

Short communication

# *Pelargonium elandsmontanum* (Geraniaceae: section *Hoarea*), a new species from the Western Cape Province, South Africa

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## Abstract

The new species *Pelargonium elandsmontanum* is a local endemic from Elandsberg Nature Reserve near Malmesbury in the Western Cape Province, South Africa. One of six species of sect. *Hoarea* with just the posterior two petals developed, it resembles *P. ternifolium* in its trifoliolate leaves and pink petals but is distinguished from that species by the short, stout petioles, rhombic, acute leaflets with the upper surface glabrous or with spreading hairs (vs cuneate, apically incised leaflets with both surfaces adpressed-hairy), and five (vs four) fertile stamens.

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## 1. Introduction

*Pelargonium* L'Hérit., with ±250 species distributed throughout Africa and Madagascar into the Middle East and Australia (Vorster, 2000), has its centre of diversity in southwestern South Africa, where it constitutes the third largest genus in the Cape Floristic Region, where 148 species are currently recorded (Goldblatt and Manning, 2000).

The genus has been the subject of several partial taxonomic revisions, among them the recent review of section *Hoarea* (Sweet) DC. (Marais, 1994). *Hoarea* is the largest section in the genus, comprising 60 species of deciduous geophytes, often with markedly zygomorphic flowers. It is defined by the turnip- or carrot-shaped tubers with dark brown, peeling or flaking periderm, and the highly condensed stem with radical leaves (Marais, 1994). Vegetative and floral morphology is diverse. The section is strongly concentrated in the southern African winter rainfall region, with 50 of the species recorded from the Cape Floristic

Region (CFR) (Goldblatt and Manning, 2000). Most species are more or less markedly hysteroanthous, with the majority flowering in late spring and summer, August to December, as the leaves wither, but flowering in a few species is delayed until late summer or autumn, well after the leaves have withered (Craib, 2001).

The great majority of species have five petals, and only five species are currently known in which the perianth is reduced to just the posterior (upper) two petals. Four of these species are endemic to the CFR. A sixth, late autumn-flowering member of this group was recently collected from alluvial flats at the foot of the Elandsbloof Mountains east of Malmesbury in Western Cape by Dr L. Dreyer of Stellenbosch University, who was intrigued by the superficial similarity of its leaves to species of the genus *Oxalis* (Oxalidaceae) that she was collecting at the time. The name *P. elandsmontanum*, proposed for the species by Dr E.M. Marais, expert on the genus, after the only known locality, the Elandsberg Nature Reserve, is formalized here.

## 2. Materials and methods

The description and illustration were prepared from fresh material. Examination of herbarium collections at BOL, NBG,

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PRE and SAM, failed to reveal additional collections (herbarium acronyms after Holmgren et al. (1990)).

### 3. Species description

#### 3.1. *Pelargonium elandsmontanum* E.M.Marais ex J.C. Manning & Goldblatt, sp. nov.

Geophyta decidua 50–150 mm, foliis anthesin emergentibus 3 vel 4 usitate 3-digitatibus pinnis obovatis ad rhomboideis acutis 6–9×5–7 mm, glabribus vel hirsutis adaxialle sed dense appresso-pilis abaxiale, inflorescentia simplici vel 1-ramosa 1 vel 2 pseudo-umbelis ferrentibus eodem 3 vel 4 flora, hypanthio 8–10 mm longo glanduloso-piloso brevi scabriduloso pilo intermixto, petalis 2 superioribus pallide carneis atrovenosis spatulatis veins and red feather-like markings, spatulate, 12–14×4–6 mm, staminibus in columna±4 mm longa papillosa connatis, perfectis 5 exsertis lateralibus duobus 9–10 mm longis medianis 3 tribus 7–8 mm longis.

Type: South Africa, Western Cape, 3319 (Worcester): Bo-Hermon, Elandsberg Nature Reserve, moist alluvial flats, (–AC), 5 May 2009, Manning 3210 (NBG, holo.; MO, iso.).

