

# More New Species and a New Combination in Rubiaceae from Costa Rica and Panama

Charlotte M. Taylor

Missouri Botanical Garden, P.O. Box 299, St. Louis, Missouri 63166, U.S.A.

**ABSTRACT.** The new species *Faramea correae* C. M. Taylor, *F. permagnifolia* Dwyer ex C. M. Taylor, *F. sanblasensis* C. M. Taylor, *Psychotria deneversii* C. M. Taylor, *P. purpureocapitata* Dwyer ex C. M. Taylor, *Rudgea hemisphaerica* Dwyer ex C. M. Taylor, *R. mandevilliifolia* Dwyer ex C. M. Taylor, and *R. mcphersonii* Dwyer ex C. M. Taylor are described and illustrated, and the new combination *Rudgea panamensis* (Dwyer) C. M. Taylor is made based on *Cephaelis panamensis* Dwyer.

During study of material recently collected in Costa Rica and Panama for preparation of the *Flora Mesoamericana*, the following new species and the need for the following new combination were discovered. The taxa belong to the tribes Coussareae and Psychotrieae. They are arranged here by tribe, and alphabetically within each tribe. Generic characteristics, keys to these genera, and an outline of most of the species with which these new taxa can be confused were presented by Burger and Taylor (1993).

## TRIBE COUSSAREAE

***Faramea correae*** C. M. Taylor, sp. nov. TYPE: Panama. Panamá: Parque Nacional Altos de Campana, Sendero de Interpretación, 1 km al este del campamento de los guardaparques de INRENARE, 8°40'N, 79°55'W, 800–900 m, 9 Sep. 1993, M. D. Correa A., E. Montenegro & E. Hidalgo 9983 (holotype, PMA-38229; isotypes, MO-4641338, MO-4658116). Figure 1C, D.

Haec species a congeneris foliis sessilibus lanceolato-ellipticis basi ex rotundatis subcordatis, floribus subsessilibus fasciculatis ac fructibus subglobosis distincta.

Shrubs and small trees, flowering at 3 m tall, to 5 m tall, glabrous throughout; stems laterally flattened, becoming subterete with age. Leaves sessile, with blades elliptic to lance-elliptic, 8–18 cm long, 2.5–7 cm wide, at apex acuminate with slender tips 8–15 mm long, at base rounded to subcordate, chartaceous; secondary veins 8–11 pairs, spreading widely, looping broadly to interconnect near mar-

gins, with the lesser venation finely reticulated, thickened to slightly raised adaxially, plane abaxially; stipules interpetiolar, caducous through fragmentation, triangular, 2–5 mm long, smooth, acute to shortly aristate. Flowers terminal, fasciculate, 2–8, subsessile, ebracteate, with hypanthium turbinate, ca. 1 mm long; calyx limb glabrous, ca. 2 mm long, truncate; corolla in bud salverform, white flushed with violet, glabrous externally, tube ca. 12 mm long, ca. 2 mm diam. near the middle, lobes 4, ca. 6 mm long, narrowly triangular, acute. Fruits subglobose, ca. 1 cm diam., smooth, glabrous. Collected in wet forest in central Panama at 800–900 m, with flower buds in September, young fruit in December.

*Faramea correae* is distinguished by its sessile lance-elliptic leaves, which are rounded to subcordate at the base, subsessile fasciculate flowers, and subglobose fruits. It is similar and probably closely related to *F. sanblasensis* C. M. Taylor (below), which can be distinguished by its generally larger leaves, cymose inflorescences, and pedicellate flowers. The specific epithet honors Mireya Correa, a Panamanian botanist whose extensive work has greatly advanced knowledge of the country's flora. She notes that the leaves of this species frequently have on their abaxial surface a waxy substance produced by larvae identified as that of a scale insect by Don Windsor (pers. comm.).

**Paratypes.** PANAMA. Panamá: Parque Nacional Altos de Campana, Sendero de Interpretación, 1 km al este del campamento de los guardaparques de INRENARE, 8°40'N, 79°55'W, M. D. Correa A., E. Montenegro & E. Hidalgo 9318 (MO, PMA).

***Faramea permagnifolia*** Dwyer ex C. M. Taylor, sp. nov. TYPE: Costa Rica. Puntarenas: Osa Peninsula, in forest ca. 9 km W of Rincón on road to Rancho Quemado, 8°39'N, 83°32'W, 200 m, 26 May 1986, B. Hammel, M. Grayum & G. de Nevers 15212 (holotype, CR; isotypes, MO-4658114, MO-4658115). Figure 1B.

Haec species a congeneris foliis subsessilibus sat grandibus ex oblanceolatis obovatis basi breve truncatis, flo-



