Notes

EPILOBIUM TETRAGONUM SUBSP. *TOURNEFORTII* NATURALISED IN BRITAIN

In the context of the British flora, issues regarding the infraspecific treatment of *Epilobium tetragonum* (Square-stalked willowherb) centre on whether the segregate *Epilobium lamyi* F. W. Schultz should be treated as a separate species, a subspecies or not afforded any distinct rank. There is, however, a further segregate within *E. tetragonum* which, until 2007, had apparently not been recorded in the British Isles, namely the large-flowered *Epilobium tetragonum* subsp. *tournefortii* (Michalet) Léveillé.

This subspecies has a Mediterranean distribution, being known in southern Portugal, Spain and France; also Sicily, Corsica, Sardinia and Malta. In Africa it ranges from Tangier to Tunisia; and in the east, it is found in Turkey, ranging to eastern Anatolia, Syria and Lebanon (Raven 1967).

On 6 August 2007, an unusual willowherb was found by A.C.L. (in the company of A. Stevenson) growing in quantity along the banks of the A505 Royston by-pass in Cambridgeshire, v.c. 29, approximately at TL364421. A further visit undertaken by G.D.K. and A.C.L. on 12 August 2007 confirmed the identity of the plant as *Epilobium tetragonum* subsp. *tournefortii.* Voucher material has been placed in **CGE** and **herb. G.D.K.**

The find location (site 1) was a steep south-west facing chalk slope, up to 7 m high, and on the northeast side of the bypass. Erosion maintained a semi-open habitat which provided opportunities for *Epilobium* seedling establishment, although occasional plants were to be found in the coarser grassland at the foot of the slope. The flora of the slope otherwise consisted of native calcicoles, with some neophytes or introductions, none of which suggested any particular association with introduction of the *Epilobium* – viz. *Sedum rupestre* L., *Centranthus ruber* (L.) D.C. and *Conyza sumatrensis* (Retz.) E. Walker. There were hybrids between the latter and *Erigeron acer* L., of which an account is to be published separately. The colony of *Epilobium tetragonum* subsp. *tournefortii* extended from TL36594196 to TL36394213 alongside the carriageway, with the main grouping concentrated within 45 m of that length. The population appeared well established, with several thousand plants present. A small scattering of plants was also present on the opposite side of the carriageway.

Further investigation by ACL later on 12 August revealed the existence of a further population by the A505, approximately 1 km to the northwest of site 1, and located on a similar southwest facing bank alongside a layby (site 2). At least a thousand plants were present.

Because of the size of the rose-purple flowers, 2·0–2·5 cm in diameter, their appearance was quite distinctive. The impression given was of numerous *Epilobium hirsutum* flowers borne by robust *E. tetragonum* plants; but the taxon was readily distinguishable from *E. hirsutum* × *tetragonum* by a number of factors. The stem hairs were short and appressed, as with *E. tetragonum* subsp. *tetragonum*, whereas the hybrid carries some glandular hairs as well as long hairs influenced by *E. hirsutum*, which are upwardly deflexed (and so intermediate between the spreading hairs of *E. hirsutum* and the closely appressed hairs of the other parent). The hybrid carries a confused stigma, intermediate between 4-lobed and clavate stigma types, whereas *Epilobium tetragonum* subsp. *tournefortii* bears a clavate stigma. The hybrid also occurs as single plants, potentially with variable characteristics between the parents, and with reduced fertility; the Royston populations, however, were fully fertile and, except for one plant mentioned below, uniform.

Various authors have remarked on distinguishing features of subsp. *tournefortii*, summarized in Table 1.

The key in *Flora Europaea* (Raven 1968) describes petals as 7·0–11·5 mm long (in contrast to other *E. tetragonum* subspecies recognized, which carry petals 2·5–7·0 mm long), with the stigma elevated above the anthers at anthesis. Flower length for subsp. *tournefortii* has also been described by Raven (1962) as 8–13 mm. None of the authorities cited in Table 1 attributes a measure greater than 8·5 mm for the petal length of the remainder of *E. tetragonum*. Petals from the Royston populations measured 11–13 mm; flowers were held horizontally at anthesis, with the stigma clearly projecting beyond the anthers.

