

Research note

# The identity of *Lebeckia lotonoides* (Crotalariaeae, Fabaceae)

J.S. Boatwright\*, B.-E. Van Wyk

Department of Botany and Plant Biotechnology, University of Johannesburg, P.O. Box 524, Auckland Park 2006, South Africa

Received 28 February 2007; received in revised form 12 April 2007; accepted 19 April 2007

## Abstract

*Lebeckia lotonoides* Schltr. is a rare species of the Western Cape Province of South Africa. It is anomalous in the genus in its decumbent habit with buried stems and unique wing- to keel lamina ratio. Poorly collected, the species has been confused with *Lebeckia multiflora* E. Mey. Recent collections have increased our understanding of the taxon and provided insight into its sectional placement. The trifoliolate leaves with long petioles, pubescent standard petal, 5+4+1 anther arrangement, and semi-terete, thick-walled pods place *L. lotonoides* in section *Calobota* (Eckl. & Zeyh.) Benth. *L. lotonoides* differs from *L. multiflora* in its decumbent habit, wing- to keel lamina ratio of  $\pm 2:1$ , and rugose, spotted seeds.

© 2007 SAAB. Published by Elsevier B.V. All rights reserved.

**Keywords:** Crotalariaeae; Fabaceae; *Lebeckia lotonoides*; *Lebeckia multiflora*

## 1. Introduction

*Lebeckia* Thunb. is a genus of legumes, comprised of  $\pm 36$  species, that occurs in the southern and western parts of South Africa and Namibia. The last comprehensive revision of the genus was that of Harvey (1862), who followed the sectional classification proposed by Bentham (1844). Since then several new species have been described with some doubt as to their correct systematic placement within the genus. One such species is *Lebeckia lotonoides*, described by Schlechter (1900). Until recently this very rare species was known only from the type material. Recent collections as well as studies of plants in the wild have increased our understanding of the species, which has been confused with other species of *Lebeckia* such as *Lebeckia multiflora*. In this paper we give a complete description of the species, correct the spelling of its name, and provide notes on its distribution, habit and diagnostic characters.

## 2. Taxonomy

*Lebeckia lotonoides* Schltr. in Engl. Bot. Jahrb. 27: 143 (1900), as “*L. lotonoides*”; Germishuizen and Meyer, Plants of

Southern Africa: an annotated checklist, Strelitzia 14: 523 (2003), *pro parte, non* Goldblatt and Manning (2000). *Type:* South Africa, [Western Cape Province], “In regione namaquensi: In sabulosis montium Karree-Bergen, alt. c. 4500 ped.”, Schlechter 8214 (BM!, BOL!, K!, PRE!, S!, syn.).

[Note: In accordance with Art. 60 and Art. 61 of the Vienna Code ([www.ibot.sav.sk](http://www.ibot.sav.sk)), it is here formally proposed that the name *Lebeckia lotonoides* be regarded as a correctable, orthographic error and that *L. lotonoides* be accepted as the correct form of the name. Schlechter clearly intended to name the species after the genus *Lotononis* (DC.) Eckl. & Zeyh., with which it has a superficial similarity, as is evidenced by his handwritten labels on all the type specimens cited above. The inadvertent elision of a few letters has reduced Schlechter’s meaningful epithet to a jumble of nonsense syllables. It is easy to see that this tongue-twisting epithet could have been misspelt by a non-specialist copy-editor or typesetter. The Code recommends that “The liberty of correcting a name is to be used with reserve, especially if the change affects the first syllable and, above all, the first letter of the name” (Art. 60.3). In this case the change is deep within the word and has a minimal effect on indexing.]

Small, sericeous, multi-stemmed, decumbent perennial up to 0.5 m in height. Branches woody at base, often buried. Leaves digitately trifoliolate (rarely 5-digitate with two additional leaflets), secund, sericeous; leaflets elliptic to narrowly

\* Corresponding author.

E-mail address: [jsboatwright@hotmail.com](mailto:jsboatwright@hotmail.com) (J.S. Boatwright).

oblanceolate, conduplicate, subsessile, terminal leaflet 10–17 × 1.5–3.0 mm, lateral leaflets 8–14 × 1.5–3.0 mm, mucronate, base narrowly cuneate; petiole longer than leaflets, 10–23 mm long. *Stipules* absent. *Inflorescence* terminal, racemose, (15–) 24–54 mm long, with (3–) 4–14 flowers; pedicel 1–3 mm long; bract linear, 0.7–1.5 mm long, pubescent, caducous; bracteoles linear, 0.3–0.6 mm long, pubescent, caducous. *Flowers* 12–15 mm long, yellow. *Calyx* 5.0–6.5 mm long, pubescent, subequally lobed but upper sinus slightly deeper than lateral and lower sinuses, tube 3.0–3.5 mm long, lobes 2–

3 mm long, subulate, carinal lobe narrower than others, tips minutely pubescent on inner surface. *Standard* 13–16 mm long, claw linear, 4–7 mm long, lamina widely ovate to transversely oblong, 8–9 × 9.0–12.5 mm, emarginate, pilose along dorsal midrib. *Wings* 14–15 mm long, claw 3.0–4.5 mm long, lamina narrowly oblong, subfalcate, longer than keel, 11.5–15.0 × 2–4 mm, obtuse, glabrous, with 7–8 rows of sculpturing. *Keel* 9–11 mm long, claw 3–4 mm long, lamina semi-circular, 5.5–7.0 × 3.0–4.5 mm, obtuse, glabrous, pocket present, 1.5–3.0 mm long. *Anthers* dimorphic, four long, basifixed anthers alternating



