

RUFODORSIA, A NEW CENTRAL-AMERICAN GENUS  
IN THE GESNERIACEAE

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On field trips in Panama in 1971 and 1972 Robert L. Dressler and I collected in several localities live material of three closely related gesneriaceous species new to science. They are leathery-leaved epiphytes of the cloud forest, but they also grow in a similar humid montane primary forest environment at slightly lower levels of altitude. These species, labelled provisionally "major," "minor," and "intermedia," have been cultivated and observed since that time at the greenhouses of the University of Miami, Florida, and at the Marie Selby Botanical Gardens. They are sharing bench or hanging space with many other new and undescribed species, for the recent field trips to Ecuador, Colombia, and Panama in search of Gesneriaceae yielded about 20-25% novelties. In such a family as the Gesneriaceae the study of live material seems essential for an understanding and description of new taxa.

It is now clear that the three species represent a new genus in the tribe Episcieae Endl. of the neotropical subfamily Gesnerioideae. The proposed name is *Rufodorsia*. The distinguishing features of this taxon are a comparatively small, campanulate, white corolla, with the dorsal side of the two upper corolla lobes colored brick-red (Orange-Red Group 35A&B, R.H.S., 1966), and the fruit, a nearly translucent white berry. The type of flower is unique in the tribe Episcieae; it is noteworthy that a corolla of the same size, shape, and coloration occurs in the monotypic genus *Koellikeria* Regel in the tribe Gloxinieae Fritsch. *Koellikeria erinoides* (DC.) Mansf. is one of the most widely distributed neotropical gesneriads, found from Costa Rica to northwestern Argentina, and from Venezuela to Mato Grosso and Goias in Brazil. Nothing is as yet known of the pollinator of this successful small terrestrial or saxicolous herb with scaly rhizomes and a capsular fruit. The pollinating agent of the similar *Rufodorsia* flower is likewise unknown at present. The compact plant habit, the congested florescence, and the flower of the new taxon do not suggest an obvious close affinity to any of the 18 genera in the tribe Episcieae. The fruit, however, allies *Rufodorsia* with the baccate genera *Codonanthe* (Mart.) Hanst., *Columnnea* L., *Corytoplectus* Oerst., *Dalbergaria* Tussac, *Neomortonia* Wiehler, *Pentadenia* (Planch.) Hanst., and *Trichantha* Hook. The base chromosome number for *Rufodorsia* is  $n = 9$ , a value typical for the majority of the genera in the tribe Episcieae but not found in the other tribes of the Gesnerioideae.

There exists also a fourth species of *Rufodorsia*, known as yet only from herbarium material. It was described by J. Donnell-Smith in 1916 as *Besleria congestiflora* from Costa Rica. When C. V. Morton revised the baccate genus *Besleria* L. in 1939 he transferred this species to *Alloplectus* Mart. *Alloplectus* has until recently been a genus of rather unclear delimitations. It now constitutes a natural group in which the fruit is a fleshy display capsule (Wiehler, 1973). Donnell-Smith's species fits in all aspects into *Rufodorsia*, and it also helps to link the distribution pattern of the four species of the new genus into a single unit (see map, page 149).

*Rufodorsia* appears to be endemic to Central America, judging from the

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36 collections made so far in Panama and Costa Rica. The new genus is thus a component of the distinct montane cloud forest and sub-cloud forest flora which is scattered like isolated islands along the narrow land strip of Central America. Some of these "islands" are not well explored botanically and more *Rufodorsia* localities may therefore be discovered, unless these rich forests are destroyed by men within the next few years, like most of the tropical rain forest, due to population explosion and agricultural "progress." To this superbly rich cloud forest and sub-cloud forest flora also belong the majority of the other Central-American Gesneriaceae, such as species of *Campanea* Decne., *Diastema* Benth., *Monopyle* Benth., *Besleria*, *Alloplectus*, *Codonanthe*, *Columnnea*, *Dalbergaria*, *Drymonia* Mart., *Napeanthus* Gardner, *Paradrymonia* Hanst., *Pentadenia*, and *Trichantha*. A spotty distribution pattern in Central America similar to that of *Rufodorsia* occurs in several orchidaceous species such as *Kegeliella kupperi* Mansf., *Coeliopsis hyacinthosma* Rchb.f., and for all members of the genus *Dressleria* Dodson (C. H. Dodson, personal communication). Each of the four species of *Rufodorsia* seems to prefer a certain range of altitude and there appears to be a correlation between altitude and the degree of indumentum on the plant body of each species: the hairiness increases with altitude.

SPECIES	ALTITUDINAL RANGE	INDUMENTUM OF THE ADAXIAL LEAF SURFACE
<i>Rufodorsia major</i>	450 - 900 m	short and sparse, appearing almost glabrous
<i>Rufodorsia minor</i>	600 - 1000 m	very short but dense, puberulous
<i>Rufodorsia intermedia</i>	800 - 1000 m	hairs longer but not as dense as above, strigillose
<i>Rufodorsia congestiflora</i>	850 - 1500 m	hairs long and dense, tomentose

No hybrids have been observed where the species occur sympatrically: at Cerro Jefe, Province Panamá (*R. major* and *R. minor*), at El Valle, Province Coclé (*R. minor* and *R. intermedia*), and in the Province of Veraguas (*R. major* and *R. intermedia*). These species flower simultaneously in cultivation. The small-flowered *R. minor* produces some fruit by self-pollination in the greenhouse; the other two species require a pollinator for seed production.

