

HYACINTHACEAE

PSEUDOGALTONIA LILIIFLORA (ORNITHOGALOIDEAE), A NEW SPECIES FROM THE RICHTERSVELD, NORTHERN CAPE

Hyacinthaceae, optionally included in Asparagaceae (Angiosperm Phylogeny Group—APGII 2003), are a family of 700–900 species of bulbous geophytes, with centres of diversity in both southern Africa and the Mediterranean (Speta 1998). Current classifications recognize the four subfamilies Oziroëoideae, Ornithogaloideae, Urgineoideae and Hyacinthoideae (Speta 1998; Manning *et al.* 2004). Subfamily Ornithogaloideae, which comprises \pm 300 species, has recently been the subject of extensive generic re-arrangements but the most modern classification of the subfamily recognizes four genera in three tribes: *Albuca* L. (tribe Albucaeae J.C.Manning & Goldblatt), *Ornithogalum* L. (tribe Ornithogaleae Rouy), *Pseudogaltonia* (Kuntze) Engl. and *Dipcadi* Medik. (tribe Dipcadiaceae Rouy) (Manning *et al.* 2009). The two largest genera are *Albuca* (\pm 100 spp.) and *Ornithogalum* (\pm 160 spp.), followed by *Dipcadi* (\pm 30 spp.) and *Pseudogaltonia*, which was until now monotypic, comprising *P. clavata* (Mast.) E.Phillips from the arid western parts of southern and south tropical Africa. *Pseudogaltonia* is distinguished in the subfamily by its large bulb with coarsely fibrous, reticulate outer tunics, flowers with a well-developed perianth tube and relatively short, triangular filaments inserted at the mouth of the tube, quadrate capsules with disciform seeds, and especially by well-developed bracteoles, which are solitary and inserted at the base of the pedicels (Manning *et al.* 2009). The presence or absence of bracteoles in the family is largely a generic character, and although encountered in subfamilies Oziroëoideae and Hyacinthoideae it is unique to *Pseudogaltonia* among Ornithogaloideae.

A collection of a robust plant from the Richtersveld made by Graham Williamson during the preparation of his book on the region (Williamson 2000) was identified as *Pseudogaltonia clavata*, and thus a major range extension for the species, but closer examination reveals a number of significant differences from typical *P. clavata*. The solitary flowering stem that was preserved is augmented by a clear photograph taken of the plant in the wild [Figure 8A, reproduced in Williamson (2000) as *Lindneria clavata*]. It clearly represents a novel taxon that is described here as the new species *P. liliiflora*, and is thus the second species known in the genus and another of numerous Hyacinthaceae that are endemic to the Gariiep Centre of Endemism (Van Wyk & Smith 2001).

***Pseudogaltonia liliiflora* J.C.Manning & Goldblatt**, sp. nov., a *P. clavata*, pedicellibus brevioribus 15–20 mm longis, floribus horizontaliter extensis, corollae sursum spectanti, tepalis anguste oblongis 15–17 \times 4 mm, filamentis 4 \times 1.2 mm, antheris patentibus \pm 5 mm longis, stylo recto \pm 20 mm longo differt.

TYPE.—Northern Cape, 2817 (Violsdrif): Richtersveld, Vandersterrberg, gorge of Oemsberg, (–AC), 25 April 1988, G. Williamson 3869 (NBG, holo.).

Bulbous geophyte up to 1.3 m tall. *Leaves* rosulate, erect, glaucous (*vide* Williamson 2000). *Inflorescence* many-flowered, congested, ovoid but elongating and becoming cylindrical in fruit; pedicels 15–20 mm long, spreading \pm horizontally in flower but suberect in fruit; bracts deflexed, lanceolate-attenuate, 20–30 \times 3–4 mm, membranous; bracteoles solitary, erect-spreading, lanceolate, 10–12 \times 1.5–2.0 mm. *Flowers* spreading \pm horizontally with mouth facing upwards, pale greenish white; perianth tube 15–25 mm long, slightly swollen basally, sharply upcurved apically, tepals narrowly oblong, 15–17 \times 4 mm, recurved. *Stamens* inserted in mouth, suberect; filaments triangular, 4 \times 1.2 mm, connate basally; anthers \pm 5 mm long, anthers and pollen greenish. *Ovary* ovoid, obtuse or truncate apically, narrowed basally, 13 \times 8 mm; style straight, \pm 20 mm long, white; stigma capitate, \pm 1.5 mm diam. *Capsules* and *seeds* unknown. *Flowering time*: April. Figures 8A, 9A & B.

Distribution and ecology: *Pseudogaltonia liliiflora* is known from two locations in the mountainous northern Richtersveld (Figure 10), where scattered colonies occur on rocky slopes in deep, steep-sided gorges. Plants are restricted to south-trending slopes which are shaded for much of the day. These gorges are often filled with mist during the winter months, which supplements the meagre annual rainfall in the region (Williamson 2000). The type collection was made from the upper reaches of the Gannakouriep River, on the lower southwestern slopes of the gorge between the Vandersterrberg and Tswaies Mountains but there is a sight record of a second population (G. Williamson pers. comm.) \pm 20 km southwest of this in the Doringpoort, which runs down from the western edge of the Ploegberg.

