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The Tropical African Genus *Crotonogynopsis* (Euphorbiaceae), with Two New Species

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Abstract. The African genus *Crotonogynopsis* Pax (Euphorbiaceae) is revised to include four species, including two novelties, *C. korupensis* Kenfack & D. W. Thomas from the Korup National Park, Cameroon, and the Reserva Natural de Río Campo in Equatorial Guinea; and *C. australis* Kenfack & Gereau from the southern part of the Eastern Arc Mountains of Tanzania, with a distant outlier in Mozambique. Three of the four species are assigned the IUCN Red List category of Least Concern (LC) on the basis of their occurrence in protected areas with no known threats.

Key words: Cameroon, *Crotonogynopsis*, Eastern Arc Mountains, Equatorial Guinea, Euphorbiaceae, IUCN Red List, Korup National Park, Mozambique, Tanzania.

Crotonogynopsis Pax (Euphorbiaceae) is a genus with two previously described species of shrubs or small trees in tropical Africa (Govaerts et al., 2000: 538). Among the tropical African genera of Euphorbiaceae, the genus is morphologically characterized by the absence of milky juice; indumentum of simple trichomes; leaves alternate, simple, unlobed, estipellate, shortly petiolate or subsessile (blade attenuate to its narrowly rounded to subcordate base), and pinnately nerved; inflorescences axillary or cauliflorous, not involucrate; staminate calyx closed in bud, the lobes two or three (to five), valvate; pistillate calyx lobes four or five, entire, imbricate; petals lacking in both staminate and pistillate flowers; disc glands numerous and free in staminate flowers, inserted among stamens over entire receptacle, cylindrical or oblongoid, 0.4–0.5 mm long; stamens 12 to 17 (10 to 15 in cited sources); filaments free; anthers 2-thecous, the thecae pendulous, partially adnate to the narrow connective, longitudinally dehiscent; disc present in pistillate flowers, with four or five marginal lobes alternating with sepals; ovary and fruit smooth or nearly so, the locules 1-ovulate; styles bifid or multifid, papillose, lacerate at apex (Keay, 1958; Radcliffe-Smith, 1987). Molecular phylogenetic analyses of Euphorbiaceae s. str. based on plastid and nuclear DNA place *Crotonogynopsis* within the subfamily Acalyphoideae and as sister to a clade comprising the tropical African genus *Mareya* Baill. and the transatlantic genus *Acalypha* L. (Wurdack et al., 2005; Tokuoka, 2007).

Pax (1899) described the genus *Crotonogynopsis* based on the single species *C. usambarica* Pax. Radcliffe-Smith (1987) treated the genus as monospecific, with *C. usambarica* occurring in Tanzania, Uganda, the Democratic Republic of the Congo, Cameroon, and possibly the Ivory Coast. Léonard (1996a) confirmed the occurrence of *C. usambarica* in the Democratic Republic of the Congo and segregated the specimens previously treated as *C. usambarica* from the Ivory Coast as *C. akeassii* J. Léonard, with additional collections of the new species from adjacent parts of Ghana (Léonard, 1996b).

Since 1996, we have been monitoring a population of over 2000 individual small trees that clearly

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belong to *Crotonogynopsis* and grow in a 50-ha permanent forest plot in Cameroon's Korup National Park (Kenfack et al., 2007). By morphological comparison, this population clearly does not belong to *C. usambarica*, the only species reported from the country, from a single (lost) specimen, and whose presence we have been unable to confirm. The Korup population differs from *C. usambarica* in having fasciculate (vs. racemose) inflorescences and from *C. akeassii* in having stipules ca. 1 (vs. 3–4) mm long, pubescent (vs. glabrous) pedicels, 15 to 17 (vs. 12) stamens with filaments 1.5–2.2 (vs. 2.5–3) mm long, and capsules 8–10 × 10–15 (vs. 5–7 × 9–11) mm. Examination of the East African material surprisingly showed obvious but never-mentioned morphological variation. Specimens from the southern part of the Eastern Arc Mountains of Tanzania, unlike *C. usambarica*, have fasciculate, not racemose, inflorescences. The Korup trees also have fasciculate inflorescences but differ from the Tanzanian material in several other characters.

Herein we describe two new species of *Crotonogynopsis* based on these specimens from the Korup National Park and the Eastern Arc Mountains of Tanzania, respectively. Both areas are noted for high plant diversity with extremely high concentrations of rare and endemic species (Burgess et al., 2007; Hall et al., 2009; Platts et al., 2011).

Key to the Species of *Crotonogynopsis*

1a. Both staminate and pistillate inflorescences racemose ..... 4. *C. usambarica* Pax
1b. Both staminate and pistillate inflorescences fasciculate 2
  2a. Stipules narrowly elliptic, 3–4 mm; pedicel of female flower glabrous; stamens 12; filaments 2.5–3 mm ..... 1. *C. akeassii* J. Léonard
  2b. Stipules narrowly triangular, 1–1.5 mm; pedicel of female flower pubescent; stamens 15 to 17; filaments 1.5–2.5 mm 3
    3a. Leaf margin entire to undulate (or rarely distantly dentate toward base), secondary veins in (17)22 to 32(35) pairs ..... 3. *C. korupensis* Kenfack & D. W. Thomas
    3b. Leaf margin dentate, secondary veins in 14 to 20 pairs ..... 2. *C. australis* Kenfack & Gereau

1. Crotonogynopsis akeassii J. Léonard, Bull. Jard. Bot. Natl. Belg. 65: 342. 1996. TYPE: Côte d'Ivoire. Soubré: 5°50′N 6°35′W, Taï National Park, 23 Jan. 1975, *Aké Assi 12629* (holotype, BR).

