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RESEARCH ARTICLE

A matter of warts: a taxonomic treatment for *Drypetes verrucosa* (Putranjivaceae, Malpighiales) and a new cauliflorous species from Cameroon and Nigeria, *D. stevartii*

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Abstract

Background and aims – Specimens of a new tree species in the genus *Drypetes* (Putranjivaceae) distributed in Cameroon and eastern Nigeria, *D. stevartii*, were associated with *D. verrucosa*, another tree species endemic to Gabon, due to its warty fruits and to the overall morphological resemblances of both species.
Material and methods – The present study is based on the study of 20 gatherings of *D. verrucosa* and 26 gatherings of *D. stevartii*. Morphological observations on herbarium specimens belonging to the new species and *D. verrucosa* were carried out in order to describe them.
Key results – This treatment includes the detailed descriptions of these two species, the typification of their names, a comparative table summarizing their main morphological differences, an identification key, photographs of both, as well as information about their distribution, habitat, and phenology. Preliminary IUCN Red List assessments show that both *D. verrucosa* and *D. stevartii* are 'Near Threatened' species.

Keywords

Central Africa, conservation, dioecy, fruit dispersal, herbarium, isothiocyanates, IUCN Red List assessments, pollination, taxonomy

INTRODUCTION

The pantropical genus *Drypetes* Vahl (Putranjivaceae Endl., Malpighiales) consists of 218 species of shrubs and trees, of which 83 occur in continental Africa and the Malagasy Region (Quintanar et al. in press), that inhabit high to medium rainfall areas, from evergreen forests to relatively dry savannahs. These plants have simple, petiolate, and penninerved leaves with oblique to unequal-sided bases, which are usually alternate and lack glands. They are mostly dioecious (exceptionally polygamo-dioecious or monoecious) and present apetalous, more or less small and inconspicuous flowers that are solitary or, much more frequently, grouped in long-lived clusters or exceptionally in cymes. Flowers have a shallow cup of sepals and exposed nectar-bearing disc that in the male flowers is surrounded or penetrated by the stamens. In the female flowers, the disc surrounds the ovary. In many species, the flowers give off a more or less pungent chemical smell, sometimes reminiscent of horseradish, that can be easily perceived at a considerable distance from the plant. This smell pertains to the end-metabolites of the glucosinolate biochemical

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pathway, notably isothiocyanates and their corresponding nitriles, whose products are known as the "mustard oil bomb" (Lüthy and Matile 1984). Putranjivaceae is the only known family outside the order Brassicales in which this metabolic pathway and its products occur. The floral emission of isothiocyanates is a rare phenomenon only studied to date for *D. natalensis* (Harv.) Hutch. and the bat-pollinated *Cleome anomala* Kunth (Brassicales, see Knudsen and Tollsten 1995). This emission in *Drypetes* takes place without the need for physical destruction of tissues and seems to be used by cetoniid beetles as a clue for locating the flowers (Johnson et al. 2009). Pollination has been reported to be by generalist pollinators in the few species of the genus in which it has been studied, namely the Asiatic *D. longifolia* (Blume) Pax & K.Hoffm. and *D. xanthophylloides* Airy Shaw (Momose et al. 1998), as well as the African *D. natalensis* (Johnson et al. 2009). For these species, observed pollinators belong to a wide range of insects such as beetles, bees, and wasps, which feed on nectar or pollen. Characters potentially able to filter pollinators, such as cryptic colouration (Johnson 2005), unpalatable nectar to certain visitors (Adler 2000; Johnson et al. 2006; Shuttleworth and Johnson 2006), or floral scents (Raguso 2004; Knudsen et al. 2006) are yet to be surveyed in detail in *Drypetes*. Further studies on the effect of the compounds that make up the "mustard oil bomb" in *D. natalensis* (Johnson et al. 2009) and on pollination and other reproductive processes will, in our opinion, be of interest.

There is also a notable lack of information about the dispersers of the fruits of *Drypetes* species, which are single- to many-seeded pseudodrupes. Doves and pigeons have been reported as dispersers of *D. deplanchei* (Brongn. & Gris) Merr. (Forster 1997), a species from Oceania. In Africa, *Drypetes* fruits appear to be dispersed by primates, from monkeys in *D. chevalieri* Beille (Poulsen et al. 2001), *D. ituriensis* Pax & K.Hoffm. (David Harris pers. obs. in the Sangha Trinational), *D. mossambicensis* Hutch. (Radcliffe-Smith 1996), and *D. spinosodentata* (Pax) Hutch. (Gautier-Hion et al. 1985), to chimpanzees in *D. gossweileri* S.Moore and *D. occidentalis* (Müll.Arg.) Hutch. (Wawa 2016) and gorillas in *D. diopa* (Hiern) Brenan (Doran et al. 2002). Additionally, fruits are dispersed by galagos and duikers in *D. gerrardii* Hutch. (Dowsett-Lemaire 1988) and by elephants in *D. gossweileri* (Gautier-Hion et al. 1985; David Harris pers. obs. in the Sangha Trinational). They are even "sought-after" by large bats in *D. mossambicensis* (Radcliffe-Smith 1996). The consistency of the fruit exocarp, from fleshy to woody, its texture and colour, as well as the rate of fruit maturation (from a few weeks or months to a year) are variable characters and may have an important role in the selection of frugivores (Tomlinson 1980; Quintanar et al. in press). The presence of sulfur compounds in the fruits and their potential effects on animals are to our knowledge not yet studied for *Drypetes* and could have important implications for why certain animals are attracted to the fruit.

The different arrangements of the inflorescences and the infructescences could be linked to different reproductive strategies in the competition for pollinators and dispersers. We have recently grouped them into four categories (Quintanar et al. in press): category I) trunciflorous, for inflorescences that occur on the main trunk, typically clumped on fairly sturdy cushion-like excrescences of the bark; II) Inflorescences on main branches; III) Inflorescences or flowers axillary on leafless branches; IV) Inflorescences or flowers axillary on leafy branches. The often relatively small fruits of the species belonging to categories III and IV are accessible only to animals that feed in the tree crown, while those along the trunk and main branches (categories I and II) are potentially accessible to other dispersers. The only species we know that has its fruits dispersed after falling to the ground is *D. gossweileri*. In this species, the large fruit (up to about 10 cm in diameter) falls 20–30 m down from the branches and is picked up by dispersers. Categories I and II are to our knowledge only found in Africa and they hold up to 20 species that present this character for one or both sexes, which represent about a quarter of the African species of the genus. This singularity and the relatively easy access to their inflorescences and infructescences, not only for certain animals but also for the researcher, make these species a particularly suitable target to study the reproductive biology of *Drypetes*.

Drypetes verrucosa Pierre ex Hutch. belongs to the group of African cauliflorous species due to its trunciflorous inflorescences (category I). It is a tree up to 25 m tall, endemic to north-western Gabon, that inhabits evergreen forests, sometimes on periodically flooded soils (Harris et al. 2021). The epithet of this species seems to allude to the rough, uneven surface of the exocarp of the fruit, a relatively big pseudodrupe up to almost 4 cm long, rather than to its warty surface, despite the other meaning of the Latin adjective *verrucosus* (see below in the part about etymology). *Drypetes verrucosa* is classified in *D.* sect. *Stipulares* Pax & K.Hoffm. probably due to its linear stipules of considerable length for the genus, which fall off late, its 3-celled ovary, and its subsessile and broad stigmas (the number of stamens is slightly higher than that established for this section, 14–16 vs 4–13) (Pax and Hoffmann 1922).

