A taxonomic treatment of *Drypetes calvescens* and a new endangered species from the western Congolian swamp forest, *D. palustris* sp. nov. (Putranjivaceae)

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**Abstract.** We publish in this article a new species of tree of *Drypetes* (Putranjivaceae) from the Democratic Republic of the Congo and Republic of the Congo, *D. palustris*, which occurs in the Western Congolian Swamp Forests ecoregion. It is known from eight gatherings and we compare it with the species with the most similar morphology, *D. calvescens*, of which we have studied 51 gatherings collected in Central Africa. A taxonomic treatment of both species, including their detailed descriptions, typification of their names, a comparative table summarizing their main morphological differences, an illustration and information about their habitat and distribution are provided. A provisional IUCN Red List assessment shows that *D. palustris* is Endangered and *D. calvescens* is of Least Concern.

**Keywords.** Central Africa, conservation status, endangered species, new species, taxonomy, swamp forests.

**Resumen.** En este artículo publicamos una nueva especie arbórea de *Drypetes* (Putranjivaceae) de la República del Congo y la República Democrática del Congo, *D. palustris*, que se da en la región ecológica denominada Bosques pantanosos congolecos occidentales. Se conoce gracias a ocho recolecciones y la comparamos con la especie de morfología más parecida, *D. calvescens*, de la que hemos estudiado 51 recolecciones hechas en África central. Presentamos un tratamiento taxonómico de ambas especies que incluye la descripción detallada de su morfología, la tipificación de sus nombres, una tabla comparativa que resume sus principales diferencias morfológicas y una ilustración, así como información acerca de su hábitat y distribución. La evaluación provisional realizada para la Lista Roja de la UICN revela que *D. palustris* se encuentra En peligro y *D. calvescens* es de Preocupación menor.

**Palabras clave.** África central, bosques pantanosos, especie en peligro, especie nueva, estado de conservación, taxonomía.

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INTRODUCTION

The genus Drypetes Vahl (Putranjivaeaceae Endl., Malpighiales Juss. ex Bercht. & J.Presl) comprises more than 200 species (Govaerts & al. 2000; Radcliffe-Smith 2001) of trees and shrubs, found in forests and savannas throughout the tropics. During the last two years, four new species of this genus have been published for Africa, increasing the number of species that occur in this continent and Madagascar to 77 (Radcliffe-Smith 2001; Cheek & al. 2021; Quintanar & al. 2020, 2021a, 2021b), including those previously considered as belonging to Sibangea Oliv. Species of Drypetes typically have simple, petiolate leaves with a slightly (oblique) to markedly asymmetric base. They are mostly dioecious with solitary or clustered flowers, arranged in leaf or leafless axils along the branchlets or on slightly raised woody cushions on older branches or the main trunk. Their flowers are apetalous and bear a nectariferous disk that, in the male (staminate) flowers, is surrounded or penetrated by the stamens, whereas in the female (pistillate) flowers the disk appears typically to encircle the ovary base. Flowers, especially on the older branches and the main trunk, are subtended by an often very dense and compact array of minute bracts which comprises both the new ones sprouted during the year and the adjoining remnants of those of previous years, more or less degraded due to the passage of time. The stigmas, sessile or on short styles, are frequently flattened, fleshy and resistant enough to persist on the somewhat fleshy, drupaceous fruit. The biochemistry of Drypetes species has proven to be of interest, and during the last decades has been the subject of many studies (e.g., Johnson & al. 2009; Grace & al. 2016; Zhang & al. 2016).