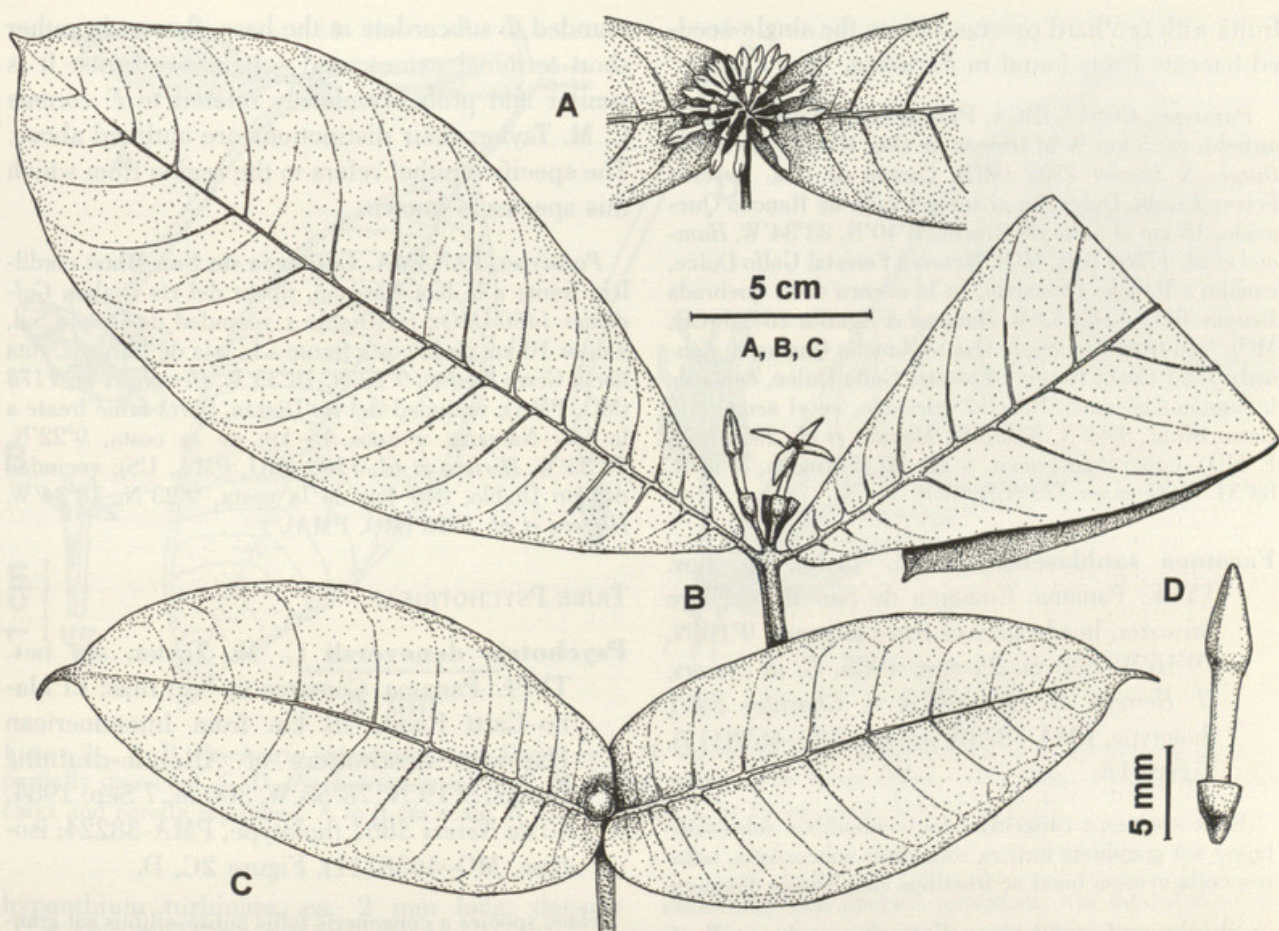


Figure 1. —A. *Faramaea sanblasensis* C. M. Taylor, inflorescence; based on *de Nevers et al.* 5491. —B. *F. permagnifolia* Dwyer ex C. M. Taylor, habit; based on *Hammel* 15212. C, D, *F. correae* C. M. Taylor. —C. Habit; based on *Correa et al.* 9318. —D. Flower; based on *Correa et al.* 9983. A, B, C to 5-cm scale; D to 5-mm scale.

ribus in fasciculos terminales breves dispositis ac fructibus subglobosis distincta.

Shrubs and small trees, flowering at 2.5 m tall, to 5 m tall, glabrous; stems laterally flattened and remaining so with age. *Leaves* subsessile, with *blades* oblanceolate to obovate, 20–41 cm long, 7.5–18 cm wide, at apex shortly acuminate with slender tips 5–12 mm long, toward the base tapered, at base shortly truncate to rounded, chartaceous, apparently pale abaxially; secondary veins 13–18 pairs, spreading, usually looping to interconnect near margins, with the lesser venation reticulated, thickened to slightly raised adaxially, plane abaxially; *petioles* 1–5 mm long; *stipules* interpetiolar and also shortly united intrapetiolarly, caducous, the interpetiolar portion triangular, 2–10 mm long, aristate with tips 1–3 mm long. *Flowers* terminal, 3–6, fasciculate, ebracteate, peduncles 3–8 mm long, with hypanthium turbinate, 2–5 mm long; *calyx* limb 2.5–3 mm long, glabrous, truncate to denticulate; *corolla* salverform, white or bluish white (perhaps with age), glabrous throughout, tube 17–18 mm long, ca. 1.5 mm diam. near the middle, lobes 4(5), narrowly triangular to linear, ca. 12 mm

long, acute, triangular in cross section; *anthers* 4, included in distal part of tube, subsessile, linear, ca. 7 mm long; *style* and *stigma* not seen. *Fruit* subglobose, ca. 13 × 16 mm, smooth, glabrous. Collected in wet forest near Golfo Dulce in Costa Rica at ca. 200 m, in flower in May, in fruit in November.

*Faramaea permagnifolia* is distinguished by its relatively large oblanceolate or obovate leaves, which are subsessile, shortly truncate at the base, and pale abaxially, its flowers in short terminal fascicles, and its subglobose relatively large fruits. The specific epithet refers to the relatively large leaves. This new species is similar to *F. sanblasensis* C. M. Taylor (below), which is distinguished by its leaves that are rounded to subcordate at the base and cymose inflorescences. Vegetatively *F. permagnifolia* strongly resembles several species of *Rudgea*, notably *R. sanblasensis* C. M. Taylor (Taylor, 1996a) and *R. hemisphaerica* Dwyer ex C. M. Taylor (below), which can be separated by their stipules with caducous glandular appendages, pedunculate usually branched inflorescences, and drupaceous



fruits with two hard pyrenes versus the single-seeded baccate fruits found in *Faramea*.