The baccate genera in the neotropical Gesneriaceae differ from *Rufodorsia* by the following characters: *Besleria* has an annular or semi-annular nectary, *Rufodorsia*, the typical episcioïd double dorsal gland; *Codonanthe* is distinguished by a very broad connective between the anther cells of the stamens, the anther cells in *Rufodorsia* are connate; and the unique corolla shape and coloration sets *Rufodorsia* easily apart from *Columnnea*, *Corytopectus*, *Dalbergaria*, *Neomortonia*, *Pentadenia*, and *Trichantha*.

#### ***Rufodorsia* Wiehler, gen. nov.**

Herbae perennes epiphyticae, caules erecti, ascendentes vel decumbentes, parce ramosi, nodis trilacunaribus; folia opposita-decussata isophyllaque, laminae coriaceae, venis lateralibus primariis 3-4-jugis. Florescentia cyma axillaris congesta bracteata, floribus 1-10; calices lobi 5; corolla brevis, cam-

paniformis, bilabiata, latere dorsali et lobis superis limbi rufis; stamina 4, inclusa, antherae loculi leviter confluentes; ovarium superum, stigmatum stomatomorpho-bilabiato; nectarium in glandulam duplo-connatam dorsalem reductum. Fructus bacca, semina striata, affixa ad funiculos inflatos carnosos, pulpam baccae facientes.

TYPE SPECIES: *Rufodorsia major* Wiehler

ETYMOLOGY: From the Latin rufus = reddish; dorsum = back; (the corolla) with a reddish back.

***Rufodorsia major* Wiehler, sp. nov. (Figure 1.)**

Caules erecti vel ascendentes, 24-25 cm alti, 5-7 mm crassi, rufi vel virides, parce sericei, internodiis 2-6 cm longis. Folia parciter sericea, petioli 2-2.5 cm longi, laminae ellipticae vel obovatae, apice acuto vel obtuso, margine serrato, basi attenuata, 10-14 cm longae, 5-6.5 cm latae, venis lateralibus primariis 3-4-jugis, supra atrovirentes, suprus pallide virides vel roseo-purpureae suffusae. Cymae axillares, congestae, floribus 1-10, pedunculi reducti vel destituti, prophylla et bracteae subtenentes congestae, prophylla ovata, serrata, 6-14 mm longa, 3-9 mm lata, pedicelli 4-9 mm longi; calyx pallide viridis, sparse sericeus, lobis inaequalibus, lanceolatis, e basi discretis, serratis, lobo dorsali majore, 15 mm longo, 7 mm lato, lobis aliis 12 mm longis, 3 mm latis; corolla obliqua, subcalcarata, campaniformis bilabiataque, extus sericea, 14 mm longa, constricta supra basim ad 3 mm diam., limbus obliquus, 9-10 mm in diam., lobi 5, inaequales, patentis, integri, lobo ventrali majore, 4 mm longo, 6 mm lato, lobis aliis 3 mm longis, 4 mm latis, circa faucem et dorsum internum trichomatibus glanduliferis brevibus, tubus albus, dorso et lobis superis rufis, fauce interna rufo-notata; stamina 4, inclusa, filamentis parce pubescentibus, basi 1 mm cum tubo corollae adnatis, 5 mm longis, 1 mm latis basaliter, 0.3 mm latis apicem versus, antheris in quadram 1.2 mm longam atque latam cohaerentibus, loculis leviter confluentibus, 0.5 mm longis, 0.3 mm latis; ovarium dense pilosum, 1.5 mm longum, stylus glabrus ruber, 5 mm longus, stigmatum stomatomorpho-bilabiato; nectarium glandula duplo-connata glabra, alba, 2 mm longa, 1.2 mm lata. Fructus bacca globosa alba, semi-translucens, pilosa, ca. 6 mm diam.; semina striata brunnea, 0.5 mm longa, 0.3 mm lata, funiculis 1.2-2.0 mm longis. Chromosomata collectionis typi  $n = 9$ .

TYPE: PANAMA: PANAMA: Cerro Jefe, ca. 20 km north of Tocumen. Humid sub-cloud forest area, about 800 m altitude. "Epiphyte. Some lvs. flushed with pink below. Cor. white with a reddish black. Sympatric with a small-fl. congener, #71175 (= *R. minor*)." 11 Aug. 1971, H. Wiehler & R. L. Dressler 71176 (HOLOTYPE: US; ISOTYPES: PAN, SEL, MO, NY, GH, F, UC, K, P, BR, B, HBG, M, L, LE).

DISTRIBUTION: Cloud forest and sub-cloud forest areas in Panama, at altitudes of 450-900 m.

ADDITIONAL MATERIAL EXAMINED: PANAMA: PANAMA: La Eneida, region of Cerro Jefe, 16 Dec. 1967, R. L. Dressler 3222 (SEL); Cerro Campana, Dec. 1970, N. H. Williams s.n. (SEL); VERAGUAS: Beyond Rio Tres Brazos, 9 km from Santa Fé, 24 July 1974, T. B. Croat 25603 (MO, SEL); valley of Rio Tercero Braso beyond Escuela Agrícola Alto Piedra, above Santa Fé, primary forest along road, 29 Aug. 1974, T. B. Croat 27336 (MO); 15-20 km NW of Santa Fé, between Escuela Agrícola Alto Piedra

