

## Notes

### *PETRORHAGIA PROLIFERA* (L.) P. W. BALL & HEYWOOD (CARYOPHYLLACEAE), AN OVERLOOKED NATIVE SPECIES IN EASTERN ENGLAND

Recent years have seen several additions to the native flora of Britain, either as a result of new geographical records or the elucidation of taxonomic problems. *Petrorhagia prolifera* (L.) P. W. Ball & Heywood, Proliferous Pink, reported here as a native species, represents a mixture of both. Floras published before 1962 recorded *P. prolifera*, under the names *Dianthus prolifer* L., *Tunica prolifera* (L.) Scop. or *Kohlruschia prolifera* (L.) Kunth, as a native plant, at least on the south coast.

However, plants on coastal shingle beaches from Hampshire to Kent have been shown subsequently to belong to the closely related *P. nanteuillii* (Burnat) P. W. Ball & Heywood, Childing Pink (Ball & Heywood 1962). This species is now restricted in Britain to W. Sussex (v.c. 13). *P. nanteuillii* can be distinguished from *P. prolifera* by several small but constant morphological features, notably the tuberculate rather than reticulate seed testa, and by a chromosome number of  $2n = 60$  as opposed to  $2n = 30$  (Ball & Heywood 1962, 1964).

Evidence derived from morphological, cytological and geographical data and from hybridization experiments suggests strongly that *P. nanteuillii* is an allotetraploid derived from *P. prolifera* and another diploid species, *P. velutina* (L.) P. W. Ball & Heywood (Akeroyd 1975; Thomas 1983). *P. velutina*, which has smaller, echinate seeds and a chromosome number of  $2n = 30$ , is widespread in the Mediterranean region and southern Europe, but does not occur in Britain. Two other closely related species are endemic to the Balkan Peninsula. The most recent revision of the genus (Ball & Heywood 1964) and the second edition of *Flora Europaea* Volume 1 (Ball & Akeroyd 1993) include these five annual species within *Petrorhagia*, as section *Kohlruschia*. However, some continental botanists retain *Kohlruschia* as a distinct genus.

It has recently become clear that two species of *Petrorhagia* section *Kohlruschia* are present in Britain. Each of us had concluded independently, together with Dony & Dony (1986), that a *Petrorhagia* species is native inland in eastern England. Beckett (1992) reported on the status of an extant population of *P. nanteuillii* in West Norfolk (v.c. 28), suggesting that it was native. The plant had been reported, as *Tunica prolifera* (L.) Scop., by Trimmer (1866) from between Stanhoe and Bircham and from Fincham in the same part of the county, and was familiar to Norfolk botanists up until 1950, although not seen again until 1985. Examination by J.R.A. of collections of *Petrorhagia* in the herbaria of the Universities of Cambridge (CGE) and Reading (RNG), the Natural History Museum, London (BM) and the Castle Museum, Norwich (NWH), including a comparison of seed testas with a sample collected by G.B. in Norfolk in 1992, has confirmed that the Norfolk plant is indeed *P. prolifera*. A preliminary note of these observations has been published elsewhere (Akeroyd 1993).

*P. prolifera*, recorded mostly in eastern England, had long been regarded as a casual or locally as an established alien. The species, now apparently reduced in Britain to two populations, has its British headquarters in a few adjacent parishes in the Breckland of West Norfolk (v.c. 28). *P. prolifera* is a species with a central to south-eastern European distribution, extending northwards to Denmark and the Swedish Baltic islands of Öland and Gotland. Its presence in eastern England is therefore not unexpected, especially in the Breckland, famous for its native flora of species of central European affinity (Trist 1979). A second population in Bedfordshire (v.c. 30) is less convincingly native, but may derive from one or more extinct populations, or from seed introduced from Norfolk.

*P. nanteuillii* has a western Mediterranean and Lusitanian distribution, reaching its northernmost limit in the Channel Islands and on the southern coast of England. A further station recently

reported from a railway embankment in Giamorgan (v.c. 41) probably represents an introduction via Cardiff Docks, where the species has occurred as a casual (Dawson 1988).

The habitats of both species in Britain, as on the continent, are dry, open or stony places and dry grasslands. At Pagham Harbour, Sussex (fide J.R.A.), *P. nanteuilii* grows in sparse, open plant communities on stabilized shingle. In Norfolk *P. prolifera* grows in dry, rather sparse grassland on a sandy soil; in Bedfordshire on open ground on sand and railway ballast.

We have seen the following putative native specimens of *P. prolifera* from Britain:

- W. Norfolk (v.c. 28): Cockford Heath, 30 September 1835, *K. Trimmer*, **CGE**; Northwold, gravel pit, *W. J. Cross*, 9 August 1889, **BM**; Stoke Ferry, *W. J. Cross*, July 1890, August 1891, **BM**; nr Northwold, *J. E. Little*, 19 September 1927, **BM**, **CGE**, det. P. W. Ball; Cranwich, 'ground reverting to breck', *E. L. Swann* 2127, 28 July 1950, **NWH**. There is a record from Mundford, reported by Mrs Gomershall in her 1951 Wildflower Society Diary (fide G.B.); also, probably in v.c. 27 (E. Norfolk), from 'nr Norwich, *Dr. Smith*' [Sir J. E. Smith (1759–1828)], **BM**.  
Beds. (v.c. 30): Potton, abundant for over 0.5 mile (1 km) by disused railway, *J. E. Lousley*, 4 September 1974, **RNG**; Potton, south-facing bank and track of dismantled railway, *J. G. & C. M. Dony*, **LTN** (Dony & Dony 1986); Potton (TL/210.489), old railway, on cinders and heaps of ballast, *G. Crompton*, 23 July 1980, **CGE**. This population has been extensively damaged by sand extraction (C. R. Boon, pers. comm., 1994).