The extensive and ongoing botanical surveys undertaken in recent years in Cameroon by the team supervised by Bonaventure Sonké have led to the discovery of many novelties (e.g. Sonké and Lachenaud 2016; Simo-Droissart et al. 2018; Lachenaud et al. 2020). From 2019 onwards, fieldwork led to the collection of a species of *Drypetes* with remarkably warty fruits from Mpem et Djim National Park, one of the largest intact forest remnants in the Centre Region. More recently, Bonaventure Sonké and collaborators collected additional specimens and field photographs of the same tree, cauliflorous like *D. verrucosa* and with similarly shaped though usually smaller leaves. Bonaventure Sonké considered them to belong to a new species distinct from *D. verrucosa*, and

brought together and encouraged all authors to study the gatherings in detail. In fact, the first gathering of this plant dates back to 1938, when Jacques-Félix collected it in Goura (Cameroon, Centre Region), and it remained on the shelves of herbaria, often among the specimens of *D. verrucosa*, waiting to be discovered and described. This proces of species discovery in the herbarium and the field is documented by Bebber et al. (2010) and Quintanar et al. (2021). After the preliminary study of the morphology of all the available specimens of this taxon, it became evident that it is a new species of the genus *Drypetes* that occurs not only in the evergreen forests of Cameroon, but also in semideciduous formations (for example, in neighbouring eastern Nigeria), showing wider ecological amplitude in its habitat preferences than *D. verrucosa*. This new species is a tree up to 20 m tall that, compared to *D. verrucosa*, has inflorescences made up of a much smaller number of flowers. In addition, it has inflorescences arranged not only on the trunk, but also along its main branches (categories I and II), unlike *D. verrucosa*. In addition to its markedly warty fruits, the new species presents a large set of characters with diagnostic value such as the androecium and the stipules, which are narrowly triangular and caducous.

We present full descriptions for both species, the typification and etymology of their names, a diagnosis for the new species, two plates of photographs showing their morphology, a table with useful diagnostic characters, a key, a distribution map, lists of studied specimens, preliminary IUCN Red List assessments, and all available information about their distribution, habitat, and phenology.

MATERIAL AND METHODS

The descriptions presented here, as well as all the information about the distribution, habitat, and phenology, are based on 20 gatherings of *D. verrucosa* and 26 gatherings of the new *Drypetes* species from the following herbaria: B, BM, BR, BRLU, COI, FHO, K, LBV, LISC, M, MA, MO, NHN, P, WAG, and YA (herbarium acronyms according to Thiers 2023). Additional information is based on field notes. Measurements were carried out using a Mitutoyo CD-15CD digital caliper and a manual scale with precision of 0.1 mm to record quantitative morphological characters, which are used for composing the new species' description and for comparative analysis. The descriptive terminology follows Stearn (1973), Harris and Harris (1994), and Pole (1991) for venation. When not indicated on the herbarium labels, the coordinates were determined a posteriori and are presented between square brackets. Specimens with coordinates, from labels and a posteriori, have been mapped, while those whose coordinates could not be determined are only cited. Many of the specimens in this work have been studied in situ by the authors. Specimens examined only as digital images are indicated by the addition of the word "image"; for those that could not be examined "n.v.", i.e. non vidi, was added. Chorology follows White (1979). The distribution map for both species was produced with ArcView v.3.2 (ESRI 2000). A preliminary conservation assessment using the IUCN categories and criteria is provided (IUCN Standards and Petitions Committee 2022). The geographical parameters of Area of Occupancy (AOO) estimated using a 2 × 2 km grid and Extent of Occurrence (EOO), were calculated using GeoCAT (Bachman et al. 2011).

TAXONOMIC TREATMENT

Drypetes verrucosa Pierre ex Hutch. (Hutchinson 1912: 677)

Figs 1, 2, Table 1

Type. GABON • [Estuaire] Environs de Libreville, Sibang, [0°25'N, 9°30'E]; 23 Oct. 1902; fl. ♀, fr.; *T.J. Klaine 2382*; lectotype (**designated here**): P [P04777265]; isolectotypes: BM, BR [BR0000006238162, BR0000006238490, BR0000006238827, BR0000006239152], K [K000406384, K000406385], P [P04777262, P04777263, P04777264, P04777266]; syntypes: GABON • [Estuaire] Environs de Libreville; 19 Feb. 1902; fl. ♀, fr.; *T.J. Klaine 2482*; BM, K, P [P04777258, P04777259, P04777260, P04777261] • Environs de Libreville; 26 Dec. 1901; fl. ♀, fr.; *T.J. Klaine 2589*; P [P04777257, P04777267]).

Description. Tree up to 25 m tall, with plagiotropic branches; trunk up to 16 cm in diameter, fluted or slightly fluted at the base; bark greenish-brown, smooth, rough and flaky when old; young branchlets subterete, slightly sulcate, shortly pubescent, trichomes 0.1–0.3(–0.6) mm; terminal buds scaly, scales 2.5–2.6 × 0.7–1 mm, ovate, firm, slightly keeled, shortly pubescent outside with trichomes 0.1–0.3 mm, glabrous inside, ciliate, cilia 0.1–0.3 mm. Leaves: stipules (3.7–)5.9–8(–12.5) × 0.2–0.5 mm, linear, laciniate, often with a single lacinia of 1.5–4.1 mm near the base, sometimes with 1–2 pairs of lateral laciniae, shortly pubescent outside, glabrous inside, ciliate, trichomes 0.2–0.5 mm, cilia 0.2–0.4 mm, subpersistent; petiole (4.5–)5.2–6.7(–9) mm long, (1.4–)1.7–2 mm in diameter, smooth or hardly wrinkled when dried, densely and shortly pubescent, glabrescent when old, trichomes 0.1–0.2(–0.3) mm; blade (9.3–)11–16.6(–17.7) × (3.4–)5.4–7.6(–8.8) cm, elliptic to broadly elliptic, papery to subcoriaceous, glossy and dark-medium green above, dull pale green beneath, base slightly obtuse to obtuse, markedly asymmetrical, rounded on one side, less often oblique, basal sides meeting the petiole up to 0.4 mm apart along the petiole length, margin crenulate-serrulate for most of its length, teeth to 1.3(–2.4) mm, acute, frequently blunt, flat to slightly recurved near the blade base, shortly acuminate, apex 10–20 mm, abaxial surface between the nerves sparingly pubescent, trichomes 0.1–0.4 mm; midrib smooth, slightly longitudinally wrinkled when dry, shortly and densely pubescent, trichomes

