

NEW TAXA AND NEW COMBINATIONS IN THE BRITISH FLORA

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Four new taxa and nine new combinations are required for forthcoming floristic works by the authors. The new taxa are *Centaurium tenuiflorum* (Hoffmanns. & Link) Fritsch subsp. *anglicum* T.C.G.Rich & McVeigh, subsp. nov.; *Centaurium* × *klattii* P.Fourn. ex T.C.G.Rich, hyb. nov.; *Centaurium* × *ubsdellii* T.C.G.Rich, hyb. nov.; and *Gentianella amarella* (L.) Börner subsp. *occidentalis* T.C.G.Rich & McVeigh, subsp. nov. The new combinations are *Centaurium erythraea* Rafn var. *latifolium* (Sm.) T.C.G.Rich, comb. et stat. nov.; *Gentianella amarella* (L.) Börner subsp. *anglica* (Pugsley) T.C.G.Rich & McVeigh, comb. et stat. nov.; *Aria parviloba* (T.C.G.Rich) Sennikov & Kurtto, comb. nov.; *Cotula sessilis* (Ruiz & Pav.) Stace, comb. nov.; *Elymus* × *drucei* (Stace) Stace, comb. nov.; *Elymus repens* (L.) Gould f. *aristatus* (Schumach.) Stace, comb. nov.; *Elymus athericus* (Link) Kerguelen f. *setigerus* (Dumort.) Stace, comb. nov.; *Ulmus minor* Mill. subsp. *cornubiensis* (Weston) Stace, comb. et stat. nov.; and *Dysphania ambrosioides* (L.) Mosyakin & Clemants var. *anthelmintica* (L.) Stace, comb. nov.

Keywords. *Aria*, British flora, *Centaurium*, *Cotula*, *Dysphania*, *Elymus*, *Gentianella*, *Ulmus*.

INTRODUCTION

The following new taxa and new combinations are required for forthcoming floristic works by the authors.

NEW TAXA

Centaurium tenuiflorum (Hoffmanns. & Link) Fritsch subsp. ***anglicum*** T.C.G.Rich & McVeigh, **subsp. nov.**

Subspecies *anglicum* differs from subsp. *tenuiflorum* in being generally more robust, having relatively broader middle-stem leaves 2–5 times as long as wide and having larger flowers with corollas 11–16 mm (subsp. *tenuiflorum* has middle-stem leaves 3–8 times as long as wide and corollas 11–14 mm), and from subsp. *acutiflorum* (Schott) Zeltner in being robust, with broader middle-stem leaves, larger corollas 11–16 mm with elliptical, entire lobes (subsp. *acutiflorum* is usually slender with corollas

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11–14 mm with lobes narrowly elliptical and notched at the apex). – Holotype: abundant on clay slip c.100 m east of car park, Seatown, Dorset, 6 viii 2006, *T.C.G. Rich* (NMW; accession number v.2006.1.309; large left-hand specimen on front sheet).