Nieto Feliner (1996) considered that anther

TABLE 1. TAXONOMIC COMPARISON

		Flower/petal length	Anther length	Seed length
E. tetragonum subsp. *tournefortii*				
	Raven (1962)	Flowers 8·0–13 mm		
	Raven (1968)	Petals 7·0–11·5 mm		
	Smejkal (1995)		(1·9)2·0–2·3(2·4) mm	
	Nieto Feliner (1996, 1997)	Petals 6–11 mm	(1·3)1·5–2·4(2·7) mm	(1)1·1–1·3 mm
Remaining segregates *of E. tetragonum,* including *E. lamyi*				
	Raven (1968)	Petals 2·5–7·0 mm		
	Smejkal (1995, 1997)	Petals 4–8(8·5) mm	(0·8)0·9–1·1 mm	1·0–1·2(1·3) mm
	Nieto Feliner (1996, 1997)	Petals 3–5·5(6·5) mm	0·7–1·1(1·3) mm	0·8–1(1·1) mm
	Oredsson & Snogerup (1976)	Petals (4·5)5·0–8·0 mm	0·7–1·0 mm	(0·85)1·0–1·1 mm
Royston plants				
		Petals 11–13 mm	(1·5–)1·7–2·2 mm	1·1–1·3 mm

length was significant, with subsp. *tournefortii* measuring (1·3)1·5–2·4(2·7) mm, as distinct from 0·7–1·1(1·3) mm for the remainder of *E. tetragonum*. Measurements for the Royston populations are (1·5–)1·7–2·2 mm, well within the range of subsp. *tournefortii*. The distinction in anther length is also one made by Smejkal (1995), although the figures used by him for subsp. *tournefortii* are (1·9)2·0–2·3(2·4) mm, and for the remainder of *E. tetragonum* (0·8) 0·9–1·1 mm.

Nieto Feliner (1996) also commented on the longer seeds of subsp. *tournefortii* (1·1–1·3 mm), and those of the Royston populations replicate this range. His account in *Flora Iberica* (Nieto Feliner 1997) recognises a slightly wider range – (1)1·1–1·3 mm. The seeds of British *E. tetragonum* do not normally exceed 1·1 mm (observations by G.D.K.), and this is in accordance with data from some regions where subsp. *tournefortii* is not present, e.g. (0·85)1·0–1·1 mm in Scandinavia including the segregate *E. lamyi* (Oredsson & Snogerup 1976), although Smejkal (1997) identified a range of 1·0–1·2(1·3) mm from the Czech Republic.

The characteristics of subsp. *tournefortii* as regards flower and anther size and the relative position of stigma and anthers are indicative of a taxon which is out-crossing, as distinct from the remainder of *E. tetragonum* (and, indeed, most species of *Epilobium*), which is commonly self-pollinated. Raven (1967, 1968) remarked on the existence of intermediates between subsp. *tournefortii* and subsp. *tetragonum* and their complete interfertility. The Royston population at site 1 appeared uniform. Some plants of *E. tetragonum* subsp. *tetragonum* were noted on the margins of the population of subsp. *tournefortii* but there were no indications of interbreeding or intermediacy. At site 2, however, where subsp. *tetragonum* was also present, one plant was noted with characteristics bearing a degree of intermediacy: flower diameter was 15 mm, petal length 9·5 mm, anther length 1·0–1·2mm and seed length 0·7–1·1mm; some of the smaller seeds appeared to be flattened and empty and perhaps indicate some reduced fertility. The data for this specimen are not included in the general measurements given above for the Royston populations.

Vigorous *E. tetragonum* subsp. *tetragonum* often takes a bushy form, with strong flower production resulting in a massed appearance of long upright capsules. It does not often exceed 80 cm in height, although it may occasionally reach 110 cm. The Royston plants appeared less bushy, more robust, and regularly exceeded 110 cm, the tallest specimen being measured at 123 cm.

There is no evidence of the basis of introduction of this taxon to Royston, although the original seeding of the roadbanks or carriage by vehicles both constitute possibilities. Spread has evidently occurred to a degree, but the appearance of *E. tetragonum* subsp. *tournefortii* in the British Isles at present comprises an isolated record without suggestion of invasiveness, although affording evidence that this Mediterranean taxon is capable of establishing in the British Isles and thriving.

REFERENCES

NIETO FELINER, G. (1996). Notes on *Epilobium* (Onagraceae) from the Western Mediterranean. *Anales Jardín Botánico de Madrid* **54**: 255–264.

NIETO FELINER, G. (1997). *Epilobium* L. in *Flora Iberica* **8**: 101–131, Real Jardín Botánica, CSIC, Madrid.

