



## *Maerua sebrabergensis* (Capparaceae), a new species from Namibia

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### Abstract

*Maerua sebrabergensis*, here described as a new species, has a restricted range and is only known from the Zebra Mountains within the Kaokoveld Centre of Endemism, northwestern Namibia. Diagnostic characters for *M. sebrabergensis* include a geoxylic suffrutescent habit (rarely a small tree), simple, alternate leaves, petaliferous flowers with the disc not or only slightly produced and smooth, cylindrical, slightly torulose fruit. A comparison of some of the more prominent morphological features to differentiate between *M. sebrabergensis* and its possible nearest relative, *M. parvifolia*, are provided.

### Introduction

At present twelve described species of *Maerua* Forsskål (1775: 104) are recognized in the *Flora of southern Africa* region, six of which occur in Namibia (Germishuizen & Meyer 2003, Swanepoel 2006). One of these, *Maerua kaokoensis* Swanepoel (2006: 81), is endemic to the Kaokoveld Centre of Endemism, a biogeographical region rich in restricted-range plants and animals in northwestern Namibia and adjacent southwestern Angola (Van Wyk & Smith 2001, Swanepoel 2006). In this contribution, yet another new species of *Maerua* confined to the Kaokoveld Centre is described. During a botanical expedition to the remote Zebra Mountains in September 2012, the author encountered an unfamiliar *Maerua* with cylindrical, slightly torulose fruit and a habit ranging from a woody subshrub with shoots ascending from underground runners, to rarely with a ramet developing into a small tree. The plants were in flower, enabling the material to be collected on which this description is based. The new species seems to be closely related to *M. parvifolia* Pax in Engler (1894: 135) due to similarities in leaf and flower morphology. In the field (at least in southern Africa), however, *M. sebrabergensis* is quite distinct because of its thin stems arising from underground runners (Figure 1), a habit unlike that of any other member of *Maerua* in southern Africa. A study of the *Maerua* holdings in PRE and WIND revealed no earlier collections of the new species.

### Taxonomic treatment

*Maerua sebrabergensis* Swanepoel, *sp. nov.* (Figs. 1 & 2)

A geoxylic suffrutex ± 1 m tall (rarely up to 2 m tall) related to *M. parvifolia*, from which it differs in having branches that are not rigid (vs. rigid), not spinescent (vs. spinescent), with dark brown, reddish brown or grey bark (vs. white or grey bark), the leaves alternate (vs. alternate or fasciculate), the lamina usually larger, 8–110 × 3–55 mm (vs. smaller, 4–30 × 1–15 mm), narrowly obovate, oblanceolate, obcordate or elliptic (vs. obovate-oblong or oblong-elliptic), glabrous (vs. pubescent, papillose), the inflorescences few-flowered corymbose racemes (vs. flowers solitary or paired), the floral disc margin entire, sinuate or with concavities opposite petal bases (vs. entire or denticulate), the sepals and petals consistently 4 (vs. sepals 3–5, petals 0–4), stamens 46–66 (vs. 15–21) per flower, the ovary cylindrical (vs. ellipsoid), the fruit cylindrical, slightly torulose (vs. cylindrical, torulose or moniliform).