Annual 7–30(–32) cm tall, erect, pale olive-yellowish green to bright green, turning orangey yellow when old, glabrous. *Basal rosette* usually withered at flowering but sometimes present (or sometimes poorly defined) with 1–3 pairs of leaves. *Rosette leaves* 2–10 × 1.5–8 mm, broadly elliptic to obovate, obtuse at apex, entire, 1-veined, broadly but shortly petiolate. *Stems* 4-angled, winged, simple or branched mainly above; middle internodes to 3–4 times as long as their leaves. *Stem leaves* 4–10(–14) pairs on main stem, sometimes overtopped by side branches with another pair of leaves, (3–)5–18(–22) × (1–)4–8(–15) mm, ovate to elliptical-ovate, (1.7–)2–5(–5.5) times as long as wide, obtuse or minutely mucronulate in larger plants, with base rounded and sessile to weakly cordate, entire, 3- to 5-veined, becoming narrower, acute and 1-veined up the stem. *Inflorescence* cymose, open and lax with a few flowers to dense with numerous flowers. *Terminal pedicel* (0–)1–8(–19) mm. *Flowers* 4- to 5-merous (often 4-merous in small plants or on lateral branches of big plants). *Calyx* (6–)7–10(–11) mm; calyx tube c.1 mm, funnel-shaped; calyx lobes 5–8 mm, linear to subulate, ridged, acute, appressed, ± equal or unequal in size, acute on angles but not winged. *Calyx* nearly as long as corolla tube. *Corolla* (10.5–)11.5–16(–16.5) mm; corolla tube (6–)8–12(–13) mm, cylindrical, not noticeably veined, slightly constricted towards to the top; corolla lobes 2.5–5(–6) × 1.5–2 mm, pink or white but slightly pink-flushed (not pure albino), elliptical, spreading, obtuse to rounded. *Corolla* 1.4–1.8(–2) times as long as calyx. *Anthers* yellow, c.0.5 mm, elliptic and twisted when dehisced, exerted. *Filaments* whitish, inserted just below top of corolla tube. *Mean pollen size* 24.5 µm (range, 22.8–25.5 µm). *Ovary* narrowly ellipsoid. *Stigma* 2-lobed, elongated, yellowish green. *Capsule* 8–11 mm, cylindrical, opening from apex; seeds c.0.4 mm, ovoid, brown.

Centaureum tenuiflorum subsp. *anglicum* is characterised by the annual habit; the 4–10 pairs of ovate to elliptical-ovate, 3- to 5-veined middle-stem leaves; the calyx 7–10 mm with long, linear lobes; and the corolla 11–16 mm with pink or whitish pink entire lobes 2.5–5 × 1.5–2 mm. The chromosome number is not yet known, but the pollen size is 24.5 µm (calculated from data in West *et al.*, 2014), which virtually matches the 24.7 µm of tetraploids (Zeltner, 1970).

Two subspecies of *Centaureum tenuiflorum* have been recognised in Europe, although there is an indication that three or even four taxa may be involved (Zeltner, 1970; Melderis, 1972a; Mansion *et al.*, 2005; Tison & de Foucault, 2014). Subspecies *anglicum* occurs in southern England (hence the epithet) in the Isle of Wight, where it occurs at the top of salt marshes, and in Dorset, where it occurs on damp, slumping, clay sea cliffs. The Isle of Wight material has pink flowers, and the Dorset material has nearly white flowers. It is presumed to have arisen through isolation and local adaptation following reflooding of the English Channel after the last Ice Age.

Centaurium* × *klattii* P.Fourn. ex T.C.G.Rich, *hyb. nov.

Centaurium erythraea Rafn × *C. littorale* (Turner ex Sm.) Gilmour

Centaurium × *intermedium* sensu Gilmour, Kew Bull. 10: 498 (1937) pro parte, non Druce, Ann. Scott. Nat. Hist. 1905: 48 (1905) nec *Erythraea littoralis* var. *intermedia* Wheldon, Sci.-Goss. n.s. 4: 111 (1897).

Centaurium × *klattii* P.Fourn., Quatre Fl. France 856 (1938), nomen nudum.

Biennial with linear-elliptic, 3-veined, acute middle-stem leaves 3.4–4.9 times as long as wide, calyx:corolla tube length ratio 0.65–0.75, corolla lobes c.5.5–5.6 mm, stigma lobes weakly cordate, largely infertile.

A new name is required for tetraploid hybrids between *Centaurium erythraea* and *C. littorale* which have been widely reported from coastal Northwest Europe. The hybrids are generally intermediate between the parents, often having the darker pink flowers of *Centaurium littorale* but the broader stem leaves of *C. erythraea*, and are usually tetraploid like both parents (Ubsdell, 1976b, 1979). They have been widely included in *Centaurium* × *intermedium* (Wheldon) Druce, but Ubsdell (1979) showed that this name as used by Wheldon (1897) should be restricted to hexaploid plants from the South Lancashire coast which are treated as a genetically stable, fertile, self-sustaining, allopolyploid species. Fournier (1938) coined the combination *Centaurium* × *klattii* for *C. erythraea* × *C. littorale* but provided no description; it is thus validated here.

