

## ***Erica* × *triparentalis*: an artificial, hardy, multi-species hybrid heather (with a summary of hybridization in heathers and heaths).**

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*Erica* × *triparentalis* E. C. Nelson **nothosp. nov.**, *The Plant Review* 2: 65 (2020).

Holotype: **WSY**, cultivated by Kurt Kramer, Edammer Straße 26, D-26188 Edewecht, Niedersachsen (Lower Saxony), Germany, April 2014, K Kramer, s. n. WSY0108863 (Nelson 2020).

Variable, evergreen shrub, the progeny of *E.* × *veitchii* pollinated with by *E. australis*; habit resembling *E. australis*; stems grey, densely pubescent with short, simple hairs, some with glandular tips, intermixed with branched hairs; branches erect, appearing bushy with numerous shorter side shoots. Leaves sometimes in whorls of 3–4, sometimes spirally arranged, linear, approx. 10mm long, less than 1mm broad, mid-green when mature but young foliage usually discoloured (not plain green), ± glabrous except for some minute, straight, simple hairs especially towards the petiole; sulcus narrow, linear, closed. Inflorescence appearing to form a spike, as in *E. arborea*; flowers at tips of leafy axillary shoots, in terminal umbels of (1–)3(–4); pedicel curved, with gland-tipped hairs and non-glandular, straight hairs; bract and bracteoles similar, bract close to base of peduncle, bracteoles about or above the middle, narrow, triangular, with simple hairs on margins. Flowers white or pale pink, scented; buds often tinged pink. Calyx ± 2mm long, with 4 lobes, fused at base, margins irregularly fimbriate. Corolla glabrous, 5–6mm long, ± 4mm in diameter, barrel-shaped to tubular-campanulate, slightly constricted below the lobes, with 4 lobes ± 1mm long. Stamens 8, included, ± 4mm long; filament ± 3.5mm long, white or tinged red, with sigmoid bend, sometimes very pronounced, towards apex, glabrous; anthers dark, basifixed, with straight, linear-lanceolate, white or red-tinged spurs, 0.6–0.7mm, rarely 1.0mm long, covered with minute spicules; thecae obovate, ± 0.7mm long; pollen sparse or absent. Ovary globose or barrel-shaped, ± 1mm tall and wide, green or pink to dark red, 4-lobed, pubescent or hirsute with straight hairs; style erect, slightly curved and tapering towards apex, white or tinged pink in upper part, emergent, ± 5mm long, expanded at apex; stigma 4-lobed, usually dark red; nectary ring at base producing varying amounts of nectar.

*Erica* × *triparentalis*, from Kurt Kramer, is the first multi-species hybrid to be verified and the first to involve the northern hemisphere species, in its case *E. arborea* and *E. lusitanica* (as *E. × veitchii*) and *E. australis*. Hence the name published for the progeny of this crossing is *E. × triparentalis* (Nelson 2020). It differs from *E. × veitchii*, and from its parents *E. arborea* and *E. lusitanica* in possessing a somewhat longer corolla and longer leaves. In the pollen-parent, *E. australis*, the filaments are never markedly sigmoid below the anthers, and the spurs are lobed which is not the case in *E. × triparentalis*. As in *E. australis*, the ovary is covered with hairs that vary in length and density; sometime the basal portion of the ovary is devoid of these hairs.

**Flowering period.** April–May (in northwestern Germany).

**History.** On 20 March 2011, Kurt Kramer pollinated a putative tetraploid clone of *Erica* × *veitchii*, a well-known and widely cultivated hybrid between *E. arborea* and *E. lusitanica*, with pollen from several different (both white- and lilac-flowered) putative tetraploid clones of *E. australis*. He succeeded in raising about fifty seedlings. All were subsequently propagated, and after growing on for several years, the fifteen best clones were retained for further trial. These were planted outside in Kramer’s nursery at Edewecht, Niedersachsen (Lower Saxony), in northwestern Germany. In 2017, thirteen clones were still growing, having survived temperatures as low as –13°C.

This is the first instance known of a heather derived from more than two of the hardy northern-hemisphere species, in this case *E. arborea* and *E. lusitanica* (as *E. × veitchii*) and *E. australis*, hence the name published for the progeny of this crossing is *E. × triparentalis* (Nelson 2020).