OREDSSON, A. & SNOGERUP, S. (1976). Drawings of Scandinavian Plants 113–114 *Epilobium* L. Sect. *Epilobium*. *Botaniska Notiser* **129**: 193–197.

RAVEN, P. H. (1962). The genus *Epilobium* in Turkey. *Notes from the Royal Botanic Garden Edinburgh* **24**: 183–198.

RAVEN, P. H. (1967). A revision of the African species of *Epilobium* (Onagraceae). *Bothalia* **9**: 309–333.

RAVEN, P. H. (1968). *Epilobium* L., in TUTIN, T. G. et al., eds. *Flora Europaea* **2**: 308–311. Cambridge University Press, Cambridge.

SMEJKAL, M. (1995). Sieben neue Bastarde in der Gattung *Epilobium* L. (Onagraceae). *Acta Musei Moraviae. Scientiae Naturales* **79**: 81–84.

SMEJKAL, M. (1997). *Epilobium* L., in SLAVÍK, B., ed. *Květena České Republiky* **5**: 99–132. Academia, Prague.

G. D. KITCHENER
Crown Villa, Otford Lane, Halstead, Sevenoaks, Kent TN14 7EA

A. C. LESLIE
109 York Street, Cambridge CB1 2PZ

NEW WILLOW HYBRID

Salix* × *permixta J. Webb hybrid. nov

S. caprea L. × *S. cinerea* L. × *S. repens* L.

Type : British Isles, North Devon (v.c. 4), Braunton Burrows, SS4629234468, 27 August 2007, J. Webb 001 (**TTNCM**: Taunton County Museum Herbarium).

Frutex multiramosus tholiformis, circiter 1–1·5 m altus, e surculis subterraneis exoriens; rami numerosi, ascendentes, teretes, primo dense appresso-pubescentes, in maturitate glabri vel subglabri, saturate brunnei, decorticati obscure et sparsissime striatulati; folia late ovata, acuta vel obtusa, breviter apiculata, 2·5–4 × 1·3–2·8 cm, brevissime petiolata, lamina supra saturate viridi sparsissime puberula, subtus pallide grisea dense et appresse sericeo-tomentella, nervis prominentibus ascendentibus conspicue ornata, marginibus subintegris vel remote serrulatis; stipulae plerumque minutae, subintegrae vel obscure glanduloso-serrulatae. Amenta foeminea (masculina non visa) praecocia vel cum foliis juvenilibus evoluta, cylindrica, subsessilia vel breviter pedunculata, suberecta, primo probabiliter 2·5 cm longa, in maturitate usque ad 6 × 1·3 cm, bracteis basalibus ovatis 0·5 cm longis, dense sericeo-pilosis, amentorum bracteolae ovatae, obtusae, 3 × 1·2 mm, subfuscae, pilis sericeis conspicuis vestitae; ovarium attenuato-ovoideum, usque ad 3–5 × 1·3–2 mm, in maturitate breviter stipitatum, viride, indumento sericeo subsparsim vestitum; stylus brevis, vix 0·5 mm longus; stigmata 2, parva, obtusa, indivisa. Semina matura non visa.

British Isles, N. Devon, (v.c. 4) Braunton Burrows.
All specimens in Taunton County Museum Herbarium (**TTNCM**)
001: 27/08/07 002: 17/06/04 003: 04/05/07

Shrub, about 1–1·5 metres high, arising from suckers and forming a much branched dome-shaped bush; branches numerous, ascending, terete, at first densely appressed-pubescent, later glabrous or almost glabrous, dark brown, when the bark is removed obscurely and very sparsely striatulate; leaves broadly ovate, acute or obtuse, shortly apiculate, 2·5–4 × 1·3–2·8 cm, very shortly petiolate, with lamina dark green above, very sparsely puberulous, pale grey below, densely appressed-silky-tomentellous, with nerves prominent, ascending, and margins subentire or remotely serrulate; stipules generally very small, subentire or obscurely glandular-serrulate. Female catkins (males not known) precocious or developing with the young leaves, cylindrical, subsessile or shortly pedunculate, suberect, at first probably 2·5 cm long, at maturity up to 6 × 1·3 cm, with basal bracts ovate, 0·5 cm long, densely sericeous-pilose;

