

## CAPPARACEAE

*MAERUA KAOKOENSIS*, A NEW SPECIES FROM NAMIBIA

## INTRODUCTION

*Maerua kaokoensis* Swanepoel, a new species confined to the Kaokoveld Centre of Endemism (Van Wyk & Smith 2001), is described. During fieldwork for the Namibian Tree Atlas Project, the author encountered *Maerua* trees in the remote Okakora Mountains, Kaokoveld, with the peculiar habit of being tall, erect and extremely slender, with a few long, thin branchlets near the apex, all of which are distinctly drooping or pendulous. At a distance, the trees superficially resembled *Acacia robyniana* Merxm. & A.Schreib., a Kaokoveld endemic with a remarkably similar habit. Subsequently, another population of this *Maerua* was discovered in the Otjihipa Mountains further to the west where flowers and fruit were collected.

A study of the *Maerua* holdings in PRE and WIND revealed several earlier collections of the new species, all filed under *M. schinzii* Pax. When without flowers, herbarium specimens of *M. kaokoensis* can easily be mistaken for *M. schinzii* or *M. angolensis* DC. (Killick 1970). This resemblance is due to similarities in leaf and fruit morphology. In the field, however, *M. kaokoensis* is quite conspicuous due to its unusual weeping habit (Figure 15), which is unlike that of any other member of *Maerua* in southern Africa.

***Maerua kaokoensis* Swanepoel, sp. nov.**, *M. schinzii* Pax similis foliis nonnullis lamina elliptica, disco flori coronato, impariter laciniato, fructu moniliformi; sed caule pergracillimo, foliorum lamina non solum elliptica sed etiam oblanceolata, lanceolata, lineari-elliptica, lineari-oblonga vel oblonga, non solum flavoviridi sed etiam prasina vel atro-olivacea marronino-suffusa, coriacea vel chartacea, petiolo semper gracillimo, saepe longiori, margine disci semper cum fibrillis longis irregularibus; androphora filamentisque staminum longioribus, gynophora plerumque longiori, ovulis pluribus, tota semper glabra praeter sepalorum faciem adaxialem et sutura, Novembri usque ad Julio florenti differt.

TYPE.—Namibia, 1712 (Swartbooisdrif): Otjihipa Mountains, 8 km ESE of Otjinhungwa, 1 850 m, (–BC), 17-01-2005, Swanepoel 172 (WIND, holo.!, PRE, iso.!).

Slender tree up to 10 m tall. *Trunk* single or rarely with 2 or 3 stems from ground level, occasionally branching into 2 or 3 stems, erect and ± straight, extremely slender with no lateral branches except for few drooping or pendulous branches near apex, apex usually drooping; stems 20–40(–60) mm in diam. *Bark* smooth, pale ashy grey to reddish grey, with scattered, small indentations in places. *Branches* glabrous with numerous, scattered, small, whitish lenticels, young branches pale ashy grey, reddish brown or yellowish brown, new growth yellowish green or maroon. *Leaves* simple, petiolate, alternate, spirally arranged, drooping or pendulous, glabrous, yellowish green, green or dark olive-green with a maroon tinge, emitting audible clatter when flapping against each other in wind; lamina lanceolate, oblanceolate, narrowly elliptic to elliptic, linear-elliptic, linear-oblong or oblong,