Deciduous geophyte, 50–150 mm at flowering. *Tuber* turnip-shaped, 10–15 mm diam., with brownish grey, leathery, flaking outer skin. *Leaves* emergent at flowering, 3 or 4, petiolate; lamina cordate to orbicular in outline, mostly 3-digitate, rarely with 2 additional pinnules thus 5-digitate, pinnae obovate to rhomboid, acute, 6–9×5–7 mm, glabrous or hirsute adaxially with erect, silky hairs but densely appressed-hairy abaxially with white, falcate, subacute hairs; petioles 10–15 mm long, densely appressed strigose with thick, falcate, ± obtuse hairs 0.7–0.9 mm long intermixed with shorter, ± curly, acute hairs; stipules subulate, adnate to petioles with apices free. *Inflorescence* simple or 1-branched, bearing 1 or 2 pseudo-umbels with 3 or 4 flowers each; scape 15–50 mm long, 0.5–1.0 mm diam. at base, strigose with patent, acute hairs intermixed with smaller gland-tipped hairs; peduncles 35–70 mm long, sparsely strigose with vestiture similar to scape; bracts lanceolate, ±2×1 mm, adpressed strigose adaxially intermixed with smaller gland-tipped hairs. *Pedicel*±0.5 mm long. *Hypanthium* 8–10 mm long, purplish, glandular-hairy intermixed with scattered, short, scabridulous hairs. *Sepals* reflexed during anthesis, lanceolate, 7–8×1.5–1.8 mm, acute, purplish with white margins, adaxially sparsely or more densely strigulose with adpressed, acute hairs intermixed with smaller gland-tipped hairs. *Petals* two in posterior position, pale pink with darker veins and red feather-like markings, reflexed at ±90° above claw, spatulate, 12–14×4–6 mm, truncate or shallowly emarginate. *Androecium* staminal column±4 mm long, white to pink, papillate, perfect stamens 5, exserted, lateral two 9–10 mm long, median three 7–8 mm long, free filaments pink, papillate in basal half; staminodes minute, 0.3–0.5 mm long; anthers 1.5–2.0 mm long, wine-red, pollen orange. *Gynoecium* ovary 2.5–5.0 mm long; style 4–5 mm long, dark pink; stigma branches±1 mm long, wine red. *Fruit* bases of mericarps±5 mm long, without glandular hairs, tails 22–25 mm long. *Flowering time*: March to May (Fig. 1).

