

Short communication

A rare new species of *Polhillia* (Genisteae, Fabaceae)

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Abstract

The new species *Polhillia ignota* Boatwr. is described. This species is known only from two collections, one between Vredenburg and Saldanha and the other close to Porterville. The new species is most similar to *P. obsoleta*, which is known only from a few localities around Worcester, in its narrow, sericeous leaflets and flowers of equal size, but differs in its flattened mature leaves with larger leaflets (up to ± 12 mm long), longer pseudo-peduncles (up to ± 15 mm long), denser inflorescences (with up to four flowers), shorter pedicels (1–2 mm long) and non-auriculate wing- and keel petals.
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1. Introduction

Lebeckia subgenus *Plecolobium* C.H.Stirton was erected by Stirton (1981) to accommodate the anomalous species *Lebeckia waltersii* C.H.Stirton (Stirton, 1981), but was later (Stirton, 1986) raised to generic level as the genus *Polhillia* C.H.Stirton. At this time it included four additional species, one transferred from the genus *Argyrobium* Eckl. and Zeyh., two new species and one undescribed species, listed as *Polhillia* sp. A, known from a single collection made by Hutchinson in 1928 at Hoedjies Bay, close to Saldanha on the West Coast of South Africa (Hutchinson 253; Hutchinson, 1946). Van Wyk and Schutte (1989) later transferred *Melolobium involucratum* (Thunb.) C.H.Stirton (now *Polhillia involucrata* (Thunb.) B.-E.Van Wyk and A.L.Schutte) and *Argyrobium brevicalyx* C.H.Stirton (now *Polhillia brevicalyx* (C.H. Stirton) B.-E.Van Wyk and A.L.Schutte) to *Polhillia*, bringing the total number of species to seven. Stirton (1981) initially included *Polhillia* sp. A under *Lebeckia waltersii* [now *Polhillia obsoleta* (Harv.) B.-E.Van Wyk], but subsequently considered it to be sufficiently different from *P. obsoleta* to be treated as a separate

species (Stirton, 1986). This taxon was never formally described, with the expectation that fruiting material would eventually become available, but no further collections have been made of this plant despite several efforts.

A specimen collected near Porterville and given to the Bolus herbarium in 1909 by Gwendolen Edwards, at that stage a teacher at Porterville (Gunn and Codd, 1981), was studied by Mrs H.M.L. Bolus (*née* Kensit) who allied the specimen to *Argyrobium obsoletum* Harv. (now *Polhillia obsoleta*), suggesting that it might represent a form of that species. This opinion was followed by Van Wyk (1992) but closer inspection reveals that the Edwards collection represents a second collection of *Polhillia* sp. A which, if the distribution data is correct, increases the distribution range of this new species significantly.

The genus *Polhillia* is endemic to the Western Cape Province of South Africa (Stirton, 1986; Van Wyk, 1992), and all species have highly localized distributions and are extremely rare. The six formally recognized species are all of Conservation Concern and listed in the Red Data List of South Africa (Raimondo et al., in press). They differ mainly from other closely related Genisteae in that they have sheathing stipules and elongated internodes below the inflorescences which form pseudo-peduncles (Van Wyk, 1992).

In this paper the rare *Polhillia* sp. A is formally described to facilitate indexing and inclusion of this species in conservation programs such as the Red Data List of South Africa and regional floras.

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2. Species treatment

Polhillia ignota Boatwr., sp. nov., *P. obsoleta* (Harv.) B.-E. Van Wyk similis sed ab ea foliis maturis complanatis majoribus (non conduplicatis minoribus) pseudopedunculo longiore, pedicellis brevioribus 1–2 mm longis (non 3–5 mm) inflorescentibus 2–4-floris (non pro parte maxima 1-floris) differt. TYPE.—South Africa, Western Cape Province, between Vredenburg and “Hoetjes” [Hoedjies] Bay [3317 BB], 5 September 1928, *Hutchinson 253* (K!, holo.).

Shrub up to ± 1 m in height. *Branches* greyish-brown, densely sericeous when young but glabrescent and old branches subglabrous. *Stipules* deltoid, 1.0–2.5 mm long, bifurcate, fused. *Leaves* digitately trifoliolate, sericeous; petioles shorter than leaflets, up to ± 2 mm long; juvenile leaflets conduplicate, mature leaflets flattened, elliptic to narrowly obovate, subsessile, margins slightly revolute, terminal leaflet 5–12 \times 1.5–2.5 mm, lateral leaflets