0.1–0.5 mm; first order lateral veins 6–8 pairs, ascending, more or less regularly spaced, slightly depressed above, prominent beneath, curved and anastomosing well within the margin, oriented at (49–)63–74(–79)° to the midrib, minutely pubescent, trichomes 0.1–0.2 mm; second order venation loosely reticulate, hardly or not raised above, slightly so beneath. Male inflorescence borne on more or less horizontal cushion-like excrescences of the trunk (category I), in many-flowered clusters, often in groups of 30 or more flowers; bracts 0.6–0.9 × 0.7–0.8 mm, ovate to suborbicular, minutely pubescent outside, glabrous inside, minutely ciliate, trichomes and cilia 0.1–0.2 mm, barely distinguishable with a ×10 handlens. Male flowers long pedicellate, pinkish; pedicel 22–35(–40) mm long, 0.3–0.7 mm in diameter, slender, very sparingly and shortly pubescent, trichomes 0.1–0.2 mm; sepals (4–)5, 4.9–5.3 × 4.1–5.5 mm, widely ovate to suborbicular, cucullate, imbricate, the inner often smaller than the outer, glabrous outside and inside, margin margin minutely ciliate for most of its length, cilia 0.1–0.2 mm; stamens 14–16, one-whorled, surrounding the disc, more or less enveloped by its marginal lobes, filaments 4.4–4.5(–9.8) mm, white, anthers 1.2–1.5(–2) mm long, 0.9–1(–1.3) mm in diameter, ellipsoid, cream-coloured, subbasifixed to dorsifixed, introrse, pale yellow, glabrous; disc (0.3–) 0.8–0.9 mm high, (2.7–)4.3–4.7 mm in diameter, convex, thick, very rugose, cream-coloured, densely and shortly pubescent, trichomes 0.1–0.3 mm, pistillode absent. Female inflorescence borne on cushion-like excrescences of the trunk (category I), in clusters of 10–35 flowers; bracts (0.6–)0.9–1.1 × 0.7–0.9 mm, otherwise similar to the male ones. Female flowers pedicellate; pedicel (6.3–)7.9–13.2(–20) mm long, 0.9–1.4 mm in diameter, robust, sparsely and minutely pubescent, glabrescent, trichomes 0.1–0.2 mm; sepals 5, 5–5.7 × (4–)6–6.3 mm, otherwise similar to the male ones; disc 0.9–1 mm high, (2.5–)4.2–4.4 mm in diameter, concave, cupulate, fleshy, shortly pubescent, more densely towards the margin, trichomes 0.2–0.3 mm; style 1, to 0.5 mm, unbranched; stigmas 3, obdeltoid, stigmatic surface 1.9–2.5 mm long, 1.3–3(–3.4) mm wide; ovary 2.4–3.4 mm long, 4.1–4.7 mm in diameter, subglobose, 3(–4)-celled, densely and shortly pubescent, trichomes 0.2–0.5 mm. Fruits (27–) 29.5–34(–38.1) mm long, (15–)23–29 mm in diameter, ellipsoid, sepals, style, and stigmas caducous, exocarp uneven, yellowish brown turning yellowish orange when ripe, shortly pubescent, trichomes 0.1–0.3 mm, mesocarp 2–5 mm thick when dried, hard, endocarp 1–2 mm thick, bony, 1–3-seeded; seeds 17.1–21 mm long, 8–9 mm in diameter; fruiting pedicel 21–33 mm long, 1.2–2.7 mm in diameter, sparsely and shortly pubescent, trichomes 0.1–0.3 mm.

Distribution and chorology. Endemic to Gabon, mostly distributed in the northwest: Estuaire, Moyen-Ogooué, Ngounié, and Woleu-Ntem (Fig. 2). Lower Guinea subcentre of endemism (White 1979).

Habitat. Primary or secondary evergreen forests, sandy or calcareous soils, sometimes on periodically flooded soils; at 40–205 m a.s.l.

Phenology. Flowering specimens were collected from June to February, and fruiting specimens from October to April.

Nomenclature. Hutchinson described *D. verrucosa* on the basis of three gatherings made by Théophile J. Klaine in the surroundings of Libreville in 1901 and 1902 ("Lower Guinea. Gaboon: in the neighbourhood of Libreville, Klaine 2382 2482! 2589!", see Hutchinson 1912), as well as on an unnumbered illustration with analysis drawn by E. Delpy in 1902 (February), based on *Klaine 2589*, kept in the herbarium of the National Museum of Natural History in Paris and previously reproduced in Harris et al. (2021). We have chosen the specimen P04777265 of the gathering *Klaine 2382* as lectotype, since we consider it to be the most suitable specimen located among the syntypes cited in the protologue. The illustration belongs to the Tabulae herbarii L. Pierre (Delpy 18??–19??) opera utique rej., a suppressed work (Rijckevorsel 2011; Turland et al. 2018). Consequently the designation "*Cyclostemon verrucosus*" is not effectively published in those printed and distributed drawings, and not validly published in the protologue of *D. verrucosa* as it is listed as a synonym. Therefore, we have not listed it above.

Etymology. The specific epithet comes from the Latin adjective *verrucosus*, which means warty, rough, or rugged. Hutchinson (1912) did not specify the reason for the epithet of this species name in the protologue, though it seems reasonable to assume that he referred to the rough, uneven surface of the fruit.

Preliminary IUCN conservation assessment. *Drypetes verrucosa* is known from 20 gatherings made from the beginning of the XXth century to 2021. However, we have excluded from our analysis three historical gatherings made in the area of Libreville (*Klaine 2382*, *2482*, and *2589*) and the region between Ogooué and Cameroon (*Le Testu s.n.*) because their localities are too imprecise. The 16 remaining gatherings represent 14 ocurrences and 9–11 subpopulations. The extent of occurrence (EOO) is estimated to be 25,131 km^2, which falls within the limits for Near Threatened under subcriterion B1, whereas the area of occupancy (AOO) is estimated to be 56 km^2, which falls within the limits for Endangered under subcriterion B2. Two occurrences are located within protected areas: one within Pongara National Park and another within Akanda National Park. Six occurrences are located within six different forestry concessions and are threatened by logging activities. The two occurrences at Mabounié are threatened by ongoing mining exploration activities. One occurrence at the Ndombo oil concession area is threatened by sand extraction. The other three occurrences from Lambarene (Moyen-Ogooué), Mondah-Liby (Estuaire), and Lalara (Woleu-Ntem) are threatened by (local) wood harvesting. These activities indicate a decline in the extent and habitat quality of the species. As a consequence, the 14 occurrences represent 13 locations (sensu IUCN

