

A new species of *Polyxena* (Hyacinthaceae, tribe Massonieae) from Komsberg, Northern Cape Province

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Polyxena longituba AM vd Merwe, from Komsberg in the Northern Cape Province is described as a new species. It resembles *P. corymbosa* (L.) Jessop, with regard to

flower shape and colour but is distinguished by its long perianth tube and involute, canaliculate leaves. The flowers close at night and the species is self-pollinating.

Introduction

Polyxena Kunth was regarded by Jessop (1976) as comprising only two species, *P. corymbosa* (L.) Jessop and *P. ensifolia* (Thunb.) Schönl. *P. corymbosa* was originally described as *Hyacinthus corymbosus* L. but was considered by Jessop (1976) as a *Polyxena* because of the similarities in floral characters with other *Polyxena* species from the Cape and the extreme isolation of the Cape *Hyacinthus* species from the rest of the genus in the northern hemisphere. Jessop (1976) also included *Hyacinthus paucifolius* Barker in the synonymy of *P. corymbosa*. At the same time Jessop (1976) placed all the other *Polyxena* species ever described (including *P. pygmaea* (Jacq.) Kunth) into synonymy under *P. ensifolia*, effectively recognising only two *Polyxena* species. Müller-Doblies and Müller-Doblies (1997) reinstated the genus *Periboea* Kunth and by this also reinstated *Periboea corymbosa* (L.) Kunth, but they failed to give adequate explanation to support their reasoning. Preliminary results of the DNA analysis reveal a close relationship between *P. longituba* AM vd Merwe and *P. ensifolia*, but there are clear differences with regard to leaf and flower morphology. Although Van der Merwe (1998), in a preliminary report on the revision of the genus, distinguished four South African species of *Polyxena*, a final decision on the status of the taxa will be made when all the results on the morphology and DNA are available.

The genus *Polyxena* is restricted to southern Africa and occurs mostly in the Northern Cape. This paper deals with a new species endemic to the Komsberg area in the Northern Cape. *P. longituba* was first collected in 1997 by GC Summerfield who thought it to be an already known species, but in May 1998, when JC Manning found it in flower he realised that it was probably an undescribed species and brought it to the attention of the first author.

Polyxena longituba AM vd Merwe, sp. nov., *P. corymbosae* similis sed perianthio longiore (15–25mm) petalis recurvis, foliis canaliculatis differt et a *P. ensifolia* perianthio perbreuiore (ca. 12mm), foliis ovato-ellipticis differt.

TYPE — Northern Cape Province, 3220 (Sutherland): 5 km N of Komsberg Pass summit (-DB), Manning 2165 (NBG, holo.)

Bulb: globose or ovoid, ca. 15mm in diameter. *Leaves* 2, sometimes 3, erect or prostrate, narrowly lanceolate, acuminate, canaliculate, dark green, slightly fleshy, glabrous with cartilaginous, ciliate margins, 30–70 x 2–6mm. *Inflorescence*: subcorymbose, 1–5 flowered, flowers borne at base of leaves; scape short, enfolded by leaves; bracts minute or obsolete. *Pedicels* 2–4mm long, elongating slightly in fruit. *Flowers* funnel-shaped, white to lilac, with a darker median stripe abaxially on each perianth segment; perianth tube 15–25mm long; 6 perianth segments, 10–15mm long, narrowly oblong-lanceolate, slightly involute, acuminate, recurved and becoming more so with age. *Stamens* 6, fused with tepals for the length of the perianth tube then filaments becoming free, distinctly biseriate, free portions of inner whorl filaments 3–5mm long, one third of the length of the perianth segments, free portions of outer whorl filaments 5–7.5mm long, up to half the length of the perianth segments, anthers dorsifixed, 1mm long, yellow. *Ovary*: ovoid, 3–5mm long. *Style* slender, up to 20mm long, reaching the mouth of the tube. *Stigma* capitate. *Capsule* loculicidal, trilobed, ca. 15mm long, seeds ellipsoid, black (Figures 1 and 2).

