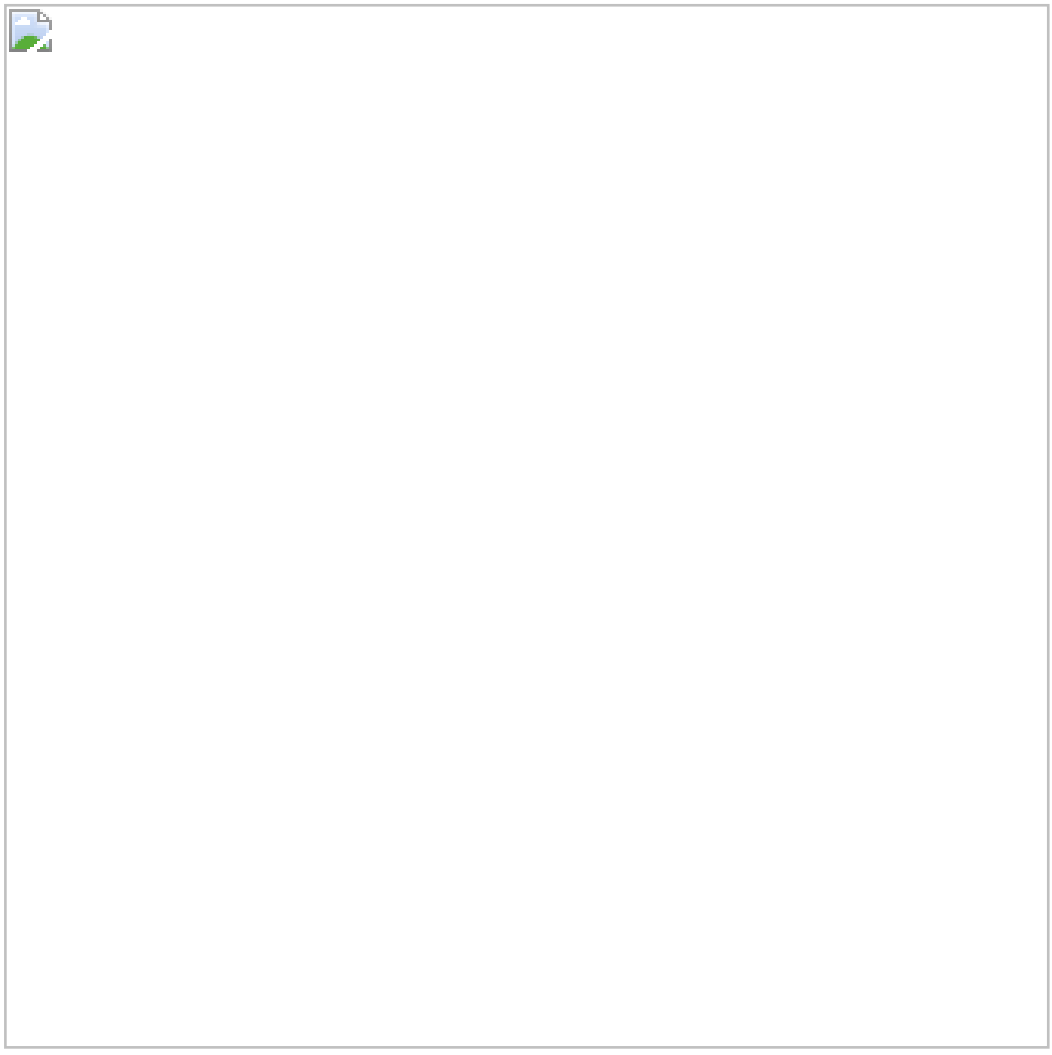

# Novitates Gabonenses 92: Combretum rupestre (Combretaceae), a new liana species from Mount Ngouadi in Gabon

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# Novitates Gabonenses 92: Combretum rupestre (Combretaceae), a new liana species from Mount Ngouadi in Gabon

**Carel C.H. Jongkind & Nicolas Texier**


## Abstract

JONGKIND, C.C.H. & N. TEXIER (2019). Novitates Gabonenses 92: Combretum rupestre (Combretaceae), a new liana species from Mount Ngouadi in Gabon. *Candollea* 74: 9–14. In English, English and French abstracts. DOI: http://dx.doi.org/10.15553/c2019v741a2

The new species *Combretum rupestre* Jongkind & Texier *(Combretaceae)* from Mount Ngouadi in East Gabon is described and illustrated. It differs from all other species of *Combretum* Loefl. by the combination of a patelliform flower with two series of stamens of unequal length, and the receptacle and lower side of leaves covered by a glutinous layer.