(16–)25–60(–95) × (5–)7–17(–30) mm, apex acute or obtuse, rarely truncate or emarginate, mucronate, mucro small, up to 0.8 mm long, base cuneate or cuneate to rounded, rarely abruptly attenuate onto petiole, chartaceous to coriaceous; margin entire; midrib conspicuous and prominently raised abaxially, yellowish green or maroon; lateral veins 4–10, looping before margin, usually somewhat or often completely immersed abaxially; petiole very slender, (10–)21–43(–50) × 0.3–1.2 mm, often slightly swollen over basal part, channelled in basal part, yellowish green, reddish brown or maroon, glabrous. *Inflorescences* short corymbose racemes, borne terminally or on short lateral branches. *Flowers* pedicellate; pedicel glabrous, 4–13 mm long. *Receptacle* cylindrical, 9–13 mm long, 2–3 mm wide at mouth, slender, ribbed, glabrous; disc square in surface view, shortly coronate, solid basal portion 0.4–2.4 mm high, margin unequally lacinate with long, irregular fimbriae; fimbriae usually branched as well as irregularly curved and recurved, up to 2.6 mm long. *Sepals* 4, elliptic or spatulate, often somewhat cucullate, 9.8–14.5 × 4.0–5.7 mm, apex acute or obtuse, green, puberulous adaxially, glabrous abaxially, margin woolly. *Petals* absent. *Androphore* equal in length to receptacle, or extending to 1 mm below or 2.5 mm above its upper rim, 11–13 mm long. *Stamens* 32–42, pale yellowish green; filaments 18–35 mm long; anthers oblong, ovate-elliptic or narrowly elliptic, basifixed, 1.8–2.5 mm long. *Gynophore* 18–28 mm long, yellowish green. *Ovary* cylindrical, 4.8–7.1 × 0.9 mm, green; ovules 48–52; stigma capitate. *Fruit* moniliform, up to 180 × 5–8 mm, green, faintly colliculate. *Seeds* globose, 4–5 mm diam., testa thinly textured, rather fragile, faintly granulate, yellowish cream-coloured. *Flowering time*: November to July. Figures 15, 16.

*Diagnostic characters and affinities*: *Maerua kaokoensis* differs from *M. schinzii* and *M. angolensis* in habit as well as in leaf and flower characters. Plants of *M. kaokoensis* are markedly different from *M. schinzii* and *M. angolensis* in being extremely slender, yet tall, with only a few drooping or pendulous branches at the apex. Usually the apical part of the main stem (leader shoot) also droops. Trees of *M. schinzii* and *M. angolensis* have a thick stem(s), which branches repeatedly to form a distinct, rounded crown.

The leaf lamina of *Maerua kaokoensis* is lanceolate, narrowly elliptic to elliptic, linear-elliptic, linear-oblong, oblong or oblanceolate, with 4–10 lateral veins on each side of the midrib. In *M. schinzii* the lamina is elliptic to broadly elliptic or ovate to narrowly ovate with only 4 or 5 lateral veins on each side. In the *Flora of southern Africa* [FSA] region, *M. angolensis* has the lamina elliptic, ovate, or obovate, also with only 4 or 5 lateral veins on each side. Outside the FSA region, *M. angolensis* has leaves, in addition to those mentioned, with lamina lanceolate, ovate-lanceolate, linear-lanceolate or suborbicular, with 5 or 6 lateral veins on each side. Furthermore, the lamina in *M. kaokoensis* is coriaceous to chartaceous, whereas in *M. schinzii* it is coriaceous only and in *M. angolensis* softly chartaceous only, although outside the





FIGURE 15.—*M. kaokoensis* in its natural habitat: A,  $\pm 5$  m tall; B,  $\pm 7$  m tall.

FSA region, *M. angolensis* can be coriaceous too. The petiole of *M. kaokoensis* is conspicuously slender, up to 50 mm long, whereas in *M. schinzii* and *M. angolensis* it is thicker, much more sturdy and up to 30 mm long. The leaf lamina of *Welwitsch 968b* in BM (holotype of *M. angolensis* var. *heterophylla* Welw. ex Oliv.), a shrub, 1.0–1.3 m high, from Luanda, Angola, superficially resembles those in one collection of the new species, namely *Swanepoel 173*. However, the lamina in the latter collection is linear-elliptic or linear-oblong with the petiole long and very slender, whereas the lamina in the Welwitsch specimen is linear-lanceolate and the petiole is much shorter and not very slender.

The disc margin in *Maerua kaokoensis* differs from *M. schinzii* by the apices being consistently fimbriate. In *M. schinzii* the fimbriellae are often absent and in *M. angolensis* (FSA region) they are always absent. In *M. kaokoensis*, the 11–13 mm long androphore is equal in length to the receptacle, or extends to just above or below its rim. In *M. schinzii*, the androphore is much shorter, 5–7 mm long and equal to or exserted above the receptacle, whereas in *M. angolensis* (FSA region), it usually is longer (12–17 mm) than in *M. kaokoensis* and projected beyond the receptacle. The gynophore is usually longer in *M. kaokoensis* (18–28 mm) than in *M. schinzii* (15–20 mm) and shorter than in *M. angolensis* (35–37 mm).