4–10 \times 0.5–2.5 mm, apiculate, base cuneate. *Inflorescence* terminal on short shoots, pseudo-pedunculate, up to ± 15 mm long, with (1) 2–4 flowers; pedicels 1–2 mm long; bracts linear, 1.0–1.5 mm long, pubescent, caducous; bracteoles absent. *Flowers* 9–12 mm long, yellow. *Calyx* ± 4 mm long, pubescent, 2-lipped, tube ± 3 mm long, upper two lobes fused, lower three lobes fused, deltoid, ± 1 mm long, tips minutely pubescent on inner surface. *Standard* 10–12 mm long, claw linear, 3–4 mm long, lamina broadly ovate, 7–8 \times 9–11 mm, emarginate, sericeous along dorsal midrib. *Wings* 9–11 mm long, claw 3–4 mm long, lamina oblong, \pm as long as keel, 6–7 \times 2–3 mm, obtuse, glabrous, with 3–4 rows of sculpturing. *Keel* 9–11 mm long, claw 4–5 mm long, lamina boat-shaped, 5–6 \times 2.5–3.0 mm, obtuse, pilose distally, pocket present. *Anthers* dimorphic, five long, basifixed anthers alternating with five short, ovate, dorsifixed anthers, carinal anther intermediate but resembling long, basifixed anthers. *Pistil* shortly stipitate, pubescent, ovary narrowly ovate, 7–8 \times ± 1 mm with 8–9 ovules; style ± 3 mm

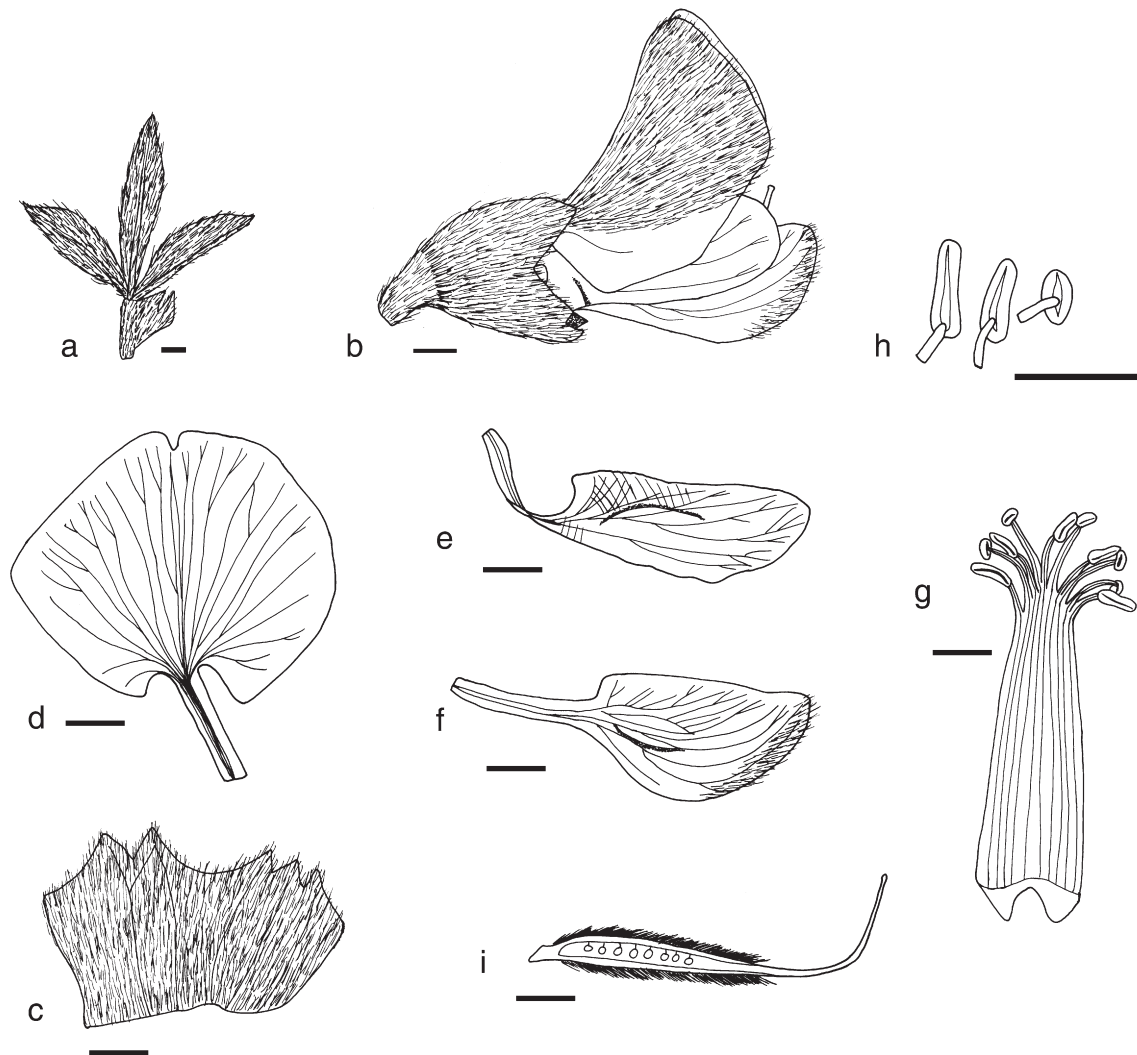


Fig. 1. Morphology of *Polhillia ignota*: (a) Leaf in abaxial view; (b) flower in lateral view; (c) outer surface of calyx (upper lobes to the left); (d) standard petal; (e) wing petal; (f) keel petal; (g) androecium; (h) long basifixed anther, carinal anther, short dorsifixed anther (from left to right); (i) pistil. Voucher specimen: (a–i) *Hutchinson 253* (K). Scale bars: all 1 mm.

long, curved upwards, glabrous. *Pods and seeds* unknown (Fig. 1). Flowering time: Spring (September).