The **BM** specimens from Norfolk were cited, as casuals, by Petch & Swann (1968). Two of them had been determined as *P. nanteuilii* by P. W. Ball (in litt. to E. L. Swann, fide G.B.), but examination of the seed testa by J.R.A. confirmed that they do indeed belong to *P. prolifera*. *P. prolifera* was rediscovered in the county in 1985 by J. E. Gaffney at Cranwich, where 70 plants were counted in 1992. The Bedfordshire population was observed until 1991 by C. M. and J. G. Dony, who also regarded it as a probable British native (Dony & Dony 1986). The plants are inconspicuous, of slender habit and with only one or two flowers within each inflorescence out at a time, so may survive elsewhere undetected.

*P. prolifera* has also undoubtedly been introduced into Britain from time to time, behaving as a casual, for example in railway sidings at Richborough, E. Kent (*J. E. Lousley*, 16 August 1936, **RNG**). Herbarium specimens from Galashiels, Selkirk (*M. McC. Webster* 14263, 1970, **CGE**) and Blackmoor, Hants. (e.g. *J. E. Lousley*, 5 October 1968, **RNG**) are all *P. nanteuilii*. These were probably alien plants – part of the wool shoddy flora for which Blackmoor was famous during the 1960s to early 1970s (Ryves 1974, 1988).

*P. nanteuilii* is included on Schedule 8 of the Wildlife and Countryside Act 1981, which gives it full protection in Britain. *P. prolifera* at present has no legal protection.

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*RUBUS PERCRISPUS* D. E. ALLEN & R. D. RANDALL (ROSACEAE) IN DORSET  
(V.C. 9)

After the paper describing this new species (Allen 1994) had gone to press, it was discovered that records of various *Rubus* taxa from one locality in the far east of v.c. 9 (Dorset) – “near Foxholes Wood” – all relate to *R. percrispus* too, thus adding a ninth vice-county to its known British Isles range.

When first collected there, by E. F. Linton in 1890 (**BM**), it was labelled “*R. radula* near type”, a determination subsequently confirmed by Rogers in 1903. In 1891 and 1892 R. P. Murray revisited the locality, probably following directions given to him by Linton (and improving on the latter’s data by identifying the habitat as a roadside). After deciding that the plant was *R. anglosaxonicus* Gelert (a species now known as *R. micans* Godron), he distributed material under that name in the second of those years through the Botanical Exchange Club (B.E.C.), only to have Rogers pronounce this intermediate between *R. anglosaxonicus* and *R. raduloides* (Rogers) Sudre but nearer the latter. Two examples of the B.E.C. gathering later passed into **herb. Barton & Riddelsdell** as their nos. 7376 and 10385 (now in **BM**), one of which was redetermined by Barton as *R. anglosaxonicus* × *R. echinatus* Lindley and later still by Watson as *R. aspericaulis* Lef. & P. J. Mueller (a species not now accepted as British). Another example of the same B.E.C. gathering in **LIV** has been referred to *R. raduloides* pure and simple.

In 1936, this time from a spot yet more precisely identified as a hedge to the north of the wood, N. Douglas Simpson collected (no. 36.1030, now in **BM**) in company with Watson a specimen which the latter considered a white-flowered form of *R. radula* Weihe ex Boenn. Watson had apparently collected this on his own there some years earlier, for he had recorded (Watson 1932) sowing seeds of it in order to test whether the flower colour in this species is independent of soil influences. Subsequently, however, he must have had second thoughts, for he was to omit *R. radula* from the list of all v.c. 9 *Rubus* species that he compiled for Good (1949).

With the aid of Simpson’s more precise localization I succeeded in July 1994 in refinding what proved to be just a single clump under the east hedge of the A350 road just to the north of the wood (SY/950.984). R. D. Randall concurs with my determination of this, as well as all the other specimens referred to above, as *R. percrispus*.

*R. radula* has never seemed very likely to occur in Dorset and the sole evidence of its occurrence is thus now shown to be ill-founded. *R. raduloides*, in turn, now has its supposed Dorset localities cut back to a single wood near Sturminster Newton, in the far north of the county (where many batologists have collected it from 1889 onwards), which is more in line with the rest of its range in Wessex. Given the known preference of that species for basic soils, its presence in the neighbourhood of a wood renowned for *Rubus* species characteristic of acid soils appeared additionally anomalous. Foxholes Wood, near Wimborne, in the south-east of v.c. 9, constitutes a natural extension, rather, of the chain of localities for *R. percrispus* already known along the coastal

hinterland of the western half of South Hampshire, v.c. 11. The discrimination of this new species has thus had the happy effect in this particular instance of enabling a whole cluster of long-standing puzzles and anomalies to be resolved.

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TYPIFICATION OF *RUBUS PULLIFOLIUS* W. C. R. WATSON (ROSACEAE)

It has been apparent for some time that the holotype of this species (in **BM**) is not as it should be. The inflorescence and one of the two stem-pieces accompanying it on the same sheet patently belong to some other species of *Rubus*. That that is *R. oxyanchus* Sudre is better revealed by a specimen (no. 36.1013) collected by N. Douglas Simpson on the same occasion, doubtless under Watson's guidance, which is now in **BM** also. That species occurs in some quantity in the type locality, Southampton Common, S. Hants., v.c. 11, especially in its east section, from the central part of which ("near the Tram Depot") the greater precision of Simpson's label shows that at least the latter's specimen came. Watson evidently did not know very well *R. oxyanchus*, a deceptively variable species mainly confined in Britain to the Bournemouth area, as suggested by his later erroneous determination of shade-grown Dorset material of that (in **BM** and **SLBI**) as a non-British species, *R. majusculus* Sudre. But it was in any case rash of him to have collected on Southampton Common, a locality apparently unknown to him till then and one exceptionally rich in *Rubus* species, on a date as late in the season as 8 September. Southampton has one of the hottest summer climates in Britain and at least in most years brambles there have virtually all wholly shed their petals by mid-August. In the circumstances it is consequently not surprising that he mixed up two species. The fact that he noted the petals on the inflorescence that he clipped as "pinkish" ought, however, to have given him pause, if only in subsequent years, for the petals of *R. pullifolius* are liable to be that colour only on first opening, before turning to pure white.