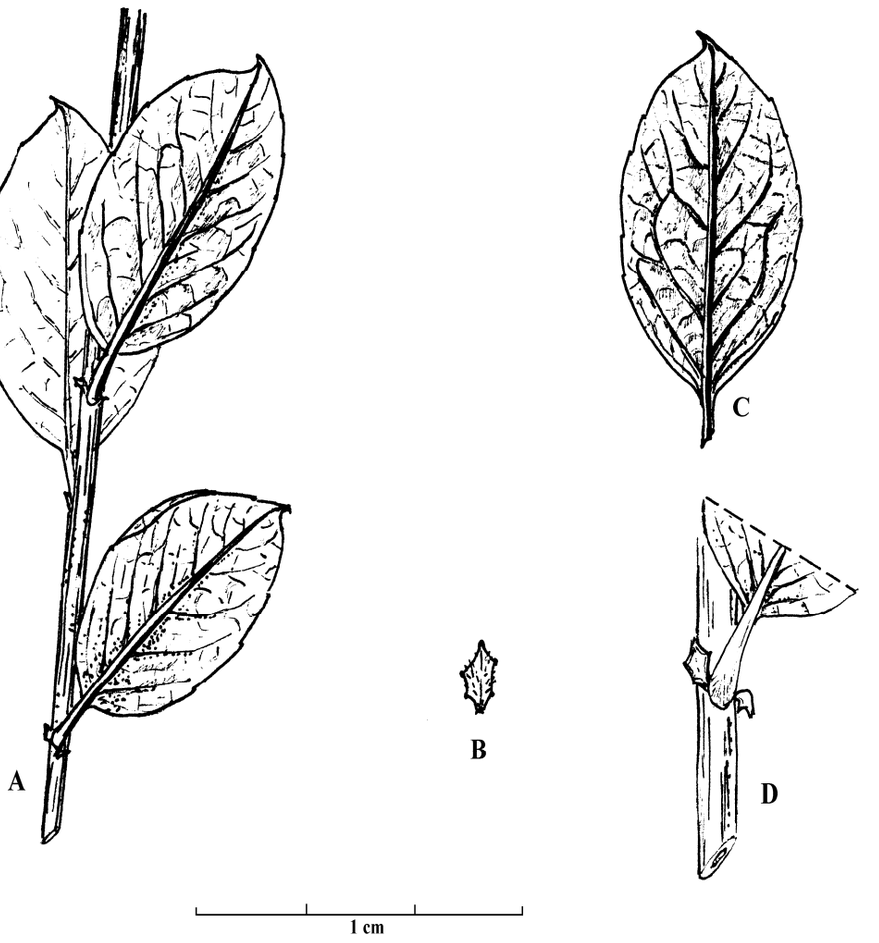

FIGURE 1. *Salix* × *permixta*. A: leaves × 1; B × 3: C: underside of leaf × 1; D: leaf base × 2.

catkin-scales (bracteoles) ovate-obtuse, 3 × 1·2 mm, darkish, clothed with conspicuous silky hairs; ovary attenuate-ovoid, up to 3–5 × 1·3–2 mm, at maturity shortly stalked, green, rather sparsely clothed with silky hairs; style short, scarcely 0·5 mm long; stigmas 2, small, obtuse, not divided. Mature seeds not seen.

NOTES

This willow was first seen on 5 June 2004 in a clearing of the wet-slack habitat that borders the dune system of Braunton Burrows. The 970 hectares of Braunton Burrows, and the surrounding coastline, have been declared a UNESCO Biosphere Reserve.

On the eastward margins of the dune system *Salix repens* carpets the sandy slacks with tall scrub and small trees forming small woodland glades. *S. cinerea* (presumably subsp. *oleifolia*) is not uncommon in the area but pure *S. caprea* is rather rare, as is *S. aurita*. Where *S. caprea* and *S. cinerea* co-exist, the hybrid between the two species, *S.* × *reichardtii*, is common and a whole range of intermediates is found. Whilst in one such area, Hog Wood, to the south of Sandy Lane car park, we came across a patch

of willow we could not immediately identify. The upright stems were relatively polished and glabrous, the leaves were broadly ovate with the underside distinctly softly pubescent and demonstrating the reticulate venation of *S. caprea*. Although *S. aurita* had been found nearby, the stipules of the unidentified plant were small, not at all resembling the large conspicuous stipules of the hybrid between *S. repens* and *S. aurita*, nor were the leaves in any way rugose which one would expect in an aurita hybrid. We were certain it was not a hybrid between *S. caprea* and *S. repens* , *S.* × *laschiana*, as at no stage had it the dense indumentum of *S. caprea* and if it was a direct hybrid the leaf margins would have been undulate serrate rather than relatively entire. The hybrid between *S. cinerea* and *S. repens*, *S* .× *subsericea*, was ruled out as its leaves are much narrower and more oblong.