Diagnosis and relationships: *Pseudogaltonia liliiflora* resembles *P. clavata* in its robust, congested raceme of



FIGURE 8.—A, *Pseudogaltonia liliiflora*, Williamson 3869. Inflorescence. Photographer: G. Williamson. B, *P. clavata*. Photographer: J. Manning.

pale, greenish white, tubular flowers but differs sharply from it in the shape and orientation of the flowers, and in the much larger bracts and bracteoles (Figures 8A; 9A & B). The flowers of *P. liliiflora* spread \pm horizontally and are sharply upcurved at the tips (this is very evident in bud), with the mouth of the tube facing upwards. The

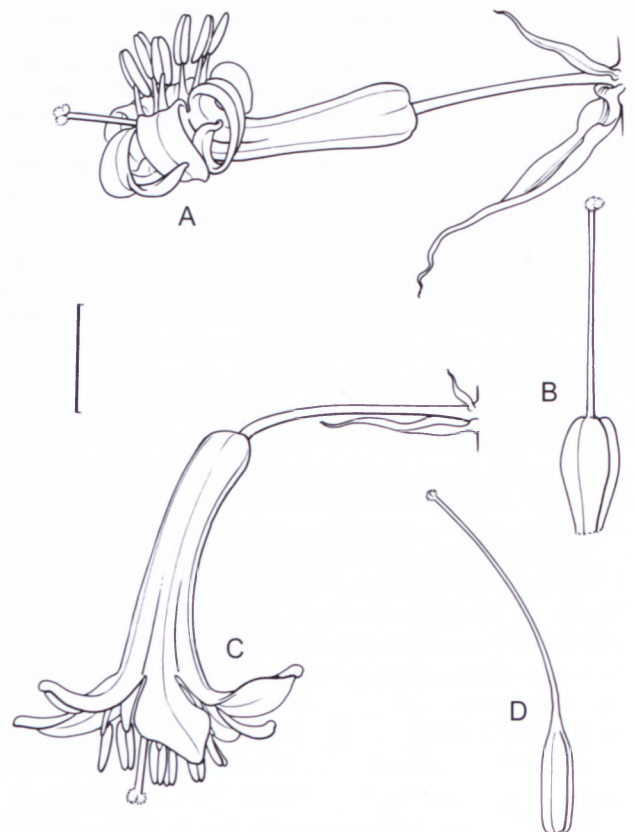


FIGURE 9.—*Pseudogaltonia liliiflora*, Williamson 3869: A, flower with bract and bracteole; B, gynoecium. *P. clavata*: C, flower with bract and bracteole; D, gynoecium. Scale bar: 10 mm. Artist: John Manning.

oblong tepals, $15-17 \times 4$ mm, recurve sharply back from the mouth of the tube to expose the filaments and style. The style is straight and thus projects horizontally from between the bases of the upward-pointing filaments. The large, conspicuous bracts, $20-30 \times 3-4$ mm, are longer than the pedicels and \pm twice as large as the bracteoles, with which they become entangled, almost obscuring the rachis. In contrast, the flowers of *P. clavata* are decurved in bud and distinctly nodding at maturity, with the perianth tube slightly downcurved so that the mouth faces directly downwards (Figures 8B; 9C & D). The elliptical tepals, $12-14 \times 5-6$ mm, are spreading or suberect and partially conceal the stamens, and the style, which is slightly longer ($25-30$ mm), is curved basally to follow the shape of the perianth tube, and thus projects directly downwards from the centre of the surrounding filaments. The bracts in *P. clavata* are significantly smaller than those in *P. liliiflora*, $10-15 \times 2-3$ mm, only half to three-quarters as long as the pedicels and spreading, and the bracteoles are also correspondingly smaller, $5-6 \times 1.5-2.0$ mm. There also seem to be differences between the two taxa in the shape of the ovary and fruit but mature material of *P. liliiflora* is required to assess this properly. The ovary and the immature fruit of *P. liliiflora* that we have been able to examine are obtuse or truncate apically, whereas the ovary in *P. clavata* narrows imperceptibly into the style, and the developing and mature fruits are distinctly apiculate.

The two species are geographically and ecologically distinct, with *Pseudogaltonia liliiflora* confined to rocky

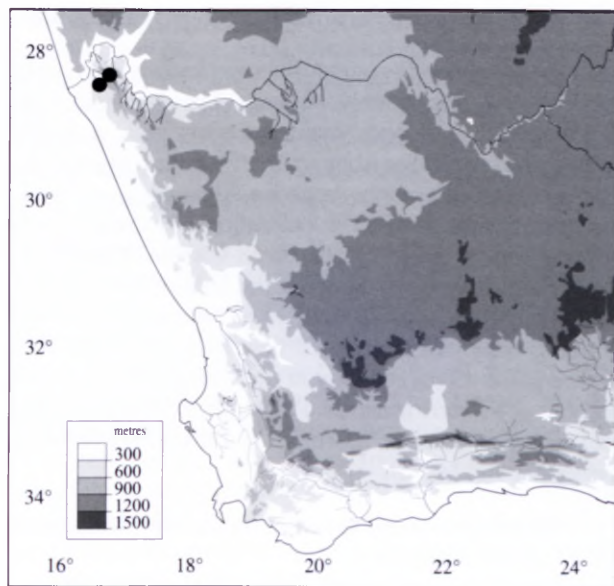


FIGURE 10.—Known distribution of *Pseudogaltonia liliiflora*.

gorges in the Richtersveld, in the winter rainfall part of the region, in contrast to *P. clavata*, which is widespread from Angola through the summer rainfall parts of Namibia and the western parts of Botswana and South Africa, where it occurs in drier savanna on sandy and calcareous flats or near dry rivers and pans (Van Rooyen 2001; Figueiredo & Smith 2008).

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