The second stem-piece on the sheet could well be that of *R. pullifolius*, however. Although the main range of this similarly Bournemouth area species does not extend eastwards further than Lymington, there have been one or two outlying finds of it in and around Southampton and one bush was seen on the Common there in 1974 – though repeated subsequent searches, especially on the site of the former tram depot, have failed to turn up more. Rather than dislodge a well-established name, the best course would seem to be to give the stem-piece the benefit of the doubt, and I accordingly here designate it as the lectotype.

It is desirable in a case such as this that the name be reinforced by the designation of an epitype. Fortunately there is a specimen in **BM** (Alum Chine, Bournemouth, S. Hants., v.c. 11, 27 July 1907, *W. Moyle Rogers* s.n., as *R. leucandrus*) which bears a label in Watson's handwriting showing that he determined it in 1948 as *R. pullifolius*, a name which he does on the whole appear to have applied consistently. As that specimen can conveniently be filed alongside the sheet bearing the lectotype, I accordingly here select it for this purpose.

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ADDITIONAL SETS OF CONTINENTAL *RUBUS* EXSICCATAE IN BRITISH HERBARIA

The recent monograph of *Rubus* in the British Isles by Edees & Newton (1988) most usefully includes an appendix listing the principal sets of relevant exsiccatae and the British institutions in which these are to be found.

Since that list was published several additional sets have come to light, and the location of these seems worth placing on record:

BAENITZ, *Herbarium Europaeum*. **MANCH**; **OXF**.

BRAUN, *Herbarium ruborum Germanicorum*. Also **SLBI**.

FRIDERICHSEN & GELERT, *Rubi exsiccati Daniae et Slesvigiae*. Also **BM**.

SUDRE, *Batotheca Europaea*. **BM** possesses two sets.

WIRTGEN, *Herbarium ruborum Rhenanarum*. Portions also in **BM** and **SLBI**.

The following *Rubus* sets not listed by Edees & Newton are also represented in British herbaria at least in part:

BILLOT, *Flora Galliae et Germaniae exsiccata*. **OXF** (via herb. F. Stratton); **SLBI** (via herb. F. Townsend).

LETENDRE, *Rubus de la Seine-Inférieure*. **MANCH**.

SCHULTZ, *Herbarium normale*. **OXF**; **SLBI**.

WIRTGEN, *Herbarium plantarum selectarum florum Rhenanae*. Ed. 2. **OXF** (a few only).

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LECTOTYPIFICATION OF *ROSA ROTHSCHILDII* DRUCE (ROSACEAE)

George Claridge Druce (1850–1932) was an enthusiastic, if uncritical, rhodologist who named four taxa in the genus, but only one (*Rosa rothschildii*) at specific rank. Of the six collections labelled *R. rothschildii* in the Oxford herbarium (**OXF**), only one is suitable to be considered as a lectotype (*Druce 4821*, September 1910). Firstly, it matches the protologue, both morphologically and geographically. Druce's mention of resinous scent implies that the subfoliar glands are not of the *R. rubiginosa* type, and the protologue suggests that he was particularly basing the species on the plants seen while botanizing with the Hon. N. Charles Rothschild at Ashton (*Druce 1924*; Rothschild 1983: 174). Secondly, the specimen has Druce's own protologue attached. It is therefore likely that he made the most use of this specimen in drawing up his description. The only other specimen that might be considered a candidate (*Druce s.n.*, June 1911) has no protologue appended and is too immature to have been of much assistance in drawing up the description.

Subsequent to the lectotypification, the six specimens were identified critically by A. L. Primavesi and G. G. Graham. The lectotype is *R. canina* × *R. sherardii*. It is clear that Druce, and later authors, intended the epithet *rothschildii* to apply also to certain nothomorphs of *R. canina* × *rubiginosa* (*R.* × *nitidula* of Besser (1815) has priority for hybrids of this parentage (Kent 1992)), and the other specimens labelled *R. rothschildii* fall broadly into this category. However, the lectotypification of *Rosa rothschildii* (and the fact that Druce based part of his description on material that is unambiguously *R. canina* × *sherardii*) allows us to resurrect the name from obscurity to be used for this hybrid, a practice already adopted in Graham & Primavesi (1993). *R.* × *rothschildii* combines the habit of *R. canina* with the stipitate glands and resinous scent of *R. sherardii*. The word "acicles", in both the Latin and English parts of the protologue, is clearly intended by Druce to refer to stipitate glands. These are abundant on the lectotype specimen, but there are no acicles in the conventional sense of small slender prickles. It is extraordinary that Wolley-Dod should have linked *R. rothschildii* to *R. obtusifolia* Desv. (= *R. tomentella* Lem.:

*R. borrieri* Woods) as none of the specimens in OXF (except possibly that of A. Ley which is inadequate for determination) has any relationship to this taxon.

**Rosa** × **rothschildii** Druce, *Rep. B.E.C.* 3: 157–158 (1913), emend. Graham & Primavesi, *Roses of Great Br. and Ireland*: 98 (1993). Hybrid formula: *R. canina* L. × *R. sherardii* Davies.  
 Synonyms: *R. tomentella* Lem. var. *rothschildii* (Druce) W.-Dod, *Roses of Britain*: 71 (1924); *R. obtusifolia* Desv. var. *rothschildii* (Druce) W.-Dod, *Revis. Brit. roses (Suppl. J. Bot.)*: 73 (1931). Misapplied names: *R. verticillacantha* sensu Druce p.p., *Journal of botany* 42: 6 (1880), *J. Northants nat. Hist. Soc.* 1: 273 (1881); *R. caryophyllacea* sensu Druce p.p., *B.E.C. Rep.* [1911]: 87 (1912), W.-Dod, *List Brit. roses*: 37 (1911). [The synonyms and misapplied names probably refer to extended elements of the taxon.]

