



Lachenalia arenicola (Asparagaceae: Scilloideae), a new species from western South Africa

GRAHAM D. DUNCAN¹ & NICK A. HELME²

¹South African National Biodiversity Institute, Kirstenbosch National Botanical Garden, Private Bag X7, Claremont, 7735, South Africa; e-mail: G.Duncan@sanbi.org.za

²PO Box 22652, Scarborough, 7975, South Africa

Introduction

Lachenalia Jacquin in Murray (1784: 314) is a deciduous, geophytic genus endemic to western, southern, southeastern and central South Africa and to western and southern Namibia (Duncan *et al.* 2005). All South African members produce leaves in the winter, including those from essentially summer-rainfall areas, and *L. pearsonii* (Glover 1915: 105) Barker (1969: 321) from southern Namibia is the only summer-growing species (Duncan & Condy 2013). Flower and seed characters are most important for identification of *Lachenalia*, especially perianth shape including the perianth tube shape and length, relative position of outer and inner tepals, stamen orientation, seed shape and strophiole length. A recent monograph of *Lachenalia* provided a new classification for the genus based on a phylogenetic study of morphological characters and recognized 133 species (Duncan 2012). Living material of a new species from the Namaqualand coastal plain became available for study in 2013, although pressed specimens were first gathered in 2006. The total number of species for the genus now stands at 134.

Lachenalia arenicola G.D.Duncan & N.A.Helme, *sp. nov.* (Fig. 1)

This new species differs from *L. xerophila* Schlechter in Duncan (1997: 14) in its disc-shaped perianth tube, brownish mauve outer tepals, subequal outer and inner tepals, straight filaments, globose ovaries, obcordate capsules and smaller, ovoid seeds with inflated, longer strophioles; differs from *L. glauca* (Barker 1989: 639) Duncan (2012: 299) in its disc-shaped perianth tube, longer outer and inner tepals, strongly inflated scape, globose bulb and strongly cartilaginous leaf margins.

Type:—South Africa. Northern Cape: Farm Roode Heuvel 502, 15 km NE of Groen River mouth, common in deep brown sand on flats and dunes, 30.706°S, 17.605°W, 20 August 2013, Helme 7793 (holotype NBG!, isotype BOL!).

Deciduous, winter-green geophyte, 100–200 mm high. Bulb globose, 10–13 mm in diam., solitary; tunic multilayered, papery, outer layers light brown, inner layer translucent white; cataphylls 2, membranous, translucent white, upper cataphyll 22 mm long, apex acute, lower cataphyll 10 mm long, apex obtuse. Leaf solitary, broadly lanceolate, 50–110 × 15–22 mm, spreading to suberect, leathery, upper surface glaucous, lower surface flushed with purple; margins undulate, strongly coriaceous, yellowish green or brownish maroon; clasping leaf base mostly subterranean, white, 45–70 mm long; primary seedling leaf terete, erect. Inflorescence a raceme, many-flowered, sterile apex 10–15 mm long; peduncle erect to suberect, 40–100 mm long, light green, heavily mottled with purplish or pinkish brown, upper portion strongly inflated to base of rachis; rachis strongly inflated, 50–60 mm long, brownish pink at base, shading to bright pink above; bracts minute, ovate at base of inflorescence, becoming lanceolate above, 0.8–2.0 × 0.5–1.2 mm, white; pedicels 2–6 mm long, shortest at base of rachis, suberect at anthesis, becoming strongly decurved in fruit, white or light to deep brownish pink. Perianth zygomorphic, oblong campanulate, cernuous; tube disc-shaped, 1 mm long, brownish mauve; outer tepals lanceolate, 10–11 × 2 mm, slightly spreading, brownish mauve, ageing to yellowish brown; apical gibbosity prominent, broadly linear or lanceolate, purplish brown; inner tepals obovate, slightly spreading, protruding up to 0.5 mm beyond outer tepals, translucent white, median keel dark brown. Stamens well exerted, more or less straight; filaments white, 8.0–9.0 mm long; anthers oblong, 1.1 mm long; pollen yellow at anthesis. Ovary globose, light green, 2.0 × 1.7 mm. Capsule narrowly obcordate, 6.0–7.0 × 4.0–5.0 mm, pendent. Seed ovoid, 1.1 × 0.9 mm, glossy, black; strophiole 0.7–0.8 mm long, inflated. Flowering time: August.

tepals (6–8 mm; 7–8 mm, respectively), ovoid bulb, longer leaves without strongly cartilaginous margins and its peduncle is only slightly to moderately inflated. *Lachenalia glauca* also differs in having strongly coconut-scented flowers and a later flowering period, September to October.

Distribution and habitat:—Available records indicate that *L. arenicola* is confined to the Namaqualand coastal plain in the Succulent Karoo Biome, occurring from northwestern Koekenaap in the south to near Hondeklipbaai in the north (Fig. 2). It grows in deep aeolian, slightly acidic red or brown loose sand in Namaqualand Sand Fynbos and is absent from alkaline sands of adjacent Namaqualand Strandveld. The species occurs as scattered, solitary individuals on flats and vegetated dunes in openings between shrubs and restios. Plants often occur in association with the restio *Willdenowia incurvata* (Thunberg 1788: 18) Linder (1985: 494), and northwest of Koekenaap they have been observed growing in association with the geophyte *Haemanthus pubescens* Linnaeus (1782: 193) subsp. *leipoldtii* Snijman (1984: 117) (R. Jangle, pers. obs., August 2013).

Conservation assessment:—The species is rare at the site southeast of Skaapvlei (<20 plants seen) but fairly common at the type locality at Roode Heuvel (>50 plants seen). A portion of the population (<20%) at the Roode Heuvel site is likely to be lost to a proposed mineral sand mine, but no other significant threats are currently evident there. It has not been recorded from the approximately 10000ha Namakwa Sands mineral sand mine area at Brand se Baai, in spite of fairly intensive sampling in that area over the last fifteen years. The EOO (Extent of Occurrence) is estimated at 100,000 ha or 1000 km². About 10% of the total Namaqualand Sand Fynbos is currently formally conserved within the Namaqua National Park, but mineral sand mining is likely to be an ongoing threat to large parts of the remaining habitat, as mining companies own and are currently prospecting on various properties in the region. The species is assessed as VU D2 in terms of the IUCN 3.1 categories of threat, as the total known population is estimated at less than 1000 plants in only four known locations, and there is a real threat of mineral sand mining in at least one of the populations.

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