Drypetes calvescens Pax & K.Hoffm. is a poorly known species of tree that occurs in rainforests over 400 m a.s.l. throughout a very wide area in Central Africa, in Gabon, Cameroon, Central African Republic, Republic of the Congo, Democratic Republic of the Congo and Uganda. It was classified in D. sect. Stenogynium (Müll.Arg.) Pax & K.Hoffm. by Pax & Hoffmann (1922), presumably due to having small deciduous stipules, short stamens encircling the disk, 2-celled ovaries, and gracile styles with dilated, entire or bifid, apex. During the study of the herbarium material of D. calvescens, we found several specimens in the herbarium BR that were collected by C.M. Evrard (1926–2009) from the flooded forests of Mongala (northwestern D.R. Congo) in 1955 during his studies of the vegetation of the Congo Basin (Bamps & Bouharmont 2010) and whose morphology differed. These were Evrard 1608 and 1609. The preliminary designation “Drypetes evradii” was handwritten by J. Léonard on the herbarium labels, suggesting that he recognized that these specimens represented a new species that he wanted to name after their collector, Evrard. Furthermore, in another handwritten note preserved with the specimens, the morphology of D. palustris sp. nov. was compared to that of D. calvescens without concluding if these two taxa should be classified as the same species or if they really constituted two similar species. However, both these specimens and Léonard’s designation seem to have been neglected perhaps because the specimens shared most of the characters described in the protologue of D. calvescens (Pax & Hoffmann 1922), which was based only on flowering specimens. Both species represent trees with glabrescent young branchlets, leaves of similar sizes and oblique bases, very small male flowers with four or five stamens, and ovaries usually with two bifid stigmas on two styles that are united just at the base or a little bit further along their lengths. Very little in the protologue of D. calvescens could have served to differentiate this species from “Drypetes evradii”, perhaps just the leaf base, unambiguously described as acute, the obscurely denticulate margin, and the glabrous inner surface of the sepals.

Fruiting material of D. calvescens does not appear to have become available until the 1960s, additionally showing that the fruits are smaller and quite different from those of “Drypetes evradii”. These specimens collected by Evrard, together with others collected more recently, clearly represent a new species in Drypetes, different from D. calvescens, that we have chosen to name D. palustris D.J.Harris, Barberà & Quintanar, sp. nov. since we have not detected any dissemination of its previous designation and we prefer a name which reflects the important habitat in which it occurs. Drypetes palustris sp. nov. are trees to ca. 15 m high that occur in periodically flooded, riparian forests in the western part of the Congo River Basin, an area that straddles two different countries, the Republic of the Congo and the Democratic Republic of the Congo, at 270–410 m elevation. The geographical area and the type of habitat correspond to the Western Congolian Swamp Forests ecoregion (according with the World Wide Fund for Nature, cf. https://www.worldwildlife.org/ecoregions/at0129), one of the largest and best conserved areas of tropical swamp forests in the world, as well as a region that is still very poorly known as shown by the recent description of Dargie & al. (2017), who present the swamps of the Cuvette Centrale depression in the central Congo Basin as the most extensive peatland complex in the tropics.

This new study has deepened our knowledge of Drypetes calvescens, coupled with the study of some new specimens and the verification of many collections whose identity remained doubtful, most of them vegetative. In March 2021 an IUCN Red List Assessment of D. calvescens was published (Barberà & al. 2021), as ‘Least Concern’. Additional information and new specimens have become available since this assessment was presented and we have been able to confirm its presence in the Republic
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Fig. 1. *Drypetes palustris* D.J.Harris, Barberá & Quintanar, sp. nov.: a, branchlet, leaves, and male inflorescences; b, twig showing scales and stipules; c, petiole and axillary bud; d, male flower just before anthesis; e, male flower open, showing the disk; f, apex of a mature ovary, showing styles and stigmas; g, fruit. *D. calvescens* Pax & K.Hoffm.: h, male flower, showing the disk; i, male sepal, abaxial view; j, female flower without sepals, showing the disk; k, fruit [a, b, c, e, P. Sita 1903 (P04707765, isotype); c, g, J. Lejoly 96/123 (BRLU 0024560); f, P. Sita 2818 (P04707762); h, i, G.W.J. Mildbraed 4923 (HBG-516347); j, G.W.J. Mildbraed 4993 (HBG-516348); k, R. Pierlot 2347 (BR0000015785589)]. Illustration by Román García Mora.
of the Congo and Uganda (from the latter country it was already accounted for by Radcliffe-Smith 1978, 1987). In the case of Gabon, the presence of *D. calvescens* is based on vegetative specimens and represents an addition to the treatment of the species of *Drypetes* that we recently presented for publication in the series *Flore du Gabon* (Harris & al. 2021). In addition, we describe *D. palustris* sp. nov. and compare its morphology with that of *D. calvescens* as it is currently circumscribed, as well as designating a lectotype from among the syntypes cited in its protologue. We also provide a diagnosis for the new species, a table in which we summarize the main characters that distinguish it from *D. calvescens*, a plate to illustrate their characters, a distribution map, and information on the distribution, habitat, phenology, typification and etymology of the scientific name, conservation status, and a list of all the studied material of each species.