All parts of *Maerua kaokoensis* are glabrous, except for the sepals, which are puberulous adaxially and woolly on the sutures. On the other hand, all parts of *M. schinzii*, are usually puberulous, whereas *M. angolensis* is gla-

brous or rarely puberulous. Flowering time is also diagnostic: November to July in *M. kaokoensis*, September and October in *M. schinzii* and July to December in *M. angolensis* (Coates Palgrave 2002). As to habitat preference, *M. kaokoensis* occurs in mountains only, whereas *M. schinzii* and *M. angolensis* grow on plains and in river valleys as well.

Some of the more prominent morphological features to differentiate *Maerua kaokoensis*, *M. schinzii* and *M. angolensis* are compared in Table 3. Diagnostic features were determined through examination of herbarium specimens and for *M. kaokoensis* and *M. schinzii*, plants were also examined in the field. For *M. angolensis*, plants in the Weenen District (KwaZulu-Natal) were examined. Additional information for *M. schinzii* and *M. angolensis* (in the FSA region) is mainly from Killick (1970) and Roessler (1966). Information on *M. angolensis* from outside the FSA region was sourced from literature (Oliver 1868; Exell & Mendonça 1937; Hauman & Wilczek 1951; Wild 1960; Elffers *et al.* 1964).

*Etymology*: the specific epithet refers to the Kaokoveld of northwestern Namibia. The distribution of *M. kaokoensis* falls within the previous politically demarcated Kaokoland, now called the Kunene Region.

*Distribution*: *M. kaokoensis* is presently known only from the Okakora (part of the Baynes Mountains) and Otjihipa Mountains, south of the Kunene River in northwestern Namibia (Figure 17). It is localized and uncommon to rare in these areas. The species almost certainly