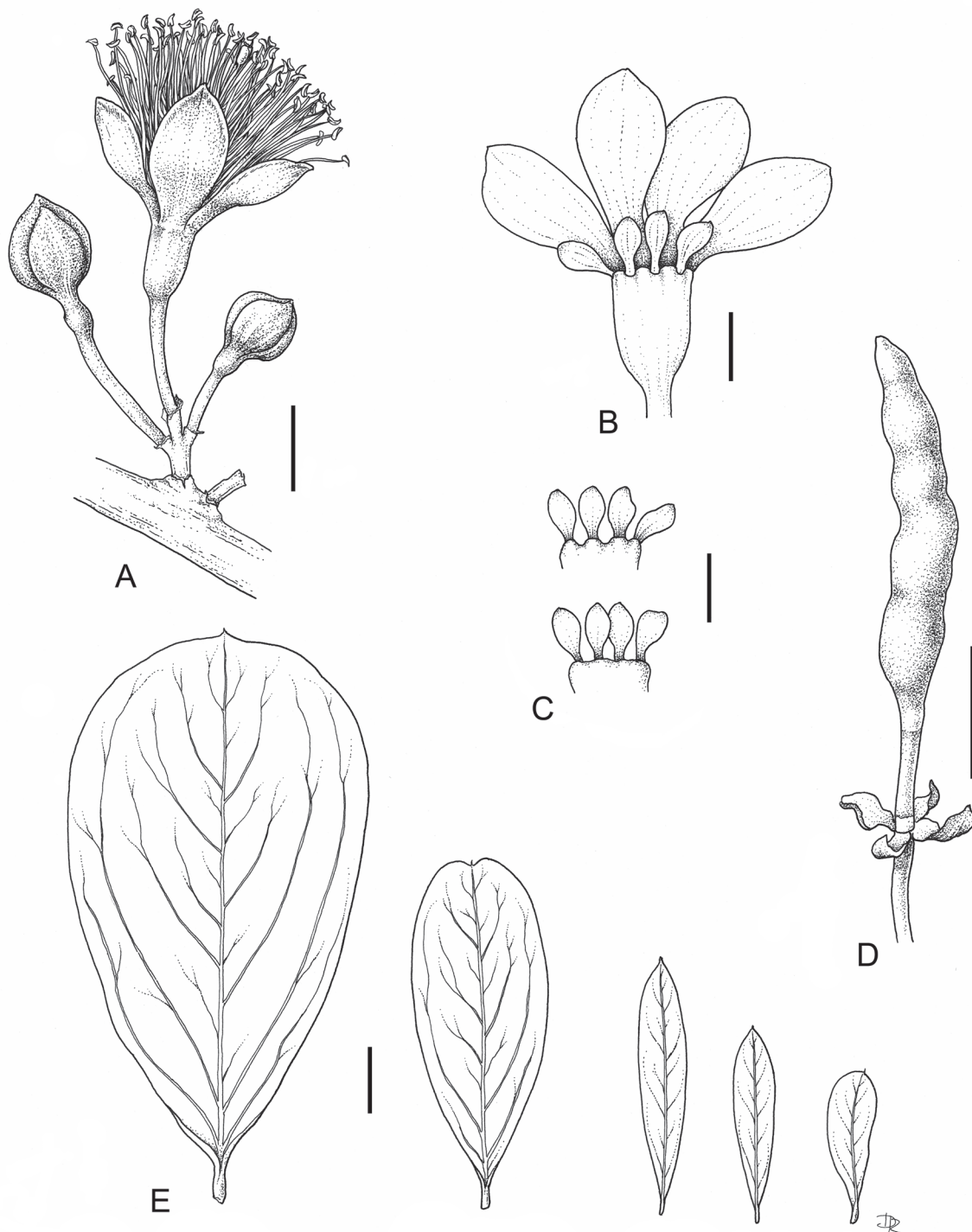
**Type**—NAMIBIA. Kunene Region: Zebra Mountains, 4 km northwest of Okaoraore, 1713BC, 1320 m, 30 September 2012, *Swanepoel 320* (holotype WIND!; isotype PRE!).





**FIGURE 1.** *M. sebrabergensis* in its natural habitat. A, clonal growth with several ramets in foreground, showing ascending shoots,  $\pm 0.7$  m tall; trees in background are *Acacia kirkii* Oliver (1871: 350). B, suffrutex showing flood-exposed runner. Photographs: W. Swanepoel.





**FIGURE 2.** *M. sebrabergensis*. A, flower; B, receptacle and disc; C, disc; D, fruit; E, leaves. Scale bar 3 mm (A–C) or 10 mm (D, E). All from *Swanepoel 320*. Artist: Daleen Roodt.

Woody subshrub with ascending shoots from underground runners (geoxylic suffrutex),  $\pm 1$  m tall, rarely a small tree up to 2 m tall. Trunk of ramets single, short, up to 30 cm long, 80–120 mm in diam., usually buried; stems 10–50 mm in diam. Bark on trunk smooth, khaki-coloured with reddish brown markings or dark to reddish brown; stems dark to reddish brown with numerous, small, whitish lenticels. Branches few, slender, not rigid, glabrous, dark to reddish brown or grey, with whitish lenticels, youngest khaki-green. Leaves simple, petiolate, alternate, glabrous, green; lamina narrowly obovate, elliptic, oblanceolate, or obcordate, (8–)25–70(–110)  $\times$  (3–)15–40(–55) mm (difference in size not related to position on shoot), coriaceous, apex obtuse, truncate or emarginate, mucronulate, margin entire, base

