principal teeth prominent,

and petiolule 1/3 as long as the lamina; both types of leaflets may be found on the same bush; basal leaflets with petiolules 1 mm or 0; *petiole* longer than the basal leaflets, coloured like the stem, with several declining or curved prickles c. 3 mm. *Flowering branch* straight or sometimes somewhat flexuous, leafy to the tip with several ternate leaves and usually one simple leaf, with the leaflets of the terminal panicle often long-elliptic or somewhat obovate, almost twice as long as broad; *inflorescence* usually a dense corymb with erect to ascending lower branches, armed with long slender upturned prickles up to 5(–6–7) mm long, yellowish from a red base, and with many very slender prickles on the pedicels; *rachis* coloured like the stem, felted throughout its length, with some long simple and tufted hairs in the inflorescence, but with these less noticeable than the few to rather numerous stalked glands, which become more numerous on the pedicels. *Flowers* 2.5 cm in diameter; *sepals* greyish, densely felted, long-pointed, with a few stalked glands and very sparse acicles, spreading or loosely reflexed at first, at length loosely clasping the ripe fruit; *petals* 10–12 × 6–8 mm, usually pink, broadly elliptic or widest below the middle, often notched; *filaments* white, equalling or exceeding the red or red-based styles; *anthers* glabrous; young *carpels* glabrous; *receptacle* glabrous; ripe *fruits* black, perfectly formed, moderately large and good. A secondary panicle often grows from the base of the main rachis, overtopping the first and lengthening the flowering season from the end of May to the beginning of August.

Rubus cantabrigiensis can be recognised in the field by the grey green to dull purplish pruinose stem with long slender patent to upturned prickles, the grey green obovate leaflets on the stem and the often long obovate terminal leaflets in the panicle. The panicle is usually quite glandular but the stems are not. The large secondary panicle is a fairly constant feature in most populations.

HOLOTYPE: Horse Fen Drove, Soham, Cambs, v.c. 29 TL583708 **BM**.

REPRESENTATIVE EXSICCATAE

V.C. 19 NORTH ESSEX

Woodland edge, Bulmer Tye, TL8436, 28 July 2004, **Herb. ALB**; Pentlow picnic place, TL8346, 5 July 2004, **Herb. ALB**.

V.C. 20 HERTFORDSHIRE

Weston Hills, TL2432, 9 July 2004, **Herb. ALB**; Barkway, TL3935, 7 July 2004, **Herb. ALB**.

V.C. 26 WEST SUFFOLK

Bull's Wood, Cockfield, TL9254, 15 July 1977, **Herb. ALB**; Wissington Road, Nayland, TL9634, 5 July 2004, **Herb. ALB**; Long Melford, TL84, 19 July 1886, W. M. Hind, **CGE**.

V.C. 28 WEST NORFOLK

Ringstead Downs, TF6941, 6 July 1973, **Herb. ALB**; Ken Hill Estate, Snettisham, TF63, 13 August 1996, **Herb. ALB**.

V.C. 29 CAMBRIDGESHIRE

Devil's Dyke, Newmarket, TL6261, 23 June 2004, **Herb. ALB**; Borley Wood, Linton, TL5748, 16 July 2003, **Herb. ALB**.

Our thanks are due to Mr Philip Oswald for providing the Latin diagnosis; to Mr Bob Ellis for doing the distribution map; to Dr. D. E. Allen for searching for and arranging the loan of specimens, from **BM**; to the Curator of the Herbarium at **CGE** for allowing us to spend most of a day searching for specimens which were then placed in a new folder appropriately labelled; to Mr A. Newton for examining and approving a whole parcel of *Rubus cantabrigiensis* and also to Prof. Weber for his valuable comments.

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HIEROCHLOE ODORATA (L.) BEAUV. (POACEAE) – A GRASS NEW TO ENGLAND

Hierochloe odorata, Holy Grass, has a Circumpolar Boreal-montane distribution (Preston & Hill 1997). In Europe it is frequent over much of Fennoscandia and extends to the Alps and the Black Sea (Hultén 1964). In Britain it has always been considered rare and its Scottish localities have only become known gradually over the last two centuries, though they are now known to extend from Orkney to the Scottish Borders. It also occurs by Lough Neagh in Northern Ireland (Preston *et al.* 2002). Holy Grass is sweet-scented when dried, like its relative *Anthoxanthum odoratum*, Sweet Vernal-grass, in whose genus it may soon be subsumed (T. A. Cope, pers. comm., 2004) and is sometimes believed to have been introduced to at least some of its British localities by the Vikings. Hooker (1821) refers not only to its being used to strew on church floors on saint's days in Germany (the origin of its name) but cites Linnaeus as telling us that 'it is a soporific, and sold in the towns in Sweden to be suspended over the beds, and induce sleep'. Its habitats in Britain are various but all are level, heavily-flushed habitats with some base-richness at low or modest altitude rather than montane.