**Cultivars.** The thirteen clones in cultivation display observable variation in density of foliage, shape and dimensions of the corolla, number of flowers in terminal umbels, and colour of the young foliage. One (clone no. 8) has been selected for propagation and has been named ‘New Horizon’ (reg.no. E.2017.01) (Nelson 2020). It has relatively larger, scented flowers; the red-tinged ovary is densely hirsute; the spurs of the anthers are tinged red and the spicules on these spurs are clearly visible under the microscope; pollen is produced; the young shoots are discoloured, appearing bright yellow-green.

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**Hybrids heathers.** The history of artificial hybridization of *Erica* is remarkable (see Nelson 2011: 327–329). The southern African species, the so-called Cape heaths, were the most widely cultivated heathers in Europe during the late eighteenth century and for most of the nineteenth century, while the indigenous species were largely ignored. The Cape heaths became exceptionally fashionable although they were costly to keep because they required heated greenhouses for successful cultivation in much of northern Europe. New “species” commanded very high prices. Thus there was considerable potential for profit if nurserymen could artificially produce novelties without the need to employ, at substantial expense which might not be recouped, a seed-collector at the Cape of Good Hope.

The earliest attempts to produce hybrid heaths, using the Cape species, probably were carried out in the 1790s by William Rollisson (c. 1765–1842), founder of the Springfield Nursery, Upper Tooting, Surrey, but his work was not made public until after his death (see Rollisson 1843; see also Nelson & Oliver 2005a; Nelson 2011: 327). William Henry Story (1795–1855) of Whitehill, Newton Abbott, Devon, wrote that “For forty years and upwards [Rollisson] silently and successfully carried on his favourite pursuit, introducing, during that long period, most (I was going to say *all*) of the choicest and most favoured varieties now in cultivation” (Story 1848). Rollisson’s raising of so many hybrids of the Cape heaths was the first “extensive program of breeding new ornamental plant varieties” (Elliott 2001; Nelson & Oliver 2005a).

Whereas Rollisson kept his work secret and did not reveal the lineages of his hybrids, presumably to ensure he had no competitors, the Hon. & Very Revd William Herbert (1778–1847), an enthusiastic gardener and an authority on Amaryllidaceae and Iridaceae, had no reason for reticence. He was one of the first to write about plant hybridization (Herbert 1847) and the first to record artificial hybrids in *Erica*, announcing that he had succeeded in raising *Erica* crosses when he spoke at a meeting of the Horticultural Society of London on 7 July 1818. The published version of his address concluded with this scanty comment: “and the new heaths I have already obtained, are most distinct and remarkable, the individuals of each new species [*sic*] being perfectly uniform” (Herbert 1818: 196). Although more than 170 entries in The Heather Society’s database record Rollisson’s hybrids (see Nelson & Small 2004–2005), no other record of Herbert’s hybrids has been traced and evidently none was named. The explanation must lie in the fact that Herbert’s hybrid seedlings “were all lost on, or soon after, removing to Spofforth before they had flowered, though one of them was above a foot high.”

Having so easily achieved showy hybrids between *Erica* species from the Cape of Good Hope, it was not unnatural for European horticulturists to speculate about the possibilities of crossing the frost-hardy northern species. No account of a hardy *Erica* hybrid being raised during the nineteenth century has been traced, although at least one anecdote suggests that attempts were made by the Ulster rose-breeder George Dickson I (1832–1914), of Newtownards, County Down, “to cross summer and winter flowering heathers” by keeping pollen sealed in goose quills (Harkness 1985: 47). Another Ulsterman, James Walker Porter (1889–1963), was the pre-eminent raiser of new hardy heathers from seed during the first half of the twentieth century (Nelson 1984a), but little is known about his methods and we do not have information about whether his introductions were accidental or deliberate crosses. Georg Arends (1863–1952), of Wuppertal Ronsdorf, the renowned German plant breeder and nurseryman, recorded in his autobiography (Arends 1951: 130) that he had raised seedlings from *E. terminalis* crossed with *E. cinerea*; the re-created hybrid, now in cultivation, has been named *E. × arendsiana*. For scientific research purposes, rather than for horticultural reasons, Professor David Allardyce Webb (1912–1994) of Trinity College, Dublin, succeeded in fertilizing *E. tetralix* with pollen from *E. mackayana*, one of the probable ways in which *E. × stuartii* arises in the wild localities in Ireland (Webb 1955) and much less frequently in Spain (Nelson 2011: 303). In 1972, Mrs Ann Parris (1907–1996), then living at Usk, Monmouthshire, made a simple experiment to confirm that *E. × darleyensis* was the product of *E. carnea* crossed with *E. erigena*. She tied sprigs of *E. carnea* ‘Springwood Pink’ to flower-laden shoots of *E. erigena* ‘W. T. Rackliff’ and ‘Brightness’. From the few seeds that she harvested, Mrs Parris raised seven plants. Their young shoots were discoloured, an indication of heathers of hybrid origin (Parris 1976; Griffiths 1985; Small & Alanine 1994).