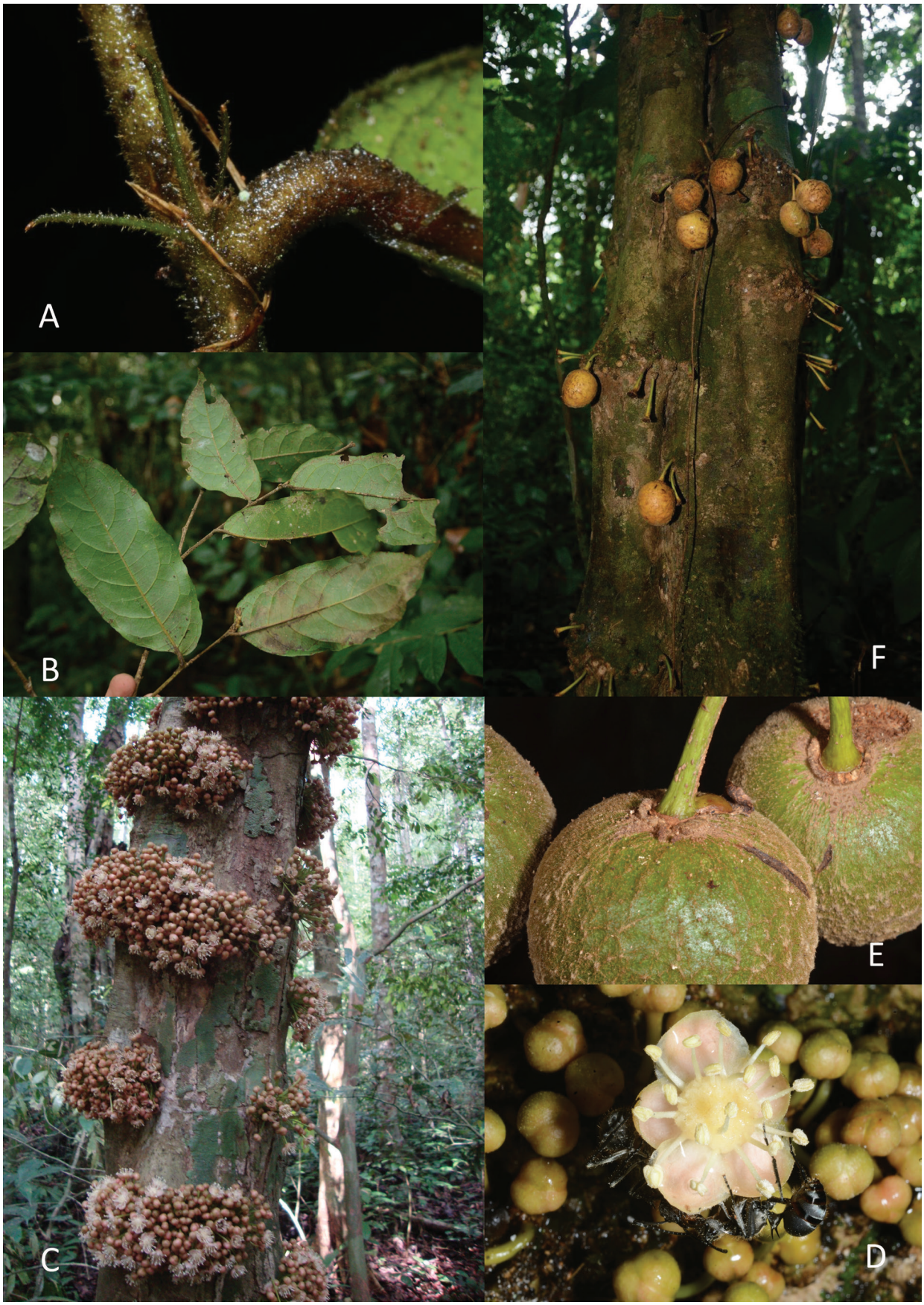

Figure 1. *Drypetes verrucosa* Pierre ex Hutch. **A**. Stipule and petiole. **B**. Branchlet and leaves. **C**. Male inflorescences on the trunk. **D**. Male flower. **E**. Fruits, detail. **F**. Infructescences with ripe fruits on the trunk. A, F from *Bidault 1940*; B, D from *Bidault 1861*; C from *Sonké 6041*; E from *Bidault 1054*. Photographs taken by the collectors.

Standards and Petitions Committee 2022), with regard to the most serious plausible threats (sand extraction and mining exploration activities), being more than the upper limit for Vulnerable under subcriterion B2. We consider that habitat loss will continue in the near future, which could lead to the disappearance of at least two occurrences, representing two locations. These future disappearances will thus lead to a continuing decline in AOO, number of locations, and mature individuals. *Drypetes verrucosa* is therefore assessed as Near Threatened (NT).

Additional material examined. GABON – **Estuaire** • Concession Sud Estuaire, rivière Remboué; 0°07'S, 9°52'E; 19 Jun. 2021; fl. ♂; *J. Klein & al. 564*; BR n.v., BRLU, P n.v. • Mondah-Liby; [0°46'N, 9°38'E]; 30 Sep. 1952; veg.; *F. Bernard 889*; LBV [LBV0030789] image, NHN [NHN4557230] n.v. • National Park Akanda, Ngounzi débarcadère; 0°34'N, 9°41'E; 11 Dec. 2012; fr.; *E.L.A.N. Simons & al. 1001*; BR n.v., LBV n.v., MO [MO-6561895] • Ndombo oil-concession area of CONOCO, ca 4 km SW of No Ayong; 0°37'N, 9°39'E; 22 Feb. 1991; fr.; *J.M. Reitsma 3683*; LBV [LBV0030851] image • Remboué; [0°02'N, 9°50'E]; 30 Jul. 1951; veg.; *Sabire & S. Etasse 340*; LBV image. – **Moyen-Ogooué** • Au Nord-est du lac Azingo; 0°19'S, 10°03'E; 4 Jun. 2014; veg.; *A. Boupoya & al. 944*; BR [BR0000016171442], BRLU n.v. • Au sud de Lambaréné, entre 5 et 10 km depuis la ville, entre l'Ogooué et la route de Fougamou; 0°55'S, 10°21'E; 15 Apr. 2015; fr.; *E. Bidault & al. 1940*; BR [BR0000016172166], BRLU [BRLU0002958] n.v., P [P00854948] • Lambaréné, along the Ogooué stream; 0°53'S, 10°09'E; 15 Oct. 2012; fl. ♂; *B. Sonké & al. 6041*; BR [BR0000024385589], BRLU, MO [MO-6729952] • Route menant au lac Azingo, à 35 km au nord-ouest de Lambarené; 0°27'S, 10°05'E; 26 Oct. 2014; fl. ♂; *E. Bidault & al. 1861*; MO [MO-6681694] • Zone de Mabounié, à 45 km au sud-ouest de Lambaréné, rive nord de la rivière Ngounié; 0°45'S, 10°36'E; 4 Feb. 2013; fr.; *E. Bidault & al. 1054*; BRLU [BRLU0000151], LBV image, MO [MO-6729953], NHN [NHN1380674] n.v., P [P00854579] • Zone de Mabounié, à environ 45 km au sud-est de Lambaréné, rive ouest de la Ngounié, plot Mabou 009; 0°49'S, 10°29'E; 14 Oct. 2012; veg.; *IRD plot 332 (N. Barbier & al.)*; BRLU • Zone de Mabounié, à environ 45 km au sud-est de Lambaréné, rive ouest de la Ngounié, plot Mabou 009; 0°49'S, 10°29'E; 14 Oct. 2012; veg.; *IRD plot 331 (N. Barbier & al.)*; BRLU. – **Ngounié** • Forêt au Nord de Lambarénékili, à environ 5 km au nord de la rivière Niambo-Kamba; [1°26'S, 10°17'E]; 15 Aug. 2008; veg.; *G. Dauby & al. 1375*; BRLU • Sindara; 1°02'S, 10°39'E; 16 Jul. 1979; fl. ♂; *G.M.P.C. Le Testu 2291*; B [B 10 0366532], BM, BR [BR0000015019523, BR0000015019547], K, LISC, P [P04777254, P04777255, P04777256]. – **Woleu-Ntem** • [La] Lara; [0°21'N, 11°28'E]; 27 Oct. 1933; fl. ♂; *G.M.P.C. Le Testu 9349*; K, BM, BR [BR0000015019554], MO [MO-5594599], P [P04707826], WAG [WAG.1564868] • [La] Lara; [0°21'N, 11°28'E]; 27 Oct. 1933; fl. ♀; *G.M.P.C. Le Testu 9347*; K, BM, BR [BR0000015777539], P [P04707828, P04707829, P04707831], WAG [WAG.1564872, WAG.1564873] • Région entre Ogooué et Cameroon; 19 May 1936; veg.; *G.M.P.C. Le Testu s.n.*; P [P04707827, P04707830].

