

INTRODUCTION

The section *Leobordea* (Del.) Benth. is geographically the most widespread section of *Lotononis* (DC.) Eckl. & Zeyh. *L. platycarpa* (Viv.) Pichi-Serm. occurs throughout Africa and eastwards to Pakistan but the other species of the section are all restricted to southern Africa.

Bentham (1843) listed the small sessile flowers, the sessile leaf-opposed inflorescences and the small carinal lobe of the calyx as diagnostic characters for the section, but also mentions the dichotomous branches. Detailed studies of the genus as a whole have shown that the length of the pedicels, the inflorescence structure and the calyx structure are rather variable, and that most of the diagnostic characters of *Leobordea* also occur sporadically in other sections. It is suggested here that the opposite arrangement of leaves on flowering branches is the only reliable character to distinguish *Leobordea* from other sections of *Lotononis*. In the section *Leptis* (Eckl. & Zeyh.) Benth., some leaves may occasionally be subopposite, but the leaves are not invariably opposite as in *Leobordea*. It is important to note that the distinction only applies to flowering nodes. Basal leaves that are formed during the vegetative phase are alternate (also in *Leobordea*). This is true for all species of *Lotononis* except *L. lenticula* (E. Mey.) Benth. (section *Oxydium* Benth.) where the basal nodes (but not the flowering nodes) have opposite leaves.

The new species described below provides an interesting example of convergence in *Leobordea*. Schreiber (1970) confused the species with the superficially similar *L. stipulosa* Bak. f. The many-flowered fascicles of the two species are remarkably similar in appearance due to the presence of large leaflike structures around the base of the inflorescences. In the new species, these are enlarged bracts and not enlarged stipules as in *L. stipulosa*.

***Lotononis bracteosa* B-E. van Wyk, sp. nov.** *L. stipulosae* Bak. f. valde affinis sed habitu minori, foliis basalibus oppositis (*L. stipulosa* foliis basalibus alternis), foliis minoribus, stipularum magnitudine formaque, quae oblongae vel ovatae ad  $5 \times 3$  mm sunt, inflorescentiam non tegentes (in *L. stipulosa* late cordatae, plerumque valde maiores quam  $5 \times 3$  mm, inflorescentiam tegentes), differt. Stipulae inflorescentiam subtendentes costam unicam, dum illae *L. stipulosae* venas plures e basi habent. Etiam bracteis 2–4 mm latis, late ellipticis vel obovatis (in *L. stipulosa* infra 2 mm latis, lanceolatis differt).

*L. stipulosa* Bak. f. sensu Schreib.: 85 (1970).

TYPE. — Namibia, Outjo District, mountains 14 miles [22,4 km] east of Torra Bay, *Giess, Volk & Bleissner 6198* (PRE, holo.; M, PRE, WIND, iso.).

Prostrate or procumbent herbaceous annual, often small and short-lived. All mature parts densely pubescent. *Leaves* trifoliolate, densely pubescent on both surfaces. *Leaflets* elliptic to oblanceolate, (4–)6–11(–16)  $\times$  (1,5–)2–4(–5) mm; base cuneate; apex acute. *Stipules* broadly oblong to ovate, up to  $5 \times 3$  mm. *Inflorescences* sessile, umbellate, (2–)5–8(–12)-flowered; bracts conspicuous, broadly elliptic to broadly obovate, 3–4  $\times$  2–4 mm; apex acute to obtuse, mucronate; base cuneate to cordate. *Flowers* sessile, 6–8 mm long. *Calyx* not inflated, densely pubescent, with the upper and lateral lobe on either side fused higher up in pairs, the lower lobe slightly narrower and shorter; lobes usually broadly acuminate. *Standard* ovate to oblong, usually shorter than the keel, densely pubescent. *Wing petals* oblong, not much shorter than the keel, pubescent along the lower edge of the lamina; apex obtuse to acute; sculpturing upper basal and upper left central, in 4 rows of intercostal lunae, fading into thin transcostal lamellae towards the auricle. *Keel petals* half oblong-elliptic to oblong, densely pubescent; apex obtuse. *Pods* sessile, scarcely longer than the persistent calyx, broadly obovoid to broadly oblong, only slightly inflated, upper suture  $\pm$  smooth,  $\pm$  8-seeded. *Seeds* suborbicular, testa minutely and densely tuberculate (Figure 9).

Closely related to *L. stipulosa* Bak. f. but differs in the smaller habit, the smaller leaflets and in the size and shape of the stipules, which are oblong to ovate, up to  $5 \times 3$  mm and not covering the inflorescence (broadly cordate, usually much more than  $5 \times 3$  mm and covering the inflorescences in *L. stipulosa*). The stipules subtending the inflorescences have a single midrib, whereas those of *L. stipulosa* have several veins from the base (Figure 9). It also differs in the 2–4 mm wide, broadly elliptic to obovate bracts (less than 2 mm wide and lanceolate in *L. stipulosa*). The bracts are visible and conspicuous, not hidden by the large and foliaceous stipules as in *L. stipulosa* (Figure 9). There is no vegetative phase as in *L. stipulosa*, where the basal parts of the branches are without inflorescences and the basal leaves alternate. In *L. bracteosa*, inflorescences are formed at the first nodes and the basal leaves are opposite.