**MATERIAL AND METHODS**

The descriptions presented here, as well as all information on the habitat and distribution, is based on the study of eight gatherings of *Drypetes palustris* sp. nov. and 51 of *D. calvescens* (see the list of associated specimens in the taxonomic treatment of each species) from the following herbaria: BM, BR, BRLU, HBG, K, MO, P, POZG, PR, US and WAG (Thiers, continuously updated), all collected in Central Africa. Measurements were carried out using a Mitutoyo CD-15CD digital caliper and a manual scale with a precision of 0.1 mm to record quantitative morphological characters and prepare the descriptions of the species, as well as for comparative purposes. The descriptive terminology follows that used in Stearn (1973) and Harris & Harris (1994), as well as that of Pole (1991) for leaf venation. We have compiled the main diagnostic characters to distinguish *D. palustris* sp. nov. from *D. calvescens* in Table 1, which supplements the information offered in the last section, Taxonomic notes. Abbreviations: fl., flowering specimens; fr., fruiting specimens; veg., vegetative specimens. We also present a drawing of *D. palustris* sp. nov. that illustrates its habit and morphology for comparative purposes, in which we have also included details of the flowers of *D. calvescens*, illustrated here for the first time.

The information compiled on the habitat of each species, as well as on their phenology and chorology, was obtained from collection labels. Geographical coordinates were used to build a distribution map for *Drypetes palustris* sp. nov. and *D. calvescens* with ArcView GIS v. 3.2 for Windows (ESRI 2020). The coordinates that were not indicated on collection labels were determined posteriori and are presented between square brackets. A preliminary estimation of extinction assessment using the IUCN Red List categories and criteria (IUCN 2019) is provided for *D. palustris* sp. nov., and an updated assessment for *D. calvescens* is given to supplement that of Barberá & al. (2021) using the new data and information obtained while conducting the present study. The geographical parameters of Area of Occupancy (AOO) and Extend of Occurrence (EOO), estimated using a 2 × 2 km grid, were calculated using Geocat (2020).

**RESULTS AND DISCUSSION**

**Taxonomic treatment**

*Drypetes palustris* D.J.Harris, Barberá & Quintanar, sp. nov. Type: Republic of the Congo, Brazzaville, Île M’Bamou, forêt de Kitengéné, [4º12’S 15º25’E], 3 Nov 1967, male fl., P. Sita 1903 (holotype: BR0000016004719!; isotypes: BR0000016004726!, P04707765!). Fig. 1 a–g.

**Diagnosis.**—Haec species a *Drypete calvescente* Pax & K.Hoffm. foliis coriaceis margine subintegro secur longitudinem pro parte maxima leviter sed conspicue recurvato, basi acuta vel obtusa, nervis lateralis principalibus ad marginem obscure anastomosantiubis, petiolo vetere pubescentes, squamus gemmarum stipulisque vasto majo- ribus, stipulis anguste ovatis, inflorescentiis masculinis in axillis foliiferis positis, sepalis adaxialiter pubescentibus jam in alabastro majoribus, disco concavo ad marginem valde plicato, flore femino solitario atque fructu majore ad apicem depresso longioribus costato costis principali- bus secundarissisque quattuor differt.