A small monoecious or dioecious tree 1–8 m tall, to 8 cm diam.; stem laxly branched. Stipules narrowly elliptic, acuminate, finely ciliolate, fugacious, 3–4 mm long; petiole 0.5–13 mm long, glabrous; leaf lamina obovate, glabrous on both surfaces, margin laxly dentate to subentire, 40–80 × 5.5–15 cm, apex acuminate to mucronate, base acute to rounded, with few glandular spots on abaxial surface; secondary veins in 25 to 50 pairs. Inflorescence fasciculate or flowers solitary, axillary or most often on old wood. Staminate fascicles 1- to several-flowered; bracts numerous, oval-elliptic, acute, erect or ± spreading, scarious, whitish green, glabrous, ciliolate, 1.5–2.5 mm; bracteoles absent; pedicels 2–2.5 mm, glabrous, not articulated. Staminate flowers with calyx 3-lobed, lobes shortly connate at base, ovate-elliptic, translucent, reflexed in lower part but with upper half erect, glabrous, ciliolate at apex, ca. 2 × 1.5–2 mm; stamens 12, filaments 2.5–3 mm, anthers ca. 1 mm. Pistillate fascicles 1- to several-flowered; bracts as in staminate fascicles; bracteoles absent; pedicels 0.7–1 mm in flower, elongating to 2.5–3 cm in fruit, glabrous. Pistillate flowers with calyx 5-lobed, lobes triangular, glabrous, ciliolate, ca. 1.5 mm long; disc irregularly and deeply lobed, glabrous; ovary 3(4)-locular, smooth, glabrous, 2.5–3 mm in diam.; styles 3(4), shortly connate at base, then bifid, branches ca. 0.5 mm. Fruit 3(4)-lobed, glabrous, smooth, finely veined, 5–7 × 9–11 mm diam.; seeds 4–5 mm diam., globose, smooth, shiny, glabrous, brown.

Phenology. *Crotonogynopsis akeassii* has been collected in fruit in December and January and probably flowers in February.

Distribution and habitat. *Crotonogynopsis akeassii* occurs in the understory of rainforest in Côte d'Ivoire, Ghana, and Sierra Leone.

IUCN Red List category. With post facto georeferencing of historic specimens and GIS mapping of specimen localities (see specimen citations and distribution map at <www.tropicos.org/name/50257918>), we calculate an extent of occurrence (EOO) of almost 24,000 km² and an area of occupancy (AOO) of just under 30 km² using the maximum cell side length of 3.16 km (IUCN Standards & Petitions Subcommittee, 2014). Using IUCN Red List Categories and Criteria Version 3.1 (IUCN, 2012), with an AOO of less than 500 km² and not more than five locations, the species would meet the B2 criterion for Endangered if there were a continuing decline in its EOO, AOO, area, extent and/or quality of habitat, number of locations or subpopulations, or number of mature individuals. However, we have no current information on the effectiveness of its conservation in Ankasa National Forest (Ghana), Taï National Park

(Côte d'Ivoire), or Gola Forest Reserve (Sierra Leone). We therefore assign this species the IUCN Red List Category of Data Deficient (DD).

Note. *Crotonogynopsis akeassii* is unique in the genus in having glabrous pistillate pedicels.

Representative specimens. CÔTE D'IVOIRE. **Soubré:** Parc National de Taï, 5°50′N, 6°35′W, 18 Dec. 1975, *L. Aké Assi 13145* (MO). GHANA. **Western Region:** Ankasa National Forest, 5°13′N, 2°39′W, 26 Apr. 1996, *L. Aké Assi 19339* (BR). SIERRA LEONE. **Eastern Province:** Kenema Distr., Gola Forest Reserve, 7°30′N, 10°55′W, 1 Jan. 1951, *E. L. King 120B* (K).

2. Crotonogynopsis australis Kenfack & Gereau, sp. nov. TYPE: Tanzania. Morogoro Region: Kilombero Distr., Mwanihana Forest Reserve, above Sanje village, *D. W. Thomas 3761* (holotype, MO; isotype, K). Figures 1, 2.

Haec species quoad inflorescentiam fasciculatam etiam floris foeminei pedicellum dense pubescentem *Crotonogynopsi korupensi* Kenfack & D. W. Thomas simillima, sed ab ea foliorum margine dentata atque venis secundariis in paribus 14 ad 20 distinguitur.

A small dioecious tree 1–4 m tall, to 12 cm diam.; stem few-branched. Stipules narrowly triangular, to 1.5 mm long; petiole usually less than 2 mm long, glabrous; leaf lamina narrowly elliptic-oblanceolate, glabrous on both surfaces, margin dentate, 15–30(45) × 3–8(10) cm, apex acute, base attenuate to decurrent, with few glandular spots on abaxial surface; secondary veins in 14 to 20 pairs. Inflorescence fasciculate or flowers solitary, axillary or most often on old wood. Staminate fascicles few-flowered; bracts 1 to 3, ovate to broadly triangular, long-ciliate, 1–1.5 × 1–1.5 mm; bracteoles absent; pedicels to 4.5 mm, often sparsely pubescent, articulated at about middle, drying reddish green. Staminate flowers with calyx 2- or 3-lobed, translucent, ciliolate, ca. 1.5 mm; stamens 15, filaments 1.5–2.5 mm, anthers ca. 1 × 0.5 mm. Pistillate inflorescence not seen in flower; fruiting pedicels 12–18 mm, densely appressed-pubescent. Fruit 3-lobed, glabrous, ± smooth, pale cream, 6–7 × 9–11 mm diam.; seeds globose, ca. 4.5 mm diam., smooth, shining, glabrous, brown mottled with dark brown.

Phenology. Flowering material of *Crotonogynopsis australis* was collected in July and October, and fruiting material in February, July, August, and October.

