

Romulea Maratti, with ± 95 spp., is one of the larger genera in subfamily Crocoideae, the largest of the seven subfamilies now recognized in Iridaceae (Goldblatt & Manning in press). The genus is distributed through eastern sub-Saharan Africa, the Mediterranean and the Near East, with its centre of diversity in the winter rainfall region of southern Africa, where 76 species are now known to occur (De Vos 1972, 1983; Manning & Goldblatt 2001, 2004, 2006), including the two described here. The current taxonomy of the genus recognizes two subgenera and five sections, based largely on characters of the corm (Manning & Goldblatt 2001, 2004), which provide essential information for accurate identification of many species. Flower structure, with few exceptions, is conservative (Goldblatt *et al.* 2002).

Since the last review of the genus (Manning & Goldblatt 2001), three new species have been discovered and named (Manning & Goldblatt 2004, 2006) and field work in Namaqualand in 2007 has resulted in the discovery of a further two novelties, which we describe here.

***Romulea lutea* J.C. Manning & Goldblatt, sp. nov.**

Plantae 50–100 mm altae, caule subterraneo vel breviter supra terram producto, corno oblique complanato crista lunata ciliata, tunicis duris atrobrunneis, foliis 3, 1 basali, laminis anguste 4-sulcatis, inflorescentia floribus usque ad 4, bracteis 8–10 mm longis bractea externa subobtusata viridi vel purpurea suffusa marginibus translucentibus, interna acuta viridi marginibus latis translucentibus pallide brunneis striatis, floribus profunde cupuliformibus aureis externe viridibus cupulo 8–9 mm profundo, tubo perianthii infundibuliformi ± 3 mm longo parte inferiore ± 1 mm longo, tepalis oblanceolatis 11–13 \times 4–5 mm, staminibus flavis filamentis ± 4 mm longis minute pilosis in dimidio inferiore, antheris ± 4 mm longis, stylo in parte superiore in ramos ± 1 mm longos diviso, capsulis oblongo-ellipsoideis ± 8 mm longis, pedunculis recurvatis.

TYPE.—Western Cape, 3118 (Vanrhynsdorp): coastal sandveld west of Koekenaap at Farm Skaapvlei, local in drainage line, (–AC), 24 August 2007, Goldblatt & Manning 12868 (NBG, holo.; MO, PRE, iso.).

Plants 50–100 mm high; stem subterranean or shortly aerial. *Corm* subglobose, asymmetric, obliquely flattened towards base with crescent-shaped basal ridge; tunics hard, smooth, dark brown, split into numerous fine parallel fibrils on basal ridge and short fibrils up to 2 mm long above. *Cataphylls* 3, membranous, flushed greenish above ground. *Leaves* 3, lowermost one basal in plants with aerial stem, three to four times as long as flowering stems, blades narrowly 4-grooved, 60–150 \times ± 1 mm. *Inflorescence* of up to 4 solitary flowers; outer bract obtuse, 8–10 mm long, green or flushed purple, with narrow, translucent membranous margins, inner bract acute, thin-textured, green with broad translucent margins flecked pale brown, about as long as outer. *Flowers* deeply cup-shaped, cup 8–9 mm deep, golden yellow but pale green on reverse, ± 20 mm diam., faintly scented; perianth tube funnel-shaped, 3 mm long with lower narrow portion ± 1 mm long; tepals oblanceolate, 11–13 \times 4–5 mm. *Stamens* yellow; filaments inserted at base of cup, free, minutely pilose in lower half, 4 mm long; anthers parallel, 4 mm long. *Style* dividing opposite upper third of anthers, branches ± 1 mm long, divided for about half their length. *Capsules* oblong-ellipsoid, ± 8 mm long, peduncles recurved. *Seeds* unknown. *Flowering time*: August to early September. Figure 11.

Distribution and ecology: thus far known only from the Western Cape coast west of Koekenaap and north of the Olifants River Mouth, where we encountered several populations in seasonally moist drainage lines and depressions (Figure 12) on the adjacent farms Skaapvlei, Graafwater, and Brakvlei, although only material from the type locality was collected. The flowers open at about midday and close in the mid-afternoon and have a faint, somewhat sour fragrance.

