Flowering Plants of Africa

Volume 63

June 2013

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.

A list of available back issues is given in the current *Publications Catalogue* of the Institute and on the website www.sanbi.org. Copies of this serial and of the *Catalogue* are obtainable from the SANBI Bookshop, South African National Biodiversity Institute, Private Bag X101, Pretoria, 0001 South Africa.

History of this series
(note Afrikaans translation and changes in title)

Volume 1 (1921) to Volume 24 (1944):
The Flowering Plants of South Africa

Volume 25 (1945–1946) to Volume 26 (1947):
The Flowering Plants of Africa

Volume 27 (1948–1949) to Volume 52 (1992–1993):
The Flowering Plants of Africa
Die Blomplante van Afrika

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Flowering Plants of Africa

Cover illustration: *Erica verticillata* (Plate 2296)

Flowering Plants of Africa

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with assistance of

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Aloe pavelkae Asphodelaceae

Namibia

Aloe pavelkae *Van Jaarsv., Swanepoel, Van Wyk & Lavranos* in Aloe 44: 75–79 (2007).

Aloe pavelkae is a rare cliff-dwelling endemic from the southern outlier of the Hunsberg in the |Ai-|Ais/Richtersveld Transfrontier Park, southern Namibia. It is a cliff-dweller, confined to southern and southeast facing cliffs with long, pendent stems of up to 3 m that carry of 5–8 heads.

The depicted species is closely related to *Aloe meyeri* Van Jaarsv. and *A. dabenorisana* Van Jaarsv. from the Northern Cape, South Africa. In fact, the trio are all cliff-dwelling and range-restricted species confined to the lower Gariep River (Orange River), the largest river system in South Africa. *Aloe meyeri* occurs nearby (about 60 km southeast) and is endemic to south-facing quartzite cliffs of the Rosyntjiesberg in the Richtersveld, Northern Cape Province of South Africa, and southern Namibia. *Aloe dabenorisana* is confined to the quartzites and metaschists of the Dabenorisberg and Pellaberg of the Northern Cape, South Africa—about 180 km east of the Hunsberg. *Aloe pavelkae* is immediately distinguished from *A. meyeri* by its longer stems and larger rosettes (350–450 mm in diameter) of dark green leaves that are more densely arranged (i.e. with shorter internodes) and flowering during autumn or early winter (May to July). The leaves of *A. pavelkae* tend to wither below the rosettes. *Aloe meyeri* is a smaller species with smaller rosettes (± 260 mm in diameter) of grey-green leaves and flowering during midsummer (December to February). Leaves often remain functional for most of the stem length. *Aloe dabenorisana* differs from these two species by its more clustered growth with distinctly recurved leaves and shorter stems. Its leaf surface colour is similar to *A. pavelkae*. *Aloe dabenorisana* flowers during summer (November to February). *Aloe pearsonii* is another related species of the lower Gariep River Valley, growing in both Namibia and South Africa. It is an erect shrub with very different, reflexed leaves and is not associated with cliffs.

Aloe pavelkae is only known from the Sonnenberg and Kuamsibberg, growing at altitudes of 700–900 m (Figure 1). The habitat is frequently covered in fog from the nearby Atlantic Ocean. Rainfall is during the winter months and range from 75–100 mm per annum. The vegetation is clearly sub-desert and the plants grow in association with other succulent and bulbous plants such as *Conophytum ricardianum*, *Crassula macowaniana*, *C. pseudohemisphaerica*, *C. sericea* var. *velutina*, *C. sladenii*, *Cyrtanthus herrei*, *Gasteria pillansii* var. *ernesti-ruschii*, *Tylecodon bruynsii*, *T. buchholzianus*, *T. racemosus*, *T. rubrovenosus*, *T. singularis* and *Kleinia cephalophora*.

Aloe pavelkae belongs to Section *Aloe*, (Glen & Hardy 2000 [following Reynolds 1950, Series *Mitriformes* (Salm-Dyck) Reynolds]) to which eight aloe taxa belong.

