Five more new species of *Lachenalia* (Liliaceae — Hyacinthoideae) four from the Cape Province and one from southern South West Africa/Namibia

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Five new species of *Lachenalia* are described, *Lachenalia minima* W.F. Barker and *L. kliiprandensis* W.F. Barker from the north-western Cape, and *L. dehoopensis* W.F. Barker and *L. leomontana* W.F. Barker from the southwestern Cape, while the fifth *L. namibiensis* W.F. Barker is from southern South West Africa/Namibia. The characters of the ripe seeds are used as additional diagnostic characters.


**Keywords:** *Lachenalia*, Liliaceae, new species, seeds, taxonomy

**Introduction**

The genus *Lachenalia* (Liliaceae) is currently under revision by the author. It is endemic to southern Africa, and has a very wide distribution, occurring throughout the whole of the Cape Province, Ciskei and into Transkei as far as Willowvale. In the west it extends northwards into southern South West Africa, up to Luderitz and the Great Karasberg Mts, from where its probable boundary makes an arc to the south east through Kimberley, Fauresmith and Cathcart, to complete the circle at Willowvale.

The greatest concentration of species occurs in the winter rainfall areas of the south-western Cape, but many species are adapted to the summer rainfall climate, as well as the semidesert of the Little and Great Karoo and the Richtersveld. Thus the many species occur in a wide variety of habitats, at all altitudes, from coastal rocky outcrops and sand dunes, to the sandy flats of the western and southern Cape, to the south and west coast fynbos, and Karoo scrub, as well as temporary marshes, quartz patches, limestone outcrops and rocky or grassy mountain slopes, at altitudes up to 1 200 m where snow often occurs. The flowering period for the genus too is remarkable as it covers all the months of the year from April to December. The number of species recognised at present is 90, but there are still a number awaiting attention when adequate material is available.

This paper is a continuation of four others, previously published in the Journal of South African Botany (Barker 1978, 1979, 1983, 1984), in which the author is endeavouring to determine the full complement of the species in the genus, and to this end has placed considerable emphasis on the seed morphology as an additional useful, but previously unused diagnostic character.

*Lachenalia minima* W.F. Barker, sp. nov.


**TYPEUS.** — South Africa, Cape Province: 12 km NE of Bitterfontein, on the road to Kliprand, *Duncan* 172 (NBG, holotypus).

Plants usually dwarf 20–50 mm high, rarely 90–170 mm high. *Bulb* globose, 10–20 mm diam; tunicos few, membranous, dark brown, produced into a short neck; flattened bulbils covered with similar brown scales occasionally develop between the outer bulb scales. *Leaves* 2, lanceolate to ovate-lanceolate, spreading just above the ground; blade 25–90 mm long, 10–25 mm broad, green, upper surface with depressed veins, usually covered with small green, wart-like pustules; clasping bases white. *Peduncle* green, slender, usually subterranean or short, in larger plants up to 60 mm long. *Inflorescence* spicate, dense, 20–60 mm long; rachis pale green; bracts linear-lanceolate. *Flowers* erecto-patent, oblong-campanulate, slightly swollen at the base, up to 14 mm long; tube 3–4 mm long, pale yellow; outer perianth segments 7 mm long, ovate-oblong, pale yellow with green gibbosities, apices recurved; inner segments up to 11 mm long, spathulate, yellow with green keels, apices very pale yellow and recurved. *Stamens* shorter than the inner segments; filaments pale yellow. *Ovary* ovoid, green, 3 mm long; style pale yellow slightly longer than the stamens. *Capsule* ovoid, membranous, up to 8 mm long and 5 mm diam. *Seed* globose, black with a small terminal, ridged aril (Figures 1, 2 & 3).

Flowering time: *June*.

This interesting species was first collected on 16 June 1931, by Captain T.M. Salter, south of Bitterfontein in Namaland. He found only one minute specimen bearing two flowers, which could not be identified. He collected it in the same area on the 2 July 1935, this time in seed. The third collection was made on the 21 August 1974, north west of Bitterfontein, by Dr B. Nordenstam and Dr J. Lundgren, once again in seed. Then in 1985 G. Duncan made a special expedition to Bitterfontein and was rewarded by finding the elusive species. Some specimens in full flower and others in young fruit, were found in two localities, one south and the other NW of Bitterfontein. Thus after waiting for a period of nearly forty five years, it was possible to identify it with certainty as a new species.