Diagnosis and relationships: *Romulea lutea* is a relatively unspecialized member of section *Ciliatae* of subgenus *Romulea* and is distinguished from other members of the section primarily by its relatively small, completely yellow flowers. Plants are typically stemless or with a short aerial stem, and in the latter instance it is evident that they have a solitary basal leaf plus two

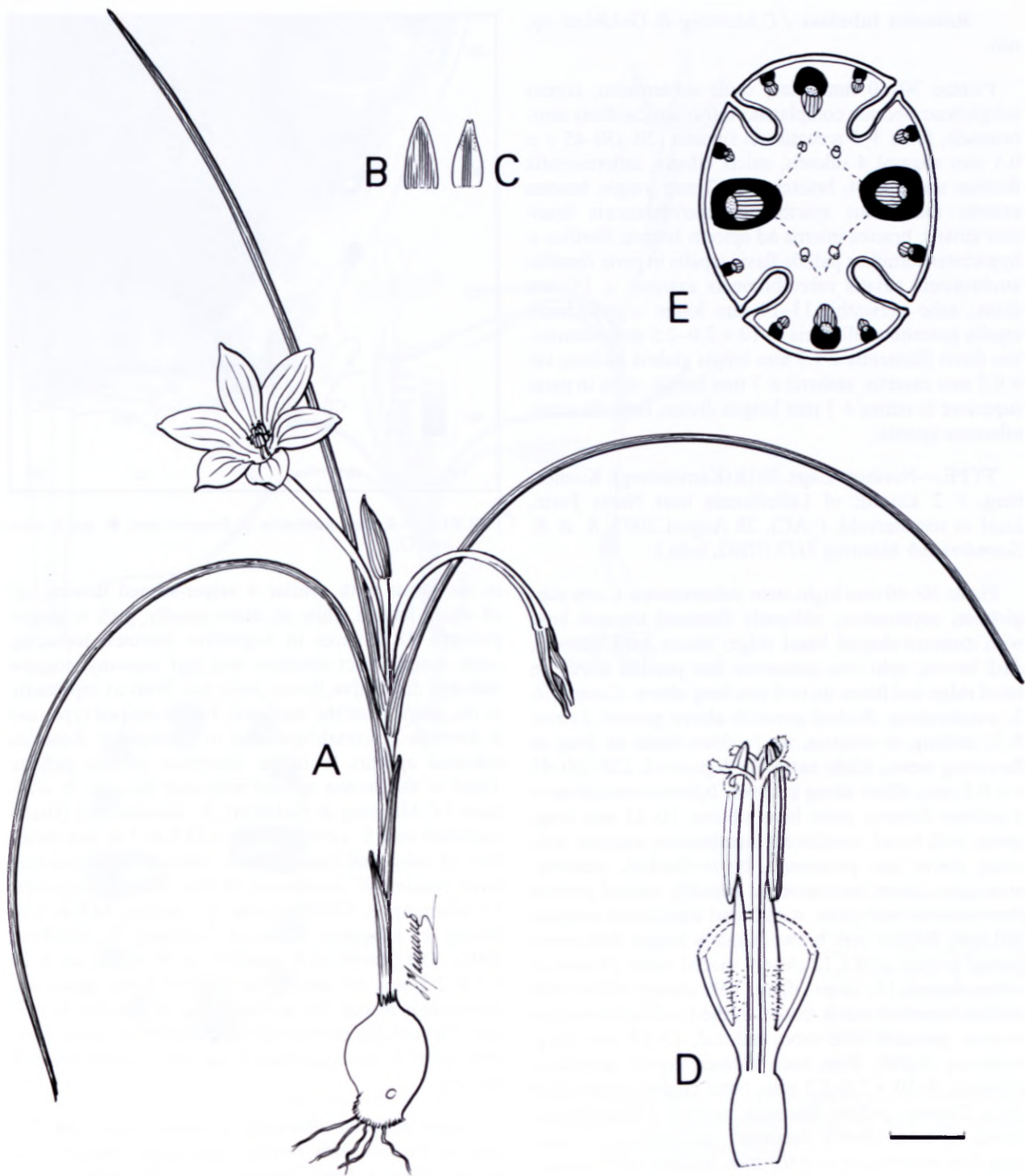


FIGURE 11.—*Romulea lutea*, P. Goldblatt & J.C. Manning 12868. A, whole plant; B, outer bract; C, inner bract; D, stamens and style; E, t/s leaf. Scale bar: A–C, 10 mm; D, 2 mm; E, 0.25 mm. Artist: John Manning.