**Paratypes.** COSTA RICA. **Puntarenas:** N and W of the airfield, ca. 5 km W of Rincón de Osa, 8°42'N, 83°31'W, *Burger & Liesner* 7242 (MO); Cantón de Osa, Reserva Forestal Golfo Dulce, en el sur del valle de Rancho Quemado, 15 km al oeste de Rincón, 8°40'N, 83°34'W, *Hammel et al.* 17864 (CR, MO); Reserva Forestal Golfo Dulce, camino a Rancho Quemado, en la cuenca de la quebrada Bengas, 8°42'N, 83°33'W, *Hammel & Aguilar* 18725 (CR, MO); trail from Rincón de Osa to Rancho Quemado, *Kennedy* 1955 (MO); Reserva Forestal Golfo Dulce, cerca de la laguna Chocuaco, Rancho Quemado, en el sendero al Cerro Brujo, 8°43'N, 83°35'W, *Morales et al.* 2096 (CR, F, MO); upper Aguabuena, 5 km W of Rincón, 8°43'N, 83°31'W, *Thomsen* 373 (CR, MO).

***Faramea sanblasensis*** C. M. Taylor, sp. nov.

TYPE: Panama. Comarca de San Blas: Cerro Brewster, headwaters of Río Cangandí, 9°18'N, 79°16'W, 630 m, 24 Apr. 1985, *G. de Nevers, H. Herrera, B. Hammel & S. Charnley* 5491 (holotype, PMA-38230; isotype, MO-4658117). Figure 1A.

Haec species a congeneris foliis sessilibus subsessilibusve sat grandibus basi ex rotundatis subcordatis, inflorescentia cymosa brevi ac fructibus subglobosis distincta.

Shrubs and small trees, flowering at 4 m tall, to 5 m tall, glabrous throughout; stems laterally flattened, becoming subterete with age. *Leaves* sessile or subsessile, with *blades* elliptic to lance-elliptic, 18–46 cm long, 11–18 cm wide, at apex acuminate with slender tips 8–15 mm long, at base rounded to subcordate, chartaceous; secondary veins 12–18 pairs, spreading widely, looping broadly to interconnect near margins, with the lesser venation finely reticulated, thickened to slightly raised adaxially, plane abaxially; *stipules* interpetiolar, persistent or often deciduous through fragmentation, triangular, 2–10 mm long, somewhat costate, acute to shortly aristate. *Inflorescences* terminal and sometimes in most distal axils, congested-cymose, ebracteate, peduncles 2–10 mm long, pedicels 2–12 mm long, hypanthium 1–1.5 mm long, turbinate; *calyx limb* 2.5–3 mm long, glabrous, truncate; *corolla* salverform, white, externally glabrous, internally glabrous except villous at stamen attachment, lobes 5–6, narrowly triangular to linear, ca. 5 mm long, acute; *anthers* partially exerted, linear, ca. 4 mm long; *stigma* capitate, ca. 1 mm long, included. *Fruit* subglobose, 10–11 × 14–15 mm, purple, smooth, glabrous. Collected in wet forest in eastern Panama at 50–180 m, in flower in April, in fruit in July and August.

*Faramea sanblasensis* is distinguished by its sessile, relatively large, lance-elliptic leaves that are

rounded to subcordate at the base, flowers in rather short terminal cymes, and subglobose fruits. It is similar and probably closely related to *F. correae* C. M. Taylor; their distinctions are outlined above. The specific epithet refers to the region from which this species is known.

**Paratypes.** PANAMA. **Comarca de San Blas:** cordillera frente a la Isla Narganá, ribera del río Diablo, *Gal-dames* 1480 (MO); río Diablo y vecindad de Duque Sui, a unos 10 km de la costa frente a la Isla de Narganá, ruta hacia Cerro Ibedón, 9°22'N, 78°35'W, *Herrera et al.* 1178 (MO, PMA); vecindad del río Diablo, tierra firme frente a la Isla Narganá, a unos 15 km de la costa, 9°22'N, 78°35'W, *Herrera et al.* 1198 (MO, PMA, US); vecindad del río Diablo, 8–9 km de la costa, 9°23'N, 78°34'W, *Herrera et al.* 1728 (MO, PMA).

#### TRIBE PSYCHOTRIEAE

***Psychotria deneversii*** C. M. Taylor, sp. nov.

TYPE: Panama. Comarca de San Blas: El Llano–Cartí Road, 18 km from Interamerican Highway, headwaters of Atlantic-draining creeks, 9°19'N, 78°55'W, 300 m, 7 Sep. 1984, *G. de Nevers* 3861 (holotype, PMA-38224; isotype, MO-4658111). Figure 2C, D.

Haec species a congeneris foliis subsessilibus sat grandibus ex oblanceolatis obovatis, inflorescentia subcapitata pedunculata, limbo calycino sat longo ac corolla insuete longa distincta.

Rather succulent, suffrutescent herbs or small trees, flowering at 1.5 m tall, to 4 m tall; stems glabrescent, rather quadrate. *Leaf blades* sessile to subsessile, oblanceolate to obovate, 40–49 cm long, 18–19 cm wide, at apex rather abruptly acuminate with tips 1–1.5 cm long, tapered toward base, at base truncate to subcordate, papyraceous, above glabrous to minutely puberulous, below moderately to densely puberulous to pilosulous throughout though often more densely so on principal veins; secondary veins 19–20 pairs, broadly curved, ascending, usually extending to the margins, above the costa prominulous and sharply angled and the remaining venation plane, below the costa prominent, the secondary veins prominulous, and the remaining venation prominulous or thickened; *stipules* united around the stem into a continuous, subtruncate sheath with two lobes on each side, deciduous with the leaves, glabrescent or moderately to densely puberulous or pilosulous, sheath ca. 2 mm long, lobes narrowly triangular, 9–12 mm long, acute. *Inflorescences* terminal, subcapitate, erect, green to purple; peduncles 8–14 cm long, puberulous to pilosulous, laterally flattened, heads cylindrical, 3.5–6 × 3–6 cm; *flowers* borne in glomerules or densely congested cymes of 5–20, with