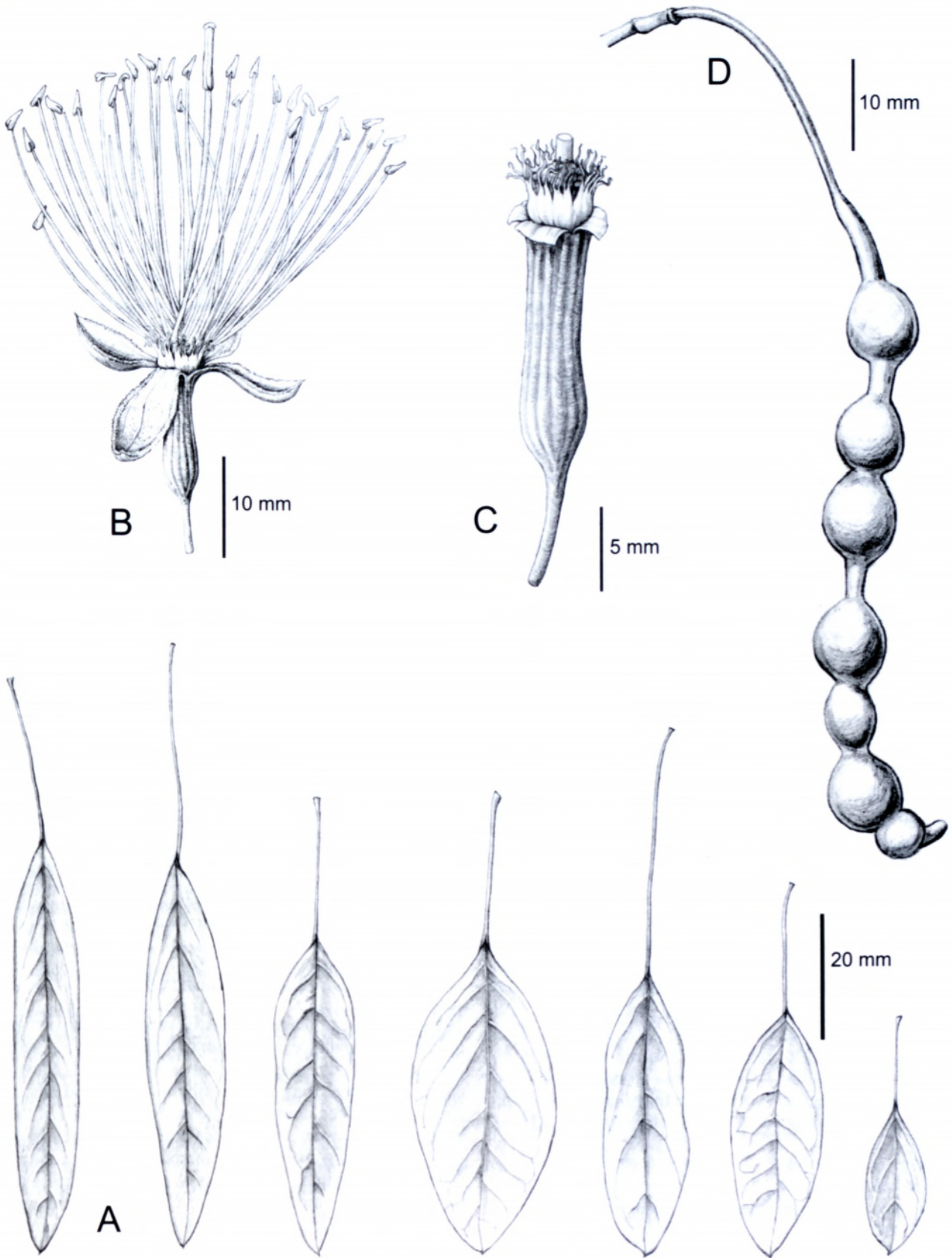


FIGURE 16.—*Maerua kaokoensis*. A, mature leaves from different plants to show variation in size and shape; B, flower, *Swanepoel 175*; C, receptacle and disc, *Swanepoel 175*; D, fruit, *Swanepoel 172*. Scale bars: A, 20 mm; B, D, 10 mm; C, 5 mm. Artist: Julia Kreiss.

occurs in the adjacent mountainous parts of southwestern Angola as well, especially the Serra Cafema range, and may eventually prove to be more widespread on the high mountains of the Kaokoveld Centre of Endemism (Van Wyk & Smith 2001), most of which remain botanically poorly explored.

*Habitat and ecology:* *M. kaokoensis* grows on dolomite of the Otavi Group in the Okakora/Baynes Mountains and on paragneiss of the Epupa Metamorphic Complex in the Otjihipa Mountains (Miller & Schalk 1980; Mendelsohn *et al.* 2002). It occurs on steep mountain slopes and less often on plateaus and mountaintops. Its distribution

TABLE 3.—Prominent differences between *Maerua kaokoensis*, *M. schinzii* and *M. angolensis*

Character	<i>M. kaokoensis</i>	<i>M. schinzii</i>	<i>M. angolensis</i>
Habit			
trunk	extremely slender	not slender	not slender
apex of leader shoot(s)	drooping or pendulous, sparsely branched; trees without distinctive crown	not drooping or pendulous, densely branched; trees with distinctive crown	not drooping or pendulous, densely branched; trees with distinctive crown
Leaf lamina: lateral veins (each side)	4–10	4 or 5	4 or 5
Petiole			
length (mm)	10–50	8–30	5–30
diam. in middle (mm)	0.3–1.2 (very slender)	0.8–2.5 (sometimes slender)	0.8–1.8 (sometimes slender)
Disc margin	unequally lacinate with apices grown into long, irregular fimbriae; fimbriae branched and usually curved and recurved	unequally lacinate, apices sometimes grown into irregular fimbriae; fimbriae rarely curved	unequally lacinate
Androphore	equal to or extends to 1.0 mm below or 2.5 mm above receptacle	equal to or exerted 2.0 mm above receptacle	exserted 2.0 mm above receptacle
length (mm)	11–13	5–7	5–25 (12–17 in FSA region)
Stamens			
number	32–42	30–70	40–60
filament length (mm)	18–35	14–16	15–40 (20–26 in FSA region)
Gynophore length (mm)	18–28	15–20	35–40
Seed: testa texture	faintly granulate	granulate	smooth
Indumentum			
young branches and leaves	glabrous	puberulous, rarely glabrous	glabrous, rarely puberulous
pedicel	glabrous	puberulous to tomentose	glabrous, rarely puberulous
receptacle	glabrous	puberulous or tomentose, rarely glabrous	glabrous, rarely puberulous
sepals	glabrous abaxially, puberulous adaxially	glabrous or puberulous	glabrous or puberulous
Distribution	confined to Kaokoveld Centre of Endemism	widespread in Namibia, also in southwestern Angola and Northern Cape Province, South Africa	polymorphic species, widespread in sub-Saharan Africa, except Guinea-Congolese region and extreme southern parts of continent

ranges from 75–120 km from the Atlantic Ocean, from the edge of the Great Escarpment eastwards, at altitudes ranging from 700–1 850 m. Average annual rainfall varies from 100–200 mm in these areas.