cuneate; midrib conspicuous abaxially, prominently raised especially abaxially, cream-yellow, lateral veins prominent, especially adaxially; petiole short, 2–6 mm long, channelled, cream-yellow, glabrous. Inflorescences few-flowered corymbose racemes, borne terminally or along stems; bracts leaf-like, early caducous, linear-oblongate, somewhat cucullate, green, glabrous or with short papillate hairs. Flowers pedicellate; pedicel glabrous or with short papillate hairs, 4–6 mm long. Receptacle cylindrical-infundibular, slender, 7–9 mm long, 2–3 mm wide at mouth, sometimes slightly flattened, slightly ribbed, glabrous or with short papillate hairs; disc not or scarcely produced, margin sinuate, entire or entire with concavities at base of petals. Sepals 4, elliptic, spreading, 8–11 × 4–5 mm, apex acute, navicular, mucronulate, green, glabrous or with short papillate hairs, margin woolly. Petals 4, obovate, clawed, apex acute or rounded, green, margin irregular towards apex, glabrous. Androphore extending to 0.5–2.0 mm beyond receptacle, 3.9–6.2 mm long. Stamens 46–66; filaments up to 13 mm long, white; anthers oblong, basifixed, 1.1–1.5 × 0.4–0.6 mm long. Gynophore 12.3–13.8 mm long, yellowish green. Ovary cylindrical, 1-chambered, 2.8–3.9 mm long, 0.9–1.1 mm diam., pale green; placentas 2, ovules 6–9 on each; stigma capitate, dark brown. Fruit narrowly cylindrical, slightly torulose, 16–45 mm long, 4–6 mm diam., faintly colliculate, glabrous, green to maroon-green when fully developed. Seeds not seen.

**Phenology:**—Flowers were recorded in September and October.

**TABLE 1.** Prominent morphological differences between *Maerua sebrabergensis* and *M. parvifolia*

Character	<i>M. sebrabergensis</i>	<i>M. parvifolia</i>
Habit	Woody subshrub with ascending shoots from underground runners, ± 1 m tall, or small tree up to 2 m tall	Spreading, virgate shrub 1–2 m tall (southern Africa) or woody herb with ascending shoots from underground runners or bushy shrub up to 5 m tall (tropical Africa)
Branches	Slender, not rigid, not spine-like	Slender, rigid, branchlets often spine-like
Leaf position	Alternate	Alternate or fasciculate
Leaf lamina	Narrowly obovate, oblanceolate, obcordate or elliptic, glabrous, 8–110 × 3–55 mm	Obovate, elliptic, obovate-oblong or oblong-elliptic, pubescent or subglabrous, papillose, 4–30 × 1–15 mm
Petiole	2–6 mm long	0.5–1.5 mm long
Inflorescences	Few-flowered corymbose racemes	Solitary or paired
Flower receptacle	Cylindric-infundibular, slender, 7–9 mm long	Cylindric-subcampanulate, 2–3.5 mm long
Floral disc	Entire, sinuate or with concavities opposite petal bases	Entire or denticulate
Number of sepals	4	3–5
Number of petals	4	0–4
Androphore	3.9–6.2 mm long	2.8–4.0 mm long
Number of stamens	46–66	15–24
Gynophore	12.3–13.8 mm long	8–15 mm long
Fruit	Cylindrical, slightly torulose; glabrous	Cylindrical, markedly torulose or moniliform; minutely puberulous or glabrous

**Distribution and habitat:**—At present *M. sebrabergensis* is only known from one valley in the botanically poorly explored Zebra Mountains, south of the Kunene River in northwestern Namibia (Fig. 3) where it is localized and rare. The species may, however, eventually prove to be more widespread in the Zebra Mountains as suitable habitat is not limited to the specific valley where it was found. *Maerua sebrabergensis* grows on heavy black clay (“cotton”) soil derived from weathered anorthosite of the Kunene Complex (Miller & Schalk 1980, Mendelsohn *et al.* 2002).

It occurs on a valley floor in *Colophospermum-Acacia* woodland in the upper part of the southern Zebra Mountains at elevations of 1310–1330 m, 195 km from the Atlantic Ocean. Average annual rainfall in the area is 250–300 mm (Mendelsohn *et al.* 2002).