Tree ca. 15 m; trunk to 20(–35) cm in diameter, young branchlets subterete, angled, slightly sulcate, moderately and shortly pubescent, trichomes to 0.2 mm; terminal buds scaly; scales 1.8–2.6 × 0.9–1.3 mm, ovate-triangular, shortly and densely pubescent outside, scantily so inside, trichomes 0.1–0.4 mm. Leaves alternate; stipules 3.5–3.8 × 0.8–1 mm, very narrowly ovate, densely and shortly pubescent outside, much more scarcely inside, trichomes to 0.3 mm, caducous, very soon falling; petiole (6–)6.8–10(–11.5) mm long, (1.1–)1.3–1.8(–2.3) mm in diameter, transversely and longitudinally wrinkled, densely and shortly pubescent outside, persistently, trichomes to 0.2 mm; blade (7.3–)9.7–17.7(–21) × (3.5–)4.2–8.5(–10.7), narrowly to widely ovate or elliptic, firmly coriaceous, base slightly obtuse or acute at base, oblique, sometimes near symmetric, both sides of the leaf blade meeting the petiole at the same height, rarely separately by up to 0.2 mm, subentire, margin slightly recurved along most of its length, acuminate, often shortly, apex 5–17 mm, abaxial surface among veins glabrescent, trichomes 0.1–0.3, few, scattered; midrib longitudinally wrinkled, quite depressed above, prominent beneath, glabrous, first order lateral veins 5–8 pairs, irregularly spaced, hardly or slightly depressed above, raised beneath, ascending, obscurely diminishing and anastomosing near the margin, oriented at (37–)42–51(–59)º to the
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Midrib, glabrous, second order venation raised above and beneath. Male inflorescences borne in leaf axils, clusters of 5–10 flowers; bracts 1.1–1.7 × 1.1–2.1 mm, widely ovate, minutely pubescent outside, glabrous inside, trichomes to 0.1 mm. Male flowers greenish white, pedicellate; pedicel 2.1–2.4 mm long, 0.4–0.6 mm in diameter, slender, shortly pubescent, trichomes to 0.2 mm; sepals 4, 2–3.1 × 1.1–2.4 mm, narrowly elliptic to widely obovate, obtuse, cucullate, imbricate, densely and shortly pubescent outside, trichomes to 0.2 mm, shortly pubescent inside, especially near the base, trichomes 0.2–0.3 mm, shortly ciliate at margin, cilia 0.2–0.3 mm, barely distinguishable from the rest of the indumentum of the sepal abaxial face; stamens 4(–5) in a single whorl, surrounding the disk and only slightly enveloped by its marginal lobes, filaments ca. 1 mm, anthers ca. 0.8 mm long, 0.7 mm in diameter, widely ellipsoid, subbasifixed to dorsifixed, introrse, glabrous; disk 0.8–0.9 mm high, 1.4–1.6 mm in diameter, concave, cupular, thin, smooth, margin plicate and even constricted by the filaments, glabrous; pistillode absent. Female inflorescences borne in leaf and leafless axils, comprising a solitary flower; bracts 1.5–1.7 × 1.8–2.1 mm, widely ovate, minutely pubescent outside, glabrous inside, trichomes to 0.1 mm. Female flowers pedicellate, observed only well after anthesis with a noticeably thickened ovary and no sepals; pedicel 4.1–6.7 mm long, 1–1.3 mm in diameter, more or less slender, shortly pubescent, trichomes to 0.2 mm; disk 0.7–0.9 mm high, 5.1–6.2 mm in diameter, flat, fleshy, glabrous, often reflexed at margin; styles 2, 1.5–1.8 mm, free, adnate only at their base; stigmas 2, bifid, each arm 0.5–0.7 mm long, stigmatic surface 3–3.9 mm wide; ovary 3.9–4.8 mm long, 5.3–6 mm in diameter, widely elliptic-obovate, apically depressed, 2-celled, densely and shortly pubescent, trichomes 0.3–0.5 mm. Fruits 12–16.5 mm long, 12.5–17 mm in diameter, widely ellipsoid-obvoid, apically depressed, longitudinally ribbed with four main and four secondary much less marked ribs, 2-celled, 1–2-seeded, shortly pubescent, trichomes 0.2–0.3 mm, sepals deciduous, style and stigmas subsessile, seeds 8.1–8.4 × 7–7.3 mm; subsessile to pedicellate, fruiting pedicel 2.3–2.9(–6.7) mm long, (1–)1.2–1.4 mm in diameter, minutely to shortly pubescent, trichomes 0.1–0.2 mm.