On 3 May 2004 I found this grass while resurveying property owned by my family at Houghton beside the River North Tyne in Northumberland (v.c. 67), NY97, which I had recorded 30 years previously at a period when I was very ignorant about grasses. I revisited the site on 11 May with R. W. M. Corner, A. G. Lunn, F. J. Roberts and Mrs P. F. Braithwaite when a list of associated species was made. G. A. Swan was supplied with a voucher specimen. A further visit was made on 25 June.

The main North Tyne colony of *Hierochloe* lies at an altitude of about 65 m and is spread over about 50 m² in runnels between massive blocks of whinstone (quartz-dolerite) where it grows in a sandy calcareous alluvium. It is associated with a diverse plant community. Close associates are *Trollius europaeus*, Globeflower, and *Galium boreale*, Northern Bedstraw. Other associates are *Achillea millefolium*, *Achillea ptarmica*, *Alchemilla glabra*, *Alnus glutinosa*, *Anemone nemorosa*, **Angelica sylvestris*, *Anthoxanthum odoratum*, *Blysmus compressus*, **Caltha palustris*, **Campanula latifolia*, **Cardamine amara*, *Cardamine pratensis*, *Carex nigra*, *Carex remota*, *Centaurea nigra*, *Cirsium arvense*, *Conopodium majus*, **Crepis paludosa*, *Dactylorhiza fuchsii*, *Deschampsia cespitosa*, **Equisetum arvense*, *Filipendula ulmaria*, *Galium palustre*, *Galium verum*, **Heracleum sphondylium*, *Hyacinthoides non-scripta*, *Hypericum xdesetangsii*, *Juncus conglomeratus*, *Leucanthemum vulgare*, *Luzula sylvatica*, **Lysimachia vulgaris*, **Phalaris arundinacea*, **Ranunculus acris*, *Ranunculus ficaria*, *Rhinanthus minor*, *Rumex obtusifolius*, *Sagina procumbens*, *Salix purpurea*, *Salix xmultinervis*, *Sanguisorba officinalis*, *Trifolium repens*, and **Vicia cracca*. *Cirsium heterophyllum* grows nearby. A smaller colony of *Hierochloe*, a little upstream, forms a narrow strip along 3 m of the river's edge where it is closely associated with *Trollius europaeus* and *Persicaria bistorta*, Common Bistort. Other associates are those asterisked in the list above and *Aegopodium podagraria*. The *Hierochloe* might be thought to be particularly subject to domination by *Phalaris arundinacea*. In fact the *Phalaris* occupies a narrow strip actually in the water while the *Hierochloe* occupies a ledge just above normal water level. The habitat appears to be more base-rich than is typical of *Hierochloe* localities elsewhere, perhaps following the fairly general rule that species become less catholic in their habitat tolerances near the periphery of their distributions.

The North Tyne habitat, though choice, is by no means unique and the grass, which flowers in April and May, should surely be looked for again in suitable habitats by the Tyne, Tees and rivers in the Lake District where it could easily have been overlooked, not least because of its early flowering time and because it may not flower every year (J. K. Butler, pers. comm.). However, a search for *Hierochloe* at some of the other *Trollius* sites on the North Tyne was unsuccessful.

Although this may be the first record for England, a 19th C herbarium specimen of *Hierochloe* marked Wallington (a major landed estate in Northumberland, NZ08) exists in the Hancock Museum *ex herb.* Nathaniel Winch. Winch does not refer to *Hierochloe* in his *Flora of Northumberland and Durham* (1831), or its addenda (1837), and the specimen may well have been come from material circulated to his friend and fellow botanist Sir Walter C. Trevelyan, soon to be squire of Wallington on the death of his father in 1846, following its discovery by the Thurso river in Caithness by Robert Dick around 1834, as he is known to have distributed specimens. Trevelyan

gathered a large herbarium, largely of local plants, of which 1,200 sheets are preserved in the Hancock. Although Wallington is only about 15 km from the *Hierochloë* locality by the North Tyne it lies in a different river system, the Wansbeck, and does not appear likely to have had suitable habitat in its vicinity. Professor G. A. Swan in his *Flora of Northumberland* (1993) has taken the specimen to relate to material cultivated at Wallington; nevertheless, in the light of the new locality nearby, the possibility of a former locality at Wallington cannot entirely be ruled out.

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