PLATE 2283.—Plant in flower, × 1. Voucher specimen: *Van Jaarsveld 21081* in Compton Herbarium, Cape Town. Artist: Gillian Condy.

PLATE 2283 *Aloe pavelkae*

These include *Aloe arenicola* Reynolds, *A. dabenorisana* Van Jaarsv., *A. meyeri* Van Jaarsv., *A. mitriformis* subsp. *comptonii* (Reynolds) Zonneveld, *A. mitriformis* subsp. *distans* Haw., *A. mitriformis* Mill. subsp. *mitriformis*, *A. pavelkae* Van Jaarsv. and *A. pearsonii* Schönland. These eight taxa form a closely related group immediately recognisable by their distinctive capitate racemes, and leafy stems. They are mainly confined to parts of the Northern, Western and Eastern Cape provinces which experience most of their rainfall during winter. Of these, four are confined to the lower Gariep River Valley.

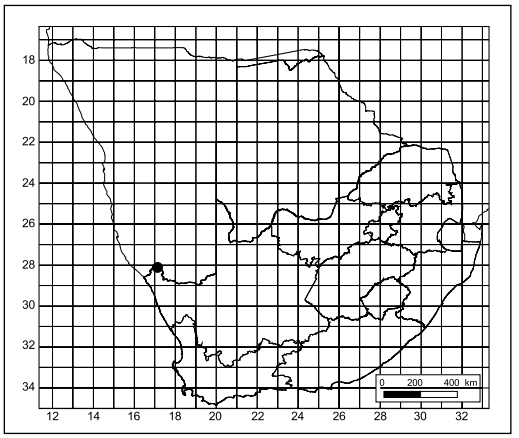

FIGURE 1.—Known distribution of *Aloe pavelkae*.

Aloe pavelkae was discovered by Mr Petr Pavelka, intrepid plant explorer from the Czech Republic. He has undertaken several expeditions to South Africa and Namibia and discovered a number of new taxa. Mr Petr Pavelka first encountered this species on the Sonnenberg in southern Namibia and brought it to the attention of one of us (EJvJ). Subsequently a photograph of the plant appeared under the name *A. meyeri* in Craven & Loots (2002), which Dr Peter Bruyns had taken on the Kuamsibberg in southern Namibia. The author (EJvJ) decided to investigate, and an expedition was arranged to the Hunsberg in November 2006. The party consisted of six individuals and we approached from the eastern side and proceeded up the southern ridge. Many interesting species were encountered along the way such as *Aloe pillansii*, *Euphorbia hottentotta*, *E. virosa* and *Stoeberia arborea*. On the upper south ridge we also encountered a stand of *Aloe pearsonii*, as well as a solitary specimen of *Gasteria pillansii* var. *ernesti-ruschii* growing on a dolomite ridge. The summit of the Kuamsibberg is 1 160 m above sea level and consists of sandstone and succulent karoo vegetation. Once the summit was reached, we walked towards the highest peak. It was here that Werner Voigt (now curator of the Karoo Desert National Botanical Garden) first spotted the aloes, with his binoculars, growing on south facing cliffs in a southwest facing kloof. The summit had a great stand of *Aloe pillansii* and we reached the new aloe, along the way walking through a dense stand of *Dioscorea montana*. *Aloe pavelkae* grows on sheer sandstone cliffs, which we could just reach on horizontal accessible ledges. Other succulents noticed, growing at the type location, include *Tylecodon racemosus* (*T. chloroleuca*), *Conophytum ricardianum*, *Crassula sericea* var. *velutina* and *C. pseudohemisphaerica*. *Aloe pavelkae*, a clear obligatory cliff-dweller, consists of large pendent shrubs with stems frequently longer than 2 m, usually with many heads. It grows in sub-desert vegetation, not unlike the Noms Mountain Desert (Gariep Desert Bioregion) (Mucina & Rutherford 2006) found in the Richtersveld just south of the Gariep River.