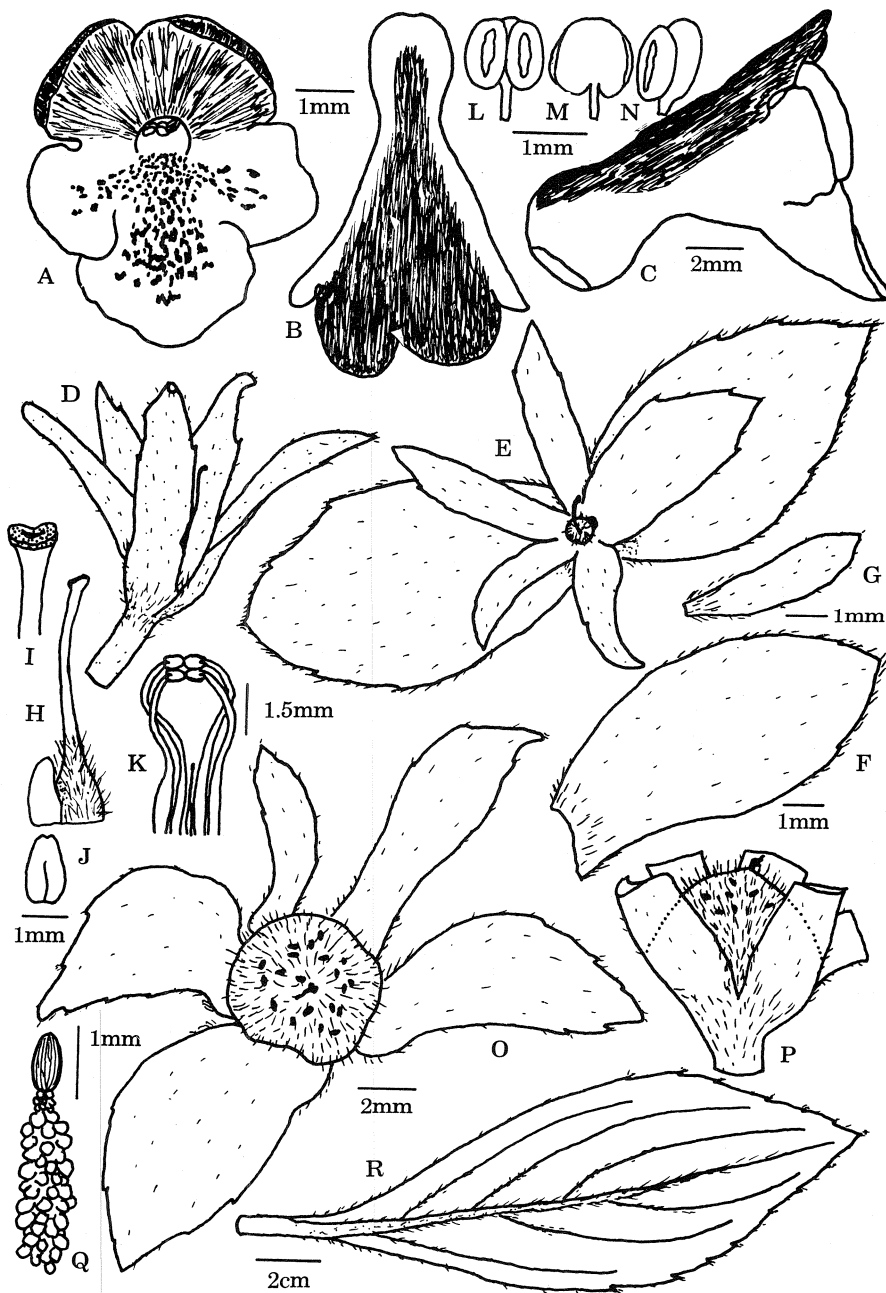


Fig. 1. *Rufodorsia major*. A-C, corolla; A, frontal view of limb; B, dorsal view; C, lateral view; D, calyx, lateral view; E, calyx with prophylls, top view; F, prophyll; G, subtending bract; H, nectary, ovary, style, and stigma; I, stigma; J, nectary, dorsal view; K, stamens with syngenesious anthers; L-N, anthers; L, ventral view; M, dorsal view; N, oblique-lateral view; O, berry-fruit with subtending calyx lobes, top view; P, fruit, lateral view; Q, seed and funicle; R, leaf, abaxial side. (All drawings from cultivated clone plant of the holotype, *Wiehler & Dressler 71176*).

and continental divide, elev. 650-800 m, 8 Sept. 1974, *R. L. Dressler 4742* (SEL); NW of Santa Fé, 11 km from Escuela Agrícola Alto Piedra, in valley of Rio Dos Bocas, Atlantic slope, 450-550 m alt., 20 Dec. 1974, *S. Mori & J. Kallunki 3859* (MO); Santa Fé area, (received as live material SEL greenhouse acc. no. W-2033) Jan. 1975, *R. L. Dressler s.n.* (SEL); BOCAS DEL TORO: east slope of La Zorra to divide, mossy forest and cloud forest, 19 April 1968, *J. H. Kirkbridge, Jr. & J. A. Duke 814* (MO); CHIRIQUI: between Pinola and divide on Chiriquicito-Caldera trail, mostly in mossy forest above oak forest, 19 April 1968, *J. H. Kirkbridge, Jr. & J. A. Duke 854* (MO).