Diagnostic features and affinities

P. longituba is characterised by the long perianth tube (hence the epithet), the recurved tepals and canaliculate dark green leaves (Figure 2). It is similar to *P. corymbosa* in flower shape and colour, as well as in leaf shape, however the perianth tube of *P. longituba* is always much longer (15–25mm) than that of *P. corymbosa* (3–6mm) and the leaves much more canaliculate. The habitat of the two species is also very similar in that *P. corymbosa* also occurs in damp, moist areas, although it is restricted to the Western

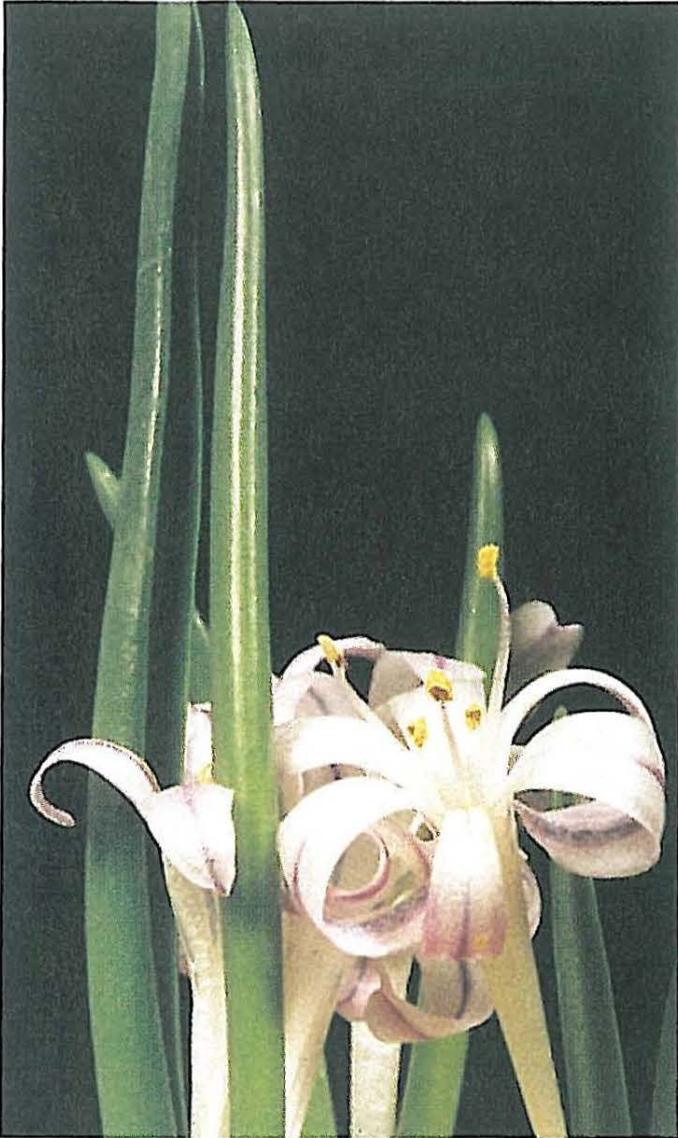


Figure 1: Flowering plant of *Polyxena longituba*

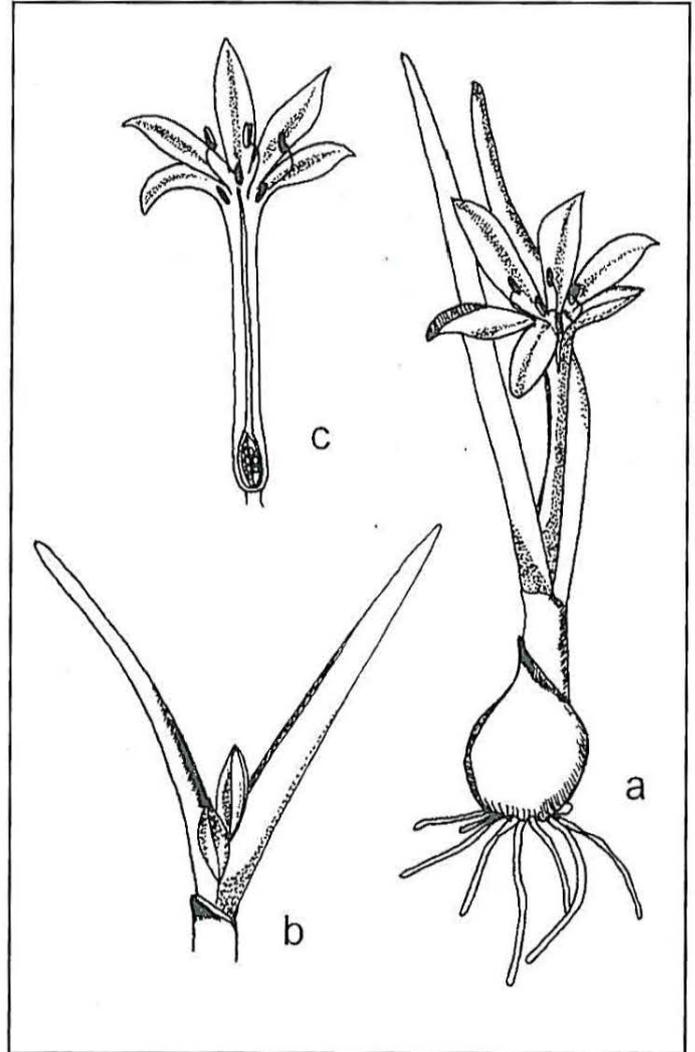


Figure 2: *Polyxena longituba* (a) mature plant; (b) plant with buds; (c) longitudinal section of the flower. Magnification = 1.5x original

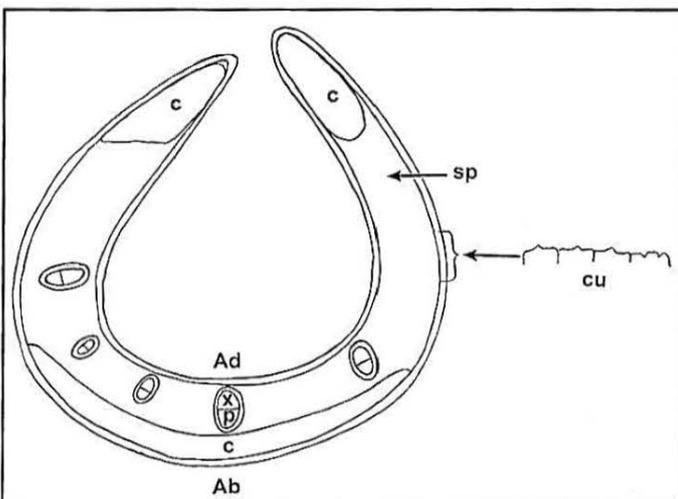


Figure 3: Transverse section of mature leaf; ad = adaxial surface; ab = abaxial surface; sp = spongy parenchyma; c = collenchyma; cu = cuticle; x = xylem; p = phloem

Cape. *P. longituba* differs from *P. ensifolia* in that the former has narrowly lanceolate, canaliculate leaves and the latter has ovate-elliptical leaves with acute apices. The flowers of *P. ensifolia* are much smaller with shorter perianth tubes (ca. 12mm) than those of *P. longituba* (15–25mm). When growing in direct sunlight the leaves of *P. longituba* are prostrate but when grown in shade or semi-shade they are erect. The canaliculate leaves with their involute margins collect the condensed water on the leaves and let it run down the leaf channel towards the base of the plant. Leaves are amphistomatic with thick waxy cuticles. Vascular bundles are surrounded by parenchymatous bundle sheaths. The mesophyll consists of spongy parenchyma and abaxially three cell layers of collenchymatic parenchyma in the central part of the leaf, and collenchymatic ridges along the margins, hence the cartilaginous margins (Figure 3).

Distribution and habitat ecology

P. longituba occurs abundantly, but localised in the Komsberg area in the Northern Cape (Figure 4), growing in damp lower lying areas. Two separate populations are