Distribution, habitat and phenology.—Central Africa: Democratic Republic of the Congo (Mongala and Sud-Ubangi) and Republic of the Congo (Brazzaville and Cuvette-Ouest) (Fig. 2, red circles). Swampy, periodically flooded, fluvial forests; 270–410 m elevation. Flowering specimens have been collected in November, and fruiting specimens in December and January.

Etymology.—The specific epithet is the nominative feminine singular of the Latin adjective paluster, which refers to the swampy nature of the forests that these plants inhabit.

Provisional IUCN red list assessment.—The extent of occurrence (EOO) of Drypetes palustris is estimated as 223,214 km² (far exceeding the upper threshold for Vulner-
able status under subcriterion B1 of the IUCN Red List), whereas its area of occupancy (AOO) is estimated to be 24 km² (which falls within the limits for Endangered status under subcriterion B2). The species is known from eight collections, made in swampy and periodically flooded forests of the western Congo basin, between 1955 and 1996. These eight collections represent six occurrences, and four subpopulations. In the Republic of the Congo, the two occurrences are situated in a protected area (Odzala National Park), while the other two are located in the Mbamu Island forest and are threatened by small-scale agriculture. In the Democratic Republic of the Congo, the two occurrences are threatened by shifting agriculture and timber harvesting. As a consequence, these six occurrences represent four locations (cf. IUCN 2019) with regard to the most serious plausible threat (i.e., small-scale agriculture). Therefore, we infer a current and future continuous decline in the extent and quality of its habitat, and in the number of mature individuals. *Drypetes palustris* is thus provisionally assessed as Endangered, EN B2ab(iii, v).


**Drypetes calvescens** Pax & K.Hoffm., *Das Pflanzenreich* 147, 15 (Heft 81): 276 (1922). Type: Democratic Republic of the Congo, Ituri, NO-Kongo, Ituri-[Irumbu], [1°27′N 29°55′S], 1910–1911, male fl., G.W.J. Mildbraed 2922 (lectotype, here designated: HBG-5163451!). Fig. 1 h–k.

