
Three New Mesoamerican Taxa of *Dichaea* with Caducous Leaves

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ABSTRACT. Two new species and one subspecies of Mesoamerican *Dichaea* Lindley with caducous leaves are described and illustrated. *Dichaea dressleri* Folsom, a new species with narrow, glaucous leaves and resembling *D. gracillima* C. Schweinfurth, is described from wet forests in western Panama. *Dichaea globosa* Dressler & Pupulin, a new species described from Costa Rica and Panama, is a close ally of *D. fragrantissima* Folsom and of the widespread *D. morrisii* Fawcett & Rendle and may be distinguished by the fleshy, subtruncate lip with a broad claw and obovate petals. *Dichaea fragrantissima*, already described from Panama with a short diagnosis, is more fully described here. It is distinguished by the short, obtuse, lateral lobes of the lip, the subquadrate ligule and the narrow, subacuminate sepals and petals. Within *D. fragrantissima*, subsp. *fragrantissima* has prominent lilac lines on the sepals and petals and the lip is lilac, while subsp. *eburnea* Dressler & Pupulin, of Nicaragua, Costa Rica, and Panama, is distinguished by ivory flowers with greenish ivory apices and smaller lateral lobes of the lip. Some members of subsp. *eburnea* are autogamous. *Dichaea morrisii*, although ranging widely in South America, is uncommon in Mesoamerica.

RESUMEN. Se describen y se ilustran dos nuevas especies y una nueva subespecie de *Dichaea* Lindley de hojas cáducas de Mesoamérica. *Dichaea dressleri* Folsom, una especie con hojas estrechas y glaucas, parecida a *D. gracillima* C. Schweinfurth, se describe de bosques húmedos de Panamá occidental. *Dichaea globosa* Dressler & Pupulin, conocida de Costa Rica y Panamá, es pariente cercano de *D. fragrantissima* y de *D. morrisii* Fawcett & Rendle, de distribución amplia, y se puede distinguir por el labelo carnoso, sub-

truncado, con la uña ancha, y los pétalos obovados. *Dichaea fragrantissima*, ya descrita de Panamá, se distingue por los lóbulos laterales del labelo cortos, la ligula subcuadrada y los sépalos y pétalos estrechos y subacuminados. Se provee una descripción más amplia que la de la publicación original. Dentro de *D. fragrantissima*, la subsp. *fragrantissima* tiene rayas lilas en los sépalos y pétalos y el labelo lila, y los lóbulos laterales del labelo más largos, mientras la subsp. *eburnea* Dressler & Pupulin se distingue por las flores color marfil con los ápices marfil verdosos y los lóbulos laterales del labelo cortos y obtusos. Algunas de las plantas de subsp. *eburnea* son autógamas. *Dichaea morrisii* tiene una distribución amplia en Sudamérica, pero es poco común en Mesoamérica

Key words: *Dichaea*, Mesoamerica, Orchidaceae.

With the description of several new species of *Dichaea* section *Dichaea* (Orchidaceae) by Folsom (1994b), that group, with persistent leaves, is now relatively well understood in Central America, although there are a few very tiny, probably unnamed, creeping plants of which more and better specimens are needed. There remain more problems in the species with caducous leaves, including their correct sectional classification. The greatest confusion involves *D. morrisii* Fawcett & Rendle and its close allies, treated below. *Dichaea dressleri* Folsom, with alphabetic priority, is only distantly related to the *D. morrisii* complex.

1. *Dichaea dressleri* Folsom, sp. nov. TYPE: Panama. Chiriquí: forest near Fortuna Lake, just beyond bridge, 1100 m, 9 Apr. 1985, J. P.

Folsom 11278A (holotype, PMA; isotypes, HNT, MO). Figure 1.

Dichaea gracillimae similis, sed foliis brevioribus, floribus majoribus, labello acuminato, lobulis lateralibus expansis.

Epiphytic, caespitose, erect or arching, roots 1–1.5 mm diam.; stems 8–30 cm long. Leaves distichous, sheathing, bases appressed to stem, blades 1.9–4 × 0.1–0.3 cm, linear, acute. Inflorescence axillary, 1-flowered, peduncle 15–20 mm long; floral bract 2–3 × 2–3 mm, infundibuliform, apiculate; sepals and petals pale green, lip white or cream, spotted with red-violet; sepals 10–11 × 1.5–2 mm, lanceolate, acuminate; petals 9.5–10 × 1.8–2 mm, narrowly lanceolate; lip 6.5 × 5–5.5 mm, base ca. 3 × 3 mm, short-unguiculate, subquadrate with rounded corners, blade hastate-triangular with recurved, spreading lateral lobules, acuminate; column 2 mm long; ovary 1.3 mm long, glabrous.

