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A new *Cyrtanthus* species (Amaryllidaceae: Cyrtantheae) endemic to the Albany Centre, Eastern Cape, South Africa

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ABSTRACT

Cyrtanthus **macmasteri** Snijman is a rare new species from the Albany Centre of endemism, Eastern Cape, South Africa. Most closely related to *C. galpinii* Baker, and autumn-flowering species with a single or rarely-flowered inflorescence from the northern regions of southern Africa, *C.* **macmasteri** is distinguished by a 3 to 6-flowered inflorescence. It grows on steep banks of the Great Kei River and its tributaries and flowers in summer.

INTRODUCTION

Cyrtanthus L.f. is an exclusively sub-Saharan African genus in the family Amaryllidaceae, found only in the southern and eastern parts of the continent and frequently restricted to habitats with distinctive soil types, ecotones or isolated gorges. Dyer (1939) and later Reid & Dyer (1984) reviewed the 50 species known in southern Africa, whereas Nordal (1979) studied the two species and four subspecies from East Africa.

The Eastern Cape is floristically rich, phytogeographically complex and poorly collected (Gibbs Russell & Robinson 1981; Gibbs Russell *et al.* 1984). In 1994 Mr J.C. McMaster, a keen naturalist who repeatedly visited remote localities to record Eastern Cape plants, sent pressed and living plants of this new species collected from near the confluence of the Bolo and Kei Rivers (Figure 1), to the Compton Herbarium. Mrs M.A. Holmes had first recorded matching material (*Holmes NBG70846*) from the same area in 1963. Although previously identified by Miss W.F. Barker as *C. galpinii* Baker, the acquisition of Cameron McMaster's specimens enabled this rarely seen species to be described and illustrated.

Cyrtanthus macmasteri *Snijman*, sp. nov., quoad colorem, magnitudinem et formam florum *C. galpinii* Baker similis, sed floribus multis (3–6) differt. Figura 2.

TYPE.—Eastern Cape, 3227 (Stutterheim): Farm Keibolo, above Bolo River Gorge near its confluence with the Kei River, (–BC), 6 February 1994, *McMaster s.n.* (*NBG192230*, holo.; PRE).

Deciduous, bulbous herb, 200–250 mm tall when flowering. *Bulb* solitary, hypogeal, depressed globose, 25–35 × 30–35 mm diam.; outer tunics papery and brown, extended into a slender neck up to 90 mm long. *Leaves* 1 or 2 each season, most often dying back before flowering and emerging anew after flowering, strap-shaped, 150–320 × 6–7 mm, narrowing up to 2 mm at base and apex, glabrous, somewhat glaucous, reddened at base; adaxial surface channelled; abaxial surface distinctly keeled; margins and midrib minutely papillate towards base. *Inflorescence* 3–6-flowered; scape erect, up to 190 mm long, 4–5 mm diam., tapering distally, glaucous green, flushed with pink near base, solid at base but hollow above; spathe valves 2, equitant, lanceolate, 50–57 × 8–9 mm, herbaceous, reddish turning pale brown, inner withering and reflexing before outer; bracteoles filiform, ± 5 mm long; pedicels erect, ranging from 15–55 × 1.5–2.0 mm in each inflorescence, pale green. *Flowers* secund, spreading horizontally or slightly drooping, opening ± synchronously; perianth funnel-shaped, 37–42 mm long, scarlet, inner surface of tube whitish pink with 6 scarlet streaks leading downwards from tepal sinuses, not scented, producing nectar; tube 25–30 mm long, lower 10 mm narrow, 2–4 mm diam., curved at ± 90°, upper 15–20 mm flaring open to 10–13 mm at throat; tepals ovate, 10–14 × 6–8 mm, outspread at anthesis, outer and inner almost equal, 5–7-veined, firm-textured, without a thickened midrib; apex obtuse, mucronulate; mucro white. *Stamens* biseriate, regular, arising ± three quarters up tube, outer attached 3–4 mm below inner; anthers dorsifixed, oblong, up to 3 mm long, yellow. *Ovary* ellipsoidal, 5–6 × 2–3 mm, green; ovules axile, ± 25 per locule; style pressed against lower tepals, up to ± 9 mm long, exserted beyond stamens, white to scarlet distally; stigma 3-branched, branches slender, truncate, ± 2.0 × 0.5 mm, papillate on inner surface. *Capsule* narrowly

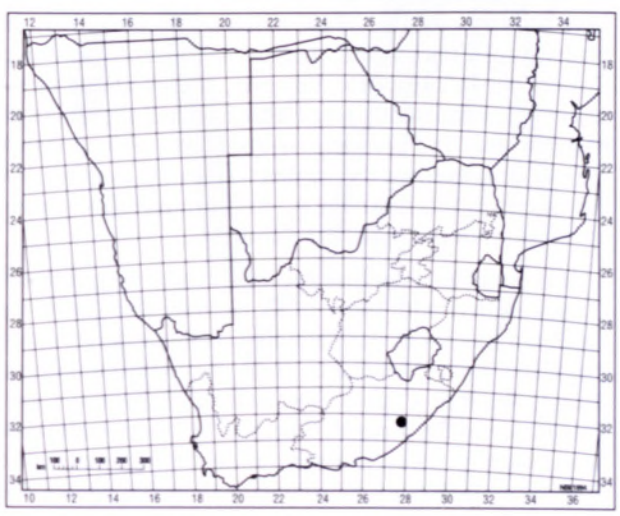

FIGURE 1.—Known distribution of *Cyrtanthus macmasteri* in the Great Kei River Basin, Eastern Cape, South Africa.