Centaurium* × *ubsdellii* T.C.G.Rich, *hyb. nov.

Centaurium erythraea Rafn × *C. pulchellum* (Sw.) Druce

Centaurium × *wheldonianum* Druce, British Plant List 78 (1928), nomen nudum

Centaurium × *jolivetinum* P.Fourn., Quatre Fl. France 856 (1938), nomen nudum

Validating description (Wheldon & Salmon, 1925; p. 346): “Stem rather stout, 4–20 cm high much branched below with divergent branches. Lower part of stem very leafy with short internodes. Distinct basal rosette absent. Leaves similar in shape to *Centaurium pulchellum* but larger and in well-developed plants to 2–4 cm on the main stem. Flowers numerous in broad, fasciculately branched panicles, only the ultimate cymes truly dichotomous. Pedicels of main stem short (axillary flowers sessile or subsessile). Calyx about equalling corolla tube in length at anthesis, in ripe fruit 1/3–1/2 as long. Corolla lobes c.5 mm but variable, at anthesis as long as the tube, about half as long as tube in fruit. Fruits cylindrical, c.10 mm. Seeds 0.4–0.5 mm, irregularly angular, pitted”.

This hybrid is intermediate between the parents in all characters (Stace *et al.*, 2015) but can be difficult to separate from depauperate *Centaurium erythraea*. Named in honour of Francis Ubsdell for the excellent work on British *Centaurium*.

Gentianella amarella* (L.) Börner subsp. *occidentalis* T.C.G.Rich & McVeigh, *subsp. nov.

European *Gentianella uliginosa* (Willd.) Börner differs from *G. amarella* subsp. *occidentalis* by having (1–)2–5 internodes (mean, 3.2), the terminal internode 0.9 times the average internode length and a short terminal pedicel forming 20%

of total plant height (G. Oostermeijer, University of Amsterdam, unpublished data). – Holotype: old helipad on range, Pembrey, Wales, SN/36900.05008, 10 ix 2003, T.C.G. Rich, A. McVeigh & G. Oostermeijer (NMW; accession number V.2003.1.96).

Gentiana uliginosa auct. angl., non Willd.

Gentianella uliginosa auct. angl., non (Willd.) Börner

Gentianella amarella var. *uliginosa* sensu P. Sell & G. Murrell, non (Willd.) P.D.Sell, Fl. Gr. Br. Ireland 3: 519 (2009)

Annual herb to 13(–17) cm, erect, glabrous, dark green to purple-flushed, simple or sparsely branched above or from base. *Basal rosette leaves* present at flowering, spatulate to lanceolate, 3-veined, obtuse, sessile or broadly petiolate. *Stem* 4-angled, usually dark or sometimes green. *Stem leaves* (0–)1–2(–3) pairs, (4–)6–28(–32) × (1–)2–9(–12) mm, lanceolate to ovate-lanceolate, 3-veined, acute to acuminate, sessile, (1.7–)2–4.5(–5.5) times as long as wide. *Inflorescence* with 1–20 terminal and axillary flowers although often fewer than 5, 4- or 5-merous. *Terminal pedicels* (4–)6–22(–26) mm, to 60 mm on side branches. *Calyx* (5–)7–15(–17) mm; calyx tube 1–4 mm; calyx lobes 5–11 mm, usually markedly unequal in width, the widest lobe (1.1–)1.3–3.6(–4) times as wide as the narrowest lobe, some usually characteristically outcurved. *Corolla* (7–)11–20 mm; corolla tube (4–)6–14 mm, ± cylindrical but slightly wider towards top, bluish purple to purplish pink; corolla lobes (3–)4–6(–9) mm, similar in colour to the tube, ovate, acute, with long whitish fringes. *Corolla* (1–)1.1–2.2(–2.4) times as long as the calyx. *Stigma* 2-lobed, ± sessile. *Capsule* c.10–11 mm, soon longer than corolla, cylindrical, opening at apex; seeds 0.7–0.8 mm, brown, more or less round.

