A revision of *Ledebouria* (Hyacinthaceae) in South Africa. 2. Two new species, *L. crispa* and *L. parvifolia*, and *L. macowanii* re-instated

S. VENTER* and T.J. EDWARDS**†

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ABSTRACT

Two endemic *Ledebouria* Roth species are described with notes, diagnostic characters, distributions and alliances. *L. crispa* appears to be allied to *L. socialis* (Baker) Jessop with which it shares densely gregarious, epigeal bulbs and *L. undulata* (Jacq.) Jessop of the Northern and Western Cape which shares crispate leaf margins. *L. parvifolia* is endemic to Mpumalanga (eastern Transvaal) and was recorded from a single locality near Graskop; it differs from *L. cooperi* (Hook. f.) Jessop in having hairy upper leaf surfaces. *L. macowanii* (Baker) Venter is re-instated; it is distinguished from *L. cooperi* by its tightly clasping bulb scales and single cataphyll.

INTRODUCTION

*Ledebouria* Roth is distributed across Africa into the southern tip of India and the northern tip of Madagascar and includes 33 species. The genus is very well represented in South Africa with high species densities in the central and eastern regions. This paper deals with two new species recorded from Northern Province and Mpumalanga respectively.

1. *Ledebouria crispa* S.Venter, sp. nov.

* L. socialis* (Baker) Jessop similis sed statura minore, marginibus foliorum et bracteolis flores subtendentibus differt.

** TYPE.**—Northern Province, 2329 (Pietersburg): Farm Majebeskraal, (-DC), Venter 11202 (PRE, holo.; NU, UNIN).

Plants gregarious. Bulbs epigeal to semi-epigeal, 15–30 × 10–20 mm, ovoid to obovoid; dead bulb scales pale brown, membranous, apices attenuate, live bulb scales fleshy, tightly appressed, lacking threads when torn; bulblets often abundant. Leaves 4–10, synanthous, linear to linear-lanceolate, 20–70 × 4–6 mm, erectly spreading, slightly succulent, glaucous, veins obscure; margin crispate; base canalicate; apex acute. Inflorescence solitary, erect, 40–50 mm long, 8–12-flowered; scape terete, glaucous, glabrous, 40–50 mm long; bracts and bracteoles membranous 1.2–1.5 × 0.4 mm, linear-lanceolate, glaucous. Pedicels spreading, 2–4 mm, green suffused with pink. Tepals reflexed in distal half, oblong, 4.0–5.0 × 1.0–1.5 mm, pink, keel dull green, apex acute. Stamens erect, 3.0–3.5 mm long; filaments pink, epitepalous; anthers 0.5 mm long, mauve. Ovary depressed ovoid, 2.5 × 3.0 mm, lobes obtusely deltoid, glabrous, apex tapered; stipe 1 mm long. Style 3.0–3.5 mm, white.

Capsule symmetrical, globose-ovoid, base truncate. Seed 3.0 × 1.5 mm, drop-shaped, wrinkled, black. Figure 1.

*L. crispa* has only been recorded from hills surrounding Pietersburg. The substrates from which specimens

![Figure 1](image-url)

FIGURE 1.—*Ledebouria crispa*. A, habit, × 1.3; B, leaf lamina transverse section, × 4.6; C, tepal apex, × 6.5; D, bract and bracteole, × 10; E, flower, × 6.5; F, tepal with stamen, × 4.6; G, gynoeicum, lateral view, × 5. Drawn from Venter 11202 by F. Venter.
were collected are light brown, gritty loams derived from talcose schists of the Mothiba Formation (Pietersburg Group) (SACS 1980). Precipitation in the area occurs predominantly in summer and ranges between 400-600 mm (Barnard et al. 1972). Plants grow in scattered groups of 5 to 40 individuals in typical Pietersburg Plateau False Grassveld (Acocks 1988). The species flowers from October to December.