S. repens was abundant all over the clearing, which covered an area approximately 75 m × 75 m, and there was a very large conspicuous bush or small tree of *S. caprea* × *S. cinerea* (*Salix* × *reichardtii*) in the immediate background. We have come to the conclusion that we have identified a new triple hybrid (Webb 2005.)

A visit early the following year (2005) found that the clearing had been cut during management works to clear scrub, this prevented catkins forming so our information was incomplete. Subsequent discussion with the site manager prevented this happening again and catkins were collected in 2006 and 2007 and we are thus able to confirm the identification of the triple hybrid.

Five separate bushes of the new willow have been found, but all in the same area. It is hoped to engage the active interest and co-operation of the landowner in order to conserve the single location. However, a number of cuttings have been taken and new plants grown; these have been planted in the Community Orchard, Old Cleeve, beside a natural pond where we hope they will thrive.

This report has been prepared in consultation with R. D. Meikle.

REFERENCE

WEBB, J. (2005). New Willow Hybrid. *BSBI News* **99**: 16–17 and Colour Section, p.3.

J. WEBB
Hybeck, Old Cleeve, Minehead, Somerset, TA24 6HW

CHROMOSOME NUMBERS IN *SORBUS* L. (ROSACEAE) IN THE BRITISH ISLES

In the British Isles, the genus *Sorbus* L. is composed of four sexual diploid species and at least 19 apomictic polyploids (Stace 1997). Many of the polyploids are endemic, and have arisen from hybridisation between a sexual diploid and a polyploid. Knowledge of the cytology of the endemics can help interpret their origins.

The following chromosome counts for *Sorbus* taxa from Britain and Ireland have been compiled from the literature, the B.S.B.I. Cytological Database (www.bsbi.org.uk) and our own data.

Many of the first counts for the British endemics were given by Warburg (1952) and details for some of these have been traced in A. J. Wilmott's notes held in **BM** which show that they were from seedlings grown from fruit collected in 1933; Warburg's vouchers for many of the parents are in **BM**. Counts marked QK were made by Q. O. N. Kay in the 1970s (some vouchers in **NMW**). Counts marked JB were made on material collected by TR in 2002 and 2003 (vouchers in **NMW**).

In most cases, counts have been made on root-tips from seedlings, which might differ in ploidy level from the mother depending on whether pollen of a different ploidy level had fertilised the ovules or not. A few counts from flow cytometry are also included at the gross ploidy level. Some counts are approximate due to the difficulty of counting lots of small chromosomes and should be taken to indicate approximate ploidy level, not exact counts. Counts of 2n = 34 are usually regarded as diploid, 2n = 51 as triploid and 2n = 68 as tetraploid.

Sorbus anglica Hedl.
2n = 51: Bottom of gorge (‘one plate seemed 2n = 52’), Cheddar v.c. 6, E. F. Warburg (**BM** notes); Ban-y-gor cliffs, Woodcroft v.c. 34, JB. 2n = c. 49–53: Craig y Cilau, v.c. 42, QK.
2n = 68: Pant Trystan (=Llanymynech Hill) v.c. 40, E. F. Warburg (**BM** notes); Darren Cilau v.c. 42, Avon Gorge v.c. 6/34, and Kinkerswell v.c. 3, HMcA; Craig Breidden v.c. 47 and (2n = c. 68) Piercefield Cliffs v.c. 35, JB.

Sorbus aria (L.) Crantz subsp. *aria*
2n = 34: Cultivated material, Kew Gardens (Moffett 1931); Leigh Woods v.c. 6, and Lord’s Wood v.c. 36, E. F. Warburg (**BM** notes); The Gully, Avon Gorge v.c. 34, and Piercefield Cliffs v.c.35, JB. 2n = c. 32–34: 2 plants, Tidenham v.c.34, QK (collected as *S. eminens*; **NMW**). A tree with sharply lobed leaves from The Gully, Clifton Downs v.c. 34, suggested to be a *S. aria* × *latifolia* backcross by T. Rich, is 2n = 34, and may simply be *S. aria*; further investigation of this tree is under way.