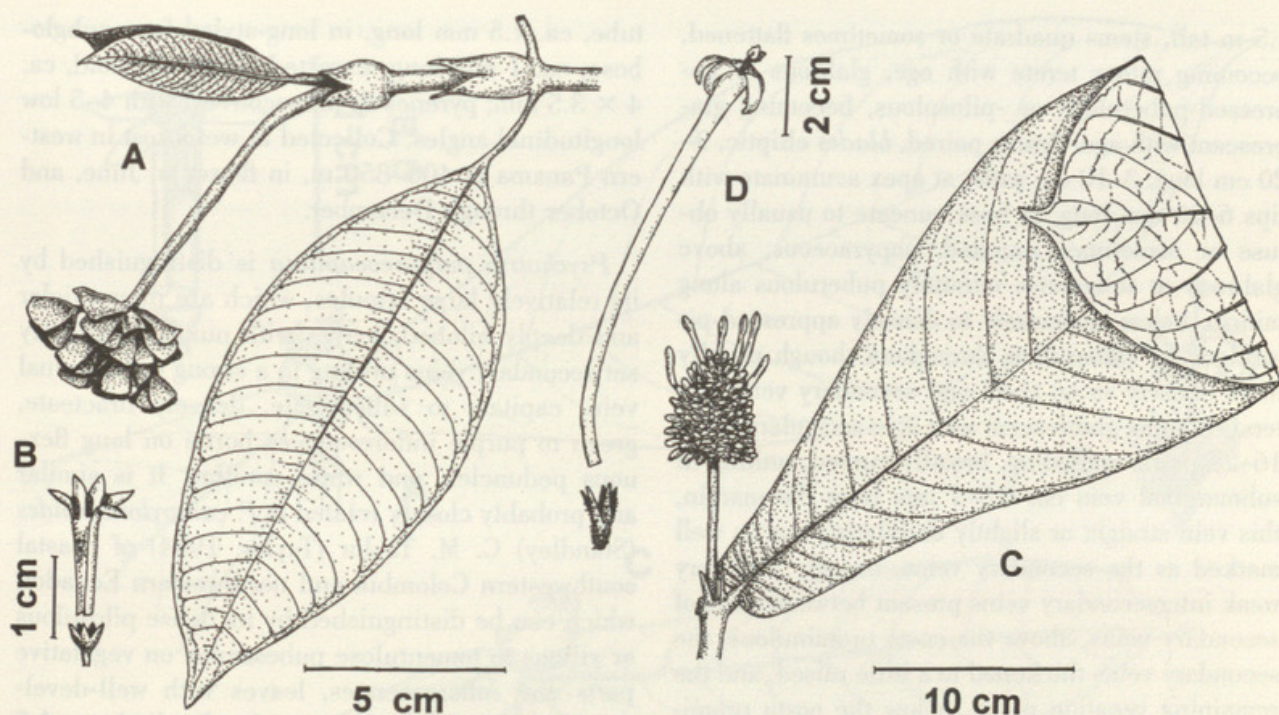


Figure 2. A, B, *Psychotria purpureocapitata* Dwyer ex C. M. Taylor; based on Antonio 1072. —A. Habit. —B. Flower, partially dissected. C, D, *Psychotria deneversii* C. M. Taylor; based on de Nevers 3861. —C. Habit. —D. Flower, with calyx and corolla separated. A to 5-cm scale; B to 1-cm scale; C to 10-cm scale; D to 2-cm scale.

hypanthium turbinate, ca. 2 mm long, densely short-pilosulous; calyx limb sparsely to moderately short-pilosulous, membranaceous, 5–8 mm long, divided nearly to base, lobes 5, linear to narrowly triangular, acute; corolla salverform, white, externally sparsely to moderately pilosulous, internally glabrous except villous in distalmost  $\frac{1}{3}$  of tube, tube uniformly cylindrical, ca. 5 cm long, ca. 1.5 mm diam., lobes 5, triangular, ca. 5 mm long; anthers included, ca. 4 mm long, positioned just below top of tube; style villosulous on upper  $\frac{1}{3}$ – $\frac{1}{2}$ , stigmas 2, exserted, ca. 1.5 mm long, flattened, suborbicular; disk annular, ca. 0.5 mm high. Fruits obovoid, ca. 5 × 6 mm, somewhat flattened laterally. Collected in wet forest in eastern Panama at 300–350 m, in flower in September and November and in young fruit in November.

*Psychotria deneversii* is distinguished by its relatively large, oblanceolate to obovate, subsessile leaves, subcapitate pedunculate inflorescences, relatively long calyx limb, and unusually long corollas. It is similar to *Palicourea dimorphandroides* (Dwyer) C. M. Taylor (Taylor, 1996b) and *Palicourea grandistipula* (Steyermark) C. M. Taylor (Taylor, 1996b), both of eastern Panama and northwestern and western Colombia. These can be separated by their shorter corollas, which are gibbous and swollen at the base and pubescent internally in the lower part of the tube. The specific epithet commemorates Greg de Nevers, whose extensive and careful

collecting has greatly advanced our knowledge of the Panamanian flora, in particular that of the San Blas region.

Only one flowering collection has been seen, but its flowers (described above) conform to the general long-styled morphology found in neotropical *Psychotria*, and it seems likely that this species is distylous. The collection in which the “inflorescence” is described as purple actually also bears young fruits, and it seems likely that the inflorescences of this species follow the most common pattern in neotropical *Psychotria* and change from green in flower to purple in the fruiting stage.

**Paratype.** PANAMA. **Comarca de San Blas:** El Llano–Cartí road, Km 19.1, 9°19'N, 78°55'W, de Nevers et al. 6188 (MO, PMA).

***Psychotria purpureocapitata*** Dwyer ex C. M. Taylor, sp. nov. TYPE: Panama. Coclé: El Copé on Pacific side,  $\frac{1}{2}$  hour walk from sawmill, 2400 ft. [774 m], 16 Oct. 1979, T. Antonio 2154 (holotype, PMA; isotype, MO–4658112). Figure 2A, B.