FIGURE 9.—*Lotononis bracteosa*. A, habit. B1 & B2, leaves: B1, abaxial view; B2, adaxial view. C, calyx opened out with the upper lobes to the left. D1 & D2, standard petals: D1, abaxial view showing vestiture; D2, adaxial view. E, wing petal; F, keel petal. G1 & G2, pistils: G1, from young flower; G2, from older flower. H1 & H2, pods: H1, top view; H2, pod after dehiscence as viewed from inside, showing funicles. I1, I2 & I3, anthers: I1, small dorsifixed anther; I2, carinal anther; I3, long basifixed anther. J, androecium; K1 to K4, bracts, showing the broadly ovate shape; L, seed in lateral view showing the densely tuberculate surface. *Lotononis stipulosa*. M, leaf from flowering node showing the foliaceous stipules; N1 to N4, bracts, showing the lanceolate shape; O, calyx opened out with the upper lobes to the left. All from Giess, Volk & Bleissner 5772 except A from Giess, Volk & Bleissner 6198; B1, D2, G1, G2, T1 & T2 from Kers 1513; M, N4 & O from Miller 7748; N1 from Davies 715; N2 from Eyles 2020; N3 from Biegel 2923. Scales in mm.

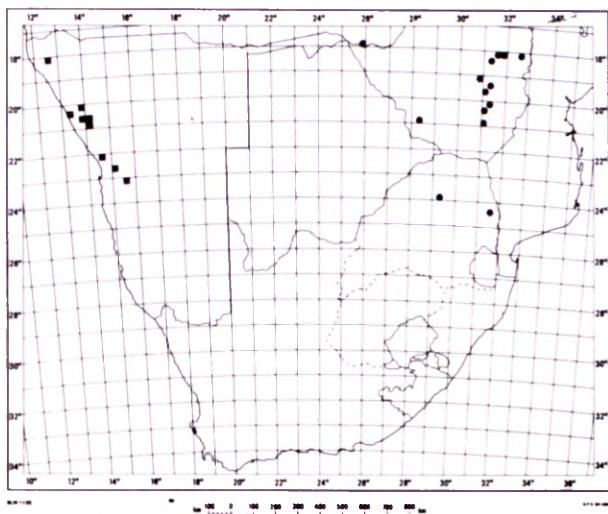


FIGURE 10.—The known geographical distribution of *Lotononis bracteosa*, ■; and *L. stipulosa*, ●.

*L. bracteosa* is known only from the north-western parts of Namibia, where it appears to be quite common. Figure 10 shows that *L. bracteosa* and *L. stipulosa* are geographically isolated and that the latter does not occur in Namibia.

SWA/NAMIBIA. —1812 (Sanitatas): Kaokoveld, river course 6 miles [9,6 km] south of Orupembe (–BA), *Giess & Leippert 7524* (M, NBG, PRE, WIND). 2013 (Unjab Mouth): Outjo District, mountain 14 miles [22,4 km] east of Torra Bay (–AD), *Giess, Volk & Bleissner 6198* (PRE, holo.; M, PRE, WIND, iso.); 23 km south-east of Torra Bay (–AD), *Giess 8020A* (WIND); ± 13 miles [20,8 km] east of Torra Bay (–AD),

*Ihlenfeldt, De Winter & Hardy 3229* (M, PRE); 27 miles [43,2 km] south-east of Torra Bay, at Koichab River (–AD), *Nordenstam 3795* (S); Farm Wêreld-End, 5 miles [8 km] west of house (–BB), *Giess, Volk & Bleissner 6208* (M, WIND); Farm Wêreld-End, on Petrified Forest to Torra Bay Road, at the coast (–BB), *Kers 1513* (WIND); Middle-Huab (–DB), *Müller & Loutit 1153* (WIND). 2014 (Welwitschia): Damaraland, just south of Twyfelfontein (–CA), *Craven 989* (WIND); Welwitschia, Gai-as (–CC), *Müller & Loutit 1248* (WIND). 2214 (Swakopmund): Swakopmund District, 22 miles [35,2 km] east of Hentiesbay (–BA), *Giess, Volk & Bleissner 5772* (M, WIND). 2215 (Trekkoepje): Swakop River, Welwitschia flat, along the track from Farm Nordenberg to Swakop River at Tsavischab (–CA), *Kers 8* (WIND). 2315 (Rostock): Walvis Bay District, Walvis Bay to Kuiseb River to Gamsberg Road, 20 miles [32 km] before the Gorob Mine track (–BA), *Kers 1287* (WIND); Namib Desert Park, Hotsas (–BA), *Müller 224* (M, WIND).

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