# 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 robynsiana* 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 er 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) x (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) x 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 laciniate with long, irregular fimbrillae; fimbrillae usually branched as well as irregularly curved and recurved, up to 2.6 mm long. Sepals 4, elliptic or spathulate, often somewhat cucullate, 9.8-14.5 x 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 x 0.9 mm, green; ovules 48-52; stigma capitate. Fruit moniliform, up to 180 x 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, ± 5 m tall; B, ± 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 fimbrillae 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

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

Character	M. kaokoensis	M. schinzii	M. angolensis
Habit			
trunk	extremely slender	not slender	not slender
apex of leader shoot(s)	drooping or pendulous, sparsely branched;	not drooping or pendulous, densely	not drooping or pendulous, dense-
	trees without distinctive crown	branched; trees with distinctive	ly branched; trees with distinctive
		crown	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 laciniate with apices grown	unequally laciniate, apices some-	unequally laciniate
	into long, irregular fimbrillae; fimbrillae	times grown into irregular fimbril-	
	branched and usually curved and recurved	lae; fimbrillae rarely curved	
Androphore	equal to or extends to 1.0 mm below or	equal to or exserted 2.0 mm above	exserted 2.0 mm above receptacle
Indiophore	2.5 mm above receptacle	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, rarely puberulous
		glabrous	
sepals	glabrous abaxially, puberulous adaxially	glabrous or puberulous	glabrous or puberulous
Distribution	confined to Kaokoveld Centre of	widespread in Namibia, also in	polymorphic species, widespread
	Endemism	southwestern Angola and Northern	in sub-Saharan Africa, except
		Cape Province, South Africa	Guinea-Congolean 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 Otjinhungwa, (-AD), Swanepoel 173, 174 (WIND); Otjimborombonga, (-BB), Leistner, Oliver, Steenkamp & Vorster 142 (PRE); Baynes Mtns,



FIGURE 17.-Known distribution of Maerua kaokoensis.

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 Otjinhungwa, (-BC), Swanepoel 171 (WIND); Otjihipa Mtns, 8 km ESE of Otjinhungwa, (-BC), Swanepoel 172 (PRE, WIND); Otjihipa Mtns 7.8 km ESE of Otjinhungwa, (-BC), Swanepoel 175 (WIND); Orukatoa, Otjihipa Mtns, (-BC), Viljoen 575 (WIND); NW of Otjitanda, (-DB), Meyer 1289 (WIND).

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