**Rufodorsia minor** Wiehler, sp. nov. (Figure 2.)

Caules ascendentes vel decumbentes, 12-25 cm alti, 3-4 mm crassi, virides, puberuli, internodia 1-4 cm longa, ad nodos radicales. Folia puberula, petioli 0.8-1.5 cm longi, laminae ovatae, apice obtuso, margine serrato, basi late cuneata, 2.5-6.8 cm longae, 1.5-3.5 cm latae, venis lateralibus primariis 3-4-jugis, supra atrovirentes, subtus pallide virides. Cymae axillares, congestae, floribus 1-6, pedunculi 4-6 mm longi, prophylla et bracteae subtenentes congestae, prophylla ovata, serrata, 7-18 mm longa, 5-13 mm lata, pedicelli 2-4 mm longi, calyx pallide viridis, puberulus, lobis inaequalibus, lanceolatis, e basi discretis, serratis, lobo dorsali majore, 8 mm longo, 3 mm lato, lobis aliis 7 mm longis, 2 mm latis; corolla obliqua, subcalcarata, campaniformis bilabiataque, extus puberula, 8 mm longa, constricta supra basim ad 2.5 mm diam., limbus obliquus, 4 mm in diam., lobi 5, subaequales, patentes, integri, 1.5 mm longi et lati, circa faucem et dorsum internum trichomatibus glanduliferis brevibus, tubus albus, dorso et lobis superis rufis, fause interna rufo-notata; stamina 4, inclusa, filamentis pubescentibus, basi 0.6 mm cum tubo corollae adnatis, 4.3 mm longis, 0.5 mm latis basaliter, 0.2 mm latis apicem versus, antheris in quadram 1.1 mm longam atque latam cohaerentibus, loculis confluentibus, 0.4 mm longis, 0.3 mm latis; ovarium dense pilosum, 1.3 mm longum, stylus glabrus ruber, 3.1 mm longus, stigmatum stomatomorpho-bilabiato; nectarium glandula duplo-connata glabra, alba, 1.5 mm longa, 0.7 mm lata. Fructus bacca globosa alba, semi-translucens, puberula, ca. 8 mm diam.; semina striata, atrobrunnea, 1 mm longa, 0.3 mm lata, funiculis 2.2 mm longis. Chromosomata collectionis typicae  $n = 9$ .

TYPE: PANAMA: PANAMA: Cerro Jefe, ca. 20 km north of Tocumen. Humid sub-cloud forest area, about 800 m altitude. "Epiphyte, rooting by nodes. Lvs. green throughout, paler below. Calyx light green. Cor. white, with reddish dorsal side. Miniature companion sp. to sympatric # 71176 (= *R. major*)." 11 Aug. 1971, *H. Wiehler & R. L. Dressler 71175* (HOLOTYPE: US; ISOTYPES: PAN, CR, SEL, MO, NY, GH, F, UC, K, P, BR, B, HBG, B, L, LE).

DISTRIBUTION: Cloud forest and sub-cloud forest areas in Panama and Costa Rica, at altitudes of 600-1000 m.

ADDITIONAL MATERIAL EXAMINED: PANAMA: PANAMA: Summit of Cerro Jefe and forest along road beyond it, ca. 1000 m alt., 26 Aug. 1967, *S. M. V. Hayden 1002* (MO); area of Cerro Jefe, 5 Feb. 1971, *R. L. Dressler s.n.* (SEL, greenhouse acc. no. W-1523); La Eneida, region of Cerro Jefe, 3 July 1971, *R. L. Dressler 4040* (SEL); COLÓN: Santa Rita Lumber Road, E. of Colón, 13 Aug. 1971, *H. Wiehler & R. L. Dressler 71243* (SEL, US, MO,