Distribution and habitat. *Crotonogynopsis australis* occurs primarily in the submontane forests of the Udzungwa and Mahenge blocs of the Eastern Arc Mountains of Tanzania at elevations between 750 and 1400 m.s.m., with one distant outlying occurrence at 1300 m on Mabu Mountain in central Mozambique.

IUCN Red List category. With post facto georeferencing of historic specimens and GIS mapping of specimen localities (see specimen citations and distribution map at <www.tropicos.org/name/100384782>), we calculate an extent of occurrence (EOO) of just over 8000 km² and an area of occupancy (AOO) of just under 60 km² using the maximum cell side length of 3.16 km (IUCN Standards & Petitions Subcommittee, 2014). Using IUCN Red List Categories and Criteria Version 3.1 (IUCN, 2012), with an AOO of less than 500 km² and not more than five locations, the species would meet the B2 criterion for Endangered if there were a continuing decline in its EOO, AOO, area, extent and/or quality of habitat, number of locations or subpopulations, or number of mature individuals. However, its occurrences in the Udzungwa Mountains National Park and Mahenge Scarp Forest Reserve are under effective legal protection at the present time, and we therefore assign this species the IUCN Red List Category of Least Concern (LC), with the caution that this status is highly dependent on continued conservation action.

Note. *Crotonogynopsis australis* differs from *C. usambarica* mainly by its fasciculate (vs. racemose) inflorescences. The leaves of both species are very similar, differing in the petiole, which is usually less than 2 mm long in *C. australis* and 3–10 mm long in *C. usambarica*, and the leaf blade, which is distinctly dentate and 15–30(45) × 3–8(10) cm in *C. australis* and shallowly repand-dentate to subentire and 30–65 × 8–11 cm in *C. usambarica*. The description of the fruit and seeds of *C. usambarica* by Léonard (1996a) is based on *D. W. Thomas 3761*, the type of *C. australis*. The capsules of *C. australis* and *C. usambarica* appear to be virtually indistinguishable, although very little fruiting material of *C. usambarica* has been seen (*Festo et al. 580* [MO], *Mwangoka & Hall 4711* [MO]). Based on this limited fruiting material, the seeds of *C. australis* are globose and ca. 4.5 × 4.5 mm, while those of *C. usambarica* are ellipsoid and ca. 4 × 3.5 mm.

Paratypes. MOZAMBIQUE. **Zambezia:** Mabu Mtn., 16°17′S, 36°23′E, 24 Oct. 2008, *T. Harris, T. Alves, A. C. Banze, J. Bayliss, J. R. Francisco, H. Martimele, M. M. Sithole & C. de Sousa 649* (K). TANZANIA. **Iringa:** Kilolo Distr., Udzungwa Mtns. National Park, ca. 10 km from Msolwa village, 07°42′S, 036°55′E, 24 Oct. 2005, *L. Festo, M. A. Mwangoka, C. A. Manongi & Q. Luke 2016* (MO). **Morogoro:** Kilombero Distr., Mwanihana Forest Reserve, above Sanje Village, 07°47′S, 036°52′E, 10 Oct. 1984, *D.*