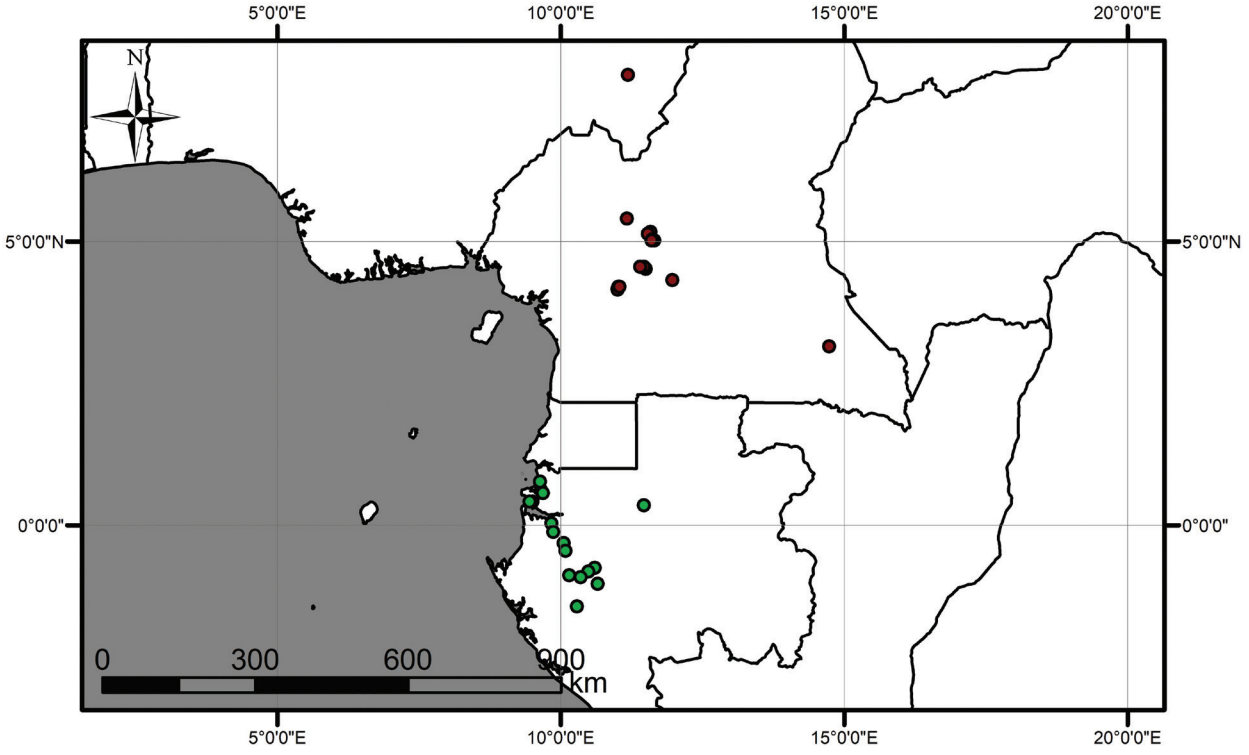

Figure 2. Distribution of *Drypetes verrucosa* (green circles) and *D. stevartii* (red circles).

Table 1. Summary of diagnostic characters useful to distinguish between *Drypetes verrucosa* and *D. stevartii*.

	D. verrucosa	***D. stevartii***
Vegetative characters		
Young branchlets, indumentum	shortly pubescent	sparingly and shortly pubescent, glabrescent
Stipule, shape	linear, laciniate	narrowly triangular
Stipule, length (mm)	(3.7–)5.9–8(–12.5)	1.9–2.2
Stipule, persistence	subpersistent	caducous
Petiole, length (mm)	(4.5–)5.2–6.7(–9)	(2.6–)3–4.6(–5.1)
Petiole, surface when dried	smooth or hardly wrinkled	finely transversely wrinkled
Leaf blade, length (cm)	(9.3–)11–16.6(–17.7)	(6.5–)7–11.1(–13.7)
Leaf blade, base	markedly asymmetrical and rounded on one side, less often oblique	oblique, sometimes asymmetrical and rounded on one side
Leaf blade, underside indumentum	sparingly pubescent	glabrous
Midrib indumentum (underside)	shortly and densely pubescent	glabrous
Male reproductive characters		
Inflorescence category (disposition)	I	I–II
Inflorescence, number of flowers	many–flowered, often more than 30	(1–)3–7
Pedicel, length (mm)	22–35(–40)	(9.2–)14.7–20
Sepals, length (mm)	4.9–5.3	4.7–4.9
Disc, diameter (mm)	(2.7–)4.3–4.7	3.1–3.3
Disc, characteristics	convex, thick, very rugose	rather flat, thin, rugose, with 3-branched, stigma-like, gynoecium remnant
Disc, indumentum	densely and shortly pubescent	sparsely and minutely pubescent
Disc, trichome length (mm)	0.1–0.3	up to 0.1
Stamens, number	14–16	19–20
Filaments, length (mm)	4.4–4.5(–9.8)	1.5–1.6
Anthers, length (mm)	1.2–1.5(–2)	2.2–2.4
Anthers, shape	ellipsoid	narrowly ellipsoid
Anthers, indumentum	glabrous	sparsely and minutely pubescent
Female reproductive characters		
Inflorescence category (disposition)	I	I–II
Inflorescence, number of flowers	10–35	1–7(–18)
Pedicel, length (mm)	(6.3–)7.9–13.2(–20)	(5.5–)12–26
Sepals, length (mm)	5–5.7	2.6–3.2
Disc, diameter (mm)	(2.5–)4.2–4.4	2.1–2.4
Disc, indumentum	shortly pubescent	glabrous
Stigmatic surface, width (mm)	1.3–3(–3.4)	1.1–1.2
Ovary, dimensions (mm)	2.4–3.4 × 4.1–4.7	1.3–1.4 × 2–2.2
Fruit, dimensions (mm)	(27–)29.5–34(–38.1) × (15–)23–29	(18–)20–29(–31) × 17–23(–25)
Fruit, shape	ellipsoid	widely ovoid
Fruit exocarp, characteristics	uneven, yellowish brown turning yellowish orange when ripe	warty, yellowish brown turning orange or red when ripe
Fruit mesocarp, thickness (mm)	2–5	1–3

Drypetes stevartii Sonké & Quintanar, **sp. nov.**
urn:lsid:ipni.org:names:77317983-1

Figs 2, 3, 4, Table 1

Type. CAMEROON • [Littoral] Binoum; 4°12'N, 11°02'E; 22 Dec. 2022; fr.; *B. Sonké & M. Simo 7127*; holotype: YA; isotypes: BR, BRLU, E, K, MA [MA 959269], MO, P.