## Résumé

JONGKIND, C.C.H. & N. TEXIER (2019). Novitates Gabonenses 92: Combretum rupestre (Combretaceae), une nouvelle espèce de liane du Mont Ngouadi au Gabon. *Candollea* 74: 9–14. En anglais, résumés anglais et français. DOI: http://dx.doi.org/10.15553/c2019v741a2

Une nouvelle espèce, *Combretum rupestre* Jongkind & Texier *(Combretaceae),* collectée au Mont Ngouadi dans l'Est du Gabon est décrite et illustrée. Elle diffère des autres espèces de *Combretum* Loefl. par la combinaison de fleurs patelliformes présentant deux séries d'étamines de différentes longueurs, et par l'existence d'une couche glutineuse sur le réceptacle et sur la partie inférieure des feuilles.



## Keywords

*COMBRETACEAE* – *Combretum* – Gabon – Taxonomy



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## Introduction

Gabon, a country situated on the Atlantic coast of Central Africa, is known to harbour the most diverse lowland forest flora in tropical Africa (Sosef et al., 2017). The botanical collection density in Gabon is, with much less than 1 specimen/km$^2$, still very low and also very heterogeneous, with from some parts very few or even no collections (Wieringa & Sosef, 2011). In 2017, a team from the Missouri Botanical Garden led by the second author explored for the first time the Mount Ngouadi area situated in one of these poorly collected parts in the East of Gabon. There was collected a richly flowering liana of *Combretum* Loefl. that could not be identified with the *Combretaceae* issue of the "Flore du Gabon" (Jongkind, 1999) or with floras from the other countries in the Guineo-Congolian Region (Exell & Garcia, 1970; Keay, 1954; Liben, 1968, 1983). It also did not belong to one of the three more recently published *Combretum* species from this Region (Jongkind, 1994, 2006, 2018).

This *Combretum* specimen has patelliform flowers with two series of stamens of conspicuously unequal length, a combination of characters not mentioned earlier in literature on tropical African *Combretum* species. Though patelliform flowers can be seen on illustrations from several African *Combretum* species, this character is never associated with stamens of unequal lenght (Engler & Diels, 1899: Taf. I. Fig. A, c; Taf. IV. Fig. A, d; Liben, 1983: 43; Jongkind, 1999: 39, 41, 59, 67, 79, 83). Still, research for this publication showed that four Guineo-Congolian *Combretum* species share these special flower characters with the new specimen. A table is presented here, including all *Combretum* species with patelliform flowers from Guineo-Congolia, to compare stamen size and a few other flower characters (Table 1). From the 48 *Combretum* species known from Gabon, including the here described new species, 16 have patelliform flowers.

Patelliform *Combretum* flowers have a little developed, almost flat, upper receptacle. They usually have a disk with a free edge that can easily be seen from the outside. Conversely, the majority of the *Combretum* species have flowers with a more stretched upper receptacle, that can be from cup-shaped to long trumpet-shaped, with a disk that is hidden inside.

The four species that have patelliform flowers with unequal stamens, *C. demeusei* De Wild., *C. gabonense* Exell,

**Table 1. –** Comparing flower characters from the Guineo-Congolian *Combretum* Loefl. species with patelliform flowers.

