

Flowering Plants of Africa

Volume 63

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Flowering Plants of Africa

Since its inception in 1921, this serial, modelled on the former *Curtis's Botanical Magazine*, has published well over 2 000 colour plates of African plants prepared by some 80 artists.

The object of the serial is to convey to the reader the beauty and variety of form of the African flora, to stimulate an interest in the study, conservation and cultivation of African plants and to advance the science of botany as well as botanical art.

The illustrations are mostly prepared by artists on the staff of the South African National Biodiversity Institute, but we welcome other contributions of suitable artistic and scientific merit. Please see *Guide for authors and artists* on page 145.

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(note Afrikaans translation and changes in title)

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Cover illustration: *Erica verticillata* (Plate 2296)

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Flowering Plants of Africa

A magazine containing colour plates with descriptions of
flowering plants of Africa and neighbouring islands

Edited by

A. Grobler

with assistance of

G.S. Condy

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Pretoria
2013

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PLATE 2285 *Lachenalia pearsonii*

Lachenalia pearsonii

Hyacinthaceae

Namibia

Lachenalia pearsonii (R.Glover) W.F.Barker in The Journal of South African Botany 35: 321 (1969); Sölch & Roessler: 54 (1970); Duncan: 50 (1988); Duncan: 366 (2012). *Scilla pearsonii* R.Glover: 105 (1915).

Lachenalia J.Jacq. ex Murray is a horticulturally important genus of 133 species endemic to South Africa and Namibia (Duncan 2012). Confined mainly to the winter rainfall zone, it is centred in the Worcester grid (3319) in the southwestern Western Cape. It is also well represented in the western part of Western Cape and in the northwestern Northern Cape, but diversity decreases towards the Eastern Cape and an outlier (*L. karooica* W.F.Barker ex G.D.Duncan) occurs in the central Northern Cape and southwestern Free State. In Namibia the genus is confined to the western, southwestern and southern parts. *Lachenalia* is phenotypically and genotypically diverse, and the two most important modes of speciation appear to have been allopatry, due mainly to increasing aridity, and ploidy changes (Duncan 2005; Duncan *et al.* 2005).

Professor Henry Harold Welch Pearson [1870–1916], first Director of the National Botanical Gardens of South Africa at Kirstenbosch, discovered *Lachenalia pearsonii* during the course of a Percy Sladen Memorial Expedition to Great Namaqualand, which he led to the Groot Karasberge in southern Namibia (Bolus *et al.* 1915). Endowed by Sladen's wife and administered by the Linnean Society of London, the Percy Sladen Memorial Trust was established in 1904 to fund fieldwork in the earth and life sciences following the death of the British marine biologist and echinoderm specialist, Percy Sladen [1849–1900] (Nichols 2003). The Expedition, which commenced on 8 December 1912 and ended on 26 January 1913, crossed the mountains from northwest to southeast, then crossed them again by a different route (Pearson 1914).

Pearson found this *Lachenalia* in flower on 17 January 1913, growing in sandstone on the middle slopes of Lord Hill, also known as Scharfenstein or Schroffenstein. *Lachenalia pearsonii* was originally mistaken for a species of *Scilla* L. and described as *S. pearsonii* R.Glover by Miss Ruth Glover (later Mrs Wordsworth), a botanist on the staff of the Bolus Herbarium. It was one of numerous new species of flowering plants and ferns discovered during this Expedition, many of which were published in the first volume of *The Annals of the Bolus Herbarium* (Bolus *et al.* 1915). In 1963 the holotype of *S. pearsonii* was examined by Louisa Bolus who suggested the species would be more appropriately placed in *Lachenalia*. This was confirmed upon dissection of a flower, in which W.F. Barker found it to have a short perianth tube, with the filaments attached

PLATE 2285.—Two mature plants showing bulbs, leaves from previous and current summer seasons, peduncles and open flowers, × 1. Voucher specimen: *Bruyns 3554* in Compton Herbarium, Kirstenbosch; Kirstenbosch National Botanical Garden reference no.: 3/2000. Artist: Gillian Condy.

at different levels on the tube, and two tepal whorls in which the tepals differed in width and shape.