Diagnosis. Haec species a *Drypete verrucosa* Pierre ex Hutch. stipulis 1.9–2.2 mm longis anguste triangularibus caducis, petiolis (2.6–)3–4.6(–5.1) mm longis confertim subtiliter rugosis, laminis foliorum (6.5–)7–11.1(–13.7) cm longis ad basim plerumque obliquis aliquando asymmetricis subter pubescentibus imprimis in nervis, inflorescentiis in truncum et ramorum principalium positis constantibus ex 1–7(–18) floribus, pedicello florum masculinorum (9.2–)14.7–20 mm longo, sepalis florum masculinorum 4.7–4.9 mm longis, disco florum masculinorum 3.1–3.3 mm diametro aliquantum exili sparsim pubescenti, staminibus 19–20, filamento 1.5–1.6 mm longo, anthera 2.2–2.4 mm longa anguste ellipsoidea sparsim pubescenti, pedicello florum femininorum 5.5–6.2 mm longo, sepalis florum femininorum 2.6–3.2 mm longis, disco florum femininorum 2.1–2.4 mm diametro glabro, fructibus (18–)20–29(–31) × 17–23(–25) mm late ovoideis, exocarpio 1–3 mm lato phymatodeo brunneo diluto luteolo tum aurantiacescenti vel rubescenti differt.

Description. Tree up to 20 m tall, with plagiotropic sinuous branches; trunk up to 20 cm in diameter, fluted; bark greenish-brown, smooth, rough and flaking off when old, slash light brown, later dark brown; young branchlets subterete, slightly sulcate, dark-coloured when dry, sparingly and shortly pubescent, glabrescent, trichomes 0.1–0.3 mm; terminal buds scaly, scales 1.8–2.8 × 0.7–2 mm, ovate, firm, slightly keeled, shortly pubescent outside with trichomes 0.1–0.3 mm, glabrous inside, ciliate, cilia 0.1–0.3(–0.5) mm. Leaves: stipules 1.9–2.2 × 0.5–0.9 mm, narrowly triangular, sparsely and shortly pubescent outside, glabrescent, trichomes 0.2–0.3 mm, glabrous inside, sparingly ciliate near the base, cilia 0.2–0.4 mm, caducous; petiole (2.6–)3–4.6(–5.1) mm long, (0.9–)1.1–1.6(–1.8) mm in diameter, finely transversely wrinkled, sparsely and shortly pubescent, glabrescent, old ones slightly blistered, trichomes 0.1–0.4 mm; blade (6.5–)7–11.1(–13.7) × (2.8–)3–5.8(–6.4) cm, elliptic, papery to subcoriaceous, base acute, sometimes slightly obtuse, oblique, sometimes asymmetrical, rounded on one side, basal sides usually meeting the petiole at the same point, margin crenulate-serrulate for most of its length, crenulae/teeth 0.1–0.6 mm, acute, frequently blunt, flat to slightly recurved near the blade base, shortly acuminate, apex 4–8 mm, abaxial surface between the nerves glabrous; midrib smooth, slightly longitudinally wrinkled when dry, glabrous; first order lateral veins 5–8 pairs, ascending, more or less regularly spaced, slightly depressed above, prominent beneath, courses curved and anastomosing well within the margin, oriented at (55–)60–73(–77)° to the midrib, glabrous; second order venation loosely reticulate, hardly or not raised above, slightly so beneath. Male inflorescence borne on small cushion-like excrescences of the trunk and main branches (categories I and II), in clusters of (1–)3–7 flowers; bracts 0.7–0.8 × 0.5–0.9 mm, ovate to suborbicular, minutely pubescent outside, glabrous inside, minutely ciliate, trichomes and cilia 0.1–0.2 mm, barely distinguishable. Male flowers pedicellate, yellowish green or brownish green; pedicel (9.2–)14.7–20 mm long, 0.5–0.9 mm in diameter, slender, very sparingly and shortly pubescent, trichomes 0.1–0.2 mm; sepals 5–6, 4.7–4.9 × 4.2–5.1 mm, widely ovate, acute, cucullate, imbricate, the outer often smaller than the inner, glabrous outside and inside, margin minutely ciliate for most of its length, cilia 0.1–0.2 mm; stamens 19–20, one-whorled, surrounding the disc, more or less enveloped by its marginal lobes, filaments 1.5–1.6 mm, white, anthers 2.2–2.4 mm long, 0.6–0.8 mm in diameter, narrowly ellipsoid, sub-basifixed, introrse, pale yellow, sparsely pubescent, trichomes 0.1–0.2 mm; disc ca 0.2 mm high, 3.1–3.3 mm in diameter, rather flat, thin, rugose, sparsely and minutely pubescent, trichomes to 0.1 mm, pistillode to 0.4 mm, laminate, 3-branched. Female inflorescence borne on small cushion-like excrescences of the trunk and main branches (categories I and II), in clusters of 1–7(–18) flowers; bracts 0.7–1.1 × 0.5–0.6 mm, otherwise similar to the male ones. Female flowers pedicellate, yellowish green or brownish green, sometimes pinkish; pedicel (5.5–)12–26 mm long, 0.5–0.9 mm in diameter, more or less robust, very sparingly and shortly pubescent, trichomes 0.1–0.2 mm; sepals 5–6, 2.6–3.2 × 2.5–3.4 mm, otherwise similar to the male ones; disc 0.2–0.3 mm high, 2.1–2.4 mm in diameter, concave, cupulate, fleshy, glabrous; style 1, sessile, unbranched; stigmas 3, obdeltoid, stigmatic surface ca 0.5 mm long, 1.1–1.2 mm wide; ovary 1.3–1.4 mm long, 2–2.2 mm in diameter, subglobose, 3-celled, densely and minutely pubescent, trichomes 0.1–0.2 mm. Fruits (18–)20–29(–31) mm long, 17–23(–25) mm in diameter, widely ovoid, with caducous sepals and stigmas, exocarp warty, yellowish brown turning orange or red when ripe, shortly pubescent, trichomes 0.1–0.4 mm, mesocarp 1–3 mm thick when dried, hard, endocarp 0.8–1.3 mm thick, bony, 3(–4)-seeded; seeds ca 16.8 mm long, ca 17.2 mm in diameter; fruiting pedicel (15–)21–39(–42) mm long, 1.7–3.6 mm in diameter, very sparingly and shortly pubescent, trichomes 0.1–0.2(–0.4) mm.

Distribution and chorology. Cameroon (Centre, East, Littoral, and West Regions) and eastern Nigeria (Adamawa) (Fig. 2). Lower Guinea subcentre of endemism (White 1979).

Habitat. Primary or secondary evergreen and semi-deciduous forests; at 230–620 m a.s.l.

Phenology. Flowering specimens were collected in October and November, and fruiting specimens from November to April.

Etymology. According to the wishes of Bonaventure Sonké, the collector of the type specimen, we have named this new species after the botanist Tariq Stévart (b. 1974, Coordinator, West and Central Africa Program, Missouri

Figure 3. *Drypetes stevartii* Sonké & Quintanar. **A**. Branchlet and leaves. **B**. Female inflorescence. **C**. Male inflorescence. **D**. Infructescences on the trunk. **E**. Infructescence with ripe fruits. **F**. Infructescence with immature fruits. A, C from *Sonké 7097*; B from *Sonké 7096*; D from *Sonké 7127* (type); E from *Sonké 6975*; F from *Sonké 7094*. Photographs A–F by Bonaventure Sonké, E by Murielle Simo-Droissart.

Botanical Garden, Africa & Madagascar Department), in recognition of his helpful collaboration to our research on *Drypetes* and especially of his constant support to the second and third authors.