Protologue (extract): “740 (2). ROSA ROTHSCHILDII, Druce . . . 2–3 m. Rami aculeis falcatis horrentes. Caules floriferi aciculati, aciculis infra inflorescentiam numerosis . . . glandulis subfoliaribus sat numerosis . . . Odor foliorum ei gregis *Mollissimae* similis, et odor florum ei gregis *Caninae* similis. Habitat: Northamptonshire – Dane’s Camp, 1878. 1896; Farthinghoe; Ashton, near Oundle, 1910, G. C. Druce; Geddington Chase, Waddenhoe, Ley teste Wolley-Dod; Hunts. – Catsworth, Ellington, Ley teste Wolley-Dod; Surrey – Coombe (No. 786); Malden (No. 838), C. E. Britton, 1912. The Surrey plants have fruits slightly more spherical, and leaflets somewhat shorter and broader, but the acicular branches and glandular foliage bring them under *Rothschildii* . . . In the seventies I found a rose on Hunsbury Hill – the Dane’s camp – near Northampton . . . However in August 1910 when staying at Ashton, I saw a rose in the very luxuriant hedgerows bordering the road leading to the Hon. N. Charles Rothschild’s house, which at once reminded me of the Hunsbury Hill plant . . . In June 1911 I went to Ashton again in order to obtain flowering specimens when I found the rose in several places in the vicinity . . . The plant forms tall handsome bushes with conspicuous flowers of a brighter pink than normal *canina*, while the acicular branches, naked fruit, the very glandular, nearly glabrous leaves, the acicular petioles and peduncles are distinguishing characters which separate it from its allies. I have associated the plant with the name of my friend on whose estate it grows; and who has done so much to forward the study of Natural Science.”

Specimens in OXF: Druce no. 4821, Ashton Wold, Northants, August 1910. [*R. canina* L. (foem.) × *R. sherardii* Davies (masc.)]. LECTOTYPUS, hic desig.

Excluded specimens at OXF: Druce, Danes Camp, Northants, September 1889 [*R. rubiginosa* hybrid indet.]; Druce, Ashton, Northants, June 1911 [too young for determination but not the same as 4821]; A. Ley [B.E.C. 596], hedges, Wadenhoe, Northants, July 1910 [as *R. borrieri* Woods var.] [inadequate for determination]; C. E. Britton, open ground, Malden, Surrey, 5 September 1911 [*R. canina* × *rubiginosa*]; C. E. Britton [B.E.C. 838], open ground, Malden, Surrey, 19 August 1912 [*R. canina* × *rubiginosa*]; J. P. M. Brenan 6950, rough pasture v.c. 23, near Woodeaton by the road to Marston, Oxon, 27 August 1943 (fruits), 11 June 1944 (flowers) [*R. canina* with some introgression with *R. rubiginosa* or *micrantha*].

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## FURTHER DRUCE ROSA TAXA (ROSACEAE)

Eponymy: *Rosa* × *drucei* W.-Dod, *Journal of Botany* **62**: 205 (1924), as *R. canina* × *rubiginosa*, later suppressed by Wolley-Dod (1931) under *R. canina* var. *latebrosa* (Déséglise) N. E. Br. *R. × nitidula* Besser is an earlier name for the hybrid combination.

Druce's infraspecific taxa have been typified as follows and the types and associated specimens critically examined by G. G. Graham and A. L. Primavesi. All the taxa are probably best suppressed, although *R. arvensis* var. *suberecta* is likely to be the valid name for "cristate" *R. arvensis* (probably deriving from introgression with *R. canina*), in the (perhaps unlikely) event of any botanist wishing to use a name for this phenotype.

***Rosa arvensis* Huds. var. *suberecta* Druce, *B.E.C. Rep.* **5**: 559 (1920) [*R. a.* var. *cristata* Druce, *Fl. Berks.*: 206 (1897), as "?var. cristata", nomen confusum; *R. a.* var. *subcristata* Druce ined.]**

Protologue: "923. *Rosa arvensis* Huds., var. *suberecta* mihi. This differs from the type in the erect, persistent sepals. Greenham, Berks, 1893. G. C. Druce, see *Fl. Berks* 206, 1897".

Notes: Not recognised by Wolley-Dod and probably not worthy of recognition above the level of form. Druce (1897) contends that although Crépin considers it only an accidental condition, he himself noticed it for four consecutive years in "these localities" (apparently "By the Emborne [Emborne] Stream near Greenham Common and near Sandleford"). This variant ("with ascending and semipersistent sepals") has also been recorded from three localities in Hertfordshire (Purchas & Ley 1889). The sepal character is likely to be under genetic control and provides a parallel to the subcristate forms of *R. canina*.

Specimen in **OXF**: Druce, var. *subcristata*, Greenham, Berks, September 1893 [HOLOTYPE].

***Rosa eglanteria* L. var. *corstorphinae* Druce, *B.E.C. Rep.* **4**: 195 (1916) [*Rosa rubiginosa* L. f. *corstorphinae* (Druce) W.-Dod, *Roses Br.*: 92 (1924)]**

Protologue (extract): "937. *Rosa Eglanteria* L., var. *Corstorphinae* mihi. Bush tall, stem prickles distant, long based, unicate, of the flowering shoots crowded, nearly straight, 2–3 mm. long, of the peduncles crowded, straight slender. Leaves broadly ovate, densely glandular above and below, biserrate. Flowers in dense umbellate clusters, 8–10, dark rose-red, fragrant, very showy. . . . Near Duninald, Forfar, in plenty. Shown me by Mrs Corstorphine. . . . This handsome and very distinct-looking plant is quite new to me. I saw nothing in its vicinity which could suggest a hybrid origin, but the bushes were remarkably constant. Major Wolley-Dod, too, says he has seen nothing like it. If a hybrid, it is almost certainly *R. Eglanteria* × *gallica*, the armature recalling that of the latter species. G. C. Druce."

Notes: Wolley-Dod (1924) wrote that he could "see nothing in this but a very luxuriant form of the type", and that since its discovery in Forfar he had seen similar specimens from W. Kent and E. & W. Ross. We agree with Wolley-Dod that Druce's specimens are straightforward *R. rubiginosa*. The variety is not worth recognizing even at *forma* level. The Glassford specimens, distributed as f. *corstorphinae*, are hybrids.