#### Specimens examined

NAMIBIA.—1712 (Swartbooisdrif): Otjihipa Mtns, 5 km ESE of Otjihungwa, (–AD), *Swanepoel 173, 174* (WIND); Otjiborombonga, (–BB), *Leistner, Oliver, Steenkamp & Vorster 142* (PRE); Baynes Mtns,

Okombambi, (–BB), *Rusch 77* (WIND); Okakora Mtns, 2 km NW of Okombambi, (–BB), *Swanepoel 121* (WIND); Otjihipa Mtns, (–BC), *Craven 945* (WIND); Otjihipa Mtns 7 km SE of Otjihungwa, (–BC), *Swanepoel 171* (WIND); Otjihipa Mtns, 8 km ESE of Otjihungwa, (–BC), *Swanepoel 172* (PRE, WIND); Otjihipa Mtns 7.8 km ESE of Otjihungwa, (–BC), *Swanepoel 175* (WIND); Orukatoa, Otjihipa Mtns, (–BC), *Viljoen 575* (WIND); NW of Otjitanda, (–DB), *Meyer 1289* (WIND).

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#### REFERENCES

COATES PALGRAVE, M. 2002. *Keith Coates Palgrave Trees of southern Africa*, edn 3, Struik, Cape Town.

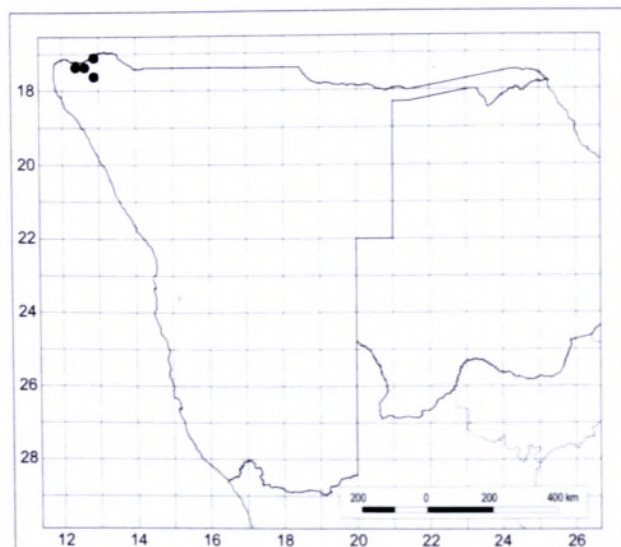


FIGURE 17.—Known distribution of *Maerua kaokoensis*.



- ELFFERS, J., GRAHAM, R.A., DEWOLF, G.P. & HUBBARD, C.E. 1964. Capparidaceae. *Flora of tropical East Africa*: 28: 1–88. Crown Agents for Oversea Governments and Administrations, London.
- EXELL, A.W. & MENDONÇA, F.A. 1937. Capparidaceae. *Conspectus florum angolensis* 1: 53–57. Junta de Investigações Científicas do Ultramar, Lisbon.
- HAUMAN, L. & WILCZEK, R. 1951. Spermatophytes: Capparidaceae. *Flore du Congo Belge et du Ruanda-Urundi* 2: 454–521. Institut National pour l'étude Agronomique du Congo Belge, Brussels.
- KILLICK, D.J.B. 1970. Capparaceae: *Maerua*. *Flora of southern Africa* 13: 159–171. Botanical Research Institute, Pretoria.
- MENDELSON, J., JARVIS, A., ROBERTS, C. & ROBERTSON, T. 2002. *Atlas of Namibia*. David Philip, Cape Town.
- MILLER, R. McG. & SCHALK, K.E.L. 1980. *Geological map of South West Africa/Namibia*. Geological Survey of the Republic of South Africa and South West Africa/Namibia.
- OLIVER, D. 1868. Order IX: Capparidaceae. *Flora of tropical Africa* 1: 73–101. Reeve, Ashford, Kent.
- ROESSLER, H. 1966. Capparaceae. *Prodromus einer flora von Südwestafrika* 47: 1–16. Cramer, Lehre.
- 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.
- WILD, H. 1960. Capparidaceae. *Flora zambesiaca* 1: 194–245. Crown Agents for Oversea Governments and Administrations, London.

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