*L. crispa* is allied to a number of species with prominent bulb necks and lacking extendable xylem 'threads' in their torn leaves. This complex includes *L. concolor* (Baker) Jessop, *L. crispa*, *L. undulata* (Jacq.) Jessop, *L. ovalifolia* (Schrad.) Jessop, *L. petiolata* (Van der Merwe) S.Venter, *L. ovalifolia* (Schrad.) Jessop and *L. macowanii* (Baker) S.Venter. *L. crispa* is distinguished from its allies by its diminutive size, synanthous leaves with crispate margins, epigeal bulbs and solitary inflorescences. *L. undulata*, which is limited in distribution to the Northern and Western Cape, also has wavy leaf margins and solitary inflorescences but is a much larger, hysteranthous plant with a hypogeal bulb. In addition the leaf undulation in *L. undulata* is variable and plants from shaded situations tend to have smooth margins. This differs from *L. crispa* in which the crispate margins are unaffected by microhabitat. *L. socialis* approaches *L. crispa* in a number of characters. Its densely gregarious habit and epigeal bulbs are similar, but the former has maculate leaves with smooth margins and pedicels which are ebracteolate. In addition, the species are allopatric; *L. socialis* is limited to the Eastern Cape (Figure 2).

**Specimens examined**

NORTHERN PROVINCE.—2329 (Pietersburg): Pietersburg Game Reserve, (-CD), Venter 13209a (PRE, UNIN); Lebowa, Majebeskraal Farm, (-DC), Venter 11202 (PRE, NU, UNIN).

2. **Ledebouria parvifolia** S.Venter, sp. nov. *L. cooperi* (Hook.f.) Jessop arcetae affinis sed folis appressis superficie adaxiali trichomatibus basibus latis in seriebus longitudinalibus dispositis differt.

**TYPE.**—Mpumalanga, 2430 (Pilgrims Rest): Graskop, near Lisbon Falls, Farm Lisbon 531, (-DD), Venter 12609a (PRE, holo.).

Plants gregarious. Bulb hypogeal, 10-25 × 10-25 mm, obovoid; dead bulb scales membranous, brown, apices attenuate, with threads when torn, live bulb scales fleshy, tightly appressed; bulblets usually present. Leaves enveloped by a single cataphyll, synanthous, 2 or 3, humifuse, lanceolate to oblong, 15-30 × 15-20 mm, with threads when torn, fleshy, dull green, adaxial surface with longitudinal rows of papillae, venation obscure; margin ciliate; base canaliculate; apex acute. Inflorescence solitary, 25-35 mm long, erect, lax, 8-12-flowered; scape terete, purple, glabrous, 10-15 mm long; bracts deltoid, 0.5 × 0.5 mm, pink to purple; bracteoles absent. Pedicels cernuous, 2-3 mm long, pink. Tepals recurved distally, equal, oblong, 2.5-3.0 × 1.0 mm, pink with a green keel, apex obtuse. Stamens erect, 3 mm long; filaments pink epitepalous; anthers 0.5 mm long, pale violet. Ovary ovoid, 3-lobed, 1 × 2 mm, lobes narrowly transversely oblong, shoulders rounded; stipe 0.5 mm long. Style 3 mm long, triangular in section, glabrous. Seed 3 mm long, drop-shaped, strongly wrinkled, brown. Figure 3.

**FIGURE 2.**—Geographical distribution of *L. crispa*, ○; and *L. parvifolia*, ■.

**FIGURE 3.**—**Ledebouria parvifolia.** A, habit, × 0.6; B, leaf lamina transverse section, × 0.9; C, tepal apex, × 7.6; D, bract, × 12.7; E, tepal with stamen, × 7.6; F, flower, × 6.3; G, gynoecium, lateral view, × 6.3. Drawn from Venter 12609a by F. Venter.
This species was recorded from a single locality on dolomites of the Malmani Formation in the Chuniespoort Group (SACS 1980). Soils derived from these substrata are fine-grained, dark brown clays. The species is a constituent of montane grassland with scattered Dombeya rotundifolia and Faurea saligna. L. parvifolia flowers from October to December.