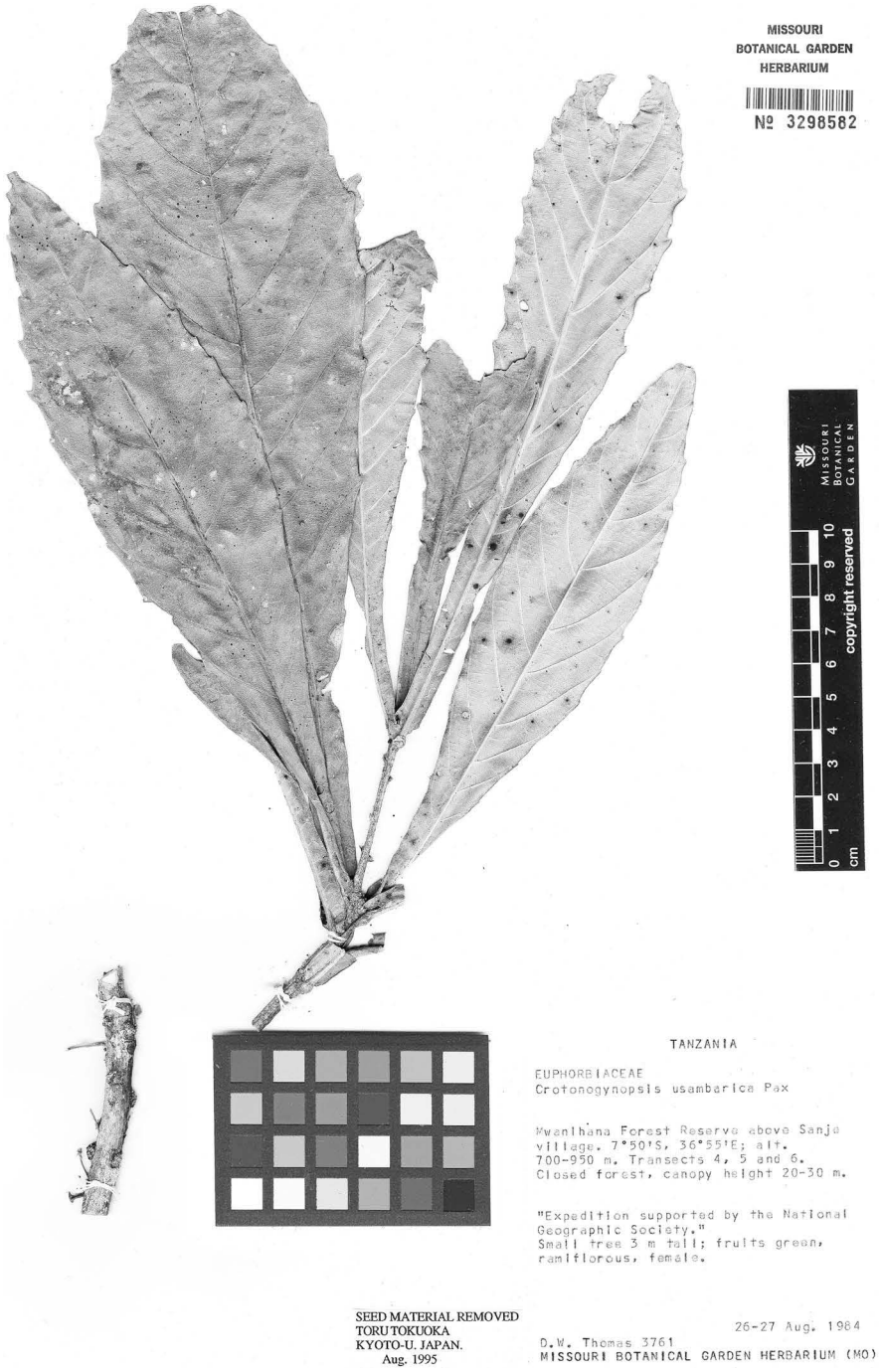

Figure 1. *Crotonogynopsis australis* Kenfack & Gereau. Holotype, *D. W. Thomas 3761* (MO).

W. Thomas 3924 (K, MO); Udzungwa Mtns. National Park, montane forest, 07°45′55″S, 036°52′51″E, 2 July 2002, *M. A. Mwangoka 3025* (MO); Sanje River, just above falls, 07°46′S, 036°54′E, *R. M. Polhill & J. C. Lovett 5129* (K, MO); Ulanga Distr., Nawenge Forest Reserve, ca. 2.5 km SW of Mahenge on mtn. ridge, 08°42′16″S, 036°42′16″E, *R. E. Gereau, C. Davidson, S. R. Christoph & O. C. Nkawamba 6883* (MO, NHT).

3. Crotonogynopsis korupensis Kenfack & D. W. Thomas, sp. nov. TYPE: Cameroon. Southwest

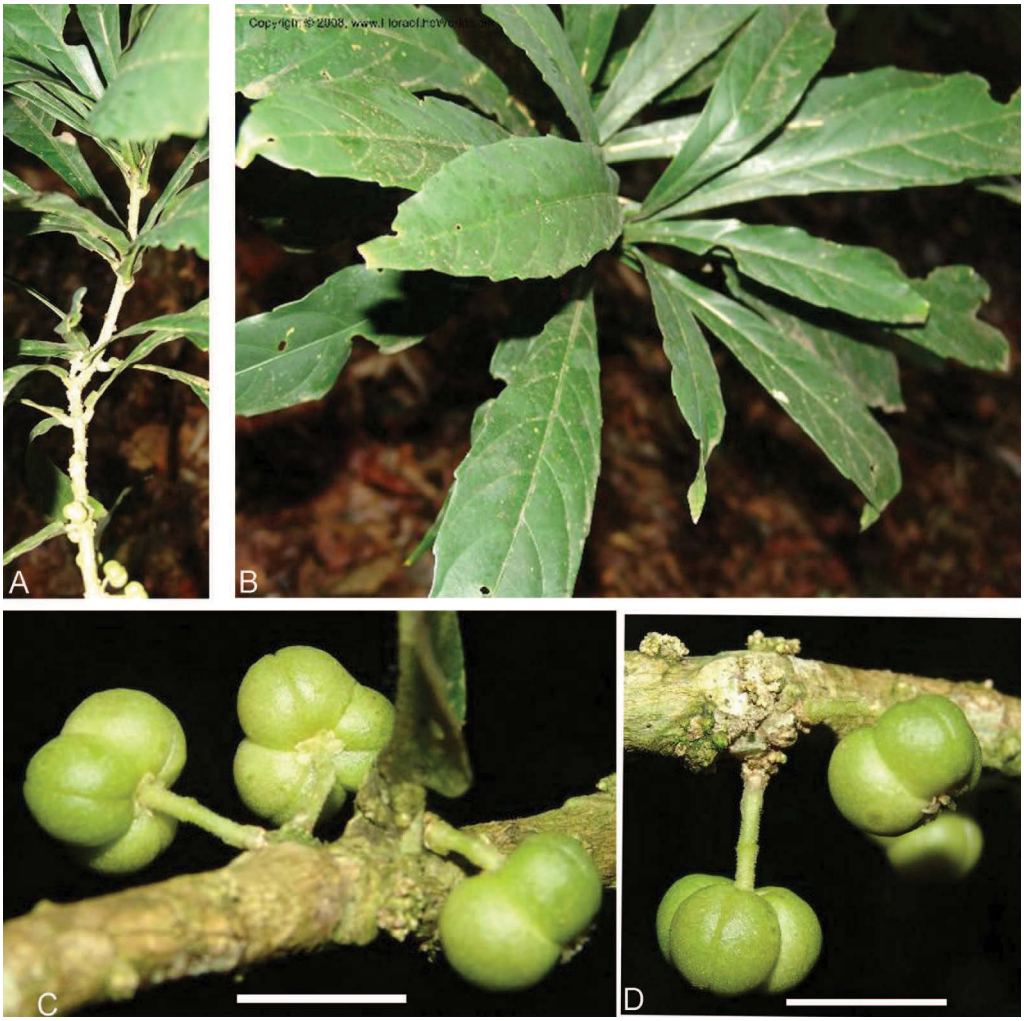

Figure 2. *Crotonogynopsis australis* Kenfack & Gereau. —A. Fruiting stem. —B. Leafy stem from above. —C, D. Close-up of fruits. Scale bars: C, D = 1 cm. Photographs by C. Davidson, © www.floraoftheworld.org, 2008.