Gentianella amarella subsp. *occidentalis* is characterised by being annual with 0–2 (–3) internodes (mean, 1.3), the terminal internode on average c.1.7 times the average internode length, the long terminal pedicel forming up to 70% of total plant height, and the calyx teeth very unequal in width and usually outcurved. In cultivation, subsp. *occidentalis* is a summer annual and retains its morphology.

Molecular studies by S. de Carvalho (University of Amsterdam, unpublished data, 2006) showed that *Gentianella amarella* subsp. *occidentalis* is genetically different from Swedish *G. uliginosa*. Molecular studies by Winfield *et al.* (2003) showed that British plants ascribed to *Gentianella uliginosa* were genetically part of *G. amarella*. *Gentianella amarella* subsp. *occidentalis* can be consistently separated from subsp. *amarella*, which is a biennial with (4–)5–10(–14) internodes and the terminal internode typically forming up to 20% of the stem height and has sepal lobes nearly equal in width and ± appressed to the corolla. *Gentianella amarella* subsp. *anglica* differs in being a winter annual or biennial with sepal lobes nearly equal in width and ± appressed to the corolla.

Gentianella amarella subsp. *occidentalis* occurs in dune slacks in South Wales and Devon. Plants from Scotland (Gulliver, 1998) are dwarfed *Gentianella amarella* subsp. *amarella*, as may be the Derbyshire plant (Rich, 1996). Pritchard (1959) reported

hybrids between subsp. *occidentalis* and subsp. *amarella* (as *G. amarella* × *uliginosa*), but these have not been found in the field and the original vouchers are small subsp. *amarella* (ABD; see also Kay & John, 1995).

NEW COMBINATIONS

Centaureum erythraea* Rafn var. *latifolium* (Sm.) T.C.G.Rich, **comb. et stat. nov.*

Basionym: *Erythraea latifolia* Sm., Engl. Fl. 1: 321 (1824)

Centaureum latifolium (Sm.) Druce, Ann. Scott. Nat. Hist. 1905: 48 (1905)

Centaureum latifolium has been recognised as distinct by British botanists since first discovered in 1803 (Smith, 1824; Wheldon & Salmon, 1925). It is characterised by the dwarf habit, the broadly ovate or nearly orbicular stem leaves with 5–7 veins, the small sessile flowers 7–9 mm long, the densely capitate inflorescence and the calyx nearly as long as the corolla tube. The collections examined at BM and NMW are consistent, indicating a stable genotype, and it seems to be fertile (West *et al.*, 2014). However, it fits better as part of the many and varied range of dwarf and round-leaved forms of *Centaureum erythraea* found around the coast of Britain (Ubsdell, 1976a), from which it is difficult to separate, than as a separate species so here is given equal varietal status to the other intraspecific taxa.

Wheldon & Salmon (1925) suggested that it may have originated through crossing of *Centaureum pulchellum* with one of the small capitate forms of *C. erythraea*, which is supported by the small flowers and broad leaves, although Melderis (1972b) regarded it as a mutant of *C. erythraea*. It is closer morphologically to *Centaureum erythraea* than *Centaureum* × *ubdellii*; as it has been extinct since 1871, it has not been possible to grow plants and apply modern taxonomic methods, although DNA analyses may be able to resolve this if the DNA can be extracted satisfactorily.

Gentianella amarella* (L.) Börner subsp. *anglica* (Pugsley) T.C.G.Rich & McVeigh, **comb. et stat. nov.*

Basionym: *Gentiana anglica* Pugsley, J. Bot. (Lond.) 74: 167 (1936)

Gentianella amarella var. *praecox* (F.Towns.) P.D.Sell, Fl. Gr. Br. Ireland 3: 519 (2009)

Gentianella anglica (Pugsley) E.F.Warb., Fl. Brit. Isl. 826 (1952)

Various authors including T.C.G. Rich have regarded *Gentianella anglica* (Pugsley) E.F.Warb. as a species (Pugsley, 1936; Pritchard, 1959; Rich *et al.*, 1997), but molecular studies by Winfield *et al.* (2003) showed that it is part of *G. amarella* and indicated that it was of relatively recent origin. Here, the narrow concept of *Gentianella anglica* as lectotypified by Rich *et al.* (1997) is retained at subspecific rank for plants flowering in early summer with 1–3 internodes and the terminal internode contributing more than 40% to the stem height. Plants treated as the fertile hybrids between *Gentianella amarella* and *G. anglica* = *G. × davidiana* T.C.G.Rich (*G. anglica* subsp. *cornubiensis*

N.M.Pritch.; Rich *et al.*, 1997) are now included in the variable *G. amarella* subsp. *amarella*.