Its erecto-patent, sessile, pale yellow, oblong-campanulate flowers are reminiscent of those of *Lachenalia orchioideae* (L.) Ait. and its allies, but its seed has a short, ridged aril while in the *L. orchioideae* group the arils are inflated. The ovate to ovate-lanceolate leaves, spreading close to the ground, and usually densely covered with green wart-like pustules on the upper surface are also very distinctive.
Specimens examined

—3018 (Kamiesberg): 12 km NE of Bitterfontein on Kliprand Road (-CD), Nordenstam and Lundgren 1451 (NBG, S) (fruiting); 12 km NE of Bitterfontein Duncan 172 (NBG).
—3118 (Vanrhynsdorp): Bitterfontein (-AB), Salter 956 (BOL) (flowering); 2 m S. of Bitterfontein, Salter 5604 (BOL) (fruiting); 5 km S. of Bitterfontein, Duncan 171 (NBG).

Figure 1 Lachenalia minima. One plant flowering in habitat. [Duncan 172 (NBG)]. Photo by G.D. Duncan.

Figure 2 Lachenalia minima. Six wild plants in flower. [Duncan 172 (NBG)]. Photo by Ray Ryan.

Figure 3 Lachenalia minima. (A) Seed side view; (B) seed from above; (C) seed from below. [Duncan 172 (NBG)].

Figure 4 Lachenalia dehoopensis. Four wild plants in flower. [A. Scott s.n. sub. NBG 129587 (NBG)].

Lachenalia dehoopensis W.F. Barker, sp. nov.

TYPUS. — South Africa, Cape Province: De Hoop-Poetberg Nature Reserve, on De Hoop flats, A. Scott s.n. sub. NBG 129587 (NBG, holotypus).

Plant up to 160 mm high. Bulb globose, 10—15 mm diam, covered with several layers of dark brown tunics, narrowed at the apex to form a short neck. Leaves 2, erecto-patent, linear, channelled above; blade up to 130 mm long, green, banded with darker green below; clasping base 25—40 mm long, with bands shading from dark green to dark maroon to magenta at the base. Peduncle slender, 50—100 mm long, minutely spotted with green or purple. Inflorescence racemose, few to many-flowered up to 70 mm long and 20 mm diam; pedicels 2—3 mm long; bracts at the base small and cuplike, toward the apex with narrow lanceolate cusps. Flowers patent to slightly cernuous, oblong-campanulate, rounded at the base, 9 mm long 4 mm diam. at base; tube 2 mm long; outer perianth segments oblong 5 mm long, cream, pale blue at base and with reddish gibbosities; inner segments longer than outer, 7 mm long, oblong-obovate, cream with broad red keels. Stamens just emerging. Ovary ovoid, 2 mm diam; style 8 mm long, finally longer than stamens. Capsule obovoid,
membranous, 5 mm diam. Seed globose, minute, with a small terminal ridged aril (Figures 4, 5 & 6).

Flowering time: late August to early September.

The earliest collection of this interesting species was made in August 1963 at Kathoek in the Bredasdorp district by J.P. Acocks. It was mistakenly identified as Lachenalia subspicata Fourc., which is a more easterly species from the Humansdorp district. M.C. Burgers next made two collections, one on the De Hoop flats, in September 1979, and the other at Diepkloof in September 1980, both localities in the De Hoop-Potberg Nature Reserve. In 1984 A. Scott made a collection from the De Hoop flats which is now the holotype of the species.

By coincidence, when these specimens were received, a pot of bulbs collected by Mr R. Boycott on the slopes of the Kammanassie Mts was noticed in the Nursery at Kirstenbosch to have leaves which were deceptively similar to those of the De Hoop plant, and the two taxa were judged to be conspecific. However, when the Kammanassie plant flowered later in the month, it proved to be a much taller plant. The inflorescences of the two taxa were distinct, the flowers differed in shape, colouring and length of stamens, and the plants were considered to represent two new species. Finally the Kammanassie plant was identified as Lachenalia haarlemensis Fourc. which had been described as having one leaf only, but had proved to produce one or two leaves. Later in the season when the seeds could be compared, they were found to be of a similar pattern, but those of L. dehoopenensis were minute when compared with those of L. haarlemensis.

Specimens examined

-3420 (Bredasdorp): De Hoop-Potberg Nature Reserve, on the De Hoop flats (– AD), A. Scott s.n. sub. NBG 129387 (NBG); Burgers 2119 (STE); Potberg, lower side of Diepkloof, Burgers 2535 (STE); Kathoek (– BC) Acocks 22596 (PRE).

Lachenalia kliprandensis W.F. Barker, sp. nov.


TYPUS. — South Africa, Cape Province: Kliprand, Bushmanland. E.A. Schelpe s.n. sub. NBG 129084 (NBG, holotypus).