Sorbus aria var. *longifolia* Pers.
2n = 34: Aberystwyth v.c. 46, HMcA (collected as *S. rupicola*).

Sorbus aria is widely reported as 2n = 34 in Europe (e.g. Liljefors 1953; Jankun & Kovanda 1988).

Aldasoro *et al*. (1998) have recently reported both diploid 2n = 34 and tetraploid 2n = 68 *S. aria* s.l. from Spain, though how their tetraploid plants relate to British *S. aria* s.s. remains to be clarified.

Sorbus arranensis Hedl.
2n = 51: two plants from Glen Diomhan v.c. 100, HMcA.

Sorbus aucuparia L. subsp. *aucuparia*
2n = 34: Cultivated material, Kew Gardens (Moffett 1931); Silverdale v.c. 60 (Al-Bermain *et al*. 1993); Cwm Clydach v.c. 42, JB.

Bolstad & Salvesen (1999) reported 2n = 33 (1 plant) and 2n = 34 (3 plants) from Norway.

Sorbus bristoliensis Wilmott
2n = 51: Leigh Woods v.c. 6, E. F. Warburg (**BM** notes); Avon Gorge v.c. 6/34, ex Cambridge Botanic Garden, HMcA; Avon Gorge v.c. 6/34, QK; Clifton Down v.c. 34, JB.

Sorbus croceocarpa P. D. Sell
2n = 59 (aneuploid): Church and Hazelwood Roads, Clifton v.c. 34, QK.
2n = 68: Lemche (1999); Avon Gorge, Clifton v.c. 34, JB.

Sorbus decipiens (Bechst.) Irmisch
2n = 51: Stoke Bishop v.c. 34, JB.

Sorbus devoniensis E. F. Warb.
2n = 68: Loxhore v.c.4, QK; Woody Bay v.c. 4, JB.

Plants of the ‘No Parking’ form from Watersmeet v.c. 4, 2n = *c*. 68, QK (cited as for typical form in Sell 1989).

Sorbus eminens E. F. Warb.
2n = 68: Symonds Yat top v.c. 34, E. F. Warburg (**BM** notes); Police Quarry, Avon Gorge v.c. 6, JB.
2n = c. 68: Cheddar, QK; Seven Sisters, Great Doward v.c. 36, JB.
2n = c. 71: Seven Sisters, Great Doward v.c. 36, JB.

Trees with 2n = c. 51: Sea Mills v.c. 34 and Worle Hill v.c. 6, QK, may be hybrids of *S. aria* and *S. eminens*.

Sorbus hibernica E. F. Warb.
2n = (c. 50–)51: Rathdrum, Wicklow v.c. H21, QK.

Sorbus lancastriensis E. F. Warb.
2n = 68: Arnside Knott, Humphrey Head and Low Frith, all v.c. 60, HMcA.

Sorbus latifolia (Lam.) Pers.
2n = 34: two seedlings from planted tree in Newnham College, Cambridge, QK.
2n = 68: seed from planted tree in Newnham College (Lemche 1999); Fairyland, Avon Gorge v.c. 34, QK; Fairyland, Avon Gorge v.c. 34, JB.

The difference between the two counts from Newnham College where there are two trees (Sell 1989) is interesting. De Poucques (1951) reported 2n = 34 for *S. latifolia* originating from Fontainebleau, France (the original locality), and for *S. confusa* (widely treated as a synonym of *S. latifolia*) from the Malzéville. The triploid count for *S. latifolia* from the Menai Straights in the B.S.B.I. Database refers to another taxon whose identification remains to be resolved.

Sorbus leptophylla E. F. Warb.
2n = 68: Unlocalised, Britain, Warburg (1952); Craig Breiddan v.c. 47, HMcA. Craig-y-Cilau v.c. 42, and Craig Rhiwarth v.c. 42, JB.
2n = 67–68: Craig y Cilau v.c. 42, QK.

Sorbus minima (Ley) Hedl.
2n = 51: Darren Cilau v.c. 42, HMcA; Craig y Cilau v.c. 42, JB.
[2n = 68; Coed Pen Pwyr (=Craig y Cilau), E. F. Warburg (**BM** notes), possibly an error in the notes, as this sample was cited as 2n = 51 in Warburg 1952].