Tree to 15 m; trunk to 32 cm in diameter, sometimes sinuous, young branchlets suberete, angled, slightly sulcate, glabrescent, trichomes 0.1–0.2(–0.4) mm; terminal buds scaly, scales 1.1–1.2 × 0.5–0.7 mm, ovate, densely and shortly pubescent outside, glabrous inside, trichomes 0.1–0.2(–0.5) mm. Leaves alternate, deep green above, much paler beneath; stipules 0.9–2.1 × 0.3–1.1 mm, ovate-triangular, tough, shortly pubescent outside, glabrous inside, trichomes 0.1–0.3 mm, caducous, very soon falling; petiole (3–)4.6–5.9(–8) mm long, (0.8–)1.1–1.5(–2) mm in diameter, longitudinally and slightly wrinkled, glabrescent, trichomes to 0.1(–0.3) mm; blade (8.7–)10.4–13.2(–17) × (2.6–)3.1–4.5(–5.1), narrowly elliptic to elliptic or slightly oblong, suborbicular, acute at base, oblique, both sides of the leaf blade meeting the petiole at the same height, subentire to shallowly crenulate mostly along the distal half, crenulate to 0.6 mm, flat, acuminate to lengthy acuminate, apex (7–)9.4–12(–17) mm, abaxial surface among veins glabrescent, trichomes 0.1–0.2 mm, few, scattered; midrib longitudinally very slightly wrinkled, slightly depressed above, prominent beneath, glabrescent, first order lateral veins 6–7 pairs, quite regularly spaced, hardly depressed above, slightly prominent beneath, ascending, obscurely diminishing but often noticeably curved and anastomosing well within the margin, oriented at (50–)62–69(–78)º to the midrib, glabrescent, second order venation slightly raised above and beneath, often hardly above. Male inflorescences borne in leaf or leafless axils, along the branches, clusters of ca. 10 flowers; bracts 0.6–0.8 × 0.6–1.1 mm, widely ovate, minutely pubescent outside, glabrous inside, trichomes to 0.1 mm. Male flowers whitish or greenish white, pedicellate; pedicel (2.2–)2.8–3.8(–4.8) mm long, 0.2–0.5 mm in diameter, slender, minutely pubescent, trichomes to 0.1 mm; sepals 4, (1.2–)1.7–1.9(–2) × 1.3–2 mm, narrowly oblongolate to widely ovate or obovate, obtuse, cucullate, imbricate, minutely pubescent outside, trichomes to 0.1 mm, glabrous inside, minutely ciliate at margin, cilia to 0.1 mm; stamens 4(–5) in a single whorl, surrounding the disk and only slightly enveloped by its marginal lobes, filaments 1.6–2.3 mm, anthers 0.6–0.7 mm long, 0.3–0.8 mm in diameter, obovoid to widely ellipsoid, dorsifixed, introrse, glabrous; disk 0.3–0.4 mm high, 1.4–2 mm in diameter, convex, dome-shaped, fleshy, slightly rugose, margin slightly lobed, dark-colored after drying, with a central prominence to 0.2(–0.3) mm high, glabrous; pistilolate absent. Female inflorescences mostly borne in leafless axils, clusters of 1–3(–4) flowers; bracts 0.4–0.5 × 0.7–0.9 mm, widely ovate, minutely pubescent outside, glabrous inside, trichomes to 0.1 mm. Female flowers whitish, pedicellate; pedicel (3.3–)5–6(–6.4) mm long, 0.2–0.5(–0.7) mm in diameter, slender, minutely pubescent, trichomes to 0.1 mm; sepals 4, (1.7–)2.2–2.5(–3.3) × (1.4–)1.6–2.7(–3.1) mm, narrowly elliptic to widely ovate, obtuse, cucullate, imbricate, shortly pubescent outside, trichomes to 0.2 mm, glabrous inside, shortly ciliate at margin, cilia 0.1–0.2 mm; disk 0.3–0.5(–0.9) mm high, 2.6–3.7 mm in diameter, flat to cupulate, margin often raised upwards, fleshy, glabrous; style 1, (0.1–)0.2–0.5(–0.8) mm, adnate or 2-branched, basally united to 0.1–0.8 mm; stigmas 2, bifid, sometimes roughly reniform or obdeloid, each free arm (0.4–)1–2.1(–2.4) mm long, stigmatic surface (0.4–)0.6–1.7(–1.9) mm wide; ovary 2–3 mm long, 1.1–2.7 mm in diameter, glo-
Drypetes calvescens

D. gabonensis

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**Taxonomic notes**

Drypetes palustris is, like *D. calvescens*, a medium-sized tree with simple, alternate and often subentire
leaves. The leaf margin of *D. palustris* is slightly but distinctly recurved along most of the blade, while that of *D. calvescens* is flat and may also be crenulate or serrulate along the distal part. The base of the leaf and its texture also have diagnostic value: *D. palustris* has firmly coriaceous leaves with acute or obtuse bases, whereas *D. calvescens* has subcoriaceous leaves with an acute base. The petiole of both species appears to be longitudinally wrinkled when dried and is shortly pubescent, but that of *D. palustris* is usually longer (6–11.5 mm) vs. (3–)4.6–5.9(–8) mm, see Table 1) and has persistent indument. The petiole of *D. calvescens* is glabrescent, so that the petiole of the mature leaves hardly bears any trichomes. Leaf venation also exhibit some differences: the first order lateral veins of *D. palustris* are irregularly spaced and anastomose near the leaf margin, whereas those of *D. calvescens*, more often noticeably marked on the adaxial leaf surface, are regularly spaced and anastomose well within the margin, forming different angles to the midrib, smaller in *D. palustris* (37–51(–59) mm vs. (50–)62–69(–78) mm in *D. calvescens*). In addition, second order venation is conspicuously raised in the adaxial and abaxial surfaces of the leaf blade of both species, but in *D. calvescens* is less raised, often hardly on the adaxial surface. Differences in the vegetative parts of both species can also be seen in the bud scales and the stipules, both much larger in *D. palustris* (1.8–2.6 × 0.9–1.3 and 3.5–3.8 × 0.8–1 mm, respectively) than in *D. calvescens* (1.1–1.2 × 0.5–0.7 and 0.9–2.1 × 0.3–1.1 mm, respectively), whose stipules are almost triangular, while in *D. palustris* they are narrowly ovate.

