*British & Irish Botany* 6(1): 71-77, 2024

# Names and descriptions of two hybrid scurvygrasses (*Cochlearia*; Brassicaceae)

Timothy C.G. Rich*
Cardiff, UK

***Corresponding author:** tim_rich@sky.com

This pdf constitutes the Version of Record published on 21 June 2024

**Abstract**
Binomials are provided for two *Cochlearia* (Brassicaceae) hybrids: *C. danica* × *C. officinalis* = ***C.* × *stacei* T.C.G.Rich** and *C. atlantica* × *C. danica* = ***C.* × *occidentalis* T.C.G.Rich.** Full descriptions are given together with pointers to differentiate between the two hybrids.

**Keywords**: *Cochlearia atlantica*; *Cochlearia danica*; *Cochlearia officinalis*; holotype

## Introduction

Stace *et al.* (2015) reviewed the occurrence of *Cochlearia* hybrids in Britain and Ireland and listed two hybrids *C. anglica* L. × *C. officinalis* L. = *C.* × *hollandica* Henrard and *C. danica* L. × *C. officinalis* L., noting that the evidence for other hybrids was weak.

It is surprising that there is no binomial available for *C. danica* × *C. officinalis* which has been known for many years and is widespread (Stace *et al.*, 2015) so here I give it a name. During work for my BSBI Handbook on Crucifers (Rich, 1991), I collected hybrids of *C. atlantica* Pobed. and *C. danica* from several sites around the coast of the Irish sea. Kery Dalby and I have long-recognised *C. atlantica* as a distinct species of salt marshes and tidally-inundated rocky shores, differing from *C. officinalis* in having smaller, truncate, less rugose rosette leaves and slightly smaller flowers which retain their characters in cultivation (Rich, 1991). Though others are more equivocal (Gill, 2007; Stace, 2019), the recent demonstration by Greenwood & McAllister (2022) that the Irish sea *C. atlantica* plants are hexaploid 2n=36 (thus differing from the tetraploid 2n=24 *C. officinalis* group) now provides sufficient justification to provide a name for this hybrid too, which has not previously been reported.

***Cochlearia* × *stacei* hybr. nov**. = *C. danica* L. × *C. officinalis* L.
HOLOTYPE: abundant, with parents, on stoney and earthy slopes on side of mouth of Afon Peris, Llansantffraid, Cardiganshire (v.c.46), SN509675, 4 May 1996, A.O. Chater (**NMW,** accession number V1999.06.74; Fig. 1).

## Description

Intermediate between the parents: Stems 12–35 cm tall, erect or semi-prostrate, glabrous, dark green or flushed purplish. Rosette leaves with petioles to 12 cm, the

lamina 0.5–3.5 cm × 0.6–3.5 cm, very widely ovate, weakly to strongly cordate at base, obtuse at apex, margins sinuate to shallowly 5-lobed. Lower stem leaves with shorter petioles 0.5–3 cm, lamina ovate, base cuneate, subobtuse, margins sinuate. Upper stem leaves sessile with small auricles clasping stem, lamina to 1.5 × 0.8 cm, oblong to ovate, shallowly lobed to entire. Inflorescence crowded to 4 cm. Sepals 2.0–2.8 mm, oblong-ovate, green with scarious margins, erect to ascending. Petals 3.8–5.3 × 1.9–2.4 mm, blade elliptic, clawed at base, rounded at apex, pale pink, lilac or whitish. Petals *c.*1.5–1.9 times as long as sepals. Stamens 6, anthers yellow, some pollen produced (pollen fertility unknown). Fruits poorly developed and largely sterile, aborting valves to *c.*2.5–4.0 x 2 mm, elliptical to orbicular. Partially fertile (Stace *et al.*, 2015).


**Figure 1. Holotype of *Cochlearia* × *stacei.***

The description above is based on the holotype and two other collections in **NMW** (St Anne's Head v.c.45, 1975, T.A.W. Davies, accession no. 76.42B.2; Aberdaron v.c.49, 1986, T.C.G. Rich & A.P. Conolly, accession nos. V1998.34.244, V1998.34.246a and V1998.34.246b). Chater (2010) noted that in 1992 at Llansantffraid (the type locality) there were many plants variably intermediate between the parents. Given variation in the parents themselves (Rich, 1991), there is no doubt more variation in the hybrid elsewhere.