L. parvifolia is closely related to L. cooperi (Hook.f.) Jessop but differs in producing appressed leaves with longitudinal rows of broad-based hairs on their adaxial surfaces. This indumental character is stable under a wide range of environmental conditions. Both L. cooperi and L. parvifolia produce a single basal cataphyll, a character not found elsewhere in the genus.

3. Ledebouria macowanii (Baker) S. Venter, comb. nov.

Scilla macowanii Baker in The Gardener’s Chronicle 3: 748 (1875). Type: Cape, Somerset Division, Boschberg, Macowan 1841 (GR!; lecto here designated; BOL!, PRE!, Z photo).

Scilla nelsonii Baker 488 (1896). Type: Cape, Vaal River, Nelson 167 (K!, holotype; PRE!).

Plants weakly gregarious. Bulb hypogaeal, 15–30 × 15–30 mm, ovoid; dead bulb scales tightly clasping, lacking threads when torn; bulb neck 5–10 × 10 mm. Leaves synантhothous, 3 or 4, spreading, linear-lanceolate, 75–100 × 6–8 mm, without threads when torn, fleshy, dull green, abaxial surface green with occasional purple spots in the lower half, venation obscure; margin smooth; base canalicate; apex obtuse to acute. Inflorescences 1 or 2, lax, cylindrical, 25–60 mm long, flaccid, 20–40-flowered; scape base terete, spotted 40–100 mm long; bracts deltoid, 0.5 × 0.5 mm, green to pink; lacking bracteoles. Pedicels 6–7 mm long, pink to purple. Tepals oblong, slightly recurved, 4.0 × 1.5 mm, apex obtuse, green suffused with pink. Stamens spreading, 3.8 mm long; filaments white with purple above; anthers 0.5 mm long, pale violet. Ovary globose, 6-lobed, 1.5 × 2.0 mm, lobes obtusely deltoid with a basal ridge; stipe 0.5 mm long. Style 2.0 mm long, triangular in transverse section, purple. Seed drop-shaped, 3–4 mm long, surface strongly wrinkled, brown.

L. macowanii is closely allied to L. socialis but differs in its hypogaeous bulbs and prominent nectariferous ridges on the carpel bases. Jessop (1970) reduced this taxon to synonymy with L. cooperi; however, it is distinguished from L. cooperi by its tightly clasping bulb scales and single cataphyll. In the Eastern Cape these species are sometimes sympatric but the range of L. macowanii extends up to the Northern Province (Figure 4). The species appears to occur in areas of reasonably high precipitation, hence its limitation to the coast and elevated areas in which orographic rainfall occurs. Plants occur in damp, shallow lithosols derived from quartzites, conglomerates or sandstones. The species usually occurs in semi-shade. The flowering period of L. macowanii extends from October to March with a peak in November and December.

Specimens examined


MPUMALANGA.—2431 (Acornhoek): Skukuza, (-DC), Codd & De Wet 5076 (PRE). Mababe, (-DC), Lang s.n. (PRE)

NORTH-WEST.—2527 (Rustenburg): Rustenburg, (-CA), Van der Merwe 1558 (PRE).


FREE STATE.—2827 (Senekal): Doornkop Farm, (-DD), Goussens 777 (PRE). 2828 (Bethlehem): Clarence, (-CB), Van Hoepen 18270 (PRE). 2924 (Springbank): Farm Wanda, (-CB), Smook 3045 (PRE). 2927 (Maseru): Clocolan, Hillcrest Farm, (-BA), Crosby 420 (PRE).


NORTHERN CAPE.—2824 (Kimberley): Riverton Port, (-DB), Leister 2016 (PRE). 2923 (Douglas), Douglas, Herbert Dist, (-BB), Orpen 57 (BOL).

WESTERN CAPE.—3421 (Riversdale): Riversdale, (-AD), Buinen 14 (PRE). 3422 (Stellenbosch), Still Bay, (-AD), Bolus s.n. (BOL), Ferguson s.n. (BOL). 3423 (Knsyna), Albertinia, Ystervarkpunt, (-BC), Willemse 107 (STE). 3424 (Knsyna), (-BB), Breyer 23771 (PRE).


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REFERENCES