In its glaucous foliage, *Dichaea dressleri* resembles the common and widespread *D. panamensis* Lindley. In its long, narrow leaves, this new species is reminiscent of *D. gracillima* C. Schweinfurth, known only from its type collection in Costa Rica. While the flowers of the holotype of *D. gracillima* (AMES) are all immature, there is a better flower with the isotype at NY. The leaves of *D. gracillima* are even longer (to 4.8 cm) than those of *D. dressleri*, and the lip is long-unguiculate, with the lateral lobes short and retrorse and the apex apiculate. The lip of *D. dressleri*, however, has spreading, slightly recurved lateral lobes and the apex is acuminate. Until *D. gracillima* is collected again, we cannot know whether or not the plant is glaucous.

Distribution, habitat, and phenology. Western Panama at 900–1200 m elevation; flowering March to October.

Paratypes. PANAMA. **Chiriquí:** Fortuna Valley, *R. L. Dressler 5331* (FLAS, MO, PMA); *B. Hammel 2067* (MO); *B. Hammel 2294* (MO). **Veraguas:** Proyecto Arizona (Buenos Aires), N slope of ridge E of Cerro Arizona, *R. L. Dressler 5194* (MO).

Dichaea morrisii is here used in its traditional sense. Nir (2000) has used *D. muricata* (Swartz) Lindley as the correct name for *D. morrisii*, and Swartz specimens at the Reichenbach Herbarium (W) indicate that this was Swartz’s usage (Dressler, 2005). However, while this change may cause only a little confusion in the West Indies, on the mainland *D. muricata* has been applied to the most common medium-sized member of subgenus *Dichaea* in each area. The name *D. muricata* clearly has been “persistently used for ... taxa not including its type,” and should be proposed for rejection (Art. 56; Greuter et al., 2000). A proposal to reject *Cymbidium*

muricatum Swartz appeared in *Taxon* (Dressler & Folsom, 2005).

It became clear some years ago that there were more than one *Dichaea* species with large plants and wide leaves in Mesoamerica, and we at first erred in thinking that there were only two species, one of which would be *D. morrisii*. In fact, *D. morrisii* is the least frequent of three distinct species in the area and is somewhat intermediate between the other two species in some features.

KEY TO THE *DICHAEA MORRISII* COMPLEX IN CENTRAL AMERICA

- 1a. Lateral lobes of lip less than 2.5 mm long, from obtuse angled to oblong; ligule of column subquadrate, truncate or bifid; sepals and petals sublanceolate, narrowly acute and widest basally; flowers ivory with or without lilac lines *D. fragrantissima*
- 2a. Sepals and petals each with 7 to 9 lilac lines; blade of lip lilac; lateral lobes of lip 1–2.4 mm long *D. fragrantissima* subsp. *fragrantissima*
- 2b. Flowers ivory, with greenish ivory apices; lateral lobes from rounded angles to ca. 1.2 mm long *D. fragrantissima* subsp. *eburnea*
- 1b. Lateral lobes 2.5–6 mm long, reflexed, acuminate (blade thus distinctly sagittate); ligule triangular; petals ovate to obovate; flowers green marked with red-purple
 - 3a. Petals oblong-ovate, widest near middle, acute; claw of lip ligulate, 1–3 mm wide distally (in Central America), with a distinct callus at base; ligule of column porrect; sepals and petals marked with lines basally *D. morrisii* (syn. *D. bradeorum* Schlechter)
 - 3b. Petals distinctly obovate, widest above middle, apiculate; claw of lip broadly obovate, 6–8 mm wide at base of blade, without basal callus; blade thick, more or less truncate; ligule of column deflexed; sepals and petals usually blotched *D. globosa*

2a. *Dichaea fragrantissima* Folsom, *Orchid Digest* 58: 99. 1994. TYPE: Panama. Coclé, Alto del Calvario, cont. divide, N of El Copé, 850–950 m, flowered in cult., 6 Apr. 1985, *J. P. Folsom 11283 NN* (holotype, PMA; isotype, MO). Figure 2.

Although the species was validly published (Folsom, 1994a), a complete description of this species was not provided, and so one is offered here: Epiphytic, caespitose, roots 1–1.5 mm diam.; stems to 30 cm long, 17–21 mm wide across conduplicate sheaths. Leaf blades 4.5–6.5 × 0.7–1.4 cm, oblong, obtuse, retuse or apiculate; flowers axillary, peduncles 15–20 mm long; floral bracts 11–14 × 8–14 mm, ovate-orbicular, acuminate, secondary bract lanceolate, ca. 11 × 2 mm; sepals and petals white or ivory with 7 to 9 lilac stripes, midlobe of lip lilac; sepals and petals ovate-lanceolate, narrowly acute-acumi-