Aloe pavelkae thrives in cultivation, but is best grown in Succulent Karoo or dry Succulent Karoo gardens (Van Jaarsveld 2010). Plants can be propagated from seed

sown during the late autumn in sandy slightly acidic soil. Cover the seed with a thin layer of sand (1–2 mm thick) and keep moist in a warm situation providing ample shade. Seeds germinate within three weeks, are slow growing and the young plants are best transferred to individual small containers after about 12 months. These should flower about four years after sowing. Plant in a sunny, well drained position, providing a place where it can become pendent, such as a windowsill, sheer embankment, dry stone wall or terraces.

Key to the members of Section *Aloe* Series *Aloe*

1a Plants erect shrubs . . . . . *A. pearsonii*
1b Plants decumbent, procumbent or pendent:
  2a Leaves reflexed . . . . . *A. dabenorisana*
  2b Leaves not reflexed:
    3a Leaves distinctly spotted . . . . . *A. arenicola*
    3b Leaves not spotted:
      4a Plants pendent from cliffs:
        5a Leaves green . . . . . *A. pavelkae*
        5b Leaves glaucous . . . . . *A. meyeri*
      4b Plants procumbent or decumbent, not pendent:
        6a Plants procumbent:
          7a Leaves 180–200 mm long . . . . . *Aloe mitriformis* subsp. *mitriformis*
          7b Leaves 150 mm or shorter . . . . . *Aloe mitriformis* subsp. *distans*
        6b Plants decumbent rosettes erect . . . . . *Aloe mitriformis* subsp. *comptonii*

Description—Plants slow growing and long-lived, forming loose pendulous clusters of up to eight heads (rarely up to 25 heads), branched from the base and with elongated stems to 1.5(–3) m long, occasionally stemless. *Roots* slightly fleshy. *Branches* with dry leaves and leaf bases persistent, becoming deciduous towards base of stem. *Leaves in mature plants* fleshy, coriaceous, in an apical rosette up to 350–400 mm in diameter, spreading during the rainy season, incurved and becoming drawn together with a reddish colour on the abaxial surface during the dry season or prolonged droughts, 180–280 × 25–70 mm, linear lanceolate, dark green, faintly striated; adaxial surface flat, channelled towards the apex; abaxial surface convex; margins cartilaginous, white (often reddish towards apex), serrate; teeth 1.5 × 1.5 mm, projected towards apex and 4–8 mm apart; apex acute; leaf sap drying orange-yellow. *Leaves in juvenile plants* distichous at first, their abaxial surface beset with white tubercles, becoming smooth at maturity. *Inflorescence* simple (rarely branched), up to 240–320 mm long, pendulous for 150–200 mm then recurved to an erect position; peduncle biconvex and green towards base, becoming dark purplish brown in the upper half, 6–8 mm in diameter, up to 180–220 mm long; raceme capitate (not pointed), 45–90 mm long; sterile bracts triangular-acuminate, grey-brown, the lower ones triangular, scarious, 5 × 5 mm; floral bracts smaller, 3.0 × 1.5 mm. *Flowers* subpendent, borne in dense capitate raceme; pedicels ascending and then spreading, reddish, 20–28 mm long. *Perianth* orange-red, yellow at apex, buds green-tipped, subclavate and cylindric-trigonous, 20 mm long, 4 mm wide at base, 6 mm wide at apex; segments free for 15 mm but fused at base, the outer linear-oblanceolate, 19 × 3 mm, the inner broader, 20 × 5 mm, apices subacute. *Stamens* with filaments filiform, flattened, 15–17 mm long, the three inner ones slightly longer, slightly exserted; with anthers 1.5 mm long; pollen yellowish orange. *Ovary* cylin-

drical, 4 × 2 mm, yellowish; style 14 mm long, lengthening to 16 mm, becoming slightly exserted. *Fruit* a capsule, 15–18 × 6–7 mm, ascending spreading, young fruit ovoid, maroon. *Seed* 3.5 × 2 mm, blackish grey. *Flowering time*: May–July. Plate 2283.

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