

Baldellia ranunculoides subsp. ranunculoides & subsp. repens

Stace Edn. 3 (2010) recognises 2 subspecies for *Baldellia ranunculoides* in Britain and Ireland: the relatively widespread (but uncommon) subsp. *ranunculoides* and subsp. *repens* ("Much rarer than ssp. *ranunculoides* but under-recorded; W. Br. Ir."). The differences are summarised in the following table (after Jones, 2006 and Kozłowski et al, 2008).

<i>Baldellia ranunculoides</i> subsp. <i>ranunculoides</i>	<i>Baldellia ranunculoides</i> subsp. <i>repens</i>
Plant ± 50cm high, almost always erect, rarely with prostrate inflorescences (and then very rarely rooting), with usually robust stems up to 3mm thick	Plant weak (but not always) creeping, rooting at the nodes of the inflorescence with leaf rosettes up to 20cm high, with delicate, thin stems up to 1mm thick
Flowers small (±15mm in diameter, rarely up to 18mm)	Flowers much larger (up to 22mm in diameter)
Breeding system self-compatible	Breeding system self-incompatible
Whorls of inflorescence many-flowered (15-20 flowered)	Whorls of inflorescence few (up to 5) flowered
Fruit-stalks (peduncles) erect or arched-ascending	Fruit-stalks (peduncles) vertically divergent, the top bent downwards
Fruit-heads large, up to 8mm across	Fruit-heads smaller, about 5mm across
Number of fruits per head up to 45	Number of fruits per head 15 (-20)
Fruit 2½mm long, without papillae Deeply keeled (> 1mm wide) and smooth, with an acute beak and without numerous hyaline papillae when ripe (x 20 magnification).	Fruit 2mm long, with numerous papillae Narrow (< 0.9mm wide) with a persistent hooked beak and numerous hyaline papillae when ripe (x 20 magnification).
Inflorescence upright umbel or tier of 2(-3?) whorls without leaves, growing from c. April - August.	Inflorescence decumbent, leafy, indeterminate shoot, usually rooting at nodes and growing throughout the year
Habitat temporary gaps within calcareous or mildly brackish pools, dune-slacks, ditches and mesotrophic water-bodies.	Habitat shorelines and long-standing gaps in weakly acidic, Littorelletean heathland pools and oligotrophic lakes.
Flowering period June to July (-August)	Flowering-period June to October (-November)
Population structure scattered, detached individuals.	Population structure locally-abundant, networks of vegetatively spreading clones

Populations of subspecies *repens* are currently only known from Vc.s 52 (Anglesey) and H1 (South Kerry) but there is convincing herbarium material from Vc.s 88 (Mid Perth), 27 (E. Norfolk) and 113 (Channel Islands) and numerous references to 'var *repens*' in county Floras elsewhere.

Intermediates also occur, though (eg. in Vc. 45 and, historically, Vc. 52), with arcuate stems, small leaves in the inflorescence whorls, moderately self-compatibility (few papillose fruits produced, often towards the end of the season) and c.50% deformed pollen (easily seen under a low-power microscope). These seem to be reasonably clear hybrids between the two subspecies but there is evidence from recent molecular genetic studies of more widespread introgression and there is a need for further work. Specimens of candidate subsp. *repens* and possible hybrid material should be collected for further determination.

References

Jones, R.A., (2006). Creeping water-plantain (Dyfr lyriad ymlusgawl), *Baldellia ranunculoides* subsp. *repens* (Lam.) A. Love & D. Love in Wales. In: Leach, S.J., Page, C.N., Peytoureau, Y., Sanford, M.N. (Eds.), Botanical links in the Atlantic arc. BSBI Conference Report No. 24, pp. 311–319.

Kozłowski, G., Jones, R.A. & Nicholls-Vuille, F-L., (2008) Biological Flora of Central Europe: *Baldellia ranunculoides* (Alismataceae) *Perspectives in Plant Ecology, Evolution and Systematics* 10 (2008) pp. 109–142

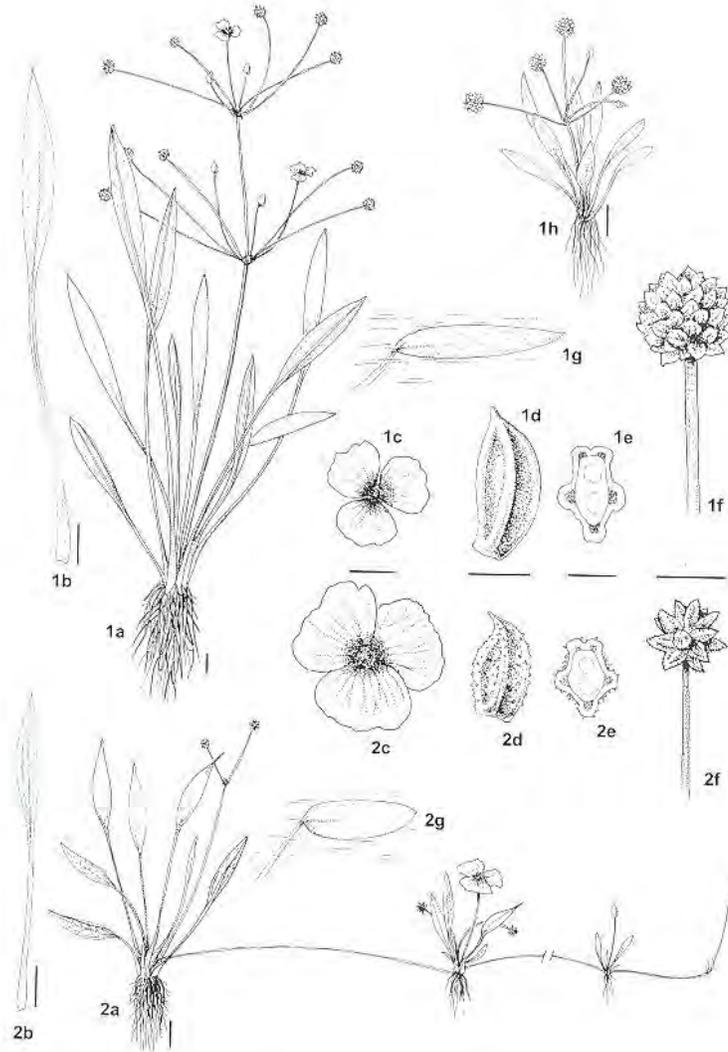


Fig. 1. Morphology of the subspecies: (1) *B. ranunculoideae* subsp. *ranunculoideae*, (2) subsp. *repens*: a – general habit, b – leaf (scale bar for a and b: 1 cm), c – flower (scale bar: 0.5 cm), d – nutlet (scale bar: 1 mm), e – nutlet cross-section (scale bar: 0.5 mm), f – fruit-head (scale bar: 0.5 cm), g – floating leaf, 1 h – terrestrial form of subsp. *ranunculoideae* in nutrient-poor conditions (scale bar: 1 cm). Plant material from Neuchâtel Lake, Switzerland (subsp. *ranunculoideae*) and Banen Lake, Netherlands (subsp. *repens*). Drawn by S. Engenberg.

Illustration from Kozłowski et al (2008), with author's permission.