Specimens in **OXF**: Druce (B.E.C. 937), Dunninald, Angus, August 1915 [HOLOTYPE]; Druce (B.E.C. 937), near Dunning, Perth, August 1916; Druce (BEC 937), near Montrose, Forfar, August 1916; Druce, inter Montrose and Arbroath, Forfar.

Excluded specimens in **OXF**: J. G. Glassford, Aberfeldy, mid-Perth, 20 August 1928 (three specimens ex herb. Wolley-Dod as *R. rubiginosa* f. *corstorphinae* W.-Dod); J. G. Glassford, Aberfeldy Mid-Perth, 20 August 1928 (ex B.E.C.) (both specimens are *R. rubiginosa* × *pimpinellifolia*).

***Rosa mollissima* Willd. f. *alba* Druce, *Journal of Botany* **40**: 184 (1902), *nomen nudum*.**

Protologue: "Rosa mollissima Willd., (*R. tomentosa* Sm.) f. *alba*. Near Llanerchymedd, Anglesey."

Notes: although this appears to be a Druce name, he did not append his name to it or provide a description. No specimen has been found in **OXF**.

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## TWO SUBSPECIES OF *FESTUCA RUBRA* L. NEW TO ENGLAND

While preparing the Poaceae account for the *Flora of Cumbria*, 42 collections of *Festuca rubra* s.l. were submitted to Dr A. K. Al-Bermani and Prof. C. A. Stace for identification. The material was not representative as half the specimens were from coastal sites and a quarter from the Lake District and Pennine hills.

Three of the specimens proved to be *F. arenaria* Osbeck, a species largely restricted to the east coast of Britain and not previously recorded in the west further north than south Lancashire. It was collected from St Bees Head, Cumberland (v.c. 70, GR NX/9.1, C. W. Muirhead, 1949, **PLYP**) and the Duddon estuary, Westmorland (v.c. 69, Sandscale Haws, SD/1.7, 1992; Askam-in-Furness, SD/2.7, 1991, both P. Burton, **LANC**).

The remaining specimens included all seven subspecies of *F. rubra* L. currently recognised as occurring in the British Isles. The commonest was subsp. *juncea*, which appears to be frequent around the entire coast.

Of particular interest are the records of the montane subspecies *arctica* and *scotica*, both new to England. The former was previously known south of the Scottish Highlands only from Snowdonia. The Cumbrian records are from rock ledges in the Lake District: near Fleetwith Pike (v.c. 70, NY/2.1), Hart Crag, Fairfield and Dollywaggon Pike (v.c. 69, NY/3.1), Red Screes (v.c. 69, NY/3.0) and High Street (v.c. 69, NY/4.1), four sites in the Pennines: two around Cross Fell (v.c. 70, NY/6.3) and others on limestone scars in upper Teesdale almost on the Durham border (v.c. 70, NY/7.3) and at High Cup Nick (v.c. 69, NY/7.2), and one from a lane in the upper Eden valley (v.c. 69, SD/7.9). The earliest record for Cumberland is that from near Fleetwith Pike (C. W. Muirhead, 1952, **PLYP**) and for Westmorland that from Hart Crag (G. Halliday, 1981, **LANC**). This subspecies will probably prove to be quite widely distributed in the Lake District and the Pennines.

The only records of subsp. *scotica* are from Cumberland, from limestone at 610 m on the north side of Crowdundle Beck, Cross Fell (NY/6.3, C. W. Muirhead, 1949, **PLYP**), in the Pennines, and in the Lake District from the north-east slopes of Pillar at 730 m (NY/1.1, G. Halliday, 1993, **LANC**). It was formerly unknown south of Argyllshire.

### ACKNOWLEDGMENTS

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## *RUMEX FRUTESCENS* THOUARS × *R. OBTUSIFOLIUS* L. (POLYGONACEAE), A PREVIOUSLY UNDESCRIBED HYBRID DOCK, AND NEW RECORDS OF *R. × WRIGHTII* LOUSLEY IN WEST CORNWALL (V.C. 1)

Argentine Dock, *Rumex frutescens* Thouars, has been established at Phillack Towans, W. Cornwall (v.c. 1, SW/56.39), since at least 1921 (Thurston & Vigurs 1922; Margetts & David 1981; Margetts & Spurgin 1991). In late August 1994 it was locally plentiful there, with many hundreds of plants, some of which formed large patches. These were growing on calcareous dune-sand at the edges of a sand quarry and on banks and in grassland nearby.



Other species of dock found in the same area were *Rumex crispus* L. subsp. *crispus* (plentiful), *R. obtusifolius* L. subsp. *obtusifolius* (plentiful), *R. conglomeratus* Murray (locally plentiful), *R. sanguineus* L. (four plants) and the hybrid *R. crispus* × *R. obtusifolius* (*R. × pratensis* Mert. & Koch, four plants). A few plants of *R. pulcher* L. were found 300 m away.

In addition to these, a number of plants that were sterile and intermediate between *R. frutescens* and *R. obtusifolius* (nine plants) and *R. conglomeratus* (two plants) were presumed to be hybrids. This note describes *R. frutescens* × *R. obtusifolius*, a hybrid which has not been reported before, and gives details of *R. frutescens* × *R. conglomeratus* (*R. × wrightii* Lousley), which has been reported only once before (Lousley 1953; Lousley & Kent 1981).

**Rumex × cornubiensis** D. T. Holyoak, **hybr. nov.**  
(*Rumex frutescens* Thouars × *R. obtusifolius* L. subsp. *obtusifolius*)

Hybrida inter *Rumex frutescens* Thouars et *R. obtusifolius* L. subsp. *obtusifolius* genita, characteribus variabilis et inter parentes media (Fig. 1), ab ambobus fructibus abortivis differt.

A hybrid between *R. frutescens* and *R. obtusifolius* L. subsp. *obtusifolius*, found within a few metres of colonies of the parent species. Although rather variable, it is intermediate between them in most characters (Fig. 1) and almost, if not completely, infertile.