The male individuals of both species have axillary inflorescences, in *Drypetes palustris* they appear in leaf axils, whereas in *D. calvescens* they also occur in leafless axils. The only male flowers of the new species available to us were young and about to open, a circumstance that must be taken into account when using the characters in our descriptions, mostly regarding the length of the pedicel and the filament. The pedicel is shorter in *D. palustris* (2.1–2.4 vs. (2.2–)2.8–3.8(–4.8) mm) and the filament longer in *D. calvescens* (1.6–2.3 vs. ca. 1 mm), from which we have been able to describe male flowers in full anthesis. The dimensions of the sepals of *D. palustris* are larger than those of *D. calvescens* (2–3.1 × 1.1–2.4 vs. (1.2–)1.7–1.9(–2) × 1.3–2 mm) despite corresponding to immature flowers, and this character therefore appears to be of more diagnostic value. Furthermore, the adaxial surface of the sepals is shortly pubescent in *D. palustris*, while it is glabrous in *D. calvescens*. The floral disk also differs considerably between the two: in *D. palustris* it is concave, cupular, thin, and its margin is plicate and even slightly constricted by the filaments; in *D. calvescens*, on the other hand, it is convex, thick, and its margin is only slightly lobed. The disk of *D. calvescens* has also a noticeable central prominence and a dark color after drying, features that are missing in *D. palustris*.

We have not seen any female material of *Drypetes palustris* collected at anthesis. However, we have had at our disposal a few specimens with very immature fruits (and our description of characters such as the diameter of the disk must therefore be taken with caution), whose sepals, styles and stigmas have fallen off. The female flowers of *D. palustris* are solitary, while those of *D. calvescens* are borne in small groups of up to three. The bracts of the female inflorescence are larger in *D. palustris* (1.5–1.7 × 1.8–2.1 vs. 0.4–0.5 × 0.7–0.9 mm), especially those closest to the pedicel. Both species have two basally adnate styles, although those of *D. palustris* are practically free and adnate just at their base, whereas in *D. calvescens* they can be adnate along some distance from their base (0.1–0.8 mm) and even appear completely united to form a single structure. The stigmas are bifid in both taxa, although those of *D. calvescens* sometimes may be considerably reduced and obscurely reniform or obdentoid. The female disk of *D. palustris* is much wider than that of *D. calvescens* (5.1–6.2 vs. 2.6–3.7 mm) and somewhat reflexed, while that of the latter species often has a margin that is raised upwards. Finally, the fruits of *D. palustris* are slightly bigger than those of *D. calvescens* (12–16.5 × 12.5–17 vs. 10.5–12 × 9.1–12.5 mm), widely ellipsoid-obovoid, apically depressed and longitudinally ribbed with four main and four secondary much less marked ribs; conversely, the fruits of *D. calvescens* are widely ellipsoid, unribbed, and at maturity they preserve the sepals and the remnants of the styles and stigmas.