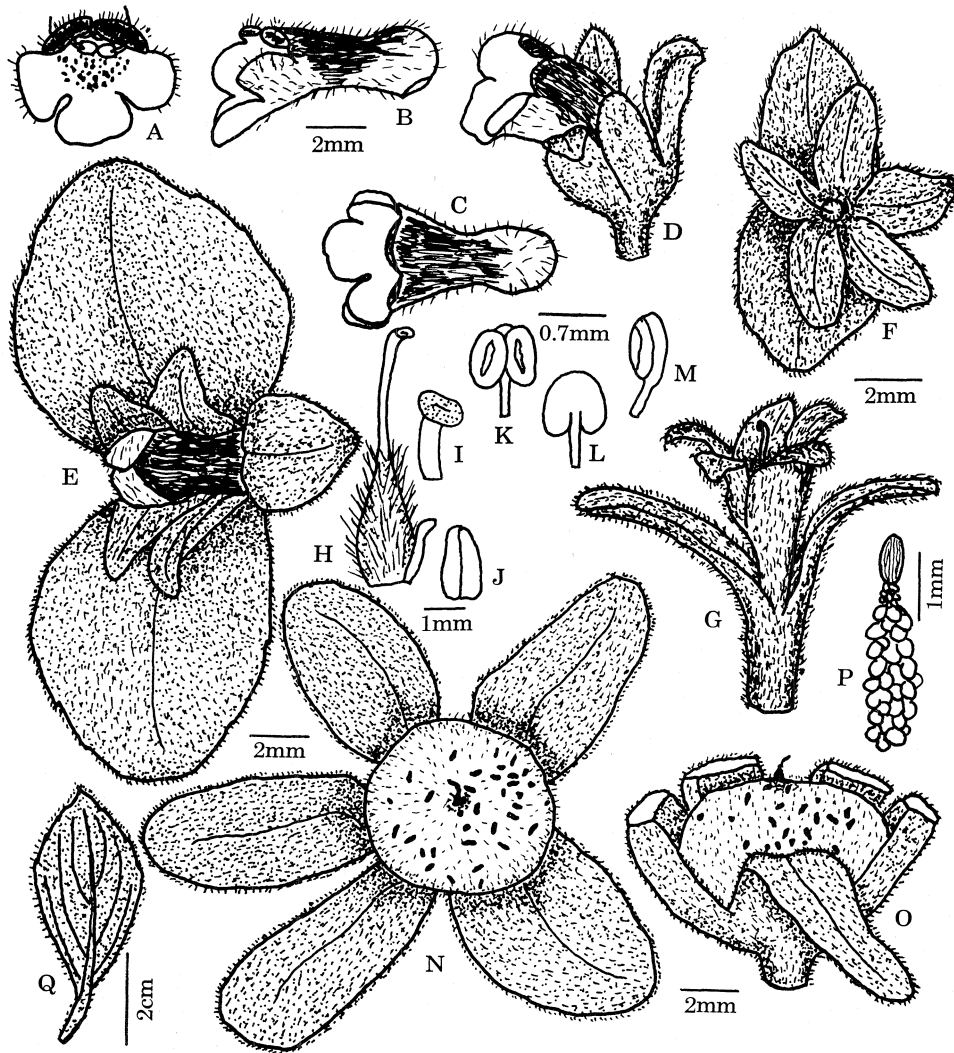


Fig. 2. *Rufodorsia minor*. A-C, corolla, SEL greenhouse coll. G-1279; A, frontal view of limb; B, lateral view; C, dorsal view; D, calyx and corolla, lateral view, *Wiehler & Dressler 71175*; E, calyx, corolla, and prophylls, top view, *Wiehler & Dressler 71255*; F, calyx and prophylls, top view, G-1279; G, same, lateral view; H, ovary, style, stigma, and nectary, *Wiehler & Dressler 71175*; I, stigma; J, nectary, dorsal view; K-M, anthers; K, ventral view; L, dorsal view; M, lateral view; N, berry-fruit, with subtending calyx lobes, top view, *Wiehler & Dressler 71175*; O, same, lateral view; P, seed and funicle; Q, leaf, abaxial side. (All drawings from live material).

NY, GH); same area, 31 Oct. 1971, *R. L. Dressler 4135* (SEL, US, MO, K); COCLÉ: El Valle de Anton, along Rio Indio trail, alt. 400-700 m, 30 Jan. 1935, *A. A. Hunter & P. H. Allen 318* (MO); vicinity of El Valle de Anton, alt. ca. 600 m, 10 Dec. 1939, *P. H. Allen 2069* (MO); north rim of El Valle de Anton, near Cerro Turega, alt. 650-700 m, 30 June 1940, *R. E. Woodson, Jr. & R. W. Schery 191* (US, MO); hills north of El Valle de Anton, 1000 m alt., 14 July 1940, *P. H. Allen 2193* (US); El Valle, at

edge of road above valley, 29 Aug. 1960, *J. E. Ebinger 1113* (US, MO); sub-cloud forest in hills N of El Valle, on small tree near banana plantation, 14 Aug. 1971, *H. Wiehler & R. L. Dressler 71255* (SEL, MO); COSTA RICA: GUANACASTE: La Tejona, N of Tilarán, 600-700 m alt., 25 Jan. 1926, *P. C. Standley & J. Valerio 45931* (US); country and locality unknown: live material distributed by Palmengarten, Frankfurt a.M., West Germany (acc. no. 3121) in 1960, grown at E (acc. no. C-3778), June 1964, Edinburgh collector unknown s.n. (E, US); same live material grown at BH and SEL (acc. no. G-1279), 26 Aug. 1971, *H. Wiehler 71303* (SEL).

**Rufodorsia intermedia** Wiehler, sp. nov. (Figure 3.)

Caules erecti vel ascendentes, 25-40 cm alti, 3-5 mm crassi, virides vel rufi, strigillosi, internodia 2-5 cm longa. Folia strigillosa, petioli 1-3 cm longi, laminae ellipticae vel ovatae, apice obtuso, margine serrato, basi rotundata vel late attenuata, 4-9 cm longae, 2-5 cm latae, venis lateralibus primariis 3-4-jugis, supra atrovirentes, subtus pallide virides vel roseo-purpureae suffusae. Cymae axillares, congestae, floribus 3-4, pedunculi destituti, prophylla et bracteae subtenentes congestae, prophylla perfoliata, apice ovata, serrata, 6 mm longa, 4 mm lata, pedicelli 3-6 mm longi; calyx pallide viridis, strigillosus, lobis subaequalibus, lanceolatis, e basi discretis, serratis, 9 mm longis, 2 mm latis (lobo dorsali 3 mm lato); corolla obliqua, subcalcarata, campaniformis bilabiataque, extus strigillosa, 12 mm longa, constricta supra basim ad 3 mm diam., limbus obliquus, 11 mm in diam., lobi 5, inaequales, patentes, integri, lobis ventralibus lateralibusque majoribus, 3 mm longis, 5 mm latis, lobis dorsalibus 1 mm longis, 2 mm latis, circa faucem et dorsum internum trichomatibus glanduliferis brevibus, tubus albus, dorso et lobis superis rufis, fauce interna rufo-notata; stamina 4, inclusa, filamentis parce pubescentibus, basi 2 mm cum tubo corallae adnatis, 7 mm longis, 1 mm latis basaliter, 0.3 mm latis apicem versus, antheris in quadram 1.5 longam atque latam cohaerentibus, oculis leviter confluentibus, 1 mm longis, 0.5 mm latis; ovarium dense pilosum, 2 mm longum, stylus glabrus, albus vel roseus, 5 mm longus, stigmatum stomatomorpho-bilabiato; nectarium glandula duplo-connata glabra, alba, 2 mm longa, 1 mm lata. Fructus bacca subglobosa, apice depressa, pilosa, 5-7 mm longa, 8-13 mm lata; semina striata atrobrunnea, 0.9 mm longa, 0.3 mm lata, funiculis 2-2.5 mm longis. Chromosomata collectionis typi  $n = 9$ .

TYPE: PANAMA: COCLÉ: Hills north of El Valle de Anton, sub-cloud forest area. "Epiphyte on fence posts and small trees near citrus grove. Lvs. leathery, coarse. Plants & flowers larger than those of congener (#71255 = *R. Minor*) farther down on same slope. Cor. white, upper lobes and back reddish." 14 Aug. 1971, *H. Wiehler & R. L. Dressler 71249* (HOLOTYPE: US; ISOTYPES: PAN, SEL, MO, NY, GH, F, UC, K, P, B, BR, HBG, M, L, LE).