| ***Combretum* species** | **Stamens [mm]** | **Style [mm]** | **Petals [mm]** |
|---|---|---|---|
| *C. rupestre* Jongkind & Texier | 1, 2, unequal | 0.5 | glabrous, 1.5, spatulate |
| *C. adrianii Jongkind* | 3–4, equal | 2–2.5 | glabrous, 1.5, spatulate-obovate |
| *C. demeusei* De Wild. | 0.7, 1.7, unequal | c. 1 | glabrous, 1.5–2.5, spatulate |
| *C. erosum* Jongkind | - | - | - |
| *C. esteriense* Jongkind | 2–3, equal | 3–4 | glabrous, 1–1.5, spatulate |
| *C. exellii* Jongkind | 3.5–4, equal | 2.5–3 | glabrous, 1.5, obovate |
| *C. gabonense* Exell | 0.5–0.7, 1.2–1.5, unequal | c. 1 | glabrous, 1–1.5, spatulate-obovate |
| *C. homalioides* Hutch. & Dalziel | 2, equal | 2 | glabrous, 1.5, spatulate |
| *C. louisii* Liben | 1.5, equal | 1.5 | glabrous, 2.5, spatulate |
| *C. marginatum* Engl. & Diels | 3–4, equal | 3–4 | glabrous, 2, spatulate |
| *C. mildbraedii* Hutch. & Dalziel | 1, 1.5, unequal | 1 | glabrous, 1.5, spatulate |
| *C. mortehanii* De Wild. & Exell | 3, equal | 2–2.5 | glabrous, 1, obovate |
| *C. paradoxum* Welw. ex M.A. Lawson | 0.8, equal | 0.5 | glabrous, 1, obovate |
| *C. paucinervium* Engl. & Diels | 2–3, equal | 1 | hairy apex, 1, spatulate |
| *C. pecoense* Exell | 0.5, equal | 1 | scattered hairs outside, 1.5, almost round |
| *C. polyanthum* Jongkind | 4, equal | 2.5 | glabrous, 1.5–2, spatulate |
| *C. scandens* Liben | 0.7–1, 1.7–2, unequal | 0.3 | glabrous, 1, spatulate |
| *C. wilksii* Jongkind | 1.5, equal | 1.5 | glabrous, 2, almost round |
| *C.* spec. nova (?) 1 | 1, 1.5, unequal | 1 | glabrous, 1, spatulate |
| *C.* spec. nova (?) 2 | 3.5–4, equal | 2.5–3 | glabrous, 2, spatulate |

**Fig. 1. –** Cliffs of Mont Ngouadi, habitat of *Combretum rupestre* Jongkind & Texier.
[Photo: N. Texier]

*C. mildbraedii* Hutch. & Dalziel and *C. scandens* Liben (Table 1), are conspicuously different in other characters. *Combretum demeusei*, *C. mildbraedii* and *C. scandens* have leaves with a smaller number of main lateral nerves. The leaves of *C. gabonense* are densely erect hairy below while the new specimen is, at first sight, glabrous. The new specimen shows, on the receptacle and the leaves below, the scales submerged in a glutinous layer, a character not shared by any of these four species. That last character is known from other *Combretum* species like *C. paucinervium* Engl. & Diels and *C. viscosum* Exell, but these species have differently shaped receptacles. From another species, *C. erosum* Jongkind, the stamens and petals are not known yet, the preserved patelliform flowers are very poor. However, the young parts of *C. erosum* are almost completely covered with dark coloured, star-shaped scales, different from the new specimen. It is clear that the new specimen belongs to a new *Combretum* species that we want to name here *C. rupestre* Jongkind & Texier.

The Mount Ngouadi chain, where *C. rupestre* is found, is unique within the area where it is located, which is mostly characterized by a flat or faintly hilly landscape. It is located ca. 50 km North of the Lastoursville-Okandja road and 65 km south-east of Ivindo National Park. The chain consists of a North-south oriented rocky spur with a plateau on its top (8 km long and 300 m wide on average) overhanging the whole surrounding landscape with cliffs of around a hundred meters high (Fig. 1). The expedition found on the top of the chain a pristine mature terra firme forest dominated in the canopy by *Ceasalpinioideae, Burseraceae, Myristicaceae* and *Sapotaceae*. The forest rests on a rocky soil, with, in the flatter parts, a humus layer of up to 30 cm thick. There is a clear presence of elephants and gorillas. Study of the botanical collections from the Mount Ngouadi chain resulted already in the discovery of several rare and/or endemic species of Gabon such as *Whitfieldia rutilans* Heine or *Psychotria magnistipula* O. Lachenaud, and of the new species of *Combretum* described here.