Preliminary IUCN conservation assessment. *Drypetes stevartii* is known from 26 gatherings representing 24 occurrences and three to seven subpopulations. The extent of occurrence (EOO) is estimated to be 88,152 km^2, far exceeding the upper limit for Vulnerable under subcriterion B1, whereas the area of occupancy (AOO) is estimated to be 60 km^2, which falls within the limits for Endangered under subcriterion B2. One occurrence is located within the Gangume Forest Reserve in Nigeria (one location), five others are located within the Mpem et Djim National Park in Cameroon (one location), while the two occurrences located at Bilangue and Kikot do not appear under threat (one location). The rest of the occurrences are located outside of protected areas and are threatened by small-scale shifting agriculture (5 locations), industrial sugar plantations (one location), logging (located in a logging concession, representing one location), and quarrying for a dam project (one location). These activities indicate a decline in the quality and extent of the habitat of the species. With regard to the most serious plausible threat (shifting agriculture), the 24 occurrences represent 11 locations (sensu IUCN Standards and Petitions Committee 2022), which is just more than the upper limit for Vulnerable under the condition 'a' of subcriterion B2. We consider that habitat loss will continue in the near future, leading to the disappearance of the 5 occurrences threatened by quarrying. These future disappearances will thus lead to a continuing decline in AOO, number of locations, and mature individuals. *Drypetes stevartii* is therefore assessed as Near Threatened (NT).

Figure 4. Wild *Apis mellifera* visiting a male flower of *Drypetes stevartii*.

Additional material examined. CAMEROON – **Centre** • Goura; [4°33'N, 11°24'E]; Nov. 1938; fr.; *H. Jacques-Félix 2383*; P [P04765168, P04765171, P04765172, P04765173] • Goura, entre Bafia et Ntui; [4°33'N, 11°24'E]; fl. ♂; *B. Mpom 520*; P [P04707491], YA [YA0029435] • Mindou; 5°10'N, 11°35'E; 20 Jan. 2020; fr.; *B. Sonké & M. Simo 6398*; YA • Mpem et Djim, Malabo, plot Mpem 001, tag 245; 5°01'N, 11°39'E; 14 Feb. 2019; fr.; *IRD plot 2354 (B. Sonké & al.)*; BRLU, YA • Parc National du Mpem et Djim; 5°08'N, 11°32'E; 12 Dec. 2022; fr.; *F. Nzoyeuem & H. Leblanc 158*; BR, BRLU, MA, MO, YA • Parc National du Mpem et Djim, Kounoungou; 5°02'N, 11°37'E; veg.; 24 Mar. 2023; *B. Sonké & al. 7267*; BR, BRLU, MO, YA • Parc National du Mpem et Djim, Kounoungou; 5°01'N, 11°36'E; fr.; 27 Mar. 2023; *B. Sonké & al. 7303*; BR, BRLU, MO, P, YA • Vers Biakoa à 117 km de Ntui; [4°33'N, 11°28'E]; 18 Nov. 1969; fr.; *B. Mpom 535*; P [P04707489, P04707490], YA [YA0029434] • Versant septentrional des monts Meiki (983 m) au Sud de Ndo (25 km NNE d'Esse); [4°19'N, 11°58'E]; 9 Nov. 1969; fl. ♀, fr.; *R. Letouzey 9543*; BR [BR0000015776754], COI, P [P04707446], YA, WAG [WAG.1564736]. – **East** • 60 km south of Yokadouma, 30 km after Ngato, 15 km after river, ALPICAM 'base de vie', then on forestry road starting 4 km before Maséa village; 3°09'N, 14°44'E; 4 Mar. 2019; fr.; *T.L.P. Couvreur & al. 1194*; YA. – **Littoral** • Bilangue; 4°10'N, 11°00'E; 29 Apr. 2022; fr.; *B. Sonké & al. 6975*; BR, BRLU [BRLU0032163], K, MO, P, WAG, YA • Bindamongo, km 106.5 sur route Yaounde-Bafia, à 15 km WNW de Ntui; [4°31'N, 11°30'E]; 18 Nov. 1969; fl. ♂; *R. Letouzey 9568*; BR [BR0000015776730], P [P04707231], YA [YA0029469] • Bindamongo, km 106,5 sur route Yaounde-Bafia, à 15 km WNW de Ntui; [4°31'N, 11°30'E]; 18 Nov. 1969; fr.; *R. Letouzey 9568bis*, BR [BR0000015776747], P [P04707227], YA [YA0029462] • Binoum; 4°12'N, 11°02'E; 18 Oct. 2022; fl. ♂; *B. Sonké 7097*; BR, BRLU, M, MA [MA 959273], MO, P, YA • Binoum; 4°12'N, 11°02'E; 18 Oct. 2022; fl. ♀; *B. Sonké 7096*; BR, BRLU, M, MA [MA 959272], MO, P, YA • Binoum; 4°12'N, 11°01'E; 18 Oct. 2022; fl. ♀; *B. Sonké 7095*; BR, BRLU, M, MA [MA 959277], MO, P, YA • Binoum; 4°12'N, 11°02'E; 18 Oct. 2022; fr.; *B. Sonké 7094*; BR, BRLU, E, MA [MA 959271], P n.v., YA • Binoum; 4°12'N, 11°02'E; 13 Oct. 2022; fr.; *B. Sonké & M. Libalah 7074*; BR, BRLU, MA [MA 959276], MO, P, YA • Binoum; 4°12'N, 11°02'E; 13 Oct. 2022; fr.; *B. Sonké & M. Libalah 7072*; BR, BRLU, MA [MA 959275], MO, P, YA • Binoum; 4°12'N, 11°02'E; 13 Oct. 2022; fr.; *B. Sonké & M. Libalah 7071*; BR, BRLU, M, MA [MA 959274], MO, P, YA • Binoum; 4°12'N, 11°02'E; 22 Dec. 2022, fr.; *B. Sonké & M. Simo 7126*; BR, BRLU, E, K, MA [MA 959270], MO, P, YA • Binoum, sur une coline; 4°12'N, 11°02'E; 15 Oct.

2022; fl. ♂; *F. Nzoyeuem & al. 149*; BRLU, YA • Kikot, en Aval du pont sur la Sanaga; 4°09'N, 11°00'E; 10 Nov. 2022; fl. ♀; *TRCam plot 618 (F. Nzoyeuem & al.)*; BRLU, YA. – **West** • Près Mankare, 45 km SE Foumban; [5°24'N, 11°10'E]; 23 Oct. 1974; fl. ♀, fr.; *R. Letouzey 12989*; BRLU [BRLU0000164], MO [MO-5594595], P [P04707473], YA [YA0029404].

NIGERIA – **Adamawa** • Gangumi, on the second mile line from the base line; [7°56'N, 11°11'E]; 11 Dec. 1954; fr.; *FHI 28890 (M.G. Latilo & B.O. Daramola)*; FHO [FHO 00018584], K [2 sheets].