3. Diagnostic characters and relationships

Polhillia ignota is most similar to *P. obsoleta* in the narrow, sericeous leaflets and similar sized flowers (9–12 mm long), but differs in its larger leaflets of up to 12 mm long that are flattened at maturity, longer pseudo-peduncle (up to ± 15 mm long), denser inflorescences (with up to four flowers, rarely one), shorter pedicels (1–2 mm long) and both the wing- and keel petals without prominent auricles. In *P. obsoleta* the leaflets are smaller (up to 10 mm long) and conduplicate, the pseudo-peduncles are shorter (up to ± 9 mm long) with less flowers (mostly single but may be up to three), the pedicels are longer (3–5 mm long) and both the wing- and keel petals have prominent auricles. It is also somewhat similar to *P. pallens* C.H.Stirton in the sericeous vegetative parts and narrow leaflets, but differs in the larger, non-conduplicate leaflets (5–6 mm in *P. pallens*), longer pseudo-peduncle (less than 5 mm long in *P. pallens*), denser inflorescences (mostly single-flowered in *P. pallens* but may be up to two) and the larger flowers (flowers 9–10 mm long in *P. pallens*). Both *P. obsoleta* and *P. pallens* have recurved leaflets, whereas in *P. ignota* the leaflets are straight. In *Polhillia* the fruit may be either plicate (*P. obsoleta*) or straight and constricted between the seeds (*P. brevicalyx*, *P. canescens* C.H.Stirton, *P. involucrata*, *P. pallens*). As the fruit of *P. ignota* is unknown, obtaining fruiting material is therefore important to clarify its affinity within the genus.

4. Distribution and habitat

Polhillia ignota is the only species of the genus known from the West Coast, where it has been collected between Vredenburg and Hoedjies Bay (Hutchinson, 1946) and less precisely from near Porterville (Fig. 2). The other species are highly localized around the Worcester, Bredasdorp, Riversdale and Calvinia areas (Stirton, 1986). The collection of *P. ignota* around Porterville suggests that it may have been more widely distributed, but due to the vague locality data of this collection a definite conclusion cannot be drawn. It is unclear what kind of vegetation *P. ignota* was collected in, but the vegetation of especially the Saldanha Peninsula is known to be fragmented and most of it has already been transformed for cultivation so that its conservation status is “endangered” (Rebello et al., 2006). The vegetation around Porterville is largely composed of Swartland Shale Renosterveld (FRs 9) which is “critically endangered” and $\pm 90\%$ has already been transformed for crop production (Rebello et al., 2006). Collectors are therefore urged to look out for this seemingly rare and clearly threatened (or even extinct) species.

4.1. Additional specimens examined

Precise locality unknown: close to Porterville (3318 BB), *Edwards s.n. sub BOL13438* (BOL).

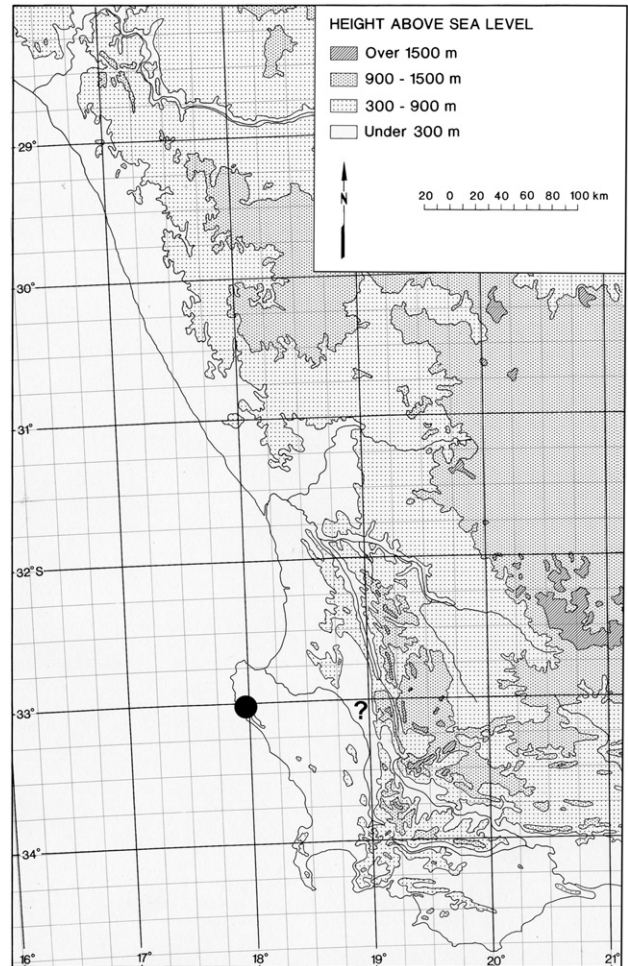


Fig. 2. Known geographical distribution of *Polhillia ignota*. The question mark indicates the uncertain collection close to Porterville.

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