Haec species a congeneris stipulis sat grandibus interpetiolaribus profunde bilobatis, foliorum nervis secundariis crebris multis in venam submarginalem validam coalitis, inflorescentia subcapitata capitatave dense bracteata ex viridi purpurea pedunculo longo flexuoso insidente ac corolla alba distincta.

Subshrubs or shrubs, flowering at 0.6 m tall, to



1.5 m tall, stems quadrate or sometimes flattened, becoming rather terete with age, glabrous or appressed-puberulous or -pilosulous, becoming glabrescent with age. *Leaves* paired, *blades* elliptic, 9–20 cm long, 3–10 cm wide, at apex acuminate with tips 6–20 mm long, at base cuneate to usually obtuse or sometimes rounded, papyraceous, above glabrous or sometimes minutely puberulous along midrib, below moderately to densely appressed-pilosulous to -puberulous throughout though usually more densely so on costa and secondary veins, often becoming glabrescent with age; secondary veins 16–28 pairs, spreading, broadly curved, uniting in submarginal vein ca. 0.5–1 mm from the margin, this vein straight or slightly undulating and as well marked as the secondary veins, usually 1(2) very weak intersecondary veins present between pairs of secondary veins, above the costa prominulous, the secondary veins thickened to a little raised, and the remaining venation plane, below the costa prominulous to prominent, the secondary veins prominulous, and the minor venation plane; margins thinly cartilaginous, entire or minutely ciliate; *stipules* persistent, interpetiolar, moderately to densely villosulous to villous, ovate, 9–19 mm long, bilobed for ca.  $\frac{1}{2}$ , the lobes narrowly triangular, acute to usually acuminate, the sinus acute. *Inflorescences* terminal or usually pseudoaxillary by sympodial continuation of the axis from an axillary bud, deflexed to pendulous, capitate to subcapitate, densely bracteate; peduncles sparsely to rather densely appressed-villosulous to -villous, flexuous, 6.5–14 cm long, heads 1.5–2.5 cm long, 3–5.5 cm wide, unbranched or branched 1–2 times and corymbiform; bracts green or purple to deep purple, glabrous or puberulous, entire, the external bracts fused into a continuous involucre 10–15 mm long, truncate, splitting irregularly, the floral bracts elliptic to ovate or spatulate, 5–10 mm long, obtuse or rounded to truncate; *flowers* sessile in dense glomerules of 5–10, each flower subtended by a floral bract and the glomerule enclosed by 2–4 additional bracts; hypanthium cylindrical, ca. 1 mm long, glabrous; *calyx limb* membranaceous, green, glabrous, 2–2.5 mm long, lobed for ca.  $\frac{3}{4}$ – $\frac{4}{5}$ , lobes narrowly triangular to linear, unequal by up to 10% on an individual flower, acute; *corolla* slenderly funnel-form, white, glabrous externally, glabrous internally except villosulous in middle of tube, tube 8–9 mm long, ca. 1 mm diam., lobes 5, narrowly triangular, 2.5–3 mm long, acute; *anthers* narrowly oblong, in short-styled form partially exserted, ca. 2 mm long, in long-styled form positioned just above middle of tube, ca. 1.3 mm long; stigmas 2, in short-styled form linear, positioned just below top of corolla

tube, ca. 1.5 mm long, in long-styled form subglobose, ca. 1 mm long, exserted. *Fruit* ellipsoid, ca.  $4 \times 3.5$  mm; pyrenes 2, planoconvex, with 4–5 low longitudinal angles. Collected in wet forest in western Panama at 400–850 m, in flower in June, and October through December.

*Psychotria purpureocapitata* is distinguished by its relatively large stipules, which are interpetiolar and deeply bilobed, leaves with numerous closely set secondary veins uniting in a strong submarginal vein, capitate to subcapitate, densely bracteate, green to purple inflorescences borne on long flexuous peduncles, and white corollas. It is similar and probably closely related to *P. campyloneuroides* (Standley) C. M. Taylor (Taylor, 1994) of coastal southwestern Colombia and northwestern Ecuador, which can be distinguished by its dense pilosulous or villous to tomentulose pubescence on vegetative parts and inflorescences, leaves with well-developed intersecondary veins, and calyx limb ca. 1.5 mm long. *Psychotria purpureocapitata* is also similar to *P. elata* (Swartz) Hammel, which can be distinguished easily by its stipules united around the stem into a continuous sheath and leaves with the secondary veins prominulous adaxially and relatively more strongly developed here than on the abaxial surface, in contrast to more strongly developed on the abaxial surface in *P. purpureocapitata*.

Apparently the inflorescences are green at the beginning of anthesis and become purple as the fruit matures, which occurs to some extent concurrently with continued flowering.

*Paratypes*. PANAMA. **Coclé**: Alto Calvario, ca. 6 km N of El Copé, on Atlantic slope along trail which leads W off old lumber trail which leads down to Las Ricas, Limón and San Juan, 9°39'N, 80°36'W, Croat 68714 (MO), 68823 (MO); area surrounding Rivera Sawmill, Alto Calvario, 7 km N of El Copé, Folsom & Collins 6446 (MO), 6466 (MO). **Panamá**: trail to top of Cerro Pelado, Antonio 1072 (MO); area surrounding Rancho Chorro, mountains above Tortí Arriba, Folsom et al. 6612 (MO, PMA), 6662 (MO).

**Rudgea hemisphaerica** Dwyer ex C. M. Taylor, sp. nov. TYPE: Panama. Comarca de San Blas: El Llano–Cartí road, 19.1 km from Interamerican Highway, 9°19'N, 78°55'W, 350 m, 5 Mar. 1985, G. de Nevers, H. Herrera & S. Charnley 4962 (holotype, PMA-38235: isotype, MO-4658113). Figure 3A, B.