Region: Korup National Park, Korup Forest Dynamics Plot, 5°04′N, 8°52′E, 160 m, 20 Feb. 2008, *M. Sainge, D. Thomas & P. Mambo 1800* (holotype, MO; isotypes, K, YA). Figures 3, 4.

Haec species quoad inflorescentiam fasciculatam etiam floris foeminei pedicellum dense pubescentem *Crotonogynopsi australi* Kenfack & Gereau simillima, sed ab ea foliorum margine integra atque venis secundariis in paribus 17 ad 35 distinguitur.

A small dioecious tree 2–4(6) m tall, to 8 cm diam.; stem unbranched or few-branched. Stipules narrowly triangular, ca. 1 mm long; petiole 0.5–1.5(2) mm long, glabrous; leaf lamina oblanceolate, glabrous on both surfaces at least when mature, margin entire to slightly undulate or rarely distantly dentate toward base, (33)40–65 × (7)9–15.5 cm, apex acute, base rounded to subauriculate, with few glandular spots on abaxial surface; secondary veins in (17)22 to 32(35) pairs. Inflorescence fasciculate or flowers solitary, mostly cauliflorous, with only a few axillary. Staminate fascicles densely flowered; bracts 3 to 5, ovate to broadly triangular, long-ciliate, 1.5–2 × 1–1.5 mm; bracteoles absent; pedicels 3–4.5 mm, often sparsely pubescent, light green but drying reddish, not articulated. Staminate flowers with calyx 2- or 3-lobed, lobes elliptic to ovate, white and translucent, reflexed at maturity, sparsely ciliolate, 1–1.2 mm; stamens 15(to 17), filaments 1.5–2.2 mm, anthers ca. 1 mm long. Pistillate fascicles 2- to 4-flowered or flowers sometimes solitary; bracts 5 to 10, otherwise as in staminate flowers; bracteoles absent; pedicels ca. 3

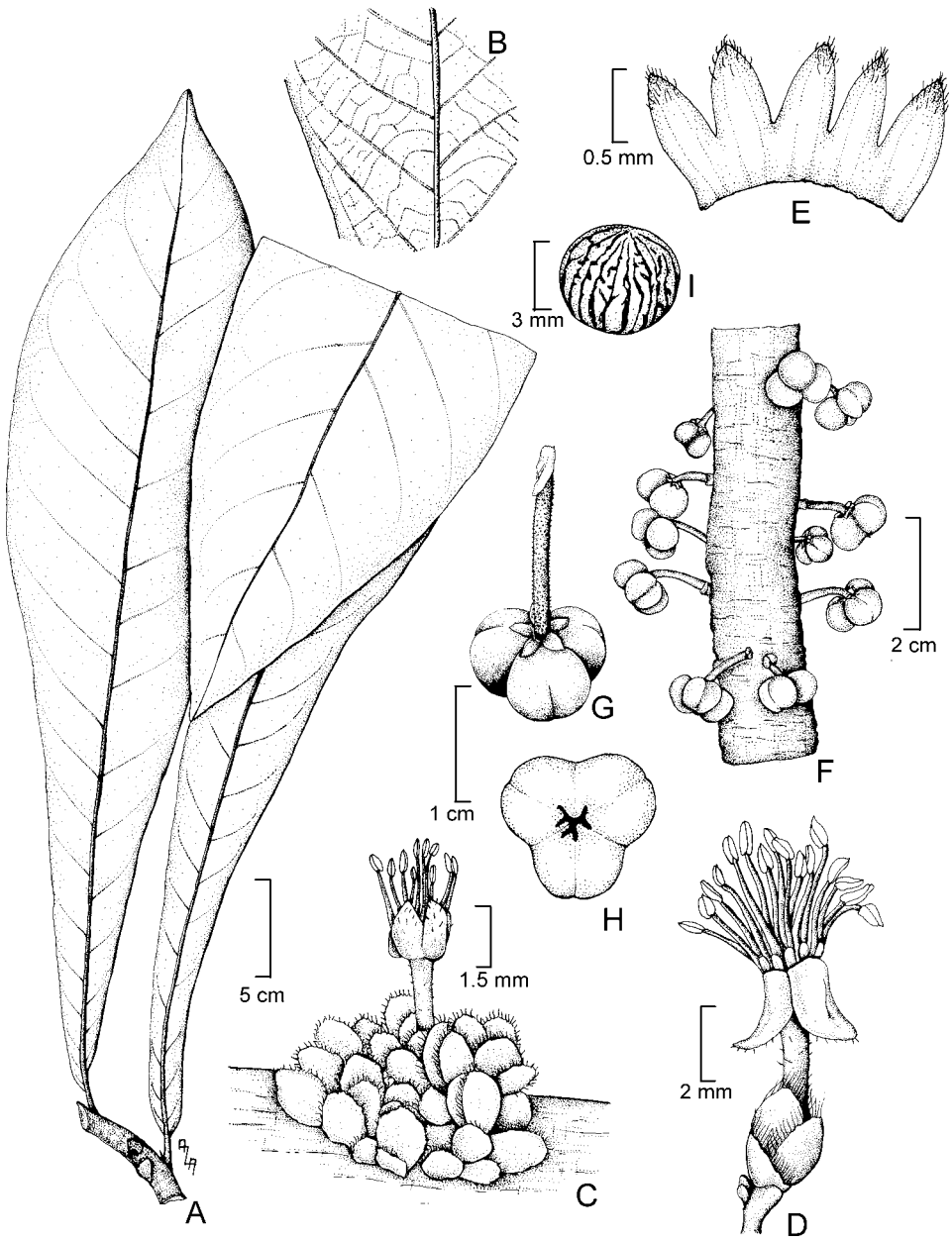

Figure 3. *Crotonogynopsis korupensis* Kenfack & D. W. Thomas. —A. Leafy branch. —B. Leaf lower surface, venation detail. —C. Staminate inflorescence. —D. Staminate flower. —E. Opened calyx. —F. Infructescence. —G, H. Lateral and apical views of fruit. —I. Seed. Drawn from photographs and *M. Sainge, D. Thomas & P. Mambo 1800* (holotype, MO).