The occurrence of this hybrid is reviewed in detail in Stace *et al*. (2015) so is only briefly summarised here. It is widespread on coastal cliffs where the parents occur together and is most easily picked out from its parents in flower by the intermediate-sized petals 3.8–5.3 mm which are often weakly flushed lilac (petals typically 2.5–4.5 mm and flushed lilac in *C. danica*; petals typically (3.5–)4.5–8.0(–9.5) mm and white in *C. officinalis*). It is partially fertile and introgression to both parents occurs.

The epithet honours Professor Clive Stace for his authoritative work on the British and Irish floras for the last 50 years.

***Cochlearia* × *occidentalis***, **hybr. nov.** = *C. atlantica* Pobed. × *C. danica* L. HOLOTYPE: shingle at the top of saltmarsh, Rampside, Cumbria (v.c.69), SD242663, 15 May 1987, T.C.G. Rich, G. Halliday & L.A. Livermore, collecting no. 120-87 (**NMW,** accession number V1998.34.242; Fig. 2; ISOTYPE, same details, V1998.34.241).

**Description**

Intermediate between the parents: Stems to 15 cm, prostrate to ascending, glabrous, dark green or flushed purplish. Rosette leaves with petioles to 13 cm, the lamina to 2 cm, rounded-triangular, cordate at base, obtuse at apex, margins entire, distinctly toothed or shallowly 3–5-lobed. Lower stem leaves similar to basal leaves, with shorter petioles 3–10 mm. Upper stem leaves sessile with small auricles clasping stem, lamina to 1.5 cm, oblong to ovate, shallowly lobed. Inflorescence to 6 cm, crowded. Sepals (2.4–)2.5–2.9 mm, oblong-ovate, green, erect to ascending. Petals (3.3–)4.4–5.4 × (2.2–)2.3–2.7 mm, blade ovate to elliptic, clawed at base, rounded at apex, moderately purple-flushed to whitish. Petals *c.*1.5–2.2 times as long as sepals. Stamens 6, anthers yellow, pollen produced (pollen fertility unknown). Fruits poorly developed and largely sterile, aborting valves to *c.*2 mm, elliptical.


**Figure 2. Holotype of *Cochlearia* × *occidentalis***

The description above is based on the two type specimens and collections from Crook v.c.60, 10 May 1986, T.C.G. Rich & L.A. Livermore (**NMW** accession nos. V1998.34.243, V1998.34.247a, V1998.34.247b, V1998.34.248a, V1998.34.248b). In addition to two localities above, there was a large variable population of *C.* × *occidentalis* with both parents at Greenfield, Flintshire (v.c.51), SJ199779, 25 May 2004, T.C.G. Rich & E. Gill (Gill, 2007; specimen currently untraced in **E**). There is likely to be more variation elsewhere, as indicated by the variation seen in petal lengths of both the parents and hybrid (Fig. 3); this may be due to introgression as for *C.* × *stacei* but has not yet been studied.

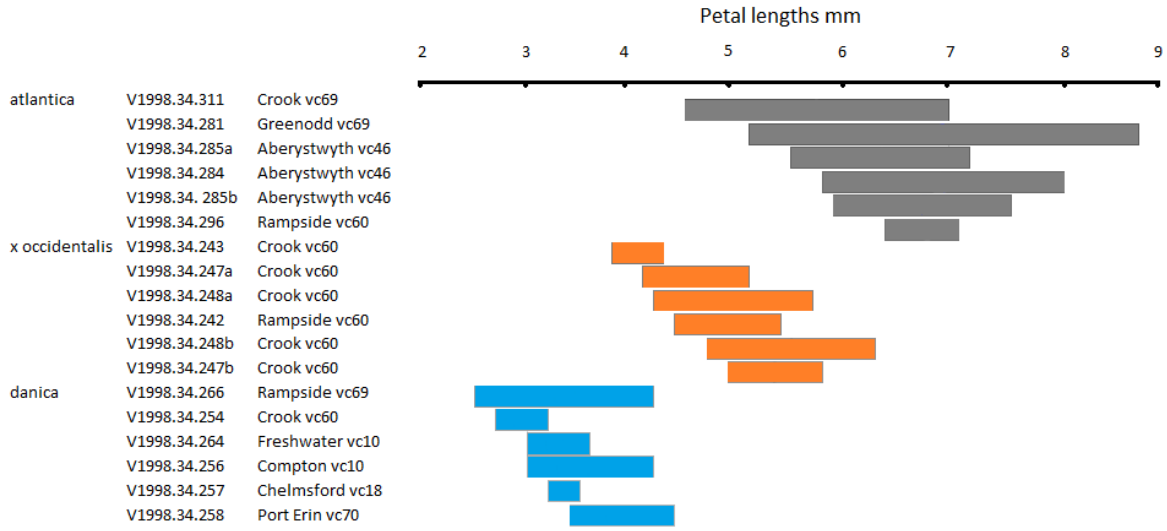


**Figure 3. Graph showing the fresh petal length ranges for *Cochlearia atlantica, C.* × *occidentalis* and *C. danica* from a range of sites.**