cauline leaves. In stemless individuals, however, all three leaves appear to be basal and careful dissection is necessary, when it becomes evident that the inflorescences emerge from the axils of the upper two leaves. *R. lutea* resembles *R. tabularis* Bég. in general appearance, including the solitary basal leaf with unspecialized blade anatomy (Figure 11E), but this species has white or pale blue flowers with a yellow cup, typically a well-exserted aerial stem, and more membranous inner bracts. It also tends to occupy much wetter situations, typically water meadows, seepages, and shallow temporary pools. *R. lutea* also resembles *R. schlechteri* Bég., another white or cream- (rarely yellowish) flowered species that occurs

along the west coast as far north as Piketberg. Apart from flower colour, *R. schlechteri* differs from *R. lutea* in having two basal leaves and leaf blades in which the lateral primary veins lack complete sclerenchyma sheaths (De Vos 1972, fig. 13: 7). This difference in the number of basal leaves separates *R. lutea* from the other yellow-flowered members of section *Ciliatae* with relatively firm-textured inner bracts and complete bundle sheaths (*R. citrina* Baker, *R. elliptica* M.P.de Vos and *R. montana* Bég.), all of which have two rather than a solitary basal leaf. The hue of the flowers in *R. lutea* is also somewhat different, being golden yellow rather than canary yellow, and lacking any trace of dark markings in the throat.

***Romulea tubulosa* J.C.Manning & Goldblatt, sp. nov.**

Plantae 30–40 mm altae, caule subterraneo, cormo subgloboso oblique complanato infra, tunicis duris atrobrunneis, foliis 3–5 arcuatis vel sinuatis (20–)30–45 × ± 0.5 mm anguste 4-sulcatis, sulcis ciliatis, inflorescentia floribus usque ad 4, bracteis 10–12 mm longis, bractea externa marginibus apicibusque membranaceis brunneis striatis, bractea interna ad apicem furcata, floribus ± hypocrateriformibus pallide flavis tepalis in parte dimidio atrobrunneis striatis rubro-brunneis externe, ± 15 mm diam., tubo perianthii 13–14 mm longo ± cylindrico, tepalis patentibus ellipticis 9–10 × 2.0–2.5 mm, staminibus flavis filamentis ± 1.5 mm longis glabris inclusis vel ± 0.5 mm exsertis, antheris ± 3 mm longis, stylo in parte superiore in ramos ± 1 mm longos diviso, capsulis seminibusque ignotis.

TYPE.—Northern Cape, 3018 (Kamiesberg): Kamiesberg, ± 2 km SE of Leliefontein near Naras Farm, local in renosterveld, (–AC), 28 August 2007, R. & R. Saunders sub Manning 3117 (NBG, holo.).

Plants 30–40 mm high; stem subterranean. *Corm* subglobose, asymmetric, obliquely flattened towards base with crescent-shaped basal ridge; tunics hard, smooth, dark brown, split into numerous fine parallel fibrils on basal ridge and fibres up to 4 mm long above. *Cataphylls* 3, membranous, flushed greenish above ground. *Leaves* 3–5, arching or sinuous, up to three times as long as flowering stems, blade narrowly 4-grooved, (20–)30–45 × ± 0.5 mm, ciliate along grooves. *Inflorescence* of up to 4 solitary flowers; outer bract obtuse, 10–12 mm long, green, with broad, translucent membranous margins widening above into prominent, brown-flecked, membranous apex, inner bract notched apically, central portion firm-textured and green, with broad translucent margins and apex flecked dark brown, slightly longer than outer, central portion with ± 12 closely spaced veins. *Flowers* ± salver-shaped, 15–18 mm diam., pale canary yellow with median brown streak in throat, flushed reddish brown on reverse; perianth tube subcylindrical, 13–14 mm long, widening slightly from base to apex; tepals spreading, elliptical, 9–10 × 2.0–2.5 mm, outer slightly wider than inner. *Stamens* yellow; filaments inserted ± 1 mm below mouth of tube, shortly decurrent, glabrous, ± 1.5 mm long thus exserted up to ± 0.5 mm; anthers just exserted, parallel, ± 3 mm long. *Style* dividing opposite middle of anthers, branches ± 1 mm long, divided for ± half their length. *Capsules and seeds* unknown. *Flowering time*: August to early September. Figure 13.

Distribution and ecology: currently known from a single locality on the Kamiesberg in central Namaqualand, just southeast of Leliefontein near the farm Naras (Figure 12). The species is inconspicuous and appears to be relatively rare, occurring in small communities in open ground in renosterveld. No estimate of the number of individuals is available.

