COLCHICACEAE

A REMARKABLE NEW SPECIES OF *ANDROCYMBIUM* FROM NORTHERN CAPE, SOUTH AFRICA

INTRODUCTION

A member of the Old World lilialean family Colchicaceae (Nordenstam 1998), *Androcymbium* Willd. is a largely African genus comprising some 40 species, mainly of arid and semi-arid areas. It has its greatest diversity in southern Africa where the majority of species, at least three quarters of the total, occur (Muller-Doblies 1984; Meyer 2000). Just three of these extend into tropical Africa, one as far north as Ethiopia (Baker 1897; Sebsebe Demissew 1997). Two more species are endemic to the Canary Islands and a further six are distributed along the arid fringe of the south Mediterranean littoral (Pedrola-Monfort & Caujapé-Castells 1998). The genus is distinguished from the other truly cormous members of the family by its condensed or rarely elongated stem, and stellate-campanulate flowers with free tepals borne in the axils of large, leaf-like bracts.

The genus *Androcymbium* was divided by Krause (1921) into three sections based on the shape of the tepals. The largest of these sections, sect. *Androcymbium* (= *Cymbanthes*) is characterized by auriculate, deeply cucullate tepal limbs and is almost entirely southern African with a few species extending into tropical Africa, Ethiopia and Eritrea. The remaining sub-Saharan species, along with the more northern members of the genus, have flat or shallowly concave tepal limbs without distinct basal auricles. Relationships between these species are difficult to infer. Krause (1921) recognized the somewhat heterogeneous nature of the group in erecting the monotypic sect. *Dregeocymbium* to accommodate the rather aberrant southern African *A. dregei* Presl. This species is distinguished from the other taxa with plane tepals by its well-developed aerial stem and extremely short stylules. The other species with flat tepals known to him, which included the Mediterranean taxa plus two of the sub-Saharan species, *A. bellum* Schltr. & Krause and *A. roseum* Engl., were accommodated in sect. *Erythrostictus*.

The distinction between sections *Dregeocymbium* and *Erythrostictus* was blurred by the subsequent discovery of two species from southern Namibia and northern Namaqualand, *A. exiguum* Roessler and *A. cruciatum* U. & D.Müll-Doblies, which are apparently intermediate between them (Roessler 1974; Müller-Doblies & Müller-Doblies 1984). The two sections were consequently combined by Müller-Doblies & Müller-Doblies (1984). Section *Erythrostictus* thus currently comprises four species from southern Africa and about six species from the Canary Islands and the Mediterranean. Among the southern African species of sect. *Erythrostictus*, three are restricted to the winter rainfall region of Western and Northern Cape and southern Namibia, and only one, *A. roseum*, was previously known to occur in the summer rainfall zone of southern Africa. This unusual species occurs in northern Namibia, Angola and Botswana. It is readily distinguished from all other southern African species by its rosulate, multifoliate habit and prominently exposed pinkish flowers that are not concealed by the leaf-like bracts. It was a great surprise, therefore, to encounter a similar species in the Great Karoo near De Aar. Closer examination revealed that although allied to *A. roseum*, it is quite distinct from that species.

Androcymbium asteroides *J.C.Manning & Goldblatt*, sp. nov., haec species habitu caulescente, foliis rosulatis multis atque tepalorum limbis oblongis exauriculatis *Androcymbio roseo* Engl. similis, sed ab eo foliis lanceolatis (3–)10–18 mm latis atque floribus omnino albis supra apicem plantae vix vel haud protuberantibus tepalorum breviorum latiorumque ungue ± 7 × 3 mm ac limbo ovato 8–9 × 4–6 mm differt.

TYPE.—Northern Cape, 2922 (Prieska): Prieska commonage, in vlei ground, 06-05-1928, (–DA), *Bryant sub Marloth 13570* (PRE, holo.).