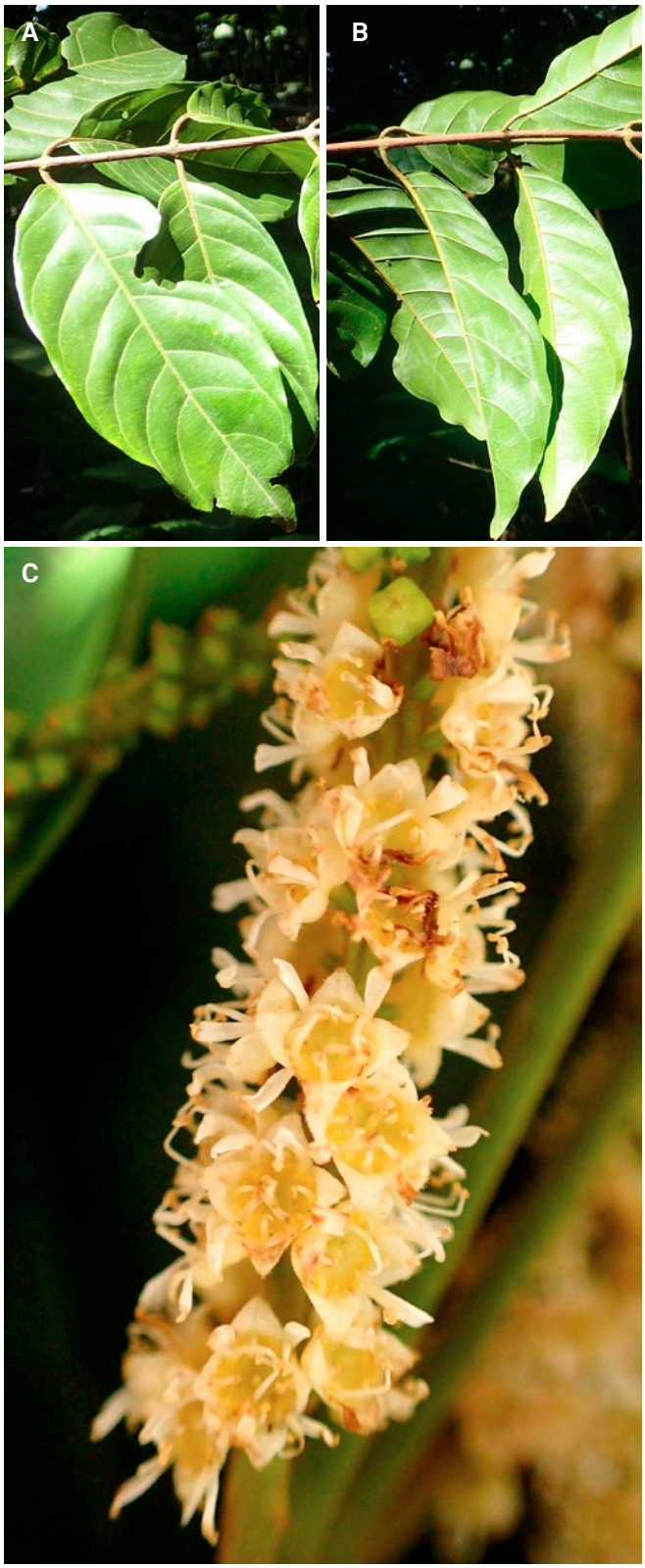


**Fig. 2. –** *Combretum rupestre* Jongkind & Texier.
**A.** Leaves from above; **B.** Leaves from below; **C.** Inflorescence.
[*Texier et al. 622*] [Photos: N. Texier]