A robust creeping perennial, spreading by underground rhizomes (mostly shorter than the far-creeping rhizomes of *R. frutescens*), so that it forms more spreading clumps than those of *R. obtusifolius*. Shoots arise from the rhizomes at intervals and attain a maximum height of 105 cm (nearly as tall as *R. obtusifolius* at this site, and distinctly taller than the maximum of 70 cm reached by *R. frutescens*). Lower leaves with lamina up to 16 × 6.7 cm, thicker than that of *R. obtusifolius*, but not as thick and leathery in texture as that of *R. frutescens*. Lamina often broader than in *R. frutescens*, with its greatest width around the middle and the base mostly truncate to weakly cordate; resembling *R. frutescens* in having the leaf-margin more or less crenulate, but the back of the midrib and main veins weakly scabrid with small papillae as in *R. obtusifolius*. Stem leaves much smaller, narrower and with more acute apices.

Panicle with branches arising at c. 40° from the main stem. Branches more numerous than is usual in *R. frutescens*, but fewer than in well-grown plants of *R. obtusifolius*. Whole inflorescence often with conspicuous deep red coloration. Whorls of inflorescence often less congested than in *R. frutescens*, but typically closer to each other than in *R. obtusifolius*. Pedicels mostly 2–5 mm (0.3–2 × length of inner perianth-segments when in fruit), most of these being distinctly longer than in *R. frutescens* but shorter and thicker than in *R. obtusifolius*. Inner perianth-segments up to 6 mm in length when fruits form, but mostly shorter and withering where fruits fail to develop. Well-formed inner perianth-segments varying in shape from narrowly ovate-triangular with rather acute apex (as in *R. frutescens*) to broader, triangular, with obtuse apex (as in *R. obtusifolius*); many with 2 or 3 short teeth, less than one-quarter of width of segment, on each margin at widest, basal part. When well-formed, all three inner perianth-segments with a prominent tubercle along the mid-vein, although the tubercle is typically larger and longer on one perianth-segment (tubercles with punctulate surface in fresh material). All of the few nutlets found were shrunken when dried and apparently infertile, 2–3.5 mm long, ovoid, and trigonous, brown, glossy, with acute angles.

HOLOTYPE: W. Cornwall, v.c. 1, Phillack Towans (SW/568.392), edge of sand quarry, 21 August 1994, D. T. Holyoak (RNG).

The largest patch of *R. × cornubiensis* covers an area of some 12 × 9 m on top of a low bank. Elsewhere, a single plant has spread to form a roughly circular patch 2 m diameter. Hence it is likely that this hybrid has been established and spreading vegetatively at Phillack Towans for some years.

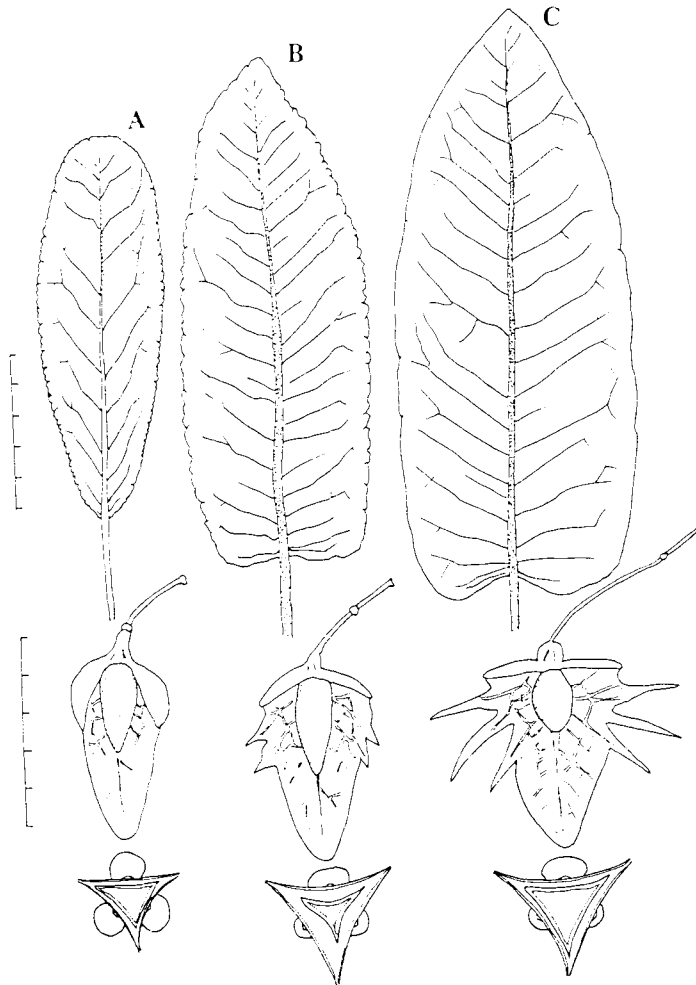


FIGURE 1. Representative lower leaves (underside) and fruits (side view and t.s) of *Rumex* from Phillack Towans, W. Cornwall. A. *R. frutescens*. B. *R. × cornubiensis*. C. *R. obtusifolius* subsp. *obtusifolius*. Scale lines are marked at intervals of 1 cm (leaves) or 1 mm (fruits).

***Rumex × wrightii* Lousley**

(*R. conglomeratus* Murray × *R. obtusifolius* L. subsp. *obtusifolius*)

Two plants were found in grassland, close to populations of both parents (specimens lodged at **RNG**). One had five groups of stems close together and linked by underground rhizomes, implying that this hybrid is a long-lived perennial that can spread vegetatively. Both plants were short, not exceeding 30 cm in height, with a rather untidy appearance due to numerous short, leafy branches and the infertile inflorescences. Most branches were at angles of c. 30° to the main stem, but a large branch on one specimen was at c. 80° to the main stem. Some of the larger leaves were obovate and thicker than those of *R. conglomeratus*, with crenate margins and truncate or subcordate bases. The whorls of the inflorescence are mostly remote and the lower whorls are subtended by bracts. Both plants appeared to be completely infertile, with only a minority of the inner perianth-segments enlarging as fruits began to develop. These enlarged inner perianth-segments are narrowly ovate

and up to 5 mm in length, all three segments with a long tubercle. On one specimen the pedicels are short (mainly 1–2 mm) on the other longer (up to 4.5 mm).