DISTRIBUTION: Cloud forest and sub-cloud forest areas in Panama, at altitudes of 800-1000 m.

ADDITIONAL MATERIAL EXAMINED: PANAMA: COCLÉ: Hills north of El Valle de Anton, vicinity of La Mesa, about 1000 m altitude, 21 Jan. 1941, *P. H. Allen 2342* (US); same area, trail to La Mesa, alt. about 1000 m. 31 Aug. 1941, *P. H. Allen 2726* (US); same area, 1966, *R. L. Dressler s.n.*, live

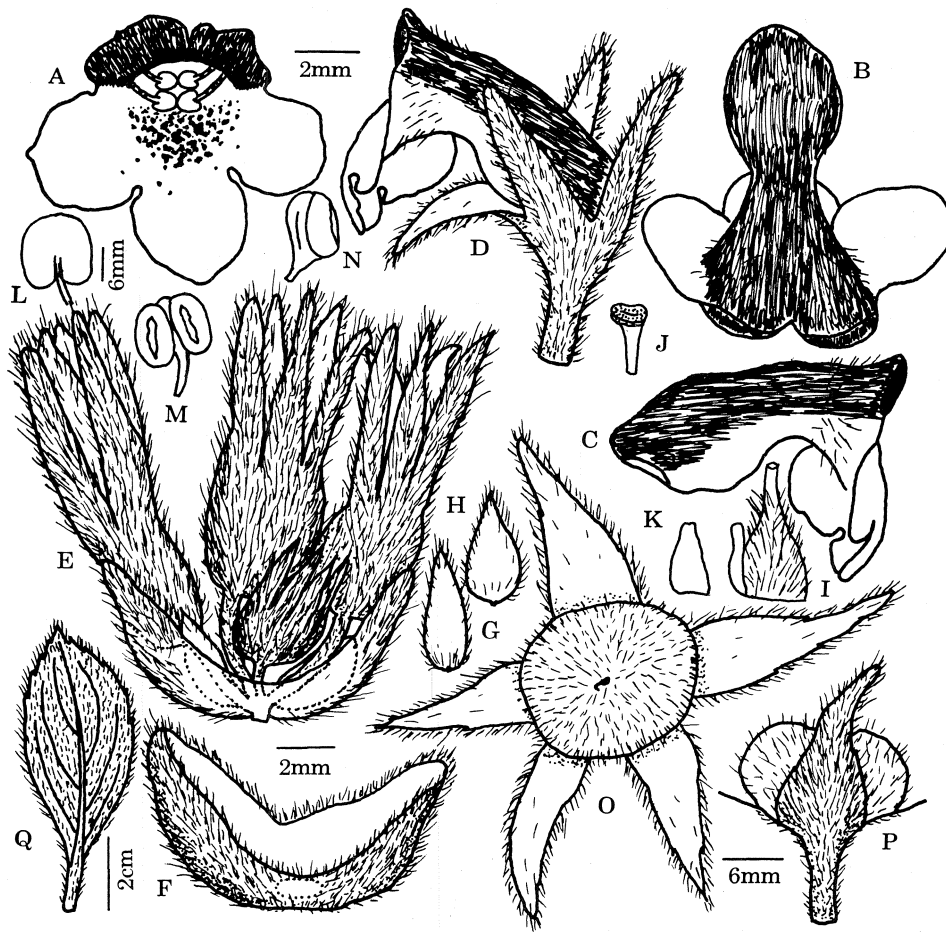


Fig. 3. *Rufodorsia intermedia*. A-C, corolla; A, frontal view of limb; B, dorsal view; C, lateral view; D, calyx and corolla, lateral view; E, florescence with perfoliate prophylls and subtending bracts F, perfoliate prophylls; G-H, subtending bracts, with some variations in shape; I, nectary, ovary, and style; J, style and stigma; K, nectary, dorsal view; L-N, anthers; L, dorsal view; M, ventral view; N, lateral view; O, berry-fruit, with subtending calyx lobes; P, same, lateral view; Q, abaxial side. (All drawings from cultivated clone plant of the holotype, *Wiehler & Dressler 71249*).

material sent to BH, acc. no. G-981 (SEL); foothills of Cerro Pilon, near El Valle, alt. ca. 900 m, 5 Oct. 1967, *J. Duke & M. Correa 14696* and *14707* (MO); La Mesa above El Valle, along road which ends in pasture, 810 m altitude, 21 July 1974, *T. B. Croat 25286* (MO); VERAGUAS: 15-20 km NW of Santa Fé, between Escuela Agricola Alto Piedra and continental divide, 8 Sept. 1974, *R. L. Dressler s.n.*, sent as seed to SEL, acc. no. W-1996 (SEL).

The descriptions of the above three species are based on living material of the type collections grown at the greenhouses of the Marie Selby Botanical Gardens; the description of the following species is based on herbarium material of the collections cited below.



**Rufodorsia congestiflora** (Donn.-Sm.) Wiehler, comb. nov. (Figure 4.)

*Besleria congestiflora* Donn.-Sm., Bot. Gaz. (Crawfordsville) 61:379. 1916.

*Alloplectus congestiflorus* (Donn.-Sm) Morton, Fieldiana, Bot. 18:1143. 1938.