Stemless perennial with indistinguishable internodes and leaves in basal rosette. *Corm* ovoid, 10–15 mm diam.; tunics dark brown, coriaceous. *Cataphyll* single, 70–110 mm long, translucent, papery in texture. *Leaves* ± 8, spreading, lanceolate, (60–)90–110 × (3–)10–18 mm, but expanding up to 25 mm wide at base, attenuate, amplexicaul, upper leaves widening more conspicuously towards base than lower, spirally inserted, glaucous green, lightly canaliculate with depressed median vein, margins ciliolate, grading into floral leaves; fertile floral leaves shorter and broader at base than foliage leaves, partially encircling flowers but not obscuring them, suberect or incurved. *Flowers* 2–6, sessile, not or slightly protruding above crown of plant; perianth ± 10 mm diam., white, unscented; tepals unequal, inner slightly smaller than outer, (13–)15–17 mm long, limb flat or lightly concave, ovate, 8–9 × 4–6 mm, claw oblong-cuneate, 6–8 × 2–3 mm. *Stamens* included; filaments arcuate, 4–5 mm long, greenish yellow; anthers 2 mm long, yellow; nectary wider than filament base, ovate with central keel, 1.2 mm diam., greenish yellow. *Ovary* obovoid, 3-lobed, 5–6 mm long, white flushed green above, stylules 6 mm long, white, stigmas elongate, 1 mm long. *Capsule* subglobose, coriaceous, 17 mm long. *Seeds* subglobose, 2.0–2.5 mm diam., dark brown, testa rugulose. *Flowering time*: May to June. Figure 11.

Distribution and biology: the species is largely restricted to the southern edge of the interior plateau of southern Africa at altitudes of ± 1 400 m (Figure 12), and is not uncommon southeast of De Aar around Hanover and Richmond in Northern Cape. It occurs in seasonally waterlogged depressions in clay soils, usually derived from dolerite. These depressions, due to the particular properties of the doleritic clays, are locally moist for much longer than the surrounding flats and constitute a specialized, highly localized habitat that is occupied by several dwarf geophytes apart from *Androcymbium asteroides*. Among these are *Massonia comata*, *Polyxena ensifolia* (Hyacinthaceae) and *Moraea falcifolia* (Iridaceae). These

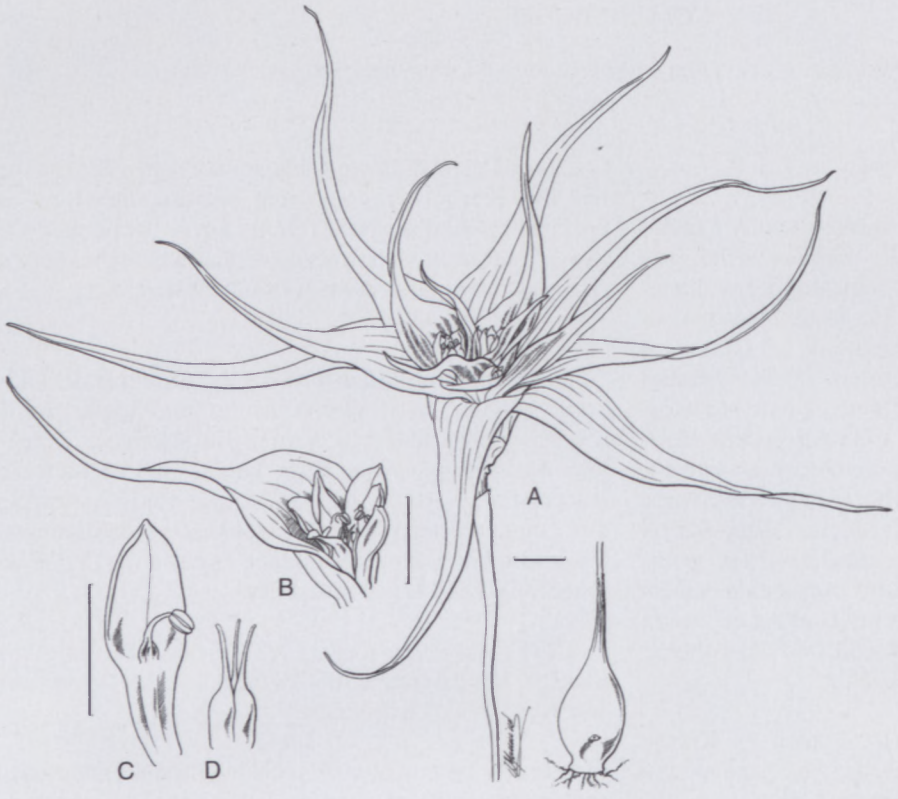

FIGURE 11.—*Androcymbium asteroides*. A, whole plant with corm; B, individual flower and subtending leaf; C, outer tepal and stamen; D, gynoecium. Scale bars: 10 mm. Artist: John Manning.

plants share a suite of morphological characters, including the stemless habit with spreading or prostrate leaves, subterranean ovaries and pale-coloured flowers apparently adapted to a generalist pollination strategy. Their growth cycle is closely linked to the local climate and they sprout rapidly in response to the late summer and autumn rains that characterize the climate of the area. They flower soon after sprouting, in late autumn or early winter, before temperatures drop too low for active growth.