This hybrid has been reported only once before, from Braunton Burrows, N. Devon (v.c. 4), in 1952 (Lousley 1953; Lousley & Kent 1981). Descriptions of the Devon plants indicate that they are similar to those at Phillack Towans, although somewhat taller, up to 40 cm.

*R. crispus* is abundant close to the colonies of *R. frutescens* at Phillack Towans, but no hybrids between these species have been found, despite an extensive search. However, *R. crispus* there probably flowers earlier than *R. frutescens*, since by 21–31 August 1994 many of the *R. crispus* plants had ripe nutlets, whereas those of *R. frutescens* were either flowering or had mainly unripe nutlets and those of *R. conglomeratus* and *R. obtusifolius* mostly had ripening nutlets.

## ACKNOWLEDGMENTS

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*POTAMOGETON* × *COGNATUS* ASCH. & GRAEBN. AT LOCH BORRALIE, WEST SUTHERLAND (V.C. 108), SCOTLAND

*Potamogeton* × *cognatus* Asch. & Graebn. (*P. perfoliatus* L. × *P. praelongus* Wulfen) (Potamogetonaceae) was originally described from Germany. It was discovered in Britain by J. M. Taylor, who found it in drains at Belton and Crowle, N. Lincolnshire (v.c. 54), in 1943. Both parents grew in the vicinity. An illustrated account of the Lincolnshire plant (which was the first flowering example of this hybrid to be discovered anywhere) was provided by Taylor & Sledge (1944). I am not aware of any records of the hybrid from Lincolnshire after Taylor's collections, which were made in 1943 and 1944, and I was unable to find either *P. praelongus* or *P. × cognatus* when I visited the area with Mrs I. Weston and others in 1989.

The only other locality for the hybrid in the British Isles is Loch Borrallie, a loch on the Durness limestone of W. Sutherland, where it was collected by Sir George Taylor in 1948, Mrs B. Welch in 1951 and D. Dupree in 1970 (specimens in **BM**; records also in J. E. Dandy's card index at **BM**). The locality was published by Dandy (1975). In a detailed survey of Loch Borrallie, Spence *et al.* (1984) refound all the aquatic plants previously recorded from the loch except this hybrid. Similarly, the hybrid was not recorded by the Nature Conservancy Council's Scottish Loch Survey team when they visited Loch Borrallie on 29 June 1988. On 21 August 1993 I visited Loch Borrallie with I. M. & Mrs P. A. Evans and D. A. & Mrs A. Pearman in an attempt to re-find *P. × cognatus*. To my surprise, we found it at two places in the loch.

In view of the lack of published information on the hybrid at Loch Borrallie, and the fact that some crucial characters are difficult to interpret on herbarium specimens, notes on its morphology and habitat are provided below. Voucher specimens of *P. × cognatus* and its putative parents (Preston 93/51–56) will be deposited in **CGE** and **E**.

## MORPHOLOGY

The following description is based on fresh material of *P. × cognatus* collected at Loch Borrallie.

Stems to 1.2 m, 2.2–3.5 mm in diameter, terete. Submerged leaves 45–80 × 14–23 mm, 2.6–4.0 times as long as wide, translucent, green, often with a brownish tinge on the upper leaves and becoming brown with age, ovate-oblong, sessile, clasping the stems at the base for more than half the diameter of the stem but with a broad gap between the two edges of the leaf on the far side of the stem, tapering to a slightly hooded apex, denticulate and plane or undulate at the margin, the teeth 10(–25) µm long and 250–500 µm apart towards the leaf apex, just visible with a ×20 lens, more distant further from the apex and very distant towards the base, consisting of a single cell with an obtuse apex; midrib bordered on each side by a narrow band of lacunae, the lateral veins 6–9 on each side, 1–3 of which are more strongly developed than the others, the secondary veins transverse or ascending between the midrib and the inner lateral veins, more or less transverse elsewhere, all the veins with a dark tinge so that the leaf has a net-like appearance. Floating leaves absent. Stipules 12.5–18 mm, flexible, translucent with a milky or a slight pinkish tinge, rounded at the apex, persisting for several nodes behind the apex, two of the veins slightly more prominent than the others but not forming distinct ridges. Inflorescences 8–11 × 4.5–6.5 mm; peduncles 62–254 mm, 2.2–3.5 mm in diameter, of uniform diameter throughout their length, terete. Flowers 16–24, usually with 4 carpels (single flowers seen with 1, 3 and 5), the dark brown stigmas protruding from tightly closed tepals.

When fresh material of *P. × cognatus* and its putative parents was compared side by side, the hybrid was clearly intermediate in vegetative characters (Table 1). It differed from both parents in its short inflorescences with closed tepals. A comparison of the Loch Borrallie *P. × cognatus* with the published description of the Lincolnshire plant (Taylor & Sledge 1944) suggests that they are essentially similar. The main difference lies in the length of the peduncles, 45–75 mm in Lincolnshire compared to 62–254 mm at Loch Borrallie. The long peduncles of the Borrallie plant probably reflect the fact that the water was high following a wet season, and are unlikely to indicate a genetic difference between the plants. The fact that both the Lincolnshire and the Borrallie plants had denticulate leaf margins is interesting: the original material of *P. × cognatus* had toothed margins (Ascherson & Graebner 1897) but Hagström (1916) described plants with entire leaves from a lake in Denmark.

## HABITAT

A detailed description of Loch Borrallie is given by Spence *et al.* (1984). It is 1.2 km long and 0.2–0.5 km wide, with an area of 36 hectares. It lies in a shallow basin in the Cambrian Durness limestone.