Consequently, Barker transferred the species to *Lachenalia* and the new combination, *L. pearsonii* (Glover) Barker, was published in *The Journal of South African Botany* (Barker 1969). In the list of *Lachenalia* taxa included under the family Liliaceae *s.l.* in the *List of species of southern African plants* (Reid 1984), 'P.E.Glover' was mistakenly given as the original author of this species, and the error has been perpetuated in every subsequent version of the latter publication. The correct author is R. Glover, who is the third author, with F. Bolus and L. Bolus, of the paper in which the species was originally published (Bolus *et al.* 1915). The holotype (Pearson 7989) is preserved in the Bolus Herbarium, University of Cape Town, and isotype sheets are in the Botanical Museum of Berlin-Dahlem and Kew Herbarium.

In *The Lachenalia handbook* (Duncan 1988), the author reported the species to be unknown in cultivation, but in the interim it has been recollected twice, on both occasions by Dr Peter Bruyns, near the type locality, but at higher altitude. The first collection was made on 16 January 1989 in flower (Bruyns 3554 in NBG) and more recently, vegetative specimens were collected just below the summit on 8 January 2000 (Duncan 2012). Plants of the latter collection have flowered every subsequent year in the bulb nursery at Kirstenbosch and it is from these plants that the accompanying plate by Gillian Condy was executed in February 2011. The plate depicts two flowering specimens, the right-hand bulb of which is an offset that matured after seven years.

Lachenalia pearsonii falls within a small alliance of dwarf species with widely campanulate, white flowers borne on white pedicels held more or less perpendicular to the rachis. This alliance includes *L. giessii* W.F.Barker, which extends from western Namibia to the southern Richtersveld, *L. multifolia* W.F.Barker from the Tanqua Karoo and western Great Karoo, and *L. namibiensis* W.F.Barker from southwestern Namibia. *Lachenalia pearsonii* has a distinctive conical flower head with almost perpendicular white pedicels, narrowly ovate outer tepals, linear inner tepals and exserted, narrowly spreading stamens (Figure 1). Duncan *et al.* (2005) consider *L. pearsonii* to be sister to *L. namibiensis*, sharing narrowly spreading stamens, similar bifacial leaves with a distinct midrib on the lower surface, and ciliolate margins. The latter species differs in its longer perianth tube (3 mm), much longer inner tepals (7–9 mm), included stamens, smaller, ovoid bulb (up to 15 mm in diameter) and shorter, lanceolate leaves (30–60 mm long). Floral symmetry is nearly actinomorphic in *L. pearsonii* but less so in *L. namibiensis*. The globose seeds of *L. pearsonii* are large (2.1 × 2.0 mm) compared with those of *L. namibiensis* (1.2–1.3 × 1.3–1.4 mm), and one of the largest in the genus (Duncan 2005, 2012).

Lachenalia pearsonii is currently known only from Lord Hill in the Groot Karasberge of southern Namibia (Figure 2). Situated in the northwestern corner of these mountains, Lord Hill rises to 2 200 m and has the highest altitude within these mountains. In this part of the Karasberge, the granites, gneisses and schists have penetrated right through the sandstone layers that cover most of the rest of these mountains

(P.V. Bruyns, pers. comm.). Occurring in Dwarf Shrub Savanna vegetation (Loots 2005) in arid terrain with erratic summer rainfall, *L. pearsonii* is the only summer-growing member of the genus, occurring in large colonies at high altitude, and is found from the middle slopes to just below the summit peak, between 1 800–2 200 m (Duncan 1998). It is also the earliest-flowering species of the genus, its blooms first appearing between mid-January and early February, depending on sufficient summer rains (Duncan 2005). The type material was recorded growing on sandstone of the middle slopes at 1 800 m, whereas the recent collections made by Bruyns were found on vertical schist layers from 2 000–2 200 m, amongst grasses and *Lithops karasmontana* (Dinter & Schwantes) N.E.Br. (Mesembryanthemaceae) (*Bruyns 3554* in NBG).