Sorbus porrigentiformis E. F. Warb.
2n = 51: Big tree on rock, road below Yat Top, Symonds Yat v.c. 34, E. F. Warburg (**BM** notes); Crawley Cliff, Gower v.c. 41, HMcA; Crawley Cliff, Gower v.c. 41 QK; Burrington Combe v.c. 6, M. Chester *et al.* (flow cytometry, unpublished); Craig y Cilau v.c. 42, Seven Sisters v.c. 36, and Blaise Castle, Bristol v.c. 34 (2 trees, one 2n = c. 51), JB. These triploid counts may refer to hybrids with *S. aria*.
2n = 68: Near Observatory, Cheddar v.c. 6, and Dan y Graig v.c. 42, E. F. Warburg (**BM** notes); Stokeleigh Camp v.c. 6 and Craig y Cilau v.c. 42, JB; Craig y Cilau v.c. 42, QK; Babbacombe v.c. 3, Avon Gorge v.c. 6/34, and Aberdur Rocks v.c. 43, HMcA.
2n = (67–) *c.* 68 (–69) Heale Ladders v.c. 6, Wick Rocks v.c. 34, Craig y Cilau v.c. 42 (both forms), Craig y Castell v.c. 42, Craig Rhiwarth v.c. 42, Cwm Clydach v.c. 42, Darren Disgwylfa v.c. 42 and Woody Bay v.c. 4, QK (some counts reported in Proctor & Groenhof 1992). Plants from Nantporth, Menai Straits v.c. 49, often included under *S. porrigentiformis* but probably more closely related to *S. eminens*/*S. hibernica* (Proctor & Groenhof 1992), are also 2n = 68, HMcA; 2n = c. 66–68, QK.
2n = 87: Craig y Cilau v.c. 42, JB; this is the first 'pentaploid' count in wild *Sorbus*, though this has also been seen in cultivated material by HMcA.

Sorbus pseudofennica E. F. Warb.
2n = 68: Glen Catacol v.c. 100, from buds, P. Harrold (annotated specimen in **E**); Glen Diomhan v.c. 100, HMcA (McAllister 1986).

Sorbus rupicola (Syme) Hedl.
2n = 68: Cefn Fedw v.c. 50 and Craig Eglwyseg v.c. 50, E. F. Warburg (BM notes); Malham Cove v.c. 64, and Tighnabruaich v.c. 98, HMcA; Craig y Cilau v.c. 42, JB.

Liljefors (1953) also reported 2n = 68 for a plant from Gotland.

Sorbus subcuneata Wilmott
2n = 51 and 2n = c. 67–70: Watersmeet v.c. 4, QK. These counts were made in different seed from the same parent; the seedlings were morphologically similar in cultivation.

Sorbus torminalis (L.) Crantz
2n = 34: Cultivated material, Kew Gardens (Moffett 1931).

Aldasoro *et al*. (1998) have recently reported both diploid 2n = 34 and tetraploid 2n = 68 material from Spain.

Sorbus × *vagensis* Wilmott (=*S. aria* × *torminalis*)
2n = 34: Coldwell Rocks v.c. 34, E. F. Warburg (**BM** notes).

Aas *et al*. (1994) report one triploid and 12 diploid counts from three seed families from the primary *S. aria* × *torminalis* hybrid from Birnberg, Germany.

Sorbus vexans E. F. Warb.
2n = 68: Woody Bay v.c. 4, JB.

Sorbus wilmottiana E. F. Warb.
2n = 51: Avon Gorge v.c. 6/34, HMcA; material from type tree, Clifton Downs v.c. 34, JB.

Sorbus whiteana T. Rich & L. Houston
2n = 51: Police Quarry, Avon Gorge v.c. 6, and Ban-y-Gor cliffs v.c. 34, JB.

In conclusion, three sexual diploids, seven triploids, eight tetraploids and one hybrid are reported as having one ploidy level. *Sorbus anglica* and *S. subcuneata* are reported as both triploid and tetraploid, and *S. latifolia* as diploid and tetraploid. *Sorbus porrigentiformis* has triploid, tetraploid and pentaploid counts. There are no counts for *S. domestica* L., *S. leyana* Wilm. or *S.* × *thuringiaca* (Isles) Fritsch.

ACKNOWLEDGMENTS

TCGR would like to thank Wolfgang Bopp and Jessica Gould, National Botanic Garden of Wales for their expertise in growing *Sorbus*, and Mark Spencer for finding Wilmott's notes at **BM**.