Diagnosis and relationships: a member of section *Ciliatae* of subgenus *Romulea*, the pale yellow, salver-shaped flowers of *R. tubulosa* are unique in the genus. The distinctive perianth, with ± cylindrical tube longer than the tepals, places it among just six known species

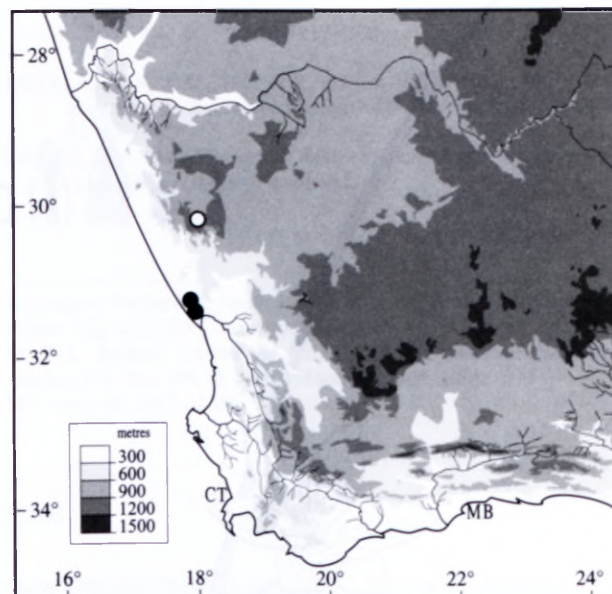


FIGURE 12.—Known distribution of *Romulea lutea*, ●; and *R. tubulosa*, ○.

in the genus with similar ± salver-shaped flowers, all of which have a white or, more usually, pink to purple perianth. Differences in vegetative features, including corm tunics, bract structure and leaf anatomy, suggest that this distinctive flower form has evolved repeatedly in the genus from the ancestral, funnel-shaped type, and is therefore no certain indicator of relationship. *Romulea tubulosa* appears to be no exception to this pattern. Three of the known species with such flowers, *R. albiflora* J.C.Manning & Goldblatt, *R. hantamensis* (Diels) Goldblatt and *R. syringodeoflora* M.P.de Vos, are members of subgenus *Spatalanthus*, whereas the remaining three species, *R. kamisensis* M.P.de Vos, *R. singularis* J.C.Manning & Goldblatt and *R. stellata* M.P.de Vos belong in subgenus *Romulea* (Manning & Goldblatt 2001). The flowers of *R. tubulosa*, with tepals just 9–10 × 2.0–2.5 mm, are among the smallest in the genus and comparable in size but not colouring to those of *R. stellata*. The oblique corms with finely fimbriate lower tunic margins of *R. tubulosa* place it among the latter group of species.

Within subgenus *Romulea* section *Ciliatae*, the distinctive bracts, with broad, translucent margins and apices, offer a better indication of the relationships of *R. tubulosa* than flower shape, and suggest that it is the fifth member of a group of species endemic to the higher lying parts of Namaqualand and the Richtersveld, centred on the Kamiesberg. This alliance comprises *R. maculata* J.C.Manning & Goldblatt (white flowers and purple-speckled cataphylls), *R. neglecta* (Schult.) M.P.de Vos (magenta flowers), *R. pearsonii* M.P.de Vos (yellow flowers) and *R. rupestris* J.C.Manning & Goldblatt (white flowers). The leaf anatomy of *R. tubulosa* is consistent with this putative relationship, namely the presence of vascular girders joining the primary bundles to the epidermis, and of sclerenchyma strands along the rib margins (Figure 13E). Both of these anatomical features are rare in subgenus *Romulea* but are characteristic of this alliance (Manning & Goldblatt 2001). The funnel-shaped flowers and relatively long floral bracts, 15–30 mm long, of these four members of the group are typical