Haec species a congeneris foliis ex subsessilibus brevipetiolatis oblanceolatis abaxialiter pallidis, inflorescentia capitata sessili ac fructibus sat grandibus distincta.

Shrubs or small trees flowering at 1 m tall, to 3 m tall, glabrous; stems terete. *Leaf blades* subses-



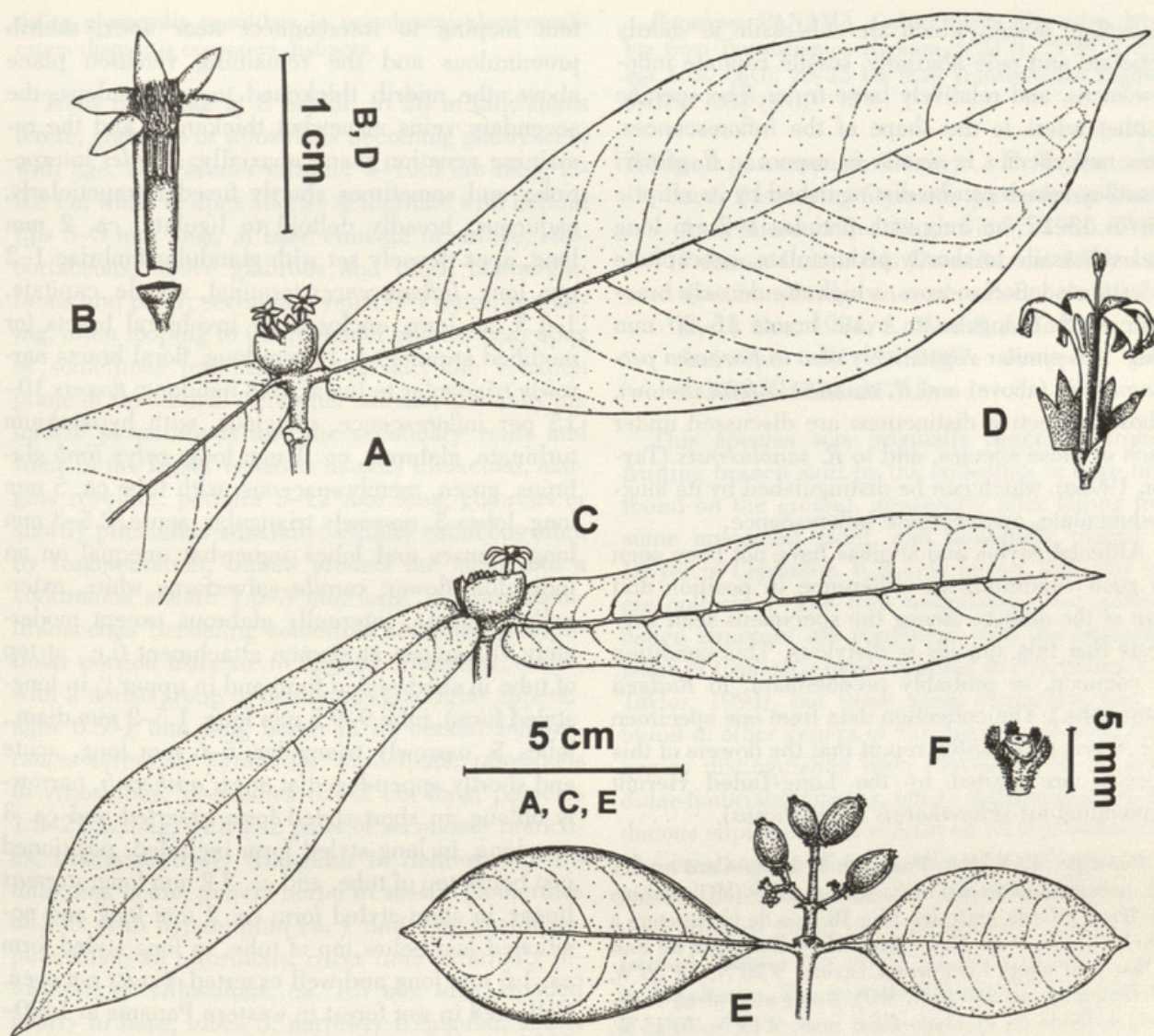


Figure 3. A, B, *Rudgea hemisphaerica* Dwyer ex C. M. Taylor; based on *de Nevers et al.* 4962. —A. Habit. —B. Flower, partially dissected. C, D, *Rudgea mandevillifolia* Dwyer ex C. M. Taylor. —C. Habit; based on *Croat* 48863. —D. Flower, partially dissected; based on *Antonio* 2850. E, F, *Rudgea mcphersonii* Dwyer ex C. M. Taylor; based on *McPherson* 11771. —E. Habit. —F. Calyx, hypanthium, and disk. A, C, E to 5-cm scale; B, D to 1-cm scale; F, to 5-mm scale.

sile to shortly petiolate, oblanceolate, 18.5–30 cm long, 7.5–14 cm wide, at apex acuminate with rather slender tips 10–15 mm long, toward the base tapered, at base shortly truncate to subcordate, chartaceous, sometimes pale abaxially; secondary veins 9–13 pairs, spreading to ascending, usually looping broadly to interconnect at least in distal half of blade, lesser venation reticulated, plane adaxially, thickened to a little raised abaxially; *petioles* 1–15 mm long; *stipules* interpetiolar, caducous, ligulate to ovate, 5–16 mm long, truncate to rounded, apical margin densely set with caducous glandular appendages ca. 1 mm long. *Inflorescences* terminal, capitate, sessile, 1.5–2 cm long, enclosed in persisting vegetative stipules, floral bracts triangular, 0.5–1 mm long; *flowers* 15–25 per inflorescence, distylous, with hypanthium glabrous, tur-

binate or hemispherical, ca. 1 mm long; *calyx* limb glabrous, ca. 1 mm long, truncate; *corolla* salverform, white, externally glabrous, internally villous in distal half of tube and barbate in throat, tube 10.5–11 mm long, ca. 1.5 mm diam. near middle, lobes 5, narrowly triangular, 4–4.5 mm long, acute; *anthers* narrowly oblong, in long-styled form included and ca. 2.5 mm long, in short-styled form partially exserted and ca. 4 mm long; *style* and *stigma* not seen. *Fruits* ellipsoid to usually ovoid, ca. 18 × 10 mm, glabrous; *pyrenes* 2 per fruit, planoconvex, dorsally with 3–5 low longitudinal ridges. Collected in wet forest in eastern Panama at 320–400 m, in flower in February, March, and May, in fruit June–August.