History: this singular species seems to have been first collected by E.G. Bryant in 1925. Bryant, a mining engineer with a great interest in fodder plants and conservation, moved to Prieska in 1920, where he collected extensively. This first collection was sent to the Bolus Herbarium, where it remained among the *incertae*.

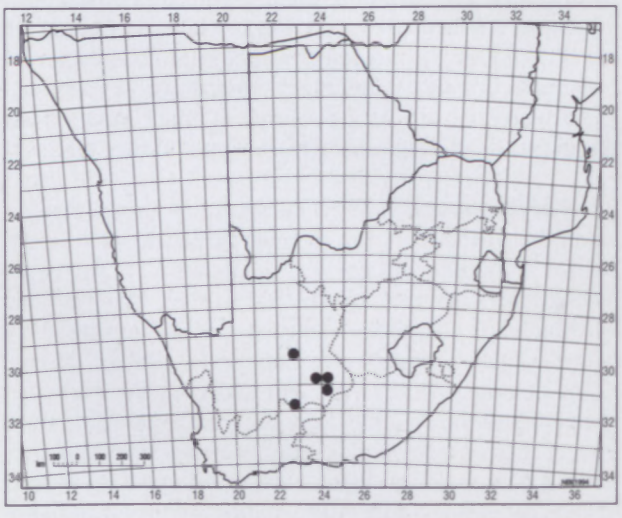

FIGURE 12.—Distribution of *Androcymbium asteroides* in Northern Cape.

Bryant was clearly intrigued by the species as he made several collections of it over the years. The second of these, which serves as the type, he sent to Rudolf Marloth, who identified it as *A. roseum*. This determination was then applied to the few subsequent collections that have been made.

Diagnosis and relationships: *Androcymbium asteroides* is clearly allied to *A. roseum*, with which it shares a multifoliate, rosette habit and more or less flat or shallowly concave tepal limbs lacking prominent basal auricles. It is distinguished from *A. roseum* by the broader, lanceolate leaves with the blades usually at least 10 mm wide towards the base and smaller, pure white flowers that do not protrude much above the crown of the plant. The tepal claws are oblong, 6–8 mm long and the limbs ovate, 8–9 × 4–6 mm. *A roseum* is characterized by linear-lanceolate leaves up to 5 mm wide and pinkish or pink-streaked flowers that protrude conspicuously above the crown of the plant. The tepal claws are narrowly oblong, 10–12 mm long and the narrowly oblong-elliptic limbs are 13–16 × 3–4 mm. A fine illustration of *A. roseum* accompanies the account of the species by Dyer (1956).

These two species show a marked similarity to the Mediterranean species of *Androcymbium* in their multifoliate, rosette habit, monomorphic leaves and flat tepals. It is likely, however, that most if not all of these are plesiomorphic states and the exact relationship between the Mediterranean and Macronesian species and the other African members of sect. *Erythrostictus* has yet to be demonstrated. A resolution of the broad patterns of relationships between the species of *Androcymbium*, especially those of section *Erythrostictus*, is an essential prerequisite to understanding the historical biogeography of the genus.

Additional material examined

NORTHERN CAPE.—2922 (Prieska): Prieska, 05-1925, (–DA), *Bryant s.n.* (BOL); Prieska, 10-1928, *Bryant s.n.* (PRE); Prieska, 07-35, *Bryant 1128* (PRE). 3023 (Britstown): De Aar, Quaggafontein, sandy karoo in open patches, 06-05-1946, (–DB), *Acocks 12604* (PRE). 3122 (Loxton): Meltonwold, northwest of Graskop, dry vlei, 13-05-1976, (–DB), *Thompson 3065* (PRE). 3123 (Victoria West): Richmond, 3 km SE of town along road to Graaff-Reinet, seasonally waterlogged drainage line in dolerite, 28-04-2001, (–BD), *Manning 2322* (NBG); 27-05-2001, *Snijman 1815* (NBG).

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