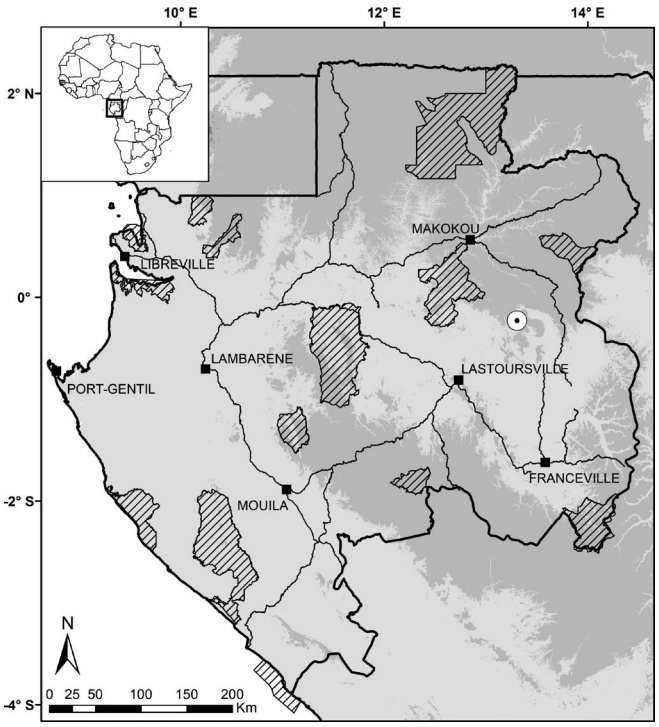


**Fig. 3. –** Map of Gabon with the location of *Combretum rupestre* Jongkind & Texier (white circle), also showing the National Parks (hatched areas), main roads and towns, with shading representing elevation by steps of 500 m.

***Combretum rupestre*** Jongkind & Texier, **spec. nova** (Fig. 2–4).

**Holotypus: Gabon:** Ogooue-Lolo, Mount Ngouadi, [0°13'43"S 13°18'22"E], 778 m, fl., 5.III.2017, *Texier et al. 622* (MO!; iso-: BRLU!, G!, LBV!, P!, WAG!).

*Differs from all other Combretum species by the combination of a patelliform receptacle with the two series of stamens of unequal length, and by the receptacle, and leaves below, covered by a glutinous layer.*

*Liana*. *Leaves* opposite; petiole c. 1 cm long, covered with many tiny erect hairs; blade 11–12 × 5–6 cm, both sides glutinous with tiny scales just visible in this glutinous layer; tiny, straight, erect hairs on first half of midrib above, and all larger nerves below; 8–11 pairs of main lateral nerves with hairy domatia in the axil below; base rounded; apex acuminate. Scales circular in outline, 60–70 µm in diam, cells delimited by c. 8 radial walls, translucent. *Infloresence* a terminal panicle up to 14 cm long, or an axillary spike, branches covered with tiny hairs, bracts tiny, caducous. *Flowers* 4-merous, sessile; lower receptacle c. 1 mm high, glutinous; upper receptacle patelliform, c. 1.7 mm wide, glutinous outside, with a few scales visible in this glutinous layer; calyx lobes triangular in outline, 1.5 mm wide × 1 mm long, boat shaped, with a few ordinary hairs at the apex; petals spathulate, c. 1.5 × 0.5 mm, glabrous; stamens opposite the petals with filament c. 2 mm long,