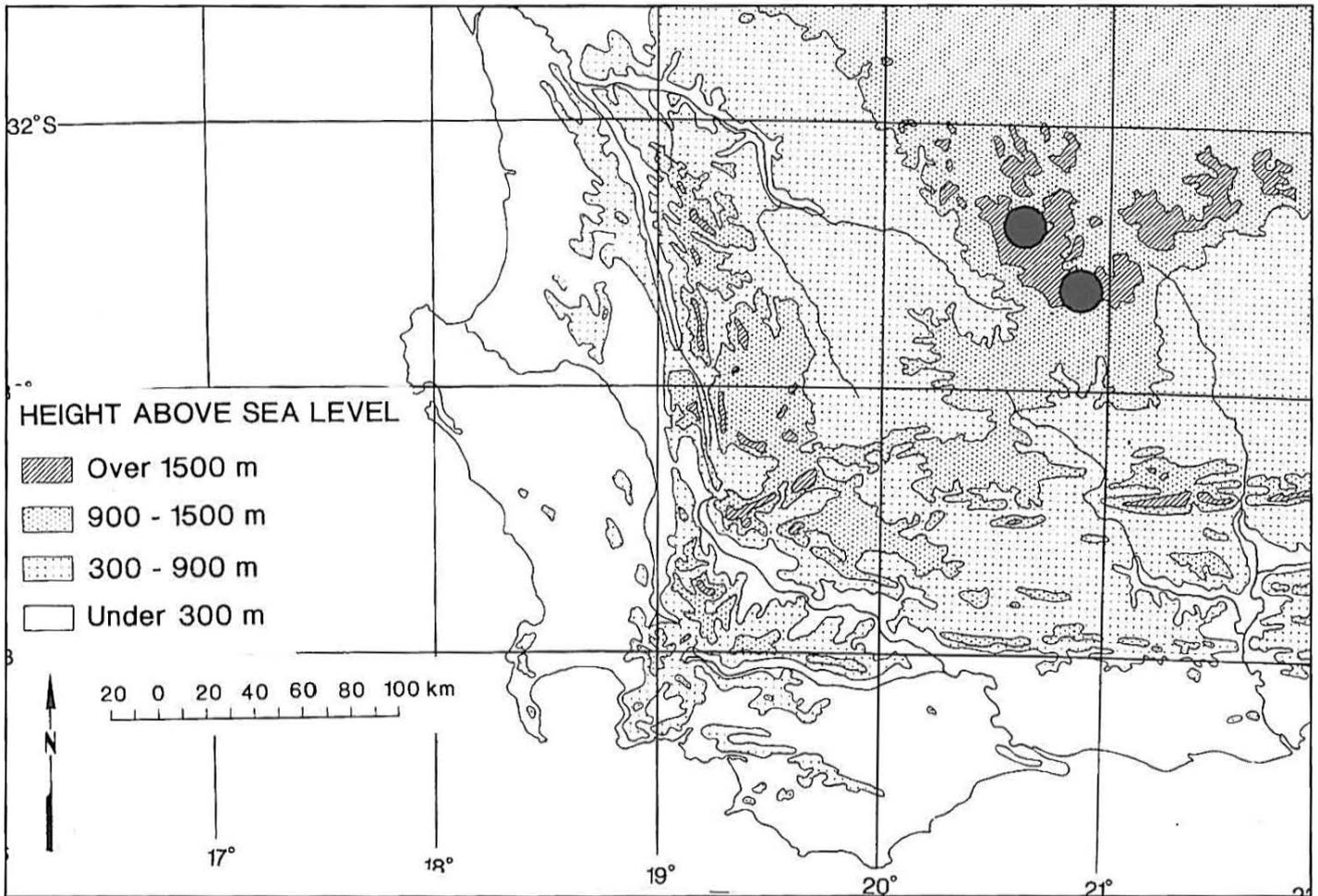


Figure 4: Distribution of *Polyxena longituba*.

known. The plants of the one population were meagre with off-white to very pale pink flowers. They were growing in a damp muddy area which receives seasonal run-off from the road reserve. The plants of the other population were more sturdy with lilac flowers and were growing in a wet vlei amongst marsh grass. The roots of the grass form a matting beneath the surface, ensuring a wet soil bed. The roots of *P. longituba* splay out beneath the grass roots. Flowering time lasts from late April to May depending on rainfall. The flowers emit a sweet rather yeasty scent and close at night. Notwithstanding the scent of the flowers, they seem to be self-pollinated. The peduncles elongate during seed ripening. Capsules open at the apices and seeds are shed in late September. Seed dispersal depends on water as rivulets carry the seeds away from the mother plants. Growth from seed to flowering seems slow. Under optimum conditions of continuous moisture in cultivation, plants remain evergreen and flower twice a year (April to May and again in October). However, under dry or seasonal conditions in the wild, the leaves turn brown and die. A visit during the relatively dry winter of 1999 still showed large populations of green plants, but this time very small plants.

Material studied

Northern Cape Province, 3220 (Sutherland); 3.5km S of Sutherland (-BC), *Manning* 2163 (NBG); 5km N of Komsberg Pass summit (-DB), *Manning* 2165 (NBG).

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