

## HYACINTHACEAE

### *ORNITHOGALUM JUNCIFOLIUM* VAR. *EMSII*, A NEW CLIFF-DWELLING *ORNITHOGALUM* FROM EASTERN CAPE, SOUTH AFRICA

#### INTRODUCTION

The bulbous genus *Ornithogalum* L. consists of 200 species of which  $\pm 108$  are confined to South Africa and

particularly to the Cape Floristic Region (Obermeyer 1973; Manning & Goldblatt 2003). Recent field studies on cliffs associated with dry river valleys revealed several plant taxa new to science (Van Jaarsveld & Van Wyk



FIGURE 8.—*Ornithogalum juncifolium* var. *emsii*,  $\times 1$ , showing basal vegetative bulbils. Artist: Lisa Strachan.

1999, 2003; Van Jaarsveld 2003). Among these, a new variety of *Ornithogalum juncifolium* was collected and is described in the present paper.

Whereas many bulbous plants grow opportunistically on cliffs, *O. juncifolium* var. *emsii* is encountered only in this type of habitat and appears to be an obligate cremno-phyte (*cremno* is derived from the Greek for cliff and *phyton* means plant). Owing to the vertical orientation of cliffs, water run-off is extreme, resulting in a mostly very dry habitat with succulents often a conspicuous feature on precipices in South Africa.

***Ornithogalum juncifolium* Jacq. var. *emsii* Van Jaarsv. & A.E. van Wyk., var. nov.**, a var. typica tepalis 10–12 mm longis, bulbillis e basi dense proliferantibus et florescentia medio aestate (mense Decembri) differt.

TYPE.—Eastern Cape, 3326 (Grahamstown): cliffs overlooking the Koonap River, near the Koonap Reserve, (–BA), 08-10-2002, Van Jaarsveld & Ems 16808 (NBG, holo.).

Plants bulbous, epigeous and forming round clusters up to 100 mm diam. and consisting of many bulbs and bulbils. *Bulbs* globose, 15–20 mm diam. and high; tunics grey, papery and exposing green live tissue; basal part of bulb continuously proliferating, forming many ovate to rounded bulbils, up to 5 mm in diam.. *Leaves* 2 or 3, synantherous, linear, half-terete, 95–150  $\times$  1.5 mm, apex acute, dark green; adaxial surface shallowly canaliculate; abaxial surface rounded; base sheathing, tubular with short membranous neck, 5–8  $\times$  2–3 mm; margin minutely ciliolate. *Raceme* 100–200 mm long, 8–12-flowered; scape terete, erect; bracts deltoid-cuspidate, auriculate, up to 6  $\times$  2 mm; pedicel up to 4–5 mm long, lengthening up to 6–7 mm in fruit. *Perianth* stellate, white, up to 20–24 mm diam. *Tepals* linear-lanceolate, 3 inner 10–12  $\times$  3.0–3.5 mm, white with green median stripe. *Stamens* 5 mm long; outer filaments flattened, linear-acuminate, 1 mm diam. at base; inner filaments shorter, ovate-triangular, up to 1.5 mm long; anthers 0.8 mm long, yellow. *Ovary* ovate, 3  $\times$  2 mm, green, shortly stipitate; style erect, 4 mm long; stigma capitate. *Capsule* ovoid, 5–7  $\times$  3–4 mm. *Seeds* triangular-ovate, 1.5  $\times$  0.8 mm, black, denticulate, 24 per capsule. Figure 8.

*Phenology*: flowering mainly from early December to January (summer). Seeds are dispersed by wind in summer and early autumn (October onwards).

*Diagnostic features and affinities*: *Ornithogalum juncifolium* var. *emsii* is at once distinguished from the typical variety by its proliferous production of bulbils at the base of the bulb and its flowering time which is from December to January. Var. *juncifolium* flowers from spring to early summer and has slightly smaller flowers (tepals 7–10 mm long) and does not have the dense basal proliferation of small bulbils.

*Distribution, habitat and cultivation*: *Ornithogalum juncifolium* var. *emsii* is known only from vertical south-facing shale cliffs of the Adelaide Subgroup, Beaufort Group, Karoo Supergroup, overlooking the Great Fish



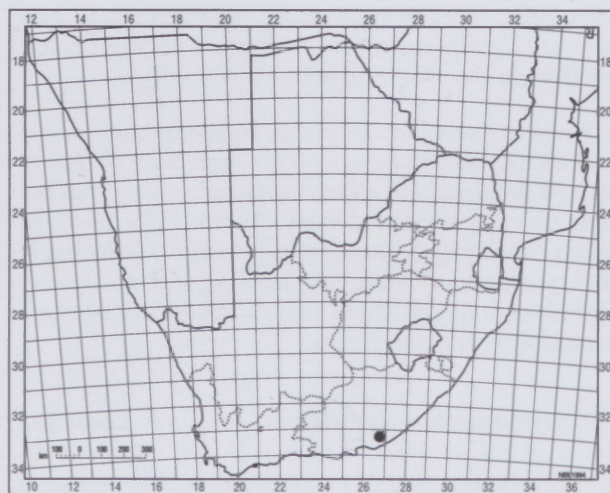


FIGURE 9.—Known distribution of *O. juncifolium* var. *emsii*, ●.

River (Figure 9). It grows sympatrically with *O. bolusia-num* and is also an Albany Centre endemic (Van Wyk & Smith 2001). On the other hand, var. *juncifolius* is widely distributed, ranging from the Western Cape northwards on or below the Great Escarpment to Gauteng and North-West.

Plants of var. *emsii* are locally common, consisting of small epigeous, globose clusters of green (photosynthetically active, though covered with dry, grey tunics) and two or three spreading, pendent, filiform leaves, an adaptation to shady cliffs. The prolific formation of basal bulbils results in a continuous release of vegetative propagules, enabling the plant to establish in adjacent rock crevices. It is often mat-forming and plants may completely fill a single crevice. This vegetative reproductive strategy has also been observed in other cliff-dwelling bulbous species such as *Cyrtanthus montanus*, *C. labiatus*, *C. inaequalis* and *Ornithogalum longibracteatum* (Van Jaarsveld & Van Wyk 2003).

The very thin, wiry leaves of *O. juncifolium* var. *emsii* are evergreen and bundled together at the base, allowing for maximum light penetration while also contributing to photosynthesis. The spreading leaves sometimes become pendent with age. The bulbs are also enveloped in grey tunics which probably serve to block excessive light and

to reduce transpiration. Plants are long-lived with the dry leaves persistent, withering from the base. The black, angled, light seeds are shaken from the capsules and are wind-dispersed in summer.

Plants are easily grown by bulbils and thrive in cultivation.

**Etymology:** the specific epithet *emsii* is named after Paul Ems, horticulturist and botany student who first spotted the plants, in recognition of his assistance in the field.

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