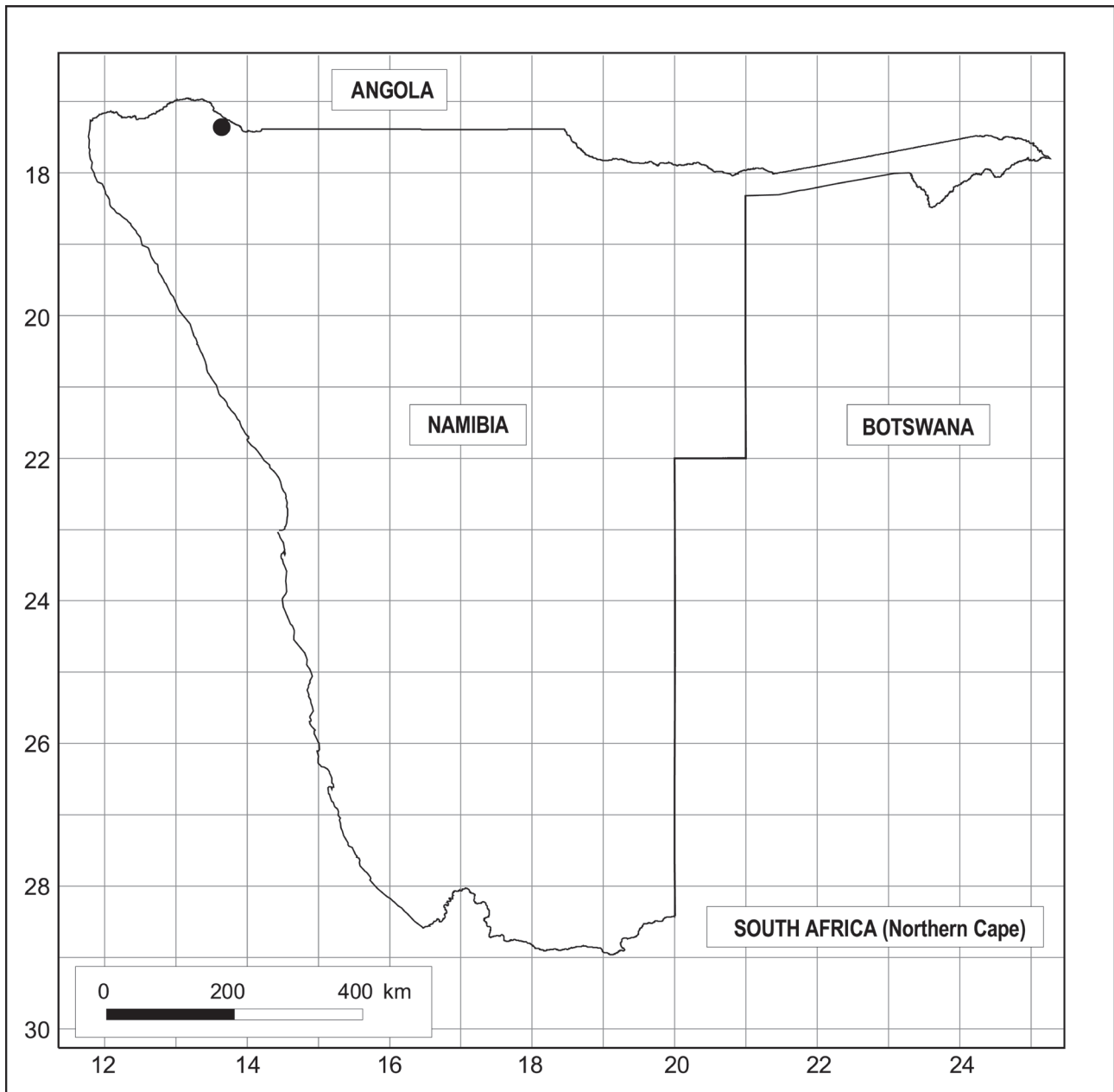


FIGURE 3. Known distribution of *M. sebrabergensis*.

**Conservation status:**—*Maerua sebrabergensis* is rare and localised with only 16 plants (clones) known from an uninhabited part of the Zebra Mountains. It should be considered as Critically Endangered (CR D) due to the small population size (IUCN 2012).