*Rudgea hemisphaerica* is distinguished by its ob-



lanceolate leaves, which are subsessile to shortly petiolate and pale abaxially, sessile capitate inflorescences, and relatively large fruits. The specific epithet refers to the shape of the inflorescences. This new species is similar in aspect to *R. pittieri* Standley, which can be distinguished by its elliptic leaves 13–22 cm long with petioles 1–2 cm long and subsessile to shortly pedunculate, subcapitate to capitate inflorescences, which are densely bracteate, with triangular to ovate bracts 15–20 mm long. It is similar vegetatively also to *Famea permagnifolia* (above) and *R. mandevilliifolia* (below), whose respective distinctions are discussed under each of these species, and to *R. sanblasensis* (Taylor, 1996a), which can be distinguished by its long-pedunculate, open-cymose inflorescence.

Although styles and stigmas have not been seen in good condition, the difference in position and size of the anthers among the specimens seen suggests that this species is distylous. This condition is common, or probably predominant, in *Rudgea* (pers. obs.). The collection data from one specimen (de Nevers et al. 5884) report that the flowers of this species are visited by the Long-Tailed Hermit Hummingbird (*Phaethornis superciliosus*).

**Paratypes.** PANAMA. **Panamá:** El Llano–Cartí road, 1 mi. past sawmill on dirt road, Antonio 2529 (MO); camino de Llano a Cartí, entre los 14 a 18 kms de la carretera a Chelp, Correa et al. 1857 (MO, PMA). **Comarca de San Blas:** trail along Continental Divide, 9°20'N, 78°56'W, McDonagh et al. 296 (BM, MO); Nusagandi, along continental divide on El Llano–Cartí road, 9°19'N, 78°15'W, de Nevers & Pérez 3698 (MO, PMA); El Llano–Cartí road, Km 18.3, 9°19'N, 78°55'W, de Nevers et al. 5884 (MO, PMA), 5993 (MO, PMA); El Llano–Cartí road, Km L6 [sic], 9°19'N, 78°55'W, de Nevers et al. 7374 (MO, PMA); El Llano–Cartí road, 12 mi. from Pan American Highway, Sytsma & Andersson 4487 (MO, PMA).

***Rudgea mandevilliifolia*** Dwyer ex C. M. Taylor, sp. nov. TYPE: Panama. Chiriquí: vicinity of Planes de Hornito beyond Gualaca, ca. 23 km E of Finca Linares, 1400–1900 m, 28 Nov. 1979, T. B. Croat 48863 (holotype, MO–3615290). Figure 3C, D.

Haec species a congeneris foliis sessilibus oblanceolatis abaxialiter pallidis, inflorescentia capitata bracteata sessili ac limbi calycini sat longi tubo bene evoluto distincta.

Shrubs or small trees, flowering at 1–1.5 m tall, glabrous; stems terete. Leaves sessile, blades oblanceolate, 6.5–16.5 cm long, 1.7–5 cm wide, at apex acute to usually acuminate with tips 6–15 mm long, tapered toward base, at base truncate to usually subcordate, papyraceous, glabrous, pale abaxially; secondary veins 8–11 pairs, spreading, to some ex-

tent looping to interconnect near apex, midrib prominulous and the remaining venation plane above, the midrib thickened to prominulous, the secondary veins somewhat thickened, and the remaining venation plane abaxially; stipules interpetiolar and sometimes shortly fused intrapetiolarly, caducous, broadly deltoid to ligulate, ca. 2 mm long, apex densely set with glandular fimbriae 1–2 mm long. Inflorescences terminal, sessile, capitate, 1–1.3 cm long, enclosed by involucre bracts (or modified stipules) 4–10 mm long, floral bracts narrowly triangular to linear, 6–8 mm long; flowers 10–15 per inflorescence, distylous, with hypanthium turbinate, glabrous, ca. 1 mm long; calyx limb glabrous, green, membranaceous, with tube ca. 5 mm long, lobes 5, narrowly triangular, acute, 2.5–3 mm long, sinuses and lobes somewhat unequal on an individual flower; corolla salverform, white, externally glabrous, internally glabrous except moderately villosulous at stamen attachment (i.e., at top of tube in short-styled form and in upper ½ in long-styled form), tube 9–9.5 mm long, 1.5–2 mm diam., lobes 5, narrowly triangular, 5–6 mm long, acute and shortly appendaged at apex; anthers 5, narrowly oblong, in short-styled form exerted and ca. 3 mm long, in long-styled form included, positioned just below top of tube, and ca. 3.2 mm long; stigmas linear, in short-styled form ca. 2 mm long and positioned just below top of tube, in long-styled form ca. 1.5 mm long and well exerted. Fruits not seen. Collected in wet forest in western Panama at 1400–1900 m, in flower in November.

*Rudgea mandevilliifolia* is distinguished by its sessile oblanceolate leaves, which are pale abaxially, sessile, capitate, bracteate inflorescences, and relatively long calyx limb with a well-developed tube. It is similar in general aspect to *R. hemisphaerica*, which can be distinguished by its truncate calyx limb ca. 1 mm long, and to *R. panamensis*, whose relationship to *Rudgea mandevilliifolia* is discussed below.