REFERENCES

AAS, G., MAIER, J., BALTISBERGER, M. & METZGER, S. (1994). Morphology, isozyme variation, cytology and reproduction of hybrids between *Sorbus aria* (L.) Crantz and *S. torminalis* (L.) Crantz. *Botanica Helvetica* **104**: 195–214.

AL-BERMANI, A.-K. K. A., AL-SHAMMARY, K. I. A., BAILEY, J. P. & GORNALL, R. J. (1993). Contributions to a cytological catalogue of the British and Irish flora, 3. *Watsonia* **19**: 269–271.

ALDASORO, J. J., AEDO, C., NAVARRO, C. & GARMENDIA, F. M. (1998). The genus *Sorbus* (Maloideae, Rosaceae) in Europe and in North Africa: morphological analysis and systematics. *Systematic Botany* **23**: 189–212.

BOLSTAD, A. M. & SALVESEN, P. H. (1999). Biosystematic studies of *Sorbus meinichii* (Rosaceae) at Moster, S. Norway. *Nordic Journal of Botany* **19**: 547–559.

DE POUCQUES, M.-L. (1951). Étude chromosomique des *Sorbus latifolia* Pers. et *Sorbus confusa* Gremli. *Bulletin de la Société Botanique de France* **98**: 89–92.

JANKUN, A. & KOVANDA, M. (1988). Apomixis at the diploid level in *Sorbus eximia* (Embryological studies in *Sorbus* no. 3). *Preslia* **60**: 193–213.

LEMCHE, E. B. (1999). The origins and interactions of British *Sorbus* species. PhD thesis, Darwin College, Cambridge.

LILJEFORS, A. (1953). Studies on propagation, embryology and pollination in *Sorbus. Acta Horti Bergiani* **16**: 277–329.

LILJEFORS, A. (1955). Cytological studies in *Sorbus. Acta Horti Bergiani* **17**: 47–113.

MCALLISTER, H. A. (1986). *The rowan and its relatives* (Sorbus *spp.*). Ness Series 1. Ness Botanic Gardens, Liverpool.

MOFFETT, A. A. (1931). The chromosome constitution of the Pomoideae. *Proceedings Royal Society of London*, Series B, **108**: 423–445.

PROCTOR, M. C. F., PROCTOR, M. E. & GROENHOF, A. C. (1989). Evidence from peroxidase polymorphism on the taxonomy and reproduction of some *Sorbus* populations in south-west England. *New Phytologist* **112**: 569–575.

PROCTOR, M. C. F. & GROENHOF, A. C. (1992). Peroxidase isoenzyme and morphological variation in *Sorbus* L. in South Wales and adjacent areas, with particular reference to *S. porrigentiformis* E. F. Warb. *Watsonia* **19**: 21–37.

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

WARBURG, E. F. (1952). *Sorbus* L., pp. 539–556. in CLAPHAM, A. R., TUTIN, T. G. & WARBURG, E. F. (1952). *Flora of the British Isles*. Cambridge University Press, Cambridge.

J. P. BAILEY
Department of Biology, University of Leicester, University Road, Leicester LE1 7RH

Q. O. N. KAY
School of Biological Sciences, University of Wales, Swansea SA2 8PP

H. MCALLISTER
School of Biological Science, University of Liverpool, Liverpool L69 7ZB

T. C. G. RICH
Department of Biodiversity and Systematic Biology, National Museum of Wales, Cardiff CF10 3NP

SERIES REASSIGNMENT OF *RUBUS CERDICII*

In describing a conspicuous reddish-flowered bramble mainly confined to the north half of the New Forest, v.c. 11, as *R. cerdicii* (Allen 2004), I assigned it to series *Vestiti* (Focke) Focke. Further study, however, has shown that to be unsustainable. Instead, despite the presence of scattered glands and acicles, it seems best in series *Rhamnifolii* (Bab.) Focke. It has a sufficiently marked phenotypic resemblance to *R. nemoralis* P. J. Mueller, a member of the *Rhamnifolii* very common in the New Forest, to suggest that that may have been one of its ancestral progenitors, the other presumably having been a member of one of the less strongly glandular series.

REFERENCE

ALLEN, D. E. (2004). Five new species of *Rubus* L. (Rosaceae) mostly from central south central south England. *Watsonia* **25**: 157–174.

D. E. ALLEN
Lesney Cottage, Middle Road, Winchester Hampshire SO22 5EJ