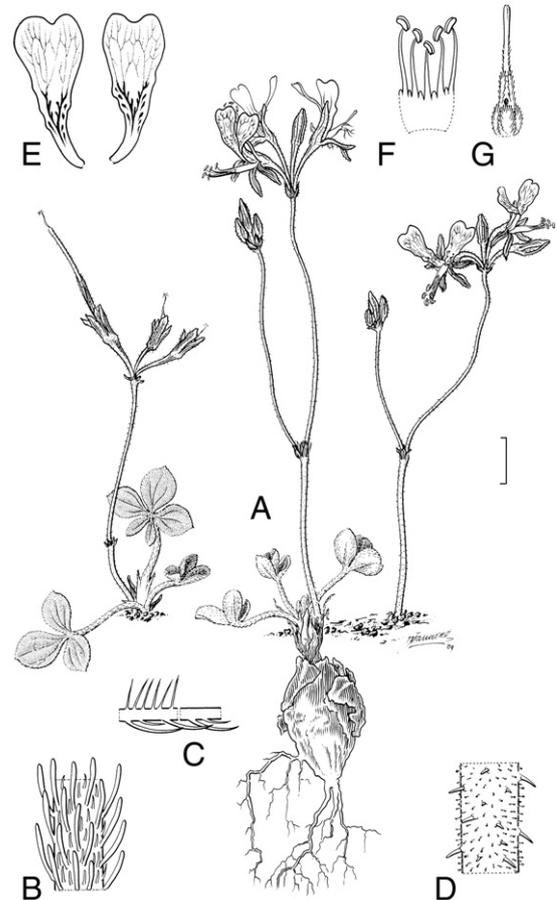


Fig. 1. *Pelargonium elandsmontanum*, Manning 3210 (NBG). (A) Flowering and fruiting plants; (B) detail of petiole vestiture; (C) detail of leaf blade vestiture (the form with pubescent upper surface on the left and the form with glabrous upper surface on the right); (D) detail of peduncle vestiture; (E) petals; (F) androecium; (G) gynoecium. Scale bar: (A) 10 mm; (B–D) 1 mm; (E–G), 5 mm. Artist: John C. Manning.

#### 3.2. Distribution and habitat

*P. elandsmontanum* is known only from Elandsberg Nature Reserve along the western foothills of the Elandsloof Mountains near Hermon (Fig. 2), which is restricted to

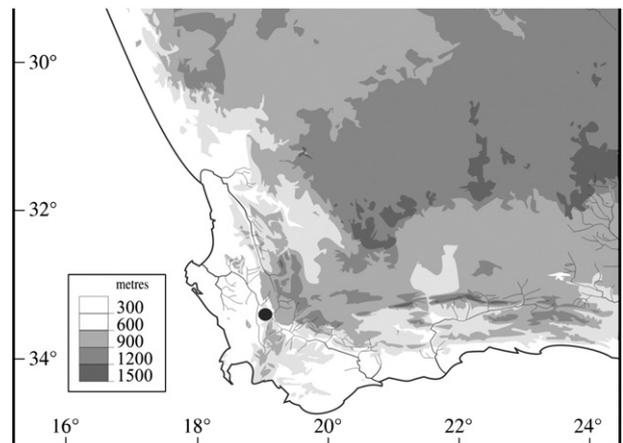


Fig. 2. Geographical distribution of *Pelargonium elandsmontanum*.

seasonally moist, alluvial flats in low, open Swartland Alluvium Fynbos vegetation (Mucina and Rutherford, 2006). Elandsberg Nature Reserve includes the largest remaining areas of this local and endangered community, which contains several local endemics that are restricted to it, some of which have only recently been described, notably *Brunsvigia elandsmontana* Snijman (Amaryllidaceae), *Marasmodes spinosa* S.Ortiz (Asteraceae) and *Lotononis complanata* B.-E.Van Wyk (Fabaceae).

### 3.3. Diagnosis and relationships

The relationships of *P. elandsmontanum* lie with the small group of species, centred around *P. dipetalum* L.Hérit., that is characterized by having only the upper two petals developed and by the papillate staminal column. Within the group, *P. elandsmontanum* is distinguished by its mostly trifoliolate leaves (rarely with two additional smaller lobes) that bear a remarkable superficial resemblance to certain species of *Oxalis*, and by its pale pink petals with darker veins and red, feather-like markings. Other members of the group mostly have either simple or pinnatisect leaves, and only *P. ternifolium* has similar, trifoliolate leaves and pink flowers, suggesting a probable relationship between the two. The two species differ in several details of their foliage and flowers.

*Pelargonium ternifolium* has characteristic wiry pedicels and obtusulate, apically incised leaflets with long, adpressed hairs on both surfaces, and the flowers have only four fertile stamens. In contrast, *P. elandsmontanum* has short, thick petioles and rhombic, acute leaflets with the hairs on the upper surface erect (or lacking), and flowers with five fertile stamens. Both species are restricted to the coastal forelands of the west coast, *P.*

*ternifolium* mostly on clay flats in renosterveld and flowering mainly earlier, from December to April. Of the two species, *P. ternifolium* is the more widespread, ranging from Mooresburg to Stellenbosch. Although *P. ternifolium* has been recorded from the properties immediately adjacent to Elandsberg Nature Reserve, notably Voëlvlei and Riebeek-Kasteel, it has not been collected from the Elandsberg Reserve itself, and the two taxa thus appear to be micro-ecogeographic analogues.

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