FIGURE 1.—The conical flower head of *Lachenalia pearsonii*. Photograph: Graham Duncan.

Lachenalia pearsonii was Red Listed as Data Deficient in the *Southern African Red Data List for Namibia* (Craven & Loots 2002), and omitted from the *Red Data Book of Namibian Plants* (Loots 2005). Although restricted to a single mountain within the Groot Karasberge, the plant occurs in large numbers and is isolated to high altitude slopes; there appears to be no immediate threat to its integrity and consequently it has no conservation status.

Little is known of its ecology, but in common with other members of the alliance, the widely campanulate, slightly spice-scented (during the hottest part of the day) white flowers are probably bee-pollinated. The scape remains attached to the bulb after the capsules have dehisced, and the seeds are dispersed by the shaking action of wind.

The main horticultural attribute of *Lachenalia pearsonii* is its beautiful conical flower head of white star-like flowers with exserted stamens. The species flourishes in deep 150 mm diameter plastic containers in a very sandy, slightly acid medium of equal parts coarse river sand and silica sand, with a 20–30 mm layer of well-rotted compost placed over the drainage chips at the bottom of the container. The bulbs are long-lived and are best planted with the top of the neck resting at, or just below, soil level. In the bulb nursery at Kirstenbosch, the plants flower consistently every year in late January and early February. Although summer-growing, watering should

only commence in midsummer (early January in the southern hemisphere). A heavy drench applied at this time stimulates the almost immediate emergence of the inflorescence and new leaves. Despite flowering at the hottest time of year, the inflorescence is remarkably long-lived, the lower-most flowers remaining attractive for about 10 days until most of the upper ones have opened. Seed production has been poor in the bulb nursery despite frequent, careful hand pollination between different clones, with only one to three seeds obtained from infructescences that had borne up to 50 flowers or more. Leaf growth continues from midsummer to midwinter (late June in the southern hemisphere) at which time watering should cease and the containers be stored completely dry in a cool, well-aerated place. The bulbs are extremely slow in vegetative reproduction; at Kirstenbosch only one offset has been produced by one mature bulb, which matured after seven years.

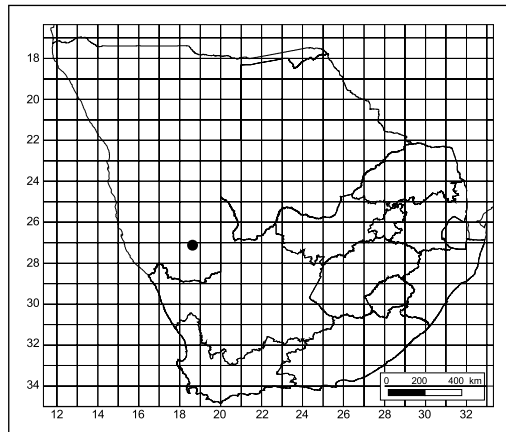


FIGURE 2.—Known geographical distribution of *Lachenalia pearsonii*.

An orange-flowered lachenalia with red-tipped, tubular pendent blooms, said to be a cross between *Lachenalia bulbifera* and *L. x nelsonii*, was briefly and inadequately described as ‘*Lachenalia Pearsonii*’ in *The New Zealand Gardener* in 1949, having been raised by a Mr Aldridge in 1924, a previous Curator of Parks and Reserves in Auckland, and named for a Mr Pearson. The name is invalid as it was not accompanied by a Latin description. The plant most closely resembles a form of *L. aloides* and it is doubtful that *L. bulbifera* was one of the parents as it exhibits no traits from that species whatsoever; a more appropriate name for the plant is *L. aloides* ‘*Pearsonii*’.