**Etymology:**—The specific epithet refers to the “Sebraberge” (Afrikaans for “Zebra Mountains”) in the Kaokoveld of northwestern Namibia, the type locality of the new species.

**Notes:**—*Maerua sebrabergensis* differs from *M. parvifolia* in habit as well as in leaf, flower and fruit characters. Plants of *M. sebrabergensis* in southern Africa are markedly different from *M. parvifolia* in being woody subshrubs with ascending shoots (ramets) from underground runners,  $\pm 1$  m tall, the ramets rarely developing into small trees up to 2 m tall with branches and branchlets slender and not rigid. *Maerua parvifolia* in southern Africa is a spreading, virgate shrub with slender rigid branches and the branchlets are often abbreviated and spinescent. In tropical Africa, however, *M. parvifolia* has also been described as a suffrutex with many ascending shoots from underground runners (Uganda, Kenya and Tanzania). Some of the more prominent morphological features to differentiate *M. sebrabergensis* and *M.*

*parvifolia* are compared in Table 1. Diagnostic features for *M. sebrabergensis* were determined through examination of fresh material and for *M. parvifolia* from both fresh and herbarium material and the literature (Wild 1960, Elffers *et al.* 1964, Killick 1969, 1970).

*Maerua sebrabergensis* can be confused with *M. juncea* Pax (1891: 302) subsp. *juncea* due to similarities in the fruit, especially in the Kaokoveld where it is often narrower than is typical for the subspecies (8–10 mm diam. instead of  $\pm$  20 mm diam.). The fruit in *M. sebrabergensis*, however, is even narrower (4–6 mm diam.) and the young branches is grey, dark or reddish brown with whitish lenticels instead of green and striated as in *M. juncea*.

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## References

- Elffers, J., Graham, R.A., Dewolf, G.P. & Hubbard, C.E. (1964) Capparidaceae. In: Hubbard, C.E. & Milne-Redhead, E. (Eds.) *Flora of tropical East Africa* 35. Crown Agents for Oversea Governments and Administrations, London, pp. 1–88.
- Engler, A. (1894) *Plantae Gürlichianae*. Ein Beitrag zur Kenntnis der Flora von Deutschsüdwestafrika. *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* 19: 128–152.
- Forsskål, P. (1775) *Flora Aegyptiaco-Arabica*. Möller, Hauniae (Copenhagen), 219 pp.
- Germishuizen, G. & Meyer, N.L. (Eds.) (2003) Plants of southern Africa: an annotated checklist. *Strelitzia* 14: 1–1231.
- IUCN (2012) *IUCN red list categories and criteria: Version 3.1. Second edition*. Gland, Switzerland and Cambridge, U.K., iv + 32 pp.
- Killick, D.J.B. (1969) The disc in the Southern African species of *Maerua*. *Bothalia* 10: 39–42.
- Killick, D.J.B. (1970) Capparaceae: *Maerua*. In: Codd, L., de Winter, B., Killick, D.J.B. & Rycroft, H.B. (Eds.) *Flora of southern Africa* 13. Department of Agricultural Technical Services, Pretoria, pp. 159–171.
- Mendelsohn, J., Jarvis, A., Roberts, C. & Robertson, T. (2002) *Atlas of Namibia*. Philip, Cape Town, 200 pp.
- Miller, R.McG. & Schalk, K.E.L. (1980) *Geological map of South West Africa/Namibia* (1:1000000). Geological Survey of the Republic of South Africa and South West Africa/Namibia, Windhoek, 4 sheets.
- Oliver, D. (1871) *Flora of Tropical Africa 2 (Leguminosae to Ficoideae)*. L. Reeve & Co., London, 613 pp.
- Pax, F.A. (1891) Capparidaceae africanae. *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* 14: 293–306.
- Swanepoel, W. (2006) *Maerua kaokoensis*, a new species from Namibia. *Bothalia* 36: 81–85.
- Van Wyk, A.E. & Smith, G.F. (2001) *Regions of floristic endemism in southern Africa: a review with emphasis on succulents*. Umdaus Press, Hatfield, Pretoria, 199 pp.
- Wild, H. (1960) Capparidaceae. In: Exell, A.W. & Wild, H. (Eds.) *Flora zambesiaca* 1. Crown Agents for Oversea Governments and Administrations, London, pp. 194–245.