mm at anthesis, elongating to 8–16(24) mm in fruit, appressed-pubescent. Pistillate flowers with calyx 4- or 5-lobed, lobes ovate to broadly triangular, ciliolate, sparsely appressed-pubescent on mid-apex abaxially, ca. 2 mm long; disc thin, with marginal lobes; ovary 3-locular, globose, smooth, glabrous, 1–2 × 1.5–2 mm; styles 3, shortly connate at base, divided into 2 laciniate branches each ca. 1 mm. Fruit 3-lobed, glabrous, ± smooth, 8–10 × 10–15 mm; seeds ca. 5 mm diam., globose, brown mottled with light brown.

Phenology. *Crotonogynopsis korupensis* has been collected in flower from November to February and in fruit in September.

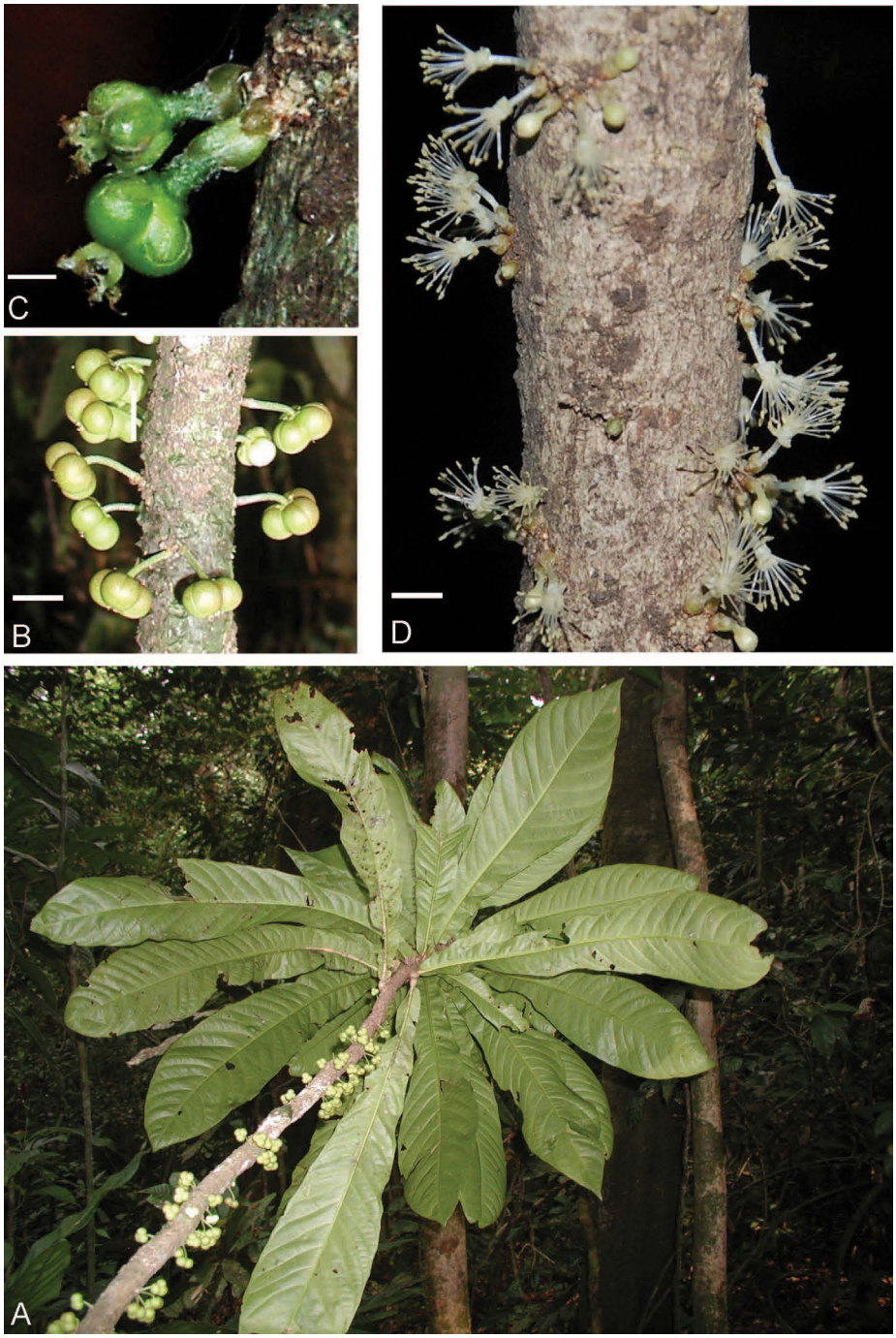

Figure 4. *Crotonogynopsis korupensis* Kenfack & D. W. Thomas. —A. Fruiting individual. —B. Detail of infructescence. —C. Pistillate inflorescence. —D. Staminate inflorescence. Scale bars: B = 1 cm, C = 2 mm, D = 3 mm. Photographs by D. Kenfack.