Description.—Dwarf geophyte, summer-growing, 50–180 mm high. *Bulb* globose, 10–20 mm in diameter, rarely offset-forming, neck distinct, 10–30 mm long; tunic multilayered, outer layers cartilaginous, dark brown or black, apex uppermost portion produced into a thick layer of long, flat, papery bristles; inner cataphyll tightly adhering to leaf bases, aerial portion bright green, subterranean portion translucent white, apex obtuse. *Leaves* 2, narrowly lanceolate, 55–100 × 5–9 mm; suberect, glaucous, canaliculate, abaxial midrib distinct; margins ciliate; leaf bases clasping, 20–35 mm long, subterranean portion white, aerial portion glaucous; primary seedling leaf terete, erect. *Inflorescence* racemose, flower head conical, few- to many-flowered, sterile apex short; scape erect, 30–70 mm long, slender, yellowish green; rachis white or light green, extremely slender; pedicels suberect in bud, perpendicular at anthesis, 4–7 mm long; light green; bracts cup-shaped throughout, 2 × 1 mm, white, bases swollen. *Perianth* slightly zygomorphic, widely campanulate, white, slightly spice-scented; tube cup-shaped, 1 mm long; outer tepals narrowly ovate, 4 × 2 mm, apices recurved, apical gibbositities dull maroon; inner tepals linear,

4.5 × 1.0 mm, keels dull maroon, apices slightly recurved. *Stamens* shortly exerted, narrowly spreading; filaments white, 4 mm long, anthers introrse. *Ovary* obovoid, 1.0 × 1.3 mm, light green; style shortly exerted, straight, 4 mm long, stigma capitate, minute. *Capsule* obovoid, 4.0 × 4.0–5.0 mm. *Seed* globose, 2.1 × 2.0 mm, glossy, black; strophiole rudimentary, 0.1–0.2 mm long, ridged. Plate 2285.

REFERENCES

- BARKER, W.F. 1969. A new combination in *Lachenalia* with notes on the species. *The Journal of South African Botany* 35(5): 321–322.
- BOLUS, F., BOLUS, L. & GLOVER, R. 1915. Flowering Plants and Ferns collected on the Great Karasberg by the Percy Sladen Memorial Expedition, 1912–1913. *The Annals of the Bolus Herbarium* 1: 97–114.
- CRAVEN, P. & LOOTS, S. 2002. *Lachenalia pearsonii*. In J.S. Golding (ed.), *Southern African Plant Red Data Lists: 90*. Southern African Botanical Diversity Network Report No. 14. SABONET, Pretoria.
- DUNCAN, G.D. 1988. *Lachenalia pearsonii*. *The Lachenalia Handbook*: 50. Annals of Kirstenbosch Botanic Gardens Vol. 17. National Botanic Gardens, Cape Town.
- DUNCAN, G.D. 1998. Notes on the genus *Lachenalia*. *Herbertia* 53: 40–48.
- DUNCAN, G.D. 2005. *Character variation and a cladistic analysis of the genus Lachenalia* Jacq.f. ex Murray (Hyacinthaceae). M.Sc. thesis, University of KwaZulu-Natal, Pietermaritzburg.
- DUNCAN, G.D. 2012. *The genus Lachenalia*. Kew Publishing, London.
- DUNCAN, G.D., EDWARDS, T.J. & MITCHELL, A. 2005. Character variation and a cladistic analysis of the genus *Lachenalia* Jacq.f. ex Murray (Hyacinthaceae). *Acta Horticulturae* 673: 113–120.
- LOOTS, S. 2005. *Red Data Book of Namibian Plants*. Southern African Botanical Diversity Network Report No. 38. SABONET, Pretoria.
- NICHOLS, D. 2003. A biography of Percy Sladen (1849–1900). *The Linnean*, special issue no. 4: 1–30. The Linnean Society, London.
- PEARSON, H.H.W. 1914. On the Flora of the Great Karasberg. I. Introduction. *The Annals of the Bolus Herbarium* 1: 1–8.
- REID, C. 1984. Liliaceae. In G.E. Gibbs Russell and the staff of the National Herbarium, List of species of southern African plants: 34. *Memoirs of the Botanical Survey of South Africa* No. 48. Botanical Research Institute, Pretoria.
- SÖLCH, A. & ROESSLER, H. 1970. *Lachenalia* Jacq. In H. Merxmüller, *Prodromus einer Flora von Südwestafrika* 147: 52–54. Cramer, Lehre.

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