Aria parviloba* (T.C.G.Rich) Sennikov & Kurtto, *comb. nov.

Basionym: *Sorbus parviloba* T.C.G.Rich, *Watsonia* 27: 306 (2009)

Karpatisorbus parviloba (T.C.G.Rich) Sennikov & Kurtto, *Memoranda Soc. Fauna Fl. Fenn.* 93: 49 (2017)

Sennikov & Kurtto (2017) placed *Sorbus parviloba* under *Karpatisorbus* based on the suggestion in Rich *et al.* (2010) that its parentage might be “possibly *S. eminentiformis* × *S. × tomentella*”. T.C.G. Rich considers this is no longer the case and regards it simply as part of the *Aria (Sorbus) eminens* group as shown in the conspectus of Rich *et al.* (2010). The new combination under *Aria* is therefore required.

Cotula sessilis* (Ruiz & Pav.) Stace, *comb. nov.

Basionym: *Soliva sessilis* Ruiz & Pav., *Syst. Veg. Fl. Peruv. Chil.* 1: 215 (1794)

This combination is needed to reflect the current inclusion of *Soliva* in *Cotula* (Himmelreich *et al.*, 2012).

Elymus L.

The following three new combinations are needed to reflect the current inclusion of *Elytrigia* Desv. in *Elymus L.* (Soreng *et al.*, 2017).

Elymus × drucei* (Stace) Stace, *comb. nov.

Basionym: *Elytrigia × drucei* Stace, *Watsonia* 23(4): 546 (2001)

Elymus repens* (L.) Gould f. *aristatus* (Schumach.) Stace, *comb. nov.

Basionym: *Triticum repens* L. var. *aristatum* Schumach., *Enum. Pl. [Schumacher]* 1: 38 (1801)

Elytrigia repens (L.) Desv. ex Nevski f. *aristata* (Schumach.) Beetle, *Phytologia* 55: 211 (1984)

Elymus athericus* (Link) Kerguélen f. *setigerus* (Dumort.) Stace, *comb. nov.

Basionym: *Agropyron littorale* Dumort. var. *setigerum* Dumort., *Obs. Gram. Fl. Belg.* 97 (1824)

Elytrigia atherica (Link) Kerguélen f. *setigera* (Dumort.) Stace, *Watsonia* 27: 369 (2009)

Ulmus L.

Ulmus minor* Mill. subsp. *cornubiensis* (Weston) Stace, *comb. et stat. nov.

Basionym: *Ulmus campestris* L. var. *cornubiensis* Weston, *Bot. Univ.* 1: 315, 350 (1770)

Ulmus minor var. *cornubiensis* (Weston) Richens, *Taxon* 26: 583 (1977)

Ulmus cornubiensis (Weston) J.V.Armstr. & P.D.Sell, *Fl. Gr. Br. Ireland* 1: 677 (2018)

This combination recognises the separation of the Cornish elm (above) and Goodyer's elm (*Ulmus minor* subsp. *angustifolia* (Weston) Stace) at the subspecific level.

Dysphania R. Br.

***Dysphania ambrosioides* (L.) Mosyakin & Clemants var. *anthelmintica* (L.) Stace, comb. nov.**

Basionym: *Chenopodium anthelminticum* L., Sp. Pl. 220 (1753)

Chenopodium ambrosioides L. var. *anthelminticum* (L.) A.Gray, Manual (Gray), ed. 2. 364 (1856)

Chenopodium ambrosioides var. *anthelminticum* is here transferred to the genus *Dysphania*.

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