**Paratype.** PANAMA. **Colón:** vicinity of Los Planes de Hornito, along road to Fortuna Dam, N of Gualaca on Río Chiriquí, 2–3 km E of Finca Linares, Antonio 2850 (MO, PMA).

***Rudgea mcphersonii*** Dwyer ex C. M. Taylor, sp. nov. TYPE: Panama. Colón: Santa Rita ridge, SE of Colón, 10–11 road-miles from trans-isthmian highway, 9°25'N, 79°40'W, 450 m, 18 Sep. 1987, G. McPherson 11771 (holotype, PMA; isotype, MO–3646497). Figure 3E, F.

Haec species a congeneris mesoamericanis inflorescen-



tia ex glomerulis sessilibus in pseudopaniculam ramificatam dispositis constante distincta.

Trees flowering at 8 m tall, to 20 m tall, stems terete, glabrous or pilosulous becoming glabrescent with age. *Leaf blades* elliptic, 5–10.5 cm long, 2–5.5 cm wide, at apex shortly acuminate with deltoid tips 3–5 mm long, at base cuneate to obtuse, subcoriaceous, above glabrous and nitid, below glabrous and paler; secondary veins 6–7 pairs, spreading, often looping to interconnect at least near apex or sometimes reticulating, adaxially the venation plane or the midrib somewhat sulcate, abaxially the midrib prominulous and the secondary veins and some of the lesser venation usually thickened, margins revolute; petioles 5–12 mm long, glabrous or shortly pilosulous adaxially; *stipules* caducous often by fragmentation, united around the stem into a continuous sheath 1.5–3 mm long, margins membranaceous becoming somewhat indurate, interpetiolar portion truncate to broadly triangular, entire, with a dense group of deciduous glandular appendages 0.5–1 mm long borne in its center. *Inflorescences* terminal, pyramidal, paniculate, pilosulous to villosulous, peduncles 0.5–2 cm long, panicles 1.5–2 cm long, with 1–2 pairs of secondary branches, bracts narrowly triangular to deltoid, 0.5–1.5 mm long, acute; *flowers* borne in sessile glomerules of 3–6, with hypanthium ca. 1 mm long, turbinate, puberulous to pilosulous; *calyx limb* externally pilosulous or villosulous, ca. 1.5 mm long, divided nearly to base, lobes 5, narrowly triangular, acute, adaxially glabrous except pilosulous near apex; *corolla*, *anthers*, *stigma*, and *style* not seen; *disk* annular, ca. 1 mm high. *Fruits* ellipsoid, ca. 14 × 8 mm, glabrous, yellow to yellow-orange; *pyrenes* 2 per fruit, planoconvex, outer layer chartaceous with 3–5 low longitudinal ridges. Collected in wet forest in central Panama at 350–450 m, in fruit in September and October.

*Rudgea mcphersonii* is distinguished among Central American species of *Rudgea* by its inflorescence structure: it is the only species known from Central America with sessile glomerules of flowers in a branched paniculate arrangement. It is similar and perhaps closely related to *R. crassiloba* (Benth.) Robinson of lowland northeastern South America, which can be separated by its stipule sheath ca. 1 mm long, four-merous calyx limb 1–1.1 mm long, and fruits 7 × 4–5 mm. The yellow or orange fruits found in both of these species are unusual in *Rudgea*, which more typically has white fruits. The name honors Gordon McPherson, whose fieldwork has greatly advanced our knowledge of the Panamanian flora.

*Paratypes*. PANAMA. **Colón**: Santa Rita ridge, 20–22 km from Transisthmica Highway, 9°24'N, 79°39'W, *Sytsma 1350* (MO), 20–25 km from Transisthmian Highway, *Sytsma 1534* (MO).

***Rudgea panamensis*** (Dwyer) C. M. Taylor, comb. nov. Basionym: *Cephaelis panamensis* Dwyer, Ann. Missouri Bot. Gard. 67: 77. 1980. TYPE: Panama. Colón: Río Guanche, ca. 2.5 km upriver from bridge on road to Portobelo, 10–100 m, 14 Dec. 1974, S. Mori & J. Kallunki 3714 (holotype, MO-2353037; isotypes, MO-2353038, PMA-22701).

This species was originally described from a fruiting branch said by the collectors to have been found on the ground, apparently after falling from some unlocated plant, and doubtfully placed by Dwyer in *Cephaelis*. It is only known from this single collection. The fruit morphology and inflorescence structure are congruent with the characteristics of *Cephaelis* (now included in *Psychotria*, e.g., Taylor, 1994), but these same characters may be found in other genera of Psychotrieae as well. *Rudgea* is distinguished from *Psychotria* by its glandular-fimbriate stipules, but *C. panamensis* has caducous stipules. None remain on its type collection. The combination of a generally obovoid fruit shape, smooth pyrenes, a truncate calyx limb, and caducous stipules found in *C. panamensis* is characteristic of *Rudgea* but rarely (or perhaps never) seen in *Psychotria*. The general aspect of *C. panamensis* is similar to several other species of *Rudgea* from western Panama, while it does not resemble any *Cephaelis* species known from Panama or Costa Rica. Therefore, this species is here transferred to *Rudgea*.

*Rudgea panamensis* is distinguished by its oblanceolate leaves, which are subsessile to shortly petiolate and truncate to subcordate at the base; subsessile, subcapitate to shortly cymose inflorescences; obovoid fruits with smooth pyrenes; and truncate calyx limb ca. 1.5 mm long. It is similar in aspect to *R. hemisphaerica*, which can be distinguished by its inflorescences, which are enclosed by a truncate stipular sheath 1.5–2 cm long and larger fruits, and to *R. mandevilliifolia* Dwyer, which can be distinguished by its sessile, bracteate, capitate inflorescences. *Rudgea panamensis* and *R. mandevilliifolia* are similar enough that they could conceivably be conspecific, but the infructescence on the one collection known of *C. panamensis* has lost any bracts it might have had, and more collections in different reproductive stages are needed to evaluate the relationship between these species.

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