Stems suffrutescent, ascending, 25-60 cm high, 3-5 mm thick, reddish or green, tomentose, sparingly branched, the internodes 2-6 cm long. Leaves with long, dense, tomentose trichomes, the petioles 1-3 cm long, the lamina elliptic to oblanceolate, acuminate, the base attenuate, serrate, 4-11 cm long, 1.5-3.5 cm broad, the lateral primary veins 3-4 pairs, dark green above, pale green or flushed with rose below. Florescence an axillary, congested cyme of 4-10 flowers, the peduncle absent, the prophylls and subtending bracts congested, the prophylls lanceolate, 6-7 mm long, 2 mm broad, the pedicells 3-7 mm long; calyx pale green or reddish, tomentose, the lobes equal, free from the base, lanceolate, entire, 5-10 mm long, 1-2.5 mm broad; corolla oblique, with a small spur, bell-shaped and bilabiate, outside pilose, 9-12 mm long, constricted above the base to 3 mm in diam., the limb oblique, 8 mm in diam., the lobes suborbicular, unequal, with the ventral lobe 3 mm long, 4 mm broad, the dorsal lobes 1 mm long and broad, the throat and back inside covered with short gland-bearing hairs, the tube white or with a pink flush, the back and the upper two lobes reddish, the throat inside dotted with red; stamens 4, included, the filaments sparsely pubescent, adnate for 1.5 mm to the base of the corolla tube, 5 mm long, 1 mm broad at the base, 0.3 mm broad towards the apex, the anthers syngenesious into a square 1 mm long and broad, the cells confluent, 0.5 mm long, 0.3 mm broad; ovary densely pilose, 1.2 mm long, the style glabrous, red, 4-5 mm long, the stigma stomatomorphic-bilabiate; the nectary a double-connate, dorsal white glabrous gland, 1.9 mm long, 0.9 mm broad. Fruit a white, globose, pilose berry; seeds striate, reddish brown, 1 mm long, 0.3 mm broad, attached to funiculi.

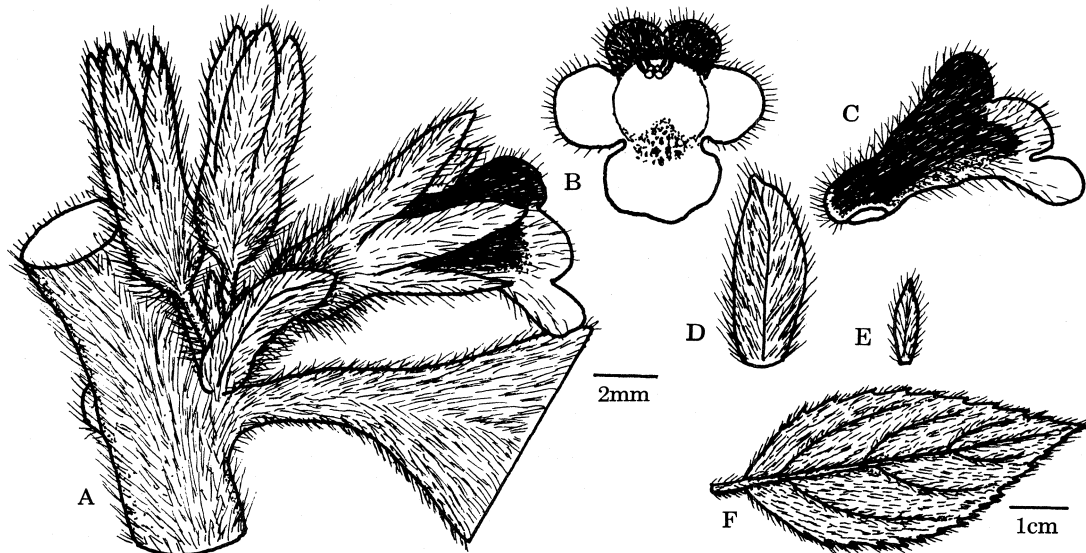
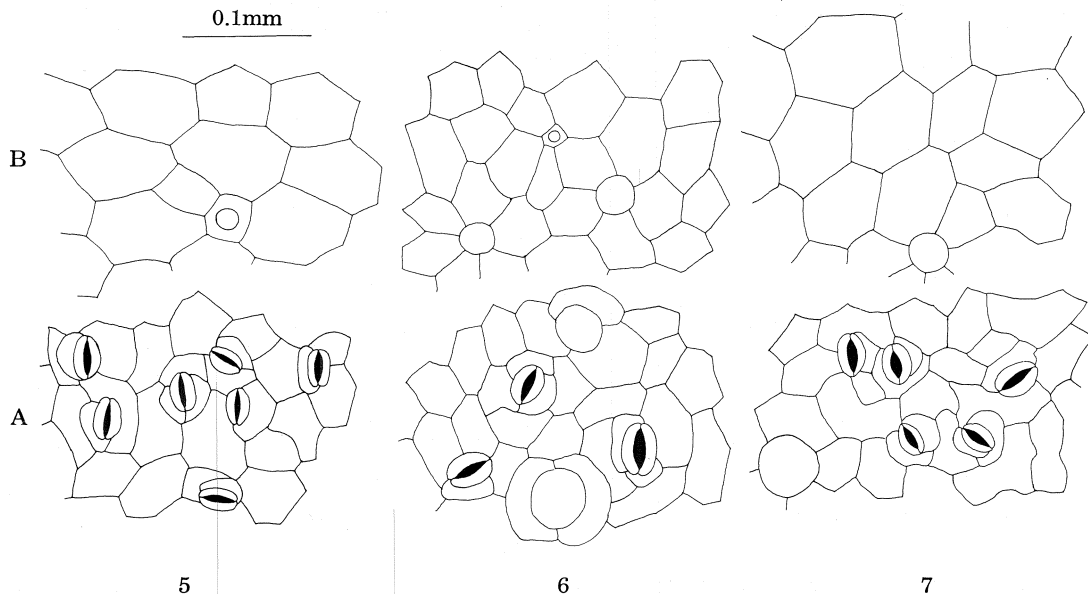


Fig. 4. *Rufodorsia congestiflora*. A, florescence in leaf axil, with prophyll and subtending bract; B, corolla, frontal view; C, corolla, lateral view; D, prophyll; E, subtending bract; F, leaf, abaxial side. Drawn from herbarium material, *Brenes 4529* (NY).