More direct pollination methods, deliberately placing the pollen on the stigma of the seed-parent, were to be employed subsequently. Whereas Ann Parris’s method was haphazard, the work of Kurt Kramer and John Griffiths, the principal hybridists active since the 1980s (Small & Wulff 2008), was not. Others to deliberately create hybrids of the northern hemisphere species are Johannes van Leuven in Germany, Barry Sellers in England, and David Wilson in Canada.

Kramer’s hybrids are numerous, and some clones derived from these are widely available in nurseries throughout temperate regions, the eponymous winter-flowering *Erica × darleyensis* ‘Kramers Rote’ (KRAMER’S RED) being one of the most widely planted hardy heathers. Less familiar, perhaps, are the novel primary hybrids that he has created, some involving an African

and a northern hemisphere parent: *E. × afroeuropaea* (*E. arborea × baccans*), *E. × gaudifans* (*E. spiculifolia × bergiana*), *E. × krameri* (*E. carnea × spiculifolia*), *E. × mercatoris* (*E. spiculifolia × manipuliflora*) and *E. × oldenburgensis* (*E. arborea × carnea*). Kramer also first raised *E. × factitia* (*E. lusitanica × carnea*) but he did not consider his plants worth naming or propagating and the named clones now (2019) in cultivation came from work by Johannes van Leuven. It was Kramer who re-created *E. × arendsiana*. His most substantial innovation has been the deliberate crossing of individuals of *Calluna vulgaris* and the selection and propagation of the cultivars commonly called “bud-bloomers” (“Knospenblüher”). Dozens of these have been named, and they now command a huge market with an estimated 135 million plants produced each year in Germany alone for sale as disposable pot-plants (Kramer 2017).

During the course of his breeding experiments with species of *Erica*, Kramer has produced plants that are putative polyploids, although the traditional confirmation of polyploidy – visual counts of stained chromosomes using a light microscope – in northern *Erica* species and their progeny is still wanting (Nelson & Oliver 2005b). Kramer (pers. comm.) postulates polyploidy by comparing the diameters of pollen grain of his seedlings with those of wild plants and older cultivars. Polyploidy in *Calluna vulgaris* has been established using flow cytometry, with triploid and tetraploid cultivars being revealed (Przybyla *et al.* 2014). However, similar research has not yet been reported for *Erica* species or cultivars.

## Discussion

It is highly probable that some of the Cape heaths hybrids and named cultivars raised during the nineteenth century resulted from crosses ultimately involving more than two parent species but most of these plants are no longer in cultivation and accurate records of their parentage are almost invariably lacking. Examples of Cape heaths that probably had three or four species in their lineages include ‘Countess of Home’ (raised by Alexander Turnbull), ‘Félix Faure’ and ‘Hélène’ (both introduced by J. B. R. Gentilhomme), ‘Frühlingsgrüss’ (from Rudolf Dohrmann) and ‘Silver Pink’ (from Milton Hutchings Ltd) (Nelson & Small 2004–2005). *Erica × triparentalis* from Kurt Kramer is the first multi-species hybrid to be verified and the first to involve the northern hemisphere species.

Whereas specialist nurseries stocked with dozens of clones of the hardy northern-hemisphere heathers have dwindled in the last two decades to a meagre few, mass production of a small number of named heathers, mainly *Calluna* but also, for example, the Cape heath *Erica gracilis* (Hiedl & Hiedl

2015), for sale as pot plants now characterizes the “heather industry” in northwestern Europe. Cultivars from artificially created crosses, protected by plant breeders’ rights and sold under registered trade marks such as Gardengirls® and Beauty Ladies® (both covering *Calluna vulgaris* “bud-bloomers”), dominate this trade and new selections are added every year. There is a continual quest for better cultivars, and creating complex hybrids is one way to satisfy that demand.

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