Distribution and habitat. *Crotonogynopsis korupensis* is known from littoral forest in Cameroon and Equatorial Guinea. The new species grows gregariously in lowland evergreen forest in the Korup National Park in the Southwest Region of Cameroon, with a single specimen also collected in the Reserva Natural de Río Campo in Equatorial Guinea. The climate of the Korup National Park is strongly

seasonal, with a distinct dry season but with very high annual rainfall (over 5000 mm/year). *Crotonogynopsis korupensis* grows on well-drained soils on gentle to steep slopes in closed canopy, wet seasonal evergreen forest in the Korup National Park and in old secondary forest in the Reserva Natural de Río Campo. The subpopulation of this species in the Korup National Park is very stable. The monitoring of 2167 individuals of this species (with stem diameter greater than or equal to 1 cm) within the Korup 50-ha permanent plot showed a slight net population increase of only nine individuals in 10 years.

IUCN Red List category. With GIS mapping of specimen localities (see specimen citations and distribution map at <www.tropicos.org/name/100394892>), we calculate an extent of occurrence (EOO) of just under 200 km² and an area of occupancy (AOO) of just under 20 km² using the maximum cell side length of 3.16 km (IUCN Standards & Petitions Subcommittee, 2014). Using IUCN Red List Categories and Criteria Version 3.1 (IUCN, 2012), with an EOO of less than 5000 km², an AOO of less than 500 km², and not more than five locations, the species would meet the B1 and B2 criteria for Endangered if there were a continuing decline in its EOO, AOO, area, extent and/or quality of habitat, number of locations or subpopulations, or number of mature individuals. However, its subpopulation in the Korup National Park is very stable and under effective legal protection at the present time, and its subpopulation in the Reserva Natural de Río Campo is in a gazetted protected area. We therefore assign *Crotonogynopsis korupensis* the IUCN Red List category of Least Concern (LC), with the caution that this status is highly dependent on continued conservation action.

Paratypes. CAMEROON. **Southwest:** Ndian, Korup National Park, 5°04′N, 8°52′E, 20 Nov. 1997, *D. Kenfack 975* (MO, YA); 6 Sep. 2000, *M. Sainge & P. Mambo 727* (MO); 20 Feb. 2008, *M. Sainge, D. W. Thomas & P. Mambo 1801* (MO, YA). EQUATORIAL GUINEA. **Litoral:** Ayamiken, Reserva Natural de Río Campo, 2°07′N, 10°02′E, 18 Jan. 1997, *J. Lejoly 97/40* (BRLU).

4. Crotonogynopsis usambarica Pax, Bot. Jahrb. Syst. 26: 328. 1899. TYPE: Tanzania. E Usambara Mtns., Derema, *Heinsen 8* (holotype, B†).

A small dioecious tree 1–2.5(10) m tall, to 7 cm diam.; stem unbranched or few-branched. Stipules triangular-lanceolate, ciliate, fugacious, 1–2 mm long; petiole 3–10 mm long, glabrous; leaf lamina narrowly oblanceolate, glabrous on both surfaces at least when mature, margin shallowly and remotely repand-dentate or scarcely denticulate to subentire, 30–65 × 8–11 cm, apex acutely to obtusely acuminate, base narrowly rounded or shallowly cordate and subauriculate, with several minute glandular patches on either side of midrib near base on abaxial surface; secondary veins in 15 to 25 pairs. Inflorescence racemose, the staminate arising from old wood and the pistillate mostly axillary. Staminate racemes to 17 cm long, densely flowered, axis sparingly pubescent; bracts ovate-lanceolate, acute, pubescent, ca. 2 mm long; bracteoles 2, smaller than bracts; pedicels ca. 5 mm, pubescent, articulated ca. 1/3 of length from base. Staminate flowers with calyx 3- (to 5-) lobed, lobes ovate, sub-acute or obtuse, recurved, pure white, glabrous, 1.5–2 mm long; stamens 12 to 15, filaments 4–5 mm long, anthers ca. 1 mm long. Pistillate racemes to 7 cm, laxly flowered, axis sparingly pubescent; bracts and bracteoles as in staminate racemes; pedicels as in staminate flowers, but elongating to 1–2 cm in fruit. Pistillate flowers with calyx 5-lobed, lobes triangular-ovate to ovate-lanceolate, acute, ciliate, pubescent, ca. 1.5 mm long; disc ± circular, concave, with 4 or 5 small obtuse or rounded marginal lobes; ovary 3-locular, subglobose-trilobed, smooth, glabrous, ca. 2 mm long, ca. 3 mm diam.; styles laciniate at apex, 2–3 mm long. Fruit 3-lobed, ± smooth, glabrous, ca. 6 × 10 mm diam.; seeds ellipsoid, ca. 4 × 3.5 mm, smooth, slightly shiny, brownish mottled with ochreous spots.

Phenology. *Crotonogynopsis usambarica* has been collected in flower in September and in fruit in March.

Distribution and habitat. *Crotonogynopsis usambarica* is the most widespread species in the genus, occurring mostly in lowland forest in Tanzania, Uganda, and the Democratic Republic of the Congo, at elevations of 750–1140 m.s.m. (Fig. 5). An old specimen (*Deistel 218*) from Buea, Cameroon, ca. 100 km south southeast of Korup National Park, is cited in *Flora of West Tropical Africa* (Keay, 1958) as *C. usambarica*. Unfortunately, the specimen appears to have been lost, and it is currently known only from illustrations. The illustrations do not show the inflorescences, so we are not able to reject *C. usambarica* with confidence for Cameroon.