TYPE: COSTA RICA: SAN JOSÉ: Forests of La Palma, altitude 1459 m, Sept. 1898, A. Tonduz 12658 (HOLOTYPE: US; ISOTYPE: US).

DISTRIBUTION: Cloud forest and sub-cloud forest areas in Costa Rica, at altitudes of 850-1500 m.

ADDITIONAL MATERIAL EXAMINED: COSTA RICA: ALAJUELA: La Palma de San Ramon, 1125 m altitude, 27 Sept. 1925, A. M. Brenes 4465 (F, NY); waterfalls of San Ramon, 850 m altitude, 12 Oct. 1925, A. M. Brenes 4529 (F, NY); La Palma de San Ramon, 1050-1075 m altitude, 20 May 1927, A. M. Brenes 5498 (F); CARTAGO: pastures along Rio Tambor, 3.5 km W of Cachi, 1350 m altitude, 23 July 1967, R. W. Lent 1129 (F).



Figs. 5-7. Epidermis of the leaf of species of *Rufodorsia*. A, abaxial side with stomata; B, adaxial side. Fig. 5. *Rufodorsia major*, plastic peel made from live material of holotype, Wiehler & Dressler 71176. Fig. 6. *Rufodorsia minor*, Wiehler & Dressler 71175. Fig. 7. *Rufodorsia intermedia*, Wiehler & Dressler 71249.

#### KEY TO THE SPECIES

1. Opposite prophylls (bracts between peduncle and pedicels) perfoliate (corolla limb 11 mm in diam.; leaves strigillose) ..... *R. intermedia*
1. Opposite prophylls separate.
  2. Corolla limb 4 mm in diam.; leaves puberulous ..... *R. minor*
  2. Corolla limb 8-9 mm in diam.; leaves sericeous or tomentose.
    3. Dorsal calyx lobe enlarged; leaves sparsely sericeous, appearing glabrous ..... *R. major*
    3. Calyx lobes equal; leaves tomentose ..... *R. congestiflora*



Fig. 8. Habit photo of the three new species of *Rufodorsia*. The plants, cultivated at the SEL greenhouses, are clones of the holotypes. *Rufodorsia major* at right, *R. minor* at left, and *R. intermedia* in the back-ground. Photo by Richard Kent.



A

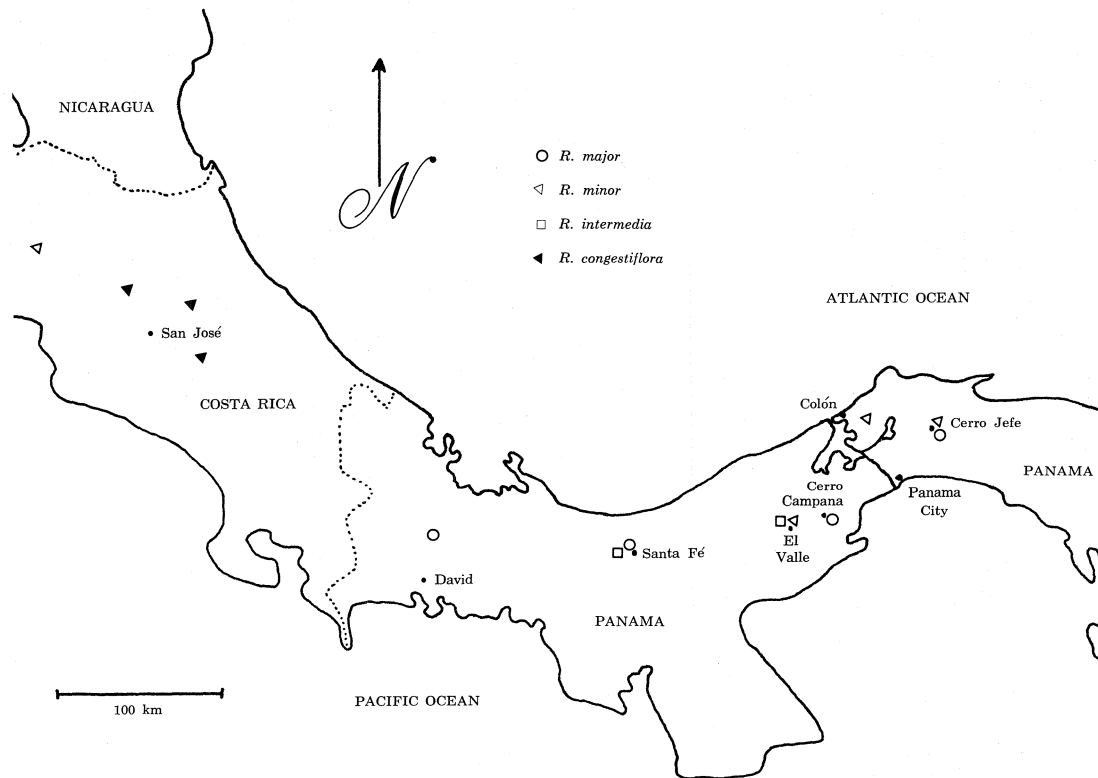


B



C

Fig. 9A-C. Close-up of the florescences of A, *Rufodorsia major*; B, *Rufodorsia minor*; C, *Rufodorsia intermedia*. Photos by Richard Kent.

DISTRIBUTION MAP OF *RUFODORSIA*

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