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elliptical, ± 30 × 8 mm, 3-valved, valves reflexing when dry. *Seeds* flattened, up to 10 × 4 mm, blackish.

Phenology: the main flowering time is February but sometimes late January and early March if conditions are favourable. Seed ripens at the end of March and by mid-April it has mostly dispersed. The leaves emerge several months prior to flowering and mostly die back before the flowers appear. Under cultivation at Kirstenbosch Botanical Garden, a new leaf is often produced within a month after flowering.

Diagnostic features: it is possible to group the species of *Cyrtanthus* by their flowers. Several species have a perianth in which the tube is narrow at the base and then flares widely to the throat. Reid & Dyer (1984) grouped together 13 species defined by this floral form. Of these, *C. elatus* (Jacq.) Traub, *C. guthrieae* L.Bolus and *C. montanus* R.A.Dyer have regular flowers without markings. The other 10 species have distinctive lines running into the throat from the tepal sinuses, the style and often the stamens flex downwards against the lower tepals, and the stigma has three long branches. These include five red-flowered species allied to *Cyrtanthus sanguineus* (Lindl.) Walp. and three species with lemon to pale pink flowers related to *C. loddigesianus* (Herb.) R.A.Dyer.

Based on its flared tube, paler throat with darker streaking, and deflexed style with a three-branched stigma, *C. macmasteri* falls clearly into the group comprising *C. thorncroftii* C.H.Wright, *C. galpinii, C. eucallus* R.A.Dyer, *C. sanguineus*, and *C. flammosus* Snijman & Van Jaarsv. The inclusion here more recently of *C. wellandii* Snijman in which the stamens and style are included low down in the tube is discussed in Snijman & Batten (2003).

Of the smaller-flowered species belonging to the *C. sanguineus* group, *C. macmasteri* is most similar to *C. galpinii,* a species from Zimbabwe, Mozambique, Mpumalanga, Swaziland and northern KwaZulu-Natal. Both have narrow (less than 7 mm wide), hysteranthous leaves that taper to a narrower base (1–2 mm wide), and flowers that flare widely to a pale perianth throat (at least 10 mm across) with contrasting streaks leading down into the tube. In *C. galpinii* the flowers are variable, although mostly red they may also be pink or orange. In southern Africa the perianth is 50–75 mm long, whereas the specimens from Zimbabwe that are usually called *C. galpinii* have shorter perianths, 30–60 mm long (Nordal 1979). In plants from Zimbabwe *C. galpinii* may rarely have two flowers per inflorescence, however, elsewhere the inflorescence is consistently single-flowered and appears from March to July. In *C. macmasteri* the length of the perianth (37–42 mm) overlaps the smaller forms of *C. galpinii,* but the species differs in having a 3–6-flowered inflorescence which is produced mainly in February.

It is possible to confuse poorly prepared specimens of *C. macmasteri* with those of *C. collinus* Ker Gawl., an unrelated species of the Cape Region that extends along the Cape Fold Mountains from the Riviersonderend Range, Western Cape to the Zuurberg, Eastern Cape. This is due to the perianth tube in *C. collinus* sometimes being slightly flared towards the mouth. However, the flowers are uniformly red and without nectar guides, the style and trifid stigma arch against the upper tepals and the leaves are V-shaped in cross section, lacking the distinct keel found in *C. macmasteri*.

Distribution and habitat: *Cyrtanthus macmasteri* is known only along the steep east- and south-facing banks of the Great Kei River and its tributaries, the Bolo and Nqancule Rivers (Figure 1). It grows singly, is never common and is confined to altitudes of 640 to 1 100 m, where Valley Bushveld gives way to Dohne Sourveld (Acocks 1975), mostly amongst sandstone rocks of the Beaufort Group and less frequently in soils weathered from dolerite intrusions, with less than 500 mm annual rainfall. Woody shrubs and small trees scattered throughout the habitat include *Acacia karroo, Carissa bispinosa, Cussonia spicata, Diospyros whyteana, Encephalartos princeps,* and various species of *Rhus*. Other species of *Cyrtanthus*, which are sympatric with C. *macmasteri*, are *C. macowanii* Baker (*McMaster NBG182475)* and *C. obliquus* (L.f.) Aiton (*Snijman 1639*, NBG) but their peak flowering times do not overlap. Following the IUCN Red List criteria the species is categorized here as LR (lc): lower risk and of least concern.

Endemism: many authors (Nordenstam 1969; Cowling & Hilton-Taylor 1997; Van Wyk & Smith 2001) have reported high levels of endemism in Eastern Cape, particularly in the Albany Centre. Following Van Wyk & Smith (2001), *C. macmasteri* is a noteworthy example of an Albany Centre endemic that has affinities with the subtropical eastern regions of sub-Saharan Africa.

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Other specimens examined

EASTERN CAPE.—3227 (Stutterheim): steep eastern aspect near highest point of Farm The Deeps, (–BC), 5 March 1998; *McMaster s.n.* (PRE), 24 January 2000, *McMaster NBG192237*; Farm Keibolo above Bolo River Gorge near its confluence with the Kei River, (–BC), 29 January 1995, *McMaster s.n* (K); slopes down to Nqancule and Kei Rivers, (–BD), *Holmes NBG70846*.

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FIGURE 2.—*Cyrtanthus macmasteri*, × 1. A, bulb; B, mature leaves; C, inflorescences; D, l/s flower; E, capsule; F, seed. Painted from *McMaster NBG192330* collected at Farm Keibolo (NBG). Artist: Auriol Batten.