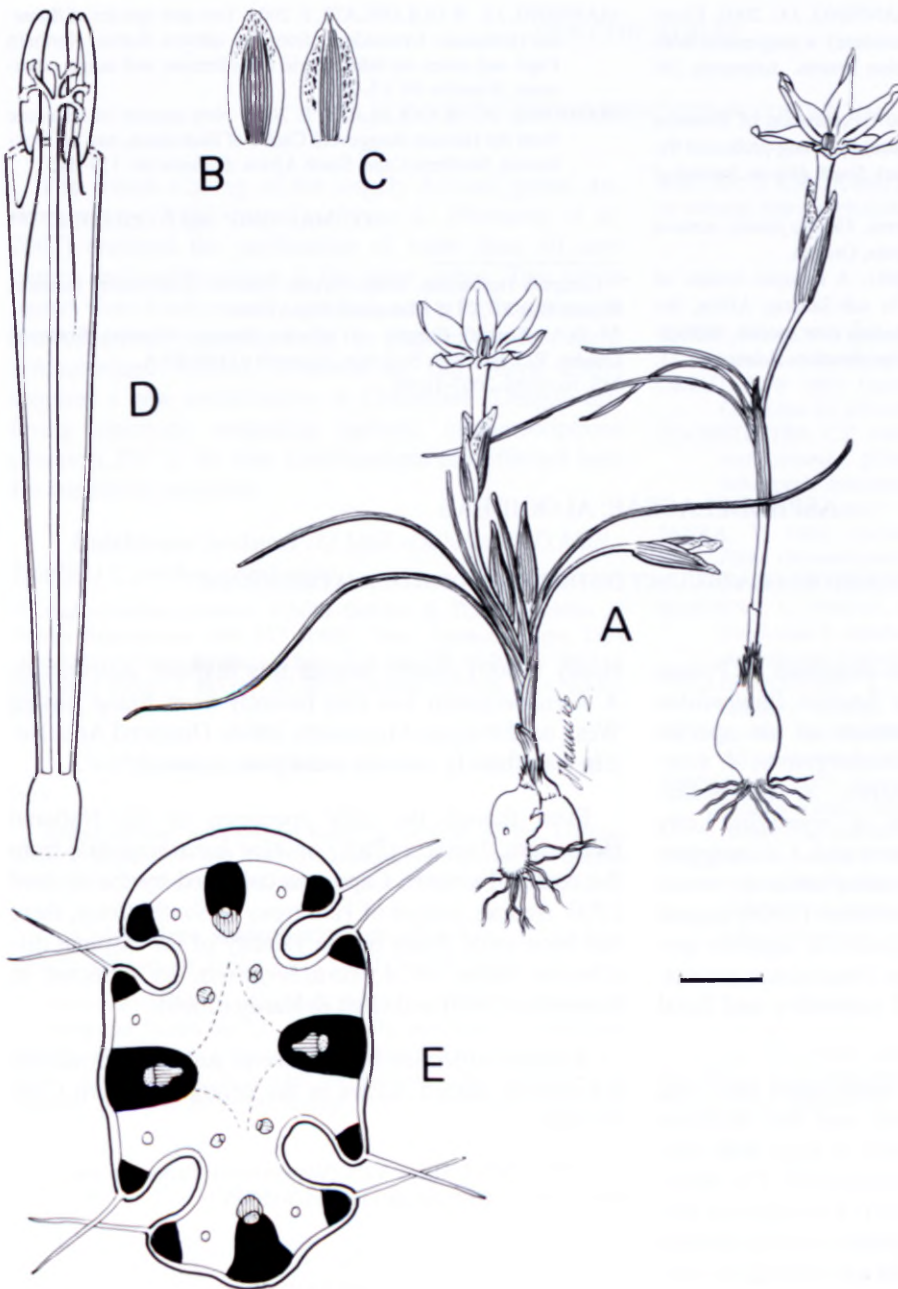


FIGURE 13.—*Romulea tubulosa*, *R.* & *R. Saunders* sub Manning 3117. A, whole plant; B, outer bract; C, inner bract; D, stamens and style; E, t/s leaf. Scale bar: A–C, 10 mm; D, 2 mm; E, 0.25 mm. Artist: John Manning.

of the genus, and differ markedly from the salver-shaped flowers of *R. tubulosa*, with a cylindrical perianth tube 13–14 mm long, and short bracts 10–12 mm long. Within the alliance, the brown-flecked bract margins and especially the yellow flowers, a colour that appears to be derived in the genus, suggest that *R. tubulosa* may be most closely allied to *R. pearsonii*. Apart from *R. tubulosa*, this species also has the shortest bracts in the group, 15–25 mm long.

Species of *Romulea* with salver-shaped flowers have in most instances been shown to be adapted for pollination by long-proboscid flies in the family Nemestrinidae, and conform to the *Prosoeca peringueyi* pollination guild in their magenta to purple flowers (Goldblatt *et al.* 2002; Goldblatt & Manning 2007). Although pollination by long-proboscid insects is likely for *R. tubulosa*, the yellow perianth suggests that different insect species are involved, most likely bee flies in the family Bombyliidae. The general resemblance in form, colour and in perianth tube length between the flowers of *R.*

tubulosa and those of co-occurring *Zaluzianskya benthamiana* (Scrophulariaceae) suggests that they belong to the same pollination guild.

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