TABLE 1. CHARACTERS OF *POTAMOGETON PERFOLIATUS*, *P. × COGNATUS* AND *P. PRAELONGUS* FROM LOCH BORRALLIE

	<i>P. perfoliatus</i>	<i>P. × cognatus</i>	<i>P. praelongus</i>
Length of main stem leaves (mm)	25–48	45–80	125–155
Leaf length: breadth ratio	1.3–2.5	2.6–4.0	6.7–7.4
Leaf base	Clasping stem with edges on far side almost meeting or overlapping	Clasping stem with broad gap between edges on far side	Slightly clasping stem
Leaf margin	Denticulate	Denticulate	Entire
Leaf apex	Scarcely hooded	Slightly hooded	Markedly hooded
Stipules	Fugacious	Persisting on upper nodes	Persistent
Inflorescence length (mm)	12–16	8–11	37–40
Tepals	Open	Closed	Open

All observations based on small samples collected on 21 August 1993. The quantitative characters show the difference between the taxa at Loch Borrallie, but should not be used to identify plants from other sites.

and has a small catchment of 154 hectares. The water of the loch is calcareous (pH 8.5) and remarkably clear, with low levels of nitrogen and available phosphorus and very low plankton densities. The shallow water at the edge of the lake has an open plant community in which the main species are *Chara aspera* and *Littorella uniflora*, with *Potamogeton filiformis* and *Myriophyllum alterniflorum*. In deeper water the vegetation is dense, and is dominated by *Hippuris vulgaris*, *Myriophyllum spicatum*, *Potamogeton natans*, *P. pectinatus*, *P. perfoliatus* and *P. praelongus*. Below 4.5 m there is a deep-water charophyte sward dominated by *Chara globularis*.

Around much of the edge of Loch Borrallie the water shelves gradually, and the *Potamogeton*-dominated community is inaccessible to the observer on the shore, especially when the water level is high. We detected the hybrid at two points where the water shelves much more steeply, and where the dense macrophyte-dominated community was visible from the shore or could be sampled by grapneling. At the N.W. side of the loch, grid reference NC/382.673, *P. × cognatus*, *P. perfoliatus* and *P. praelongus* were dredged up together. At the S.E. side of the loch the hybrid was visible just offshore at a point where the limestone outcrops at the edge of the loch, grid reference NC/383.668. It grew in vegetation dominated by the submerged shoots of *Hippuris vulgaris*, in water c.1.5 m deep. The other species growing here were *P. perfoliatus* and *P. praelongus*. The presence of the hybrid in two localities 0.6 km apart suggests that it may be widespread in the vegetation in which its parents occur. The Lincolnshire population of *P. × cognatus* reproduced vegetatively by buds at the end of short stolons which arose at the nodes of the non-flowering shoots (Taylor & Sledge 1944).

*Potamogeton perfoliatus* and *P. praelongus* may be closely related (Haynes 1985). Their hybrid, *P. × cognatus*, has been recorded from only a few localities in northern Europe. The rarity of the hybrid has been commented on by Hagström (1916), who suggested that the earlier flowering time of *P. praelongus* restricted the opportunities for hybridisation. He contrasted the rarity of *P. × cognatus* with the frequency of *P. × nitens*, the hybrid between *P. perfoliatus* and *P. gramineus*. Although *P. gramineus* is morphologically dissimilar to *P. perfoliatus*, the two species 'scarcely can grow together without producing crosses'. The presence of *P. × cognatus* in Loch Borrallie adds to the interest of this remarkable site, which is classified as an area of international importance in the *Nature Conservation Review* (Ratcliffe 1977).

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AN EARLY SCOTTISH RECORD OF *RUBUS ARCTICUS* L. (ROSACEAE)

The small Northern bramble *Rubus arcticus* L. is considered to have become extinct in Britain in the mid-nineteenth century (Harley 1956). In the previous hundred years there were several reported occurrences, and several specimens were collected from widely separated localities (Harley 1956; Eedes & Newton 1988). Some of the occurrences possibly resulted from seeds brought in by migrant birds or from cultivation in gardens (Harley 1956), and unfortunately no wild colony was regularly recorded, the localities of specimens being imprecise so that later botanists could not re-find the populations.

*Rubus arcticus* was listed in the "Catalogue of British Plants in Dr Hope's Hortus Siccus, 1768" (Balfour 1907). However the entry is marked with a sign denoting "plant not yet found in Scotland, and that the specimen I had from England", and the source of the entry is given as "from Mr Gordon".

John Hope was Regius Keeper of the Royal Botanic Garden in Edinburgh from 1760 to 1786 (Balfour 1907) and corresponded with Dr David Skene, an Aberdeen medical practitioner and botanist (Welch 1989, 1993); much of this correspondence concerned new species being found in Scotland and exchanges of specimens. In a letter to Dr Skene dated 31 August 1765 (Skene MS 38\*) Dr Hope wrote "... Mr Freer has added 4 score Plants to his collection, the last plants were the *Rubus arcticus* and *Osmunda crispa*. A list of them shall be sent you ... Mr Freer I imagine may be ready again next spring to publish his list ..."

Clearly this statement is in contradiction to the 1768 catalogue entry, and I suspect that errors occurred in its compilation or transcription. For some species two or more localities are given by Hope, so mention of Freer was not precluded by the Gordon source. Moreover two of the entries originating from information supplied by David Skene are dubious viz. the source of *Arenaria laricifolia* (sic) (= *Minuartia verna* (L.) Hiern) is given as "near Tongue, Aberdeenshire Dr Skene", and the source of *Chelidonium majus* is "at Revelston in Aberdeenshire Dr D. Skene". Places named Tongue and Revelston do not occur in Aberdeenshire, and we know that the *Minuartia* grows only on serpentine rocks in a very restricted district around Cabrach (Welch 1993); David Skene in an undated list (MS 482 p. 11\*) accurately gave its locality as "Betwixt Clova & Craig".

According to Kent & Allen (1984) 40 of Adam Freer's specimens passed to Dr Hope, but Hope's herbarium is believed to have been destroyed around 1840, so there is little chance of finding the locality from which Freer obtained *Rubus arcticus*.

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\*These numbers are from the catalogue of David Skene's papers held in the Aberdeen University Library (Special Collections).