*Cochlearia* × *occidentalis* is most easily picked out from its parents in mixed populations by its intermediate-sized petals 4.4–5.4 mm which are often weakly flushed lilac (petals typically 2.5–4.5 mm and flushed lilac in *C. danica*; petals typically 4.5–7.5 mm and white in *C. atlantica;* Rich 1991); Fig. 4 shows this for the population at the type locality at Rampside.

Morphologically *C.* × *occidentalis* is similar to *C.* × *stacei*, differing in having petals slightly relatively longer than sepals and presumably in ploidy level. The two hybrids would be hard to differentiate in the field from morphology alone, and parentage is probably best judged from the *C. officinalis* group parent present.

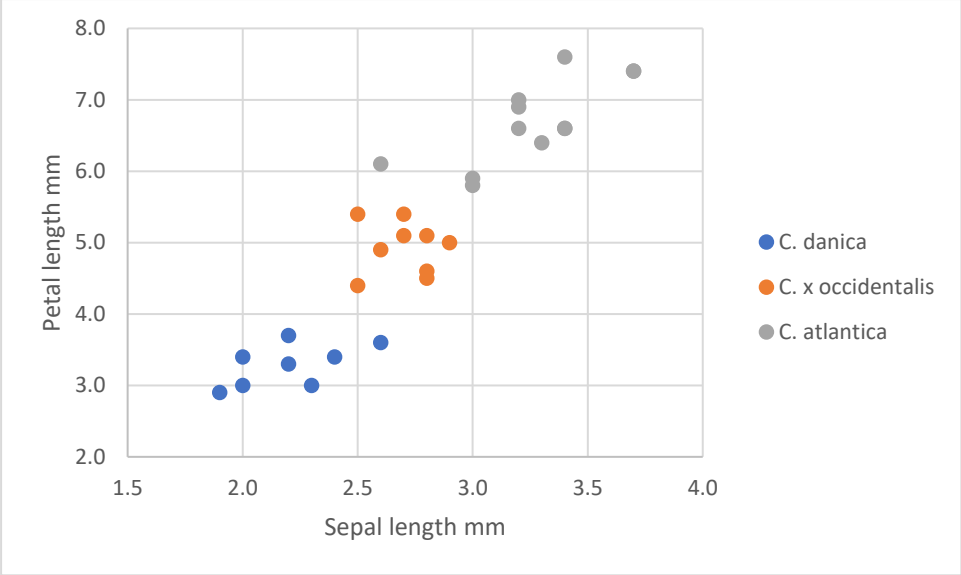


**Figure 4. Graph showing fresh sepal length plotted against petal length for individual flowers of *Cochlearia danica, C.* × *occidentalis* (holotype) and *C. atlantica* at Rampside, 15 May 1987.**

*Cochlearia* × *occidentalis* occurs occasionally where the parents meet at the top of saltmarshes or shingle adjacent to sea walls, banks and rocks. It is potentially present wherever the parents meet in North-west Wales, North-west England, Western Scotland and in the north of Ireland. The epithet *occidentalis* represents its occurrence in the west, reflecting the Atlantic distribution of its parent *C. atlantica*.

**Acknowledgements**
I would like to thank Heather Pardoe and Sally Whyman for access to the collections at **NMW**.

**References**

Chater, A.O. 2010. *Flora of Cardiganshire*. Aberystwyth: Privately published.
Gill, E. 2007. Conservation genetics of the species complex *Cochlearia officinalis* s.l. in Britain. University of Edinburgh: PhD thesis.
Greenwood, E.F. & McAllister, H.A. 2022. *Cochlearia officinalis* sensu lato (Brassicaceae) around northern Irish Seacoasts. *British & Irish Botany* 4(3):347-363.
Rich, T.C.G. 1991. *Crucifers of Great Britain and Ireland*. BSBI Handbook No. 6. London: Botanical Society of Britain & Ireland.
Stace, C.A. 2019. *New Flora of the British Isles*. 4th ed. Middlewood Green, Suffolk: C & M Floristics.
Stace, C.A., Preston, C.D. & Pearman, D.A. 2015. *Hybrid flora of the British Isles*. Bristol: Botanical Society of Britain and Ireland.

ISSN: 2632-4970

https://doi.org/10.33928/bib.2024.06.071