Among the various factors that make it difficult to identify species of *Drypetes*, we have previously mentioned the fact that most of them have inconspicuous flowers and fruits (Quintanar & al. 2021a). Furthermore, the high proportion of specimens lacking flowers or fruits means that identifications often rely on the diagnostic value of vegetative characters, which in a genus like *Drypetes*, which includes several groups of morphologically similar species, is often complicated, even for expert taxonomists. We think that this is well illustrated by the taxonomic treatment of both *D. palustris* and *D. calvescens*, which clearly shows the need for providing descriptions of species that are as detailed and complete as possible, especially in large geographical areas such as Africa, where species delimitation and recognition remain a significant challenge today. In addition to the proper description of both sexual and vegetative organs of the species of *Drypetes*, it is particularly important to identify and describe informative and potentially diagnostic vegetative characters such as the scales on the terminal buds and the stipules, structures that are absent in much of the available material. The publication of this new species is consistent with our recent prediction.
Character | *D. palustris* sp. nov. | *D. calvescens*  
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Vegetative characters | |  
Terminal bud scales, dimensions (mm) | 1.8–2.6 × 0.9–1.3 | 1.1–1.2 × 0.5–0.7  
Stipules, dimensions (mm) | 3.5–3.8 × 0.8–1 | 0.9–2.1 × 0.3–1.1  
Stipules, shape | very narrowly ovate | ovate-triangular  
Leaf base, angle | slightly obtuse, sometimes acute | acute  
Leaf margin | subentire, slightly recurved along most of its length | subentire to crenulate or serrulate mostly along the distal half, flat  
Leaf texture | firmly coriaceous | subcoriaceous  
First order lateral veins | irregularly spaced, obscurely diminishing and anastomosing near the margin | regularly spaced, obscurely diminishing but often anastomosing well within the margin  
Angle between midrib and first order lateral veins | (37–)42–51(–59)° | (50–)62–69(–78)°  
Second order venation | raised above and beneath | slightly raised above and beneath, above often hardly  
Petiole, length (mm) | (6–)6.8–10(–11.5) | (3–)4.6–5.9(–8)  
Petiole, indumentum persistence | persistent | glabrescent  
Males, reproductive characters | |  
Inflorescences, disposition | in leaf axils | in leaf and leafless axils  
Pedicel, length (mm) | 2.1–2.4 | (2.2–)2.8–3.8(–4.8)  
Sepals, dimensions (mm) | 2–3.1 × 1.1–2.4 | (1.2–)1.7–1.9(–2) × 1.3–2  
Sepals, indumentum of inner surface | shortly pubescent | glabrous  
Staminal filament, length (mm) | ca. 1 | 1.6–2.3  
Disk | concave, cupular, thin, margin plicate | convex, thick, rugose, margin slightly lobed, with a central prominence  
Females, reproductive characters | |  
Female flowers per inflorescence | 1 | 1–3  
Bracts, dimensions (mm) | 1.5–1.7 × 1.8–2.1 | 0.4–0.5 × 0.7–0.9  
Stigmatic surface, dimensions (mm) | 0.5–0.7 × 3–3.9 | (0.4–)1–2.1(–2.4) × (0.4–)0.6–1.7(–1.9)  
Styles | adnate just at the bases | adnate for a variable length  
Disk, diameter (mm) | 5.1–6.2 | 2.6–3.7  
Disk, margin | reflexed | often raised upwards  
Fruit, length (mm) | 12–16.5 | 10.5–12  
Fruit, body surface | widely ellipsoid-obovoid, apically depressed, longitudinally ribbed with four main and four secondary ribs | widely ellipsoid, unribbed

that the number of described African species of *Drypetes* will increase considerably over the next few years (Quintanar & al. 2020). We are currently working on an updated infrageneric classification of *Drypetes* and the typification of its sections, a task requiring a phylogenetic study with the aid of molecular markers. Until we complete these studies, we have decided to refrain from assigning *D. palustris* to a section and to retain *D. calvescens* in the section where it has traditionally been placed, *D. sect. Stenogynium*. For now, we hope that this taxonomic work will be useful to recognize these still poorly known tree species from Central Africa and to inform the scientific community of how much we know about them in order to promote future studies on their biology and to facilitate their conservation.

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