IUCN Red List category. With post facto georeferencing of historic specimens and GIS mapping of specimen localities (see specimen citations and distribution map at <www.tropicos.org/name/12806030>), we calculate an extent of occurrence (EOO) of almost 570,000 km² and an area of occupancy (AOO) of just under 80 km² using the

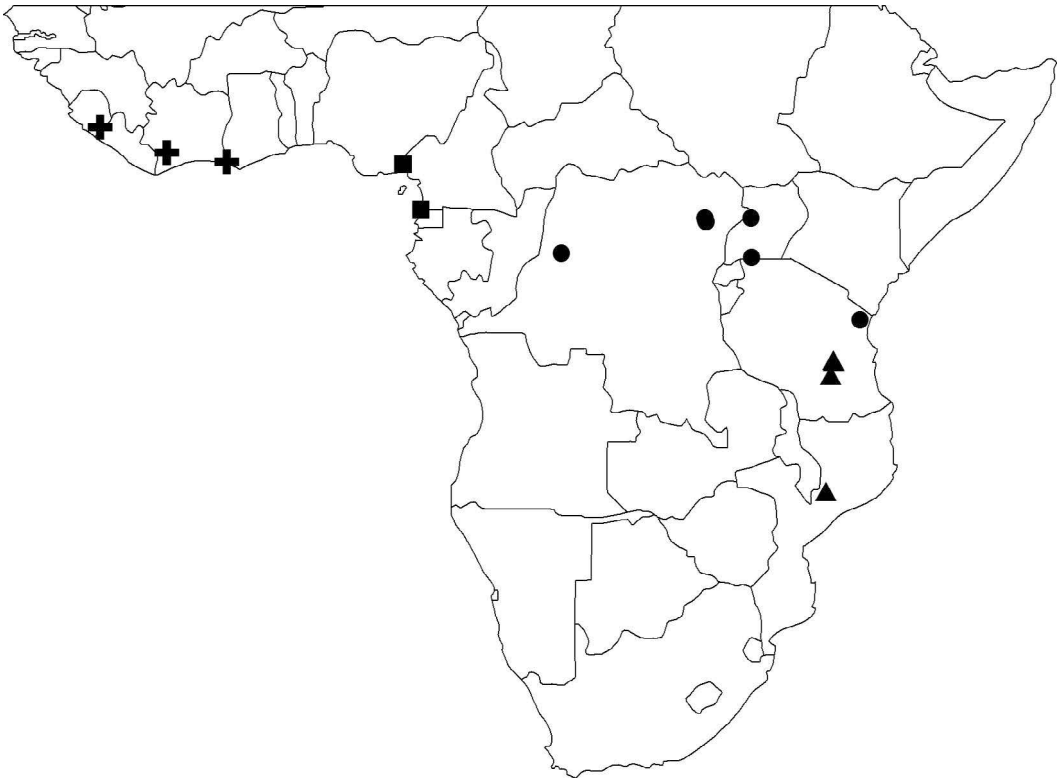

Figure 5. Distribution of the four species of *Crotonogynopsis* Pax in Africa. Symbols indicate species, with the cross for *C. akeassii* J. Léonard, square for *C. korupensis* Kenfack & D. W. Thomas, circle for *C. usambarica* Pax, and triangle for *C. australis* Kenfack & Gereau. The dots are based on all paratypes and types cited.

maximum cell side length of 3.16 km (IUCN Standards & Petitions Subcommittee, 2014). Using IUCN Red List Categories and Criteria Version 3.1 (IUCN, 2012), with an AOO of less than 500 km² and not more than five locations, the species would meet the B2 criterion for Endangered if there were a continuing decline in its EOO, AOO, area, extent and/or quality of habitat, number of locations or subpopulations, or number of mature individuals. However, its occurrences in the Okapi Wildlife Reserve (Democratic Republic of the Congo), Budongo Forest Reserve (Uganda), Minziro Forest Reserve (Tanzania), and Amani Nature Reserve (Tanzania) are all under effective legal protection at the present time, and we therefore assign this species the IUCN Red List Category of Least Concern (LC), with the caution that this status is highly dependent on continued conservation action.

Representative specimens. DEMOCRATIC REPUBLIC OF THE CONGO. **Équateur:** rte. Boende-Ingende, village Ituka-Waholo, 18 May 1954, *R. Germain 8358* (BR). **Maniema:** Epulu Distr., Lenda, 1°25′N, 28°35′E, 25 Nov. 1981, *T. Hart 154* (BR, K), *C. Ewango 559* (BR); Afarama, 1°33′N, 28°32′E, 29 Oct. 1992, *N. L. Bola 143* (BR); *C. Ewango 540* (BR). TANZANIA. **Kagera:** Bukoba Rural Distr., Minziro Forest Reserve, Kyamugongo area, 1°01′S, 31°35′E, 9 Mar. 2000, *L. Festo, W. Bayona & J. Kawau 580* (MO). **Tanga:** Muheza Distr., E Usambara Mtns., Shembagenda Forest, under Derema Tea Estate, 5°04′16′S, 38°37′52′E, 20 Mar. 2006, *M. A. Mwangoka & J. Hall 4711* (MO). UGANDA. **Western:** Bunyoro Distr., Budongo Forest, 1°44′N, 31°33′E, Jan. 1939, *W. J. Eggeling 4041* (K).

Conclusion

Crotonogynopsis species are rather inconspicuous small understory trees of tropical African evergreen lowland and submontane forests. Sterile specimens of this genus are often confused with *Argomuellera* Pax and *Pycnocoma* Benth., both Euphorbiaceae, but also with *Allexis* Pierre (Violaceae). The description of two new species in the genus from widely separated forest sites across tropical Africa suggests that species of this genus have been overlooked by collectors in the past. At the moment, with the exception of the doubtful record of *C. usambarica* from Cameroon, the four species in the genus are geographically separated and distinguished by well-defined charac-

ters. It will be interesting to see how this distribution pattern develops in the future, if additional specimens are collected from the intervening forests.

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