Plant up to 200 mm high. Bulb globose. Leaves 2, ovate, up to 80 mm long and 60 mm wide, prostrate to the ground, upper surface dark green with many parallel depressed veins and numerous dark pustules, subterranean clasping base purple. Peduncle stout, subterranean. Inflorescence subsipicate; rachis stout up to 200 mm high and 15 mm diam at base, many-flowered along its length; bracts lanceolate, green at base, tips magenta. Flowers patent to cernuous, 15 mm long, urceolate-oblong; tube 3 mm long, white; outer perianth segments ovate-oblong, obtuse, up to 7 mm long and
Figure 8 Lachenalia kliprandensis. Inflorescence close up. [Schelpe s.n. sub. NBG 129084 (NBG)].

Figure 9 Lachenalia kliprandensis. Three flowers close up. [Schelpe s.n. sub. NBG 129084 (NBG)].

Figure 10 Lachenalia kliprandensis. (A) Seed side view; (B) seed from above; (C) seed from below [Schelpe s.n. sub. NBG 129084 (NBG)].

6 mm broad, white with green gibbosities, tips magenta; inner segments patent, obovate-oblong, exceeding the outer segments, white with a magenta zone at the apex, the two upper segments 6 mm broad near the apex, the lower segment 4 mm broad at the apex. Stamens white, as long as the inner segments. Ovary ovoid, 2.5 mm diam; style white, finally longer than the stamens. Capsule membranous, obovate 9 mm long, 7 mm diam. Seed globose with a short terminal ridged aril (Figures 7, 8, 9 & 10).

Flowering time: Mid-August to mid-September.

This unique species was collected in the fruiting stage, at Kliprand in Bushmanland, by E.A. Schelpe on 25 February 1982. He found only one bulb which was cultivated in the nursery at Kirstenbosch, where it flowered two years later. It was immediately clear that it was an unknown species, by its distinctive prostrate, ovate leaves with many parallel depressed veins and dark pustules on the upper surface, the subterranean peduncle and the stout rachis with many sessile flowers.

It has not been possible to prepare a pressed specimen of the whole plant in flower. As a compromise, an inflorescence and a leaf were pressed as the holotype, and supplemented by a colour photograph of the plant in flower.

Specimens examined
—3018 (Kamiesberg): Kliprand, Bushmanland (— DA), Schelpe s.n. sub NBG 129084 (NBG).

Lachenalia leomontana W.F. Barker, sp. nov.


Typus. — South Africa, Cape Province: Klip at south base of Leeuwrivierberg, Swellendam Division, Esterhuysen 33322 (NBG, holotypus, BOL, K, isotypii).

Plant 100 – 300 mm high. Bulb ovoid, 10 – 15 mm diam, outer tunics membranous, light brown; numerous fleshy white bulbils are produced at its base. Leaf solitary up to 80 mm long and 15 mm wide; blade spreading lorate, canalicate, uniformly green, or densely spotted with dark purple above and tinged with maroon below toward the claspng base. Peduncle slender, 20 – 180 mm long above the claspng base, plain or minutely spotted with purple. Inflorescence racemose lax, few to many-flowered, up to 110 mm long, 22 mm diam; pedicels 2 – 4 mm long; bracts minute, lanceolate, membranous. Flowers white, patent, oblong-campanulate, rounded at the base, 9 mm long, up to 5 mm diam at base; tube 2 mm long; outer perianth segments oblong, white with pale green
gibbosities; inner segments longer than the outer, 7 mm long, obovate obtuse, white, apex recurved. **Stamens** as long as inner segments. **Ovary** globose, green, style 3 – 4 mm long. **Capsule** obovate, membranous 6 mm long, 5 mm diam. **Seed** globose with a short, terminal inflated aril (Figures 11, 12, 13 & 14).

Flowering time: Late October to mid-November.

The affinity of *L. leomontana* appears to be with *L. rosea* Andr., but its inflorescence is more lax, the flowers are rounded at the base, the inner segments are more spreading with their apices recurved, and the seed has an inflated aril half as long as that of *L. rosea*. In addition, the bulb produces many fleshy, white, bulbils at its base, a character which has not been observed in *L. rosea*.

The first collection of the species was made by E.E. Esterhuysen in November 1973, at the base of the Leeuw-rivierberg near Swellendam, in shallow soil between rock outcroppings on the sides of the kloof. Plants in the shade of overhanging rocks were very tall and flaccid but in the sun they were shorter and firmer. A second collection of about twelve bulbs from the same area was brought to Kirstenbosch by M.C. Botha in 1977. The plants were grown in full sun and the flowers had much reduced peduncles, but the leaves were all spotted with dark purple on the upper surfaces. The bulbs produced the characteristic fleshy, white bulbils at the base.

**Specimens examined**

—3320 (Montagu): Kloof at south base of Leeuw-rivierberg, Swellendam Division (CD), E.E. Esterhuysen 33322 (BOL, K, NBG); M.C. Botha s.n. sub. NBG 120393, ex Hort. NBG 252/77 (NBG).

*Lachenalia namibiensis* W.F. Barker, sp. nov.