Key to *Drypetes verrucosa* and *D. stevartii*

1. Stipules (3.7–)5.9–8(–12.5) mm long, linear, laciniate, subpersistent; petiole (4.5–)5.2–6.7(–9) mm long, smooth, or hardly wrinkled when dried; leaf blade (9.3–)11–16.6(–17.7) cm long, markedly asymmetrical and rounded on one side, less often oblique, underside sparingly pubescent, midrib shortly and densely pubescent; inflorescences borne on the trunk, many-flowered (> 10 flowers); male pedicel 22–35(–40) mm long; male sepals 4.9–5.3 mm long; male disc (2.7–)4.3–4.7 mm in diameter; convex, thick, very rugose, densely and shortly pubescent; stamens 14–16, filament 4.4–4.5(–9.8) mm long, anther 1.2–1.5(–2) mm long, ellipsoid, glabrous; female pedicel (6.3–)7.9–13.2(–20) mm long; female sepals 5–5.7 mm long; female disc (2.5–)4.2–4.4 mm in diameter, shortly pubescent; fruit (27–)29.5–34(–38.1) × (15–)23–29 mm, ellipsoid; mesocarp 2–5 mm thick, exocarp uneven, yellowish brown turning yellowish orange when ripe ..... ***D. verrucosa*** Pierre ex Hutch.
– Stipules 1.9–2.2 mm long, narrowly triangular, caducous; petiole (2.6–)3–4.6(–5.1) mm long, finely transversely wrinkled when dried; leaf blade (6.5–)7–11.1(–13.7) cm long, oblique, sometimes asymmetrical and rounded on one side, underside and midrib glabrous; inflorescences borne on the trunk and main branches, clusters of 1–7(–18) flowers; male pedicel (9.2–)14.7–20 mm long; male sepals 4.7–4.9 mm long; male disc 3.1–3.3 mm in diameter, rather flat, thin, rugose, sparsely and minutely pubescent; stamens 19–20, filament 1.5–1.6 mm long, anther 2.2–2.4 mm long, narrowly ellipsoid, sparsely and minutely pubescent; female pedicel (5.5–)12–26 mm long; female sepals 2.6–3.2 mm long; female disc 2.1–2.4 mm in diameter, glabrous; fruit (18–)20–29(–31) × 17–23(–25) mm, widely ovoid; mesocarp 1–3 mm thick, exocarp warty, yellowish brown turning orange or red when ripe..... ***D. stevartii*** Sonké & Quintanar

DISCUSSION

These two trees of around 20 m tall occur in different countries in the Lower Guinean subcentre of endemism (White 1979)—*D. verrucosa* in Gabon and *D. stevartii* in Cameroon and eastern Nigeria—and have quite separate distribution ranges. Both of them inhabit evergreen forests but *D. stevartii* is also found in semideciduous formations.

The young branchlets of both species are somewhat sulcate and shortly pubescent, although those of *D. stevartii* only sparingly, becoming glabrescent. Along the branchlets of *D. stevartii*, we have observed that aborted stem remnants, usually ca 5 mm, quite frequently appear at the position of some leaf nodes, a character absent in *D. verrucosa*. Their stipules are very different, subpersistent, linear and larger in *D. verrucosa*, often with a lateral-basal lacinia, sometimes with several lateral laciniae, unlike the narrowly triangular stipules of *D. stevartii*, without lateral expansions and soon caducous (see Table 1). Despite the overall similarity of the leaves of both species, there are some morphological characters with diagnostic value on dried specimens. For example, the petiole, smooth or hardly wrinkled, and densely and minutely pubescent in *D. verrucosa*, is finely transversely wrinkled and sparsely and shortly pubescent in *D. stevartii*. Also, their leaf base and indument are useful to distinguish them. The leaf base of *D. verrucosa* is markedly asymmetrical, rounded on one side, less often oblique, and the leaf underside is shortly pubescent, more or less densely along the nerves and sparingly on the lamina. In contrast, the leaf base of *D. stevartii* is oblique, sometimes asymmetrical and rounded on one side, and the leaf underside, nerves included, is glabrous.

Both species are cauliflorous but while *D. verrucosa* is strictly truncifloroous (category I), *D. stevartii* presents its inflorescences also along the main branches (categories I and II). The many-flowered inflorescences of *D. verrucosa*, almost always on cushions that exceed 30 flowers and noticeably forming horizontal bands on the trunk, make it easy to distinguish the species from *D. stevartii*, which has relatively pauciflorous inflorescences. However, despite the fact that the flowers of this latter species are usually in groups that do not exceed 10 flowers, in the gathering *Sonké 7072* up to 18 fruits were observed in one infructescence, showing that the number of flowers of the female inflorescences of *D. stevartii* can occasionally be higher. The flowers of *D. verrucosa* are slightly larger than those of *D. stevartii* and are borne on gracile and longer pedicels (conversely, female ones are longer in *D. stevartii*). The nectar discs are larger in *D. verrucosa*. The differences between the flowers of both species go beyond the quantitative and show qualitative characters as well that allow them to be easily distinguished. The male disc of *D. verrucosa* is convex, thick, very rugose and has longer and densely arranged trichomes, while the disc of *D. stevartii* is rather flatter and thinner, as well as only sparsely and minutely pubescent. Interestingly, the male disc of *D. stevartii* often presents remnants of the gynoecium in its centre, in the form of 3-branched laminar expansions. The androecium of both species is also quite different: *D. verrucosa* has fewer stamens than *D. stevartii*, with longer filaments and smaller anthers and a different shape, clearly ellipsoid in *D. verrucosa* and narrowly ellipsoid in

D. stevartii. The anthers of *D. verrucosa* are glabrous, as in most African species of *Drypetes*, however, those of *D. stevartii* are sparsely and minutely pubescent, a character rarely reported in African species of *Drypetes* (e.g. in *D. burnleyae* Cheek, Cheek et al. 2021). On the other hand, the disc of the female flowers of *D. verrucosa* is sparsely and minutely pubescent, especially towards its margin, while that of *D. stevartii* is glabrous. The dimensions of the stigmatic surface are greater in *D. verrucosa*, as well as those of its ovaries. This is to be expected because of the larger dimensions of the flowers in general. Finally, the flowers of both species present pale colours, from greenish to brownish when they are closed, that later can take on pinkish or whitish tones during anthesis, and yellowish in *D. stevartii*. According to the information recorded on some herbarium labels, the male flowers of *D. verrucosa* give off a "pleasant" odour that attracts ants (*Bidault 1861*, Fig. 1D), while small hymenoptera and wild bees (*Apis mellifera* Linnaeus, 1758, Dr Ngo Massu pers. comm.), have been observed to be attracted to those of *D. stevartii* (*Sonké 7097*, Fig. 4). The fruits of both species are easily distinguishable: *D. verrucosa* are ellipsoid and somewhat larger than those of *D. stevartii*, which are rather widely ovoid. The exocarp surface is uneven in *D. verrucosa* and turns yellowish orange when the fruit is ripe, whereas the surface in *D. stevartii* is warty and turns into a very showy orange or red. The mesocarp of *D. verrucosa* is thicker than that of *D. stevartii*.

CONCLUSION

With the discovery and publication of *D. stevartii*, *Drypetes* now consists of 84 species in continental Africa and the Malagasy Region—219 in the world—, of which 20 belong to inflorescence categories I or II, like the two species we treated here. The typification and amendment of the infrageneric ranks in *Drypetes* will be carried out in the near future in conjunction with a molecular phylogeny for Putranjivaceae. For the moment, we leave *D. verrucosa* within the section in which it was classified by Pax and Hoffmann (1922), *D.* sect. *Stipulares*, and *D. stevartii* not classified in any section, pending the new subdivision of the genus. Our preliminary IUCN conservation assessments found that both *D. verrucosa* and *D. stevartii* are Near Threatened species.

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