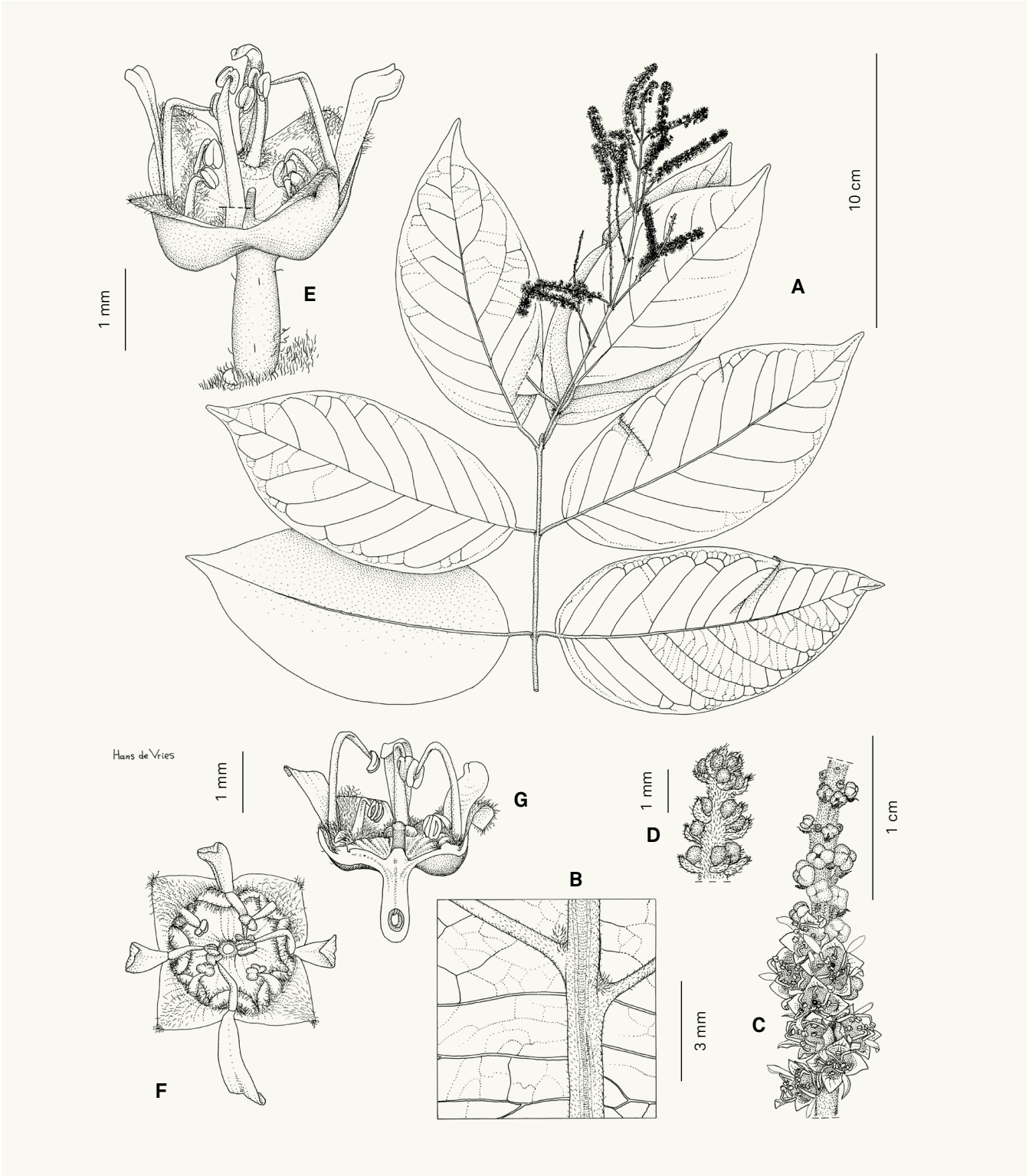


**Fig. 4. –** *Combretum rupestre* Jongkind & Texier. **A.** Flowering branch; **B.** Detail from leaf from below showing the domatia; **C.** Part of inflorescence with open flowers; **D.** Top of inflorescence with flower buds and bracts; **E.** Flower, side view; **F.** Flower, top view; **G.** Flower, length section.
[*Texier et al. 622*, MO] [Drawing: H. de Vries]

stamens alternating with the petals with filament c. 1 mm long, anthers c. 0.3 mm long; disk with glabrous surface and free, hairy edge; style c. 0.5 mm long, glabrous. *Fruit* unknown.

*Habitat and distribution*. – Only known from the type location on the edge of the plateau on Mount Ngouadi (Fig. 3).

*Conservation status*. – Based on a 2 × 2 km grid cell size, the AOO of this species is estimated at 4 km², which is under the limit for category "Critically Endangered" under criterion B2. The EOO is not calculated because this species is only known from one specimen *(Texier 622)* collected in 2017 in SEEF forestry concession, on the edge of the plateau on Mount Ngouadi. This specimen represents a single sub-population. Although the Mount Ngouadi area is located in a forestry concession, no plans are made for now to develop this activity in this part of the concession. The concession has even stopped its activity since end of 2017. Nevertheless, if forestry activities are finally undergone in this part of the concession, then the species is likely to be re-assessed as CR. In consequence, the species can be evaluated as "Vulnerable" [VU D2] following the IUCN Red List Categories and Criteria (IUCN, 2012, 2017).

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