**Planta** nana ad 100 mm alta. **Bulbus** ovoideus, tunicas multis atrofuscus, collo brevi formanti. **Folia** uno vel duo, brevia, falcata, obtusa, conduplicata, aeruginosa. **Inflorescentia** racemosa, ad 45 mm longa, multifloribus. **Flores** patentes, late campanulati 10 mm longi, albi tumouribus et carinis fuscatis. Tubus 3 mm longus, basin versus decrescens. Segmenta externa oblonga, 5 mm longa, 3 mm lata, patens ad apicem. Segmenta interna angusto-oblonga, 7 mm longa, 2 mm lata, patens ad apicem. Segmenta interna superantia stamina. **Stamina** pariter disposita. **Ovarium** ovoideum, viride. **Stylus** denum superans stamina. **Semen** globosum, arillo, porcato, paena obsoleti.

**TYPEUS.** — South West Africa/Namibia, Luderitz-Sud: 40 km N. of Rosh Pinah, cultivated specimens in flower; Goldblatt 7017 (NBG, holotypus, MO, NBG, isotypii).
Plant dwarf in natural habitat, up to 100 mm high. Bulb ovoid, 15 mm diam, covered with many layers of dark brown to black cartilaginous scales, produced into a short neck of fine fibres up to 8 mm long. Leaves 1–2, semi-succulent, 30–50 mm long, up to 10 mm broad, falcate, conduplicate with a depressed midrib, blue-green, apex obtuse, minutely cusped; margins minutely ciliate, clasping base short. Peduncle 20–45 mm long, slender.Inflorescence racemose, many-flowered 15–45 mm long, 20 mm diam; bracts small narrow-lanceolate, greenish; pedicels patent, 2–3 mm long. Flowers white, widely campanulate, 10 mm long; tube 3 mm long narrowed toward the base; outer perianth segments oblong, obtuse, patent at the apex, 5 mm long, 3 mm broad, white with dark gibbosities; inner segments narrow-oblong, patent at the apex, longer than outer, 7 mm long, 2 mm broad, white with dark keels. Stamens evenly spaced, shorter than the inner segments; filaments white. Ovary ovoid, green; style white, finally longer than the stamens. Capsule ovoid, 7–10 mm long, 5 mm diam, cartilaginous. Seed globose, aril ridged, almost obsolete. (In cultivation plants become larger in all respects. Inflorescences up to 180 mm high. Leaves up to 100 mm long, 18 mm broad, spathulate to lorate, with a depressed midrib. Flowers 15 mm long with pale gibbosities and keels; pedicels 10–13 mm long) (Figures 15, 16, 17 & 18).

Flowering time: August.

This charming species has posed a number of taxonomic problems. At the time when the Prodromus Flora Sudwest Afrika treatment of Lachenalia in Vol. 4, 1966 was in
preparation, three sheets of the collection by Merxmuller and Giess from the farm Witputs-Sud, collected on 27 August 1963, were examined from the herbaria in Windhoek, Munich and Pretoria. They represented a dwarf species with small white campanulate flowers, with dark gibbosities and keels and stamens included one or two short, falcate, obtuse leaves which appeared to be succulent and terete, and a globose bulb covered with many dark brown to black scales, which narrowed at the apex to form a short neck. The plants most closely resembled Lachenalia patula Jacq., and were included in the publication under that name, not having been seen in the living state.

In August 1983, bulbs labelled Lavranos 19955 from Namuskluft S.W.A. flowered in the nursery at Kirstenbosch. They were tall slender plants with large widely campanulate flowers and the leaves were lorate to spatulate with a depressed central vein. They could not be identified with certainty, and were incorporated into the Compton Herbarium in the incertae under the genus Ornithogalum. The next collection was made by Goldblatt on 29 September 1983, 40 km N. of Rosh Pinah. These plants which resembled those of the Merxmuller and Giess collection were in ripe seed. Some were grown in the Kirstenbosch nursery, and when they flowered in August 1984 they were surprising in being twice the size of the wild specimens.

The flowers were large and bell-like and resembled those of the cultivated specimens of the Lavranos collection. At this point it was realized that the three collections were conspecific and should be published under a new name. They differed from L. patula which has succulent semi-terete leaves, the flowers are pink, and the inner perianth segments are much longer and broader than the outer segments, while the testa of the seed is ridged all over, and not smooth as in L. namibiensis.

Specimens examined
—2716 (Witputs): Farm Witputs-Sud, (—DA), Merxmuller and Giess 3205 (P, PRE, WIND); 40 km N. of Rosh Pinah (—DD), Goldblatt 7017 (MO, NBG); Namuskluft, Lavranos 19955 ex Hort. NBG (NBG); Namuskluft, Lavranos 19955 ex Hort. H. van Zijl (NBG).

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References