Fig. 1. Morphology, habit and distribution of *Lebeckia lotononoides*: (a1–a3) leaves in abaxial view: (a1 and a2) trifoliolate leaves, (a3) 5-digitate leaf; (b1–b3) pods: (b1 and b2) lateral view (note the slightly clavate shape), (b3) dorsal view; (c1–c3) seeds in lateral view; (d1–d3) petals: (d1) standard petal (note the long, linear claw), (d2) wing petal (note the exceptionally long lamina length), (d3) keel petal; (e) flower in lateral view showing the long wing petals; (f) flowers of *L. lotononoides*; (g) decumbent habit of *L. lotononoides*; (h) known geographical distribution. Photographs taken by J.S. Boatwright at Roodeheuwel Farm. Voucher specimen: (a–d) Boatwright *et al.* 142 (JRAU). Scale bars: (a, b) 10 mm; (c) 1 mm; (d) 4 mm.

with five ovate, dorsifixed anthers, carinal anther intermediate in size and shape. *Pistil* subsessile to shortly stipitate, pubescent, ovary linear, 6.5–7.5 × 0.7–0.9 mm with 15–19 ovules; style 3.0–3.5 mm long, curved upwards, glabrous. *Pods* narrowly oblong, sometimes somewhat clavate, semi-terete, subsessile to shortly stipitate, 18–37 (–40) × 3–4 mm, 7–12-seeded, dehiscent. *Seeds* suborbicular, 2.0–2.5 × 1.5–2.0 mm, mature seeds brown with beige spots, hilum brown, surface rugose (Fig. 1). *Flowering time*: late winter to late spring.

### 3. Diagnostic characters

*L. lotononoides* superficially resembles broad-leaved forms of *L. multiflora*, notably some northern populations on the West Coast and around Clanwilliam. In these forms the leaflets are broad and sericeous much like those of *L. lotononoides*. However, *L. lotononoides* differs in its smaller, decumbent habit with buried stems and especially in the exceptionally long lamina of the wing petals, which is ± twice as long as those of the glabrous keel petals. The inflorescences are unarmed, and the sericeous pods contain spotted, rugose seeds. *Lebeckia multiflora*, in contrast, is an erect, divaricately branched shrub usually more than 1 m in height with inflorescences that often terminate in a spine; the wing petals are almost as long as or slightly longer than the pilose keel petals; the pods are pubescent; and the seeds are pale pink with a smooth surface.

The trifoliolate leaves with long petioles, pubescent standard petal, 5+4+1 anther arrangement, and semi-terete, thick-walled pods place *L. lotononoides* in section *Calobota* (Eckl. & Zeyh.) Benth.

The shape and relative size of the petals are most unusual in this species (Fig. 1d). Not only that the lamina of the wing petals is exceptionally long but also that the standard petal is strongly differentiated into a long, linear claw and a transversely oblong lamina. In other species of *Lebeckia* section *Calobota*, the wing petal laminae are never more than 1.3 times as long as the lamina of the keel petals, whereas in *L. lotononoides* these are almost twice the length of the keel lamina.

### 4. Distribution and habitat

*L. lotononoides* occurs on the west coast of South Africa around Hondeklipbaai and Brand se baai. The type collection

was made by Schlechter at “Karree-Bergen”, close to Nuwerus in the Vanrhynsdorp district according to Leistner and Morris (1976) (Fig. 1h). The species has been recorded on well-drained, sandy soils with the main stems becoming covered with sand. The multi-stemmed, decumbent habit (Fig. 1g) appears to be an adaptation to moving sand dunes, as extensive underground branches enable the plant to emerge above the sand after being covered.

#### 4.1. Additional specimens examined

–3017 (Hondeklipbaai): Farm Roodeheuvel, 9 km west of Nariep (–DC), Boatwright *et al.* 142 (JRAU), Perold 1646 (PRE).

–3117 (Lepelfontein): Vredendal, south-east of Brandsebaai, on Farm Hartebeestekom (–BD), Helme 2931 (NBG); Van Rhynsdorp/Vredendal, Brandsebaai (–BD), Van Rooyen 2235 (PRE).

–3118 (Vanrhynsdorp): Karree-Bergen (–AB), Schlechter *s.n.* sub TRV 1059 (PRE).

### Acknowledgments

Funding from the National Research Foundation (NRF) and University of Johannesburg are gratefully acknowledged. The authors would like to thank Mrs. B. van Zyl for kindly allowing us to collect specimens on the farm and for sending seed material for this study. Dr H.F. Glen is thanked for a useful discussion on the nomenclature of the species.

### References

- Bentham, G., 1844. Enumeration of Leguminosae indigenous to southern Asia and central and southern Africa. Hooker's London Journal of Botany 3, 355–363.
- Harvey, W.H., 1862. Leguminosae. In: Harvey, W.H., Sonder, O.W. (Eds.), Flora Capensis, vol. 2. Hodges, Smith, and Co., Dublin, pp. 82–89.
- Leistner, O.A., Morris, J.M., 1976. South African place names. Annals of the Cape Provincial Museums 12, 199.
- Schlechter, F.R., 1900. Plantae Schlechterianae novae vel minus cognitae describuntur vol. 2. Engler Botanische Jahrbücher 27, 143.