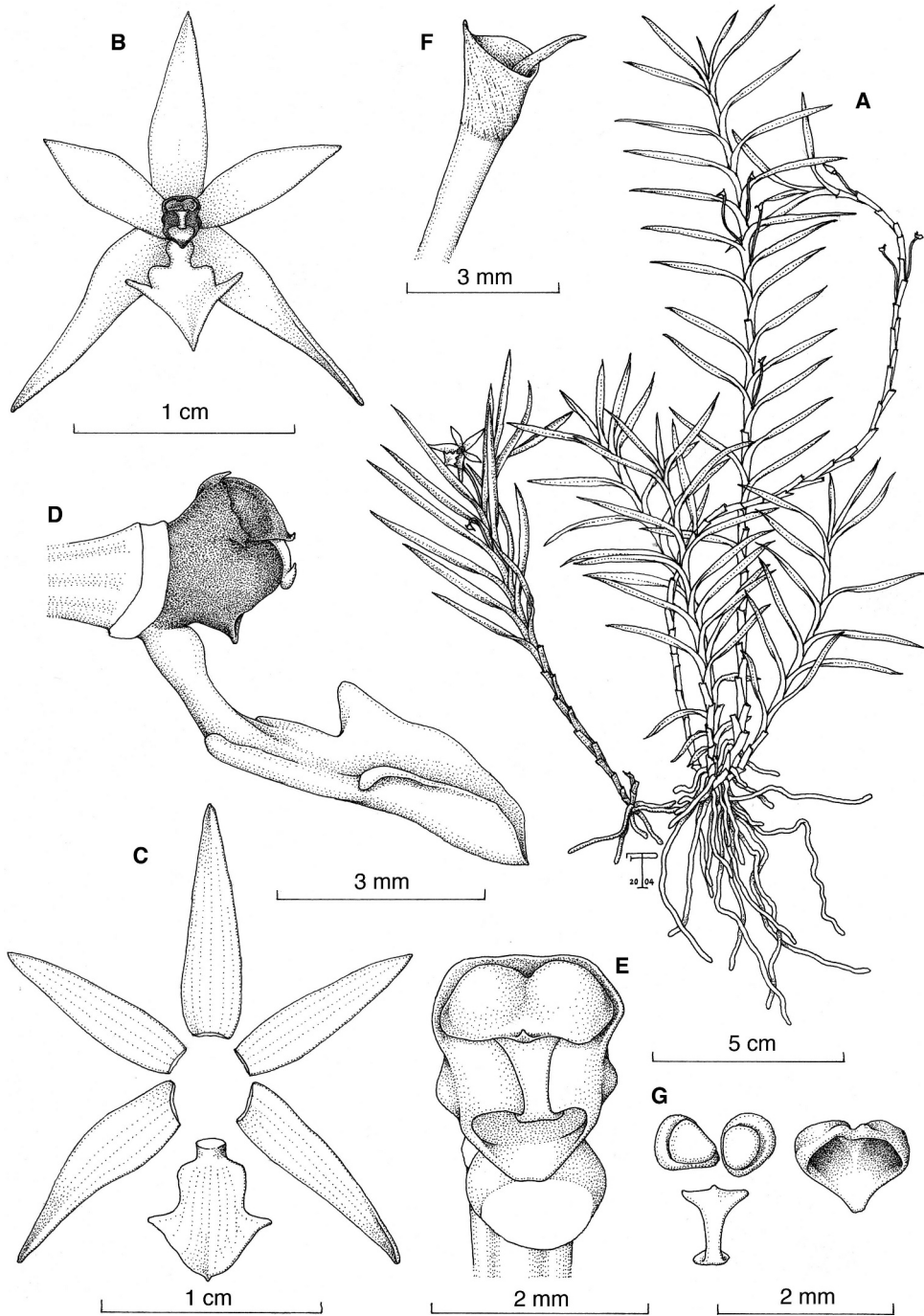


Figure 1. *Dichaea dressleri* Folsom. —A. Habit. —B. Flower. —C. Dissected perianth. —D. Column and lip, lateral view. —E. Column, ventral view. —F. Apex of inflorescence. —G. Pollinarium (the caudicles removed) and anther. Drawn from Folsom 11278A (MO).

nate, margins hispid-ciliate; dorsal sepal 12–14 × 6 mm, lateral sepals 13–15 × 6–7 mm, petals 11–14 × 4 mm; lip 10–12 × 5–7 mm, claw 5.5–6 × 3.5–4 mm, dorsally keeled, midlobe 5 × 6 mm, lateral

lobes 1–2.4 mm long; column 3.5–4 mm long, with distinct foot, with a rounded callus between column foot and lip, ligule 1.5–2 × 1.5–2 mm, subquadrate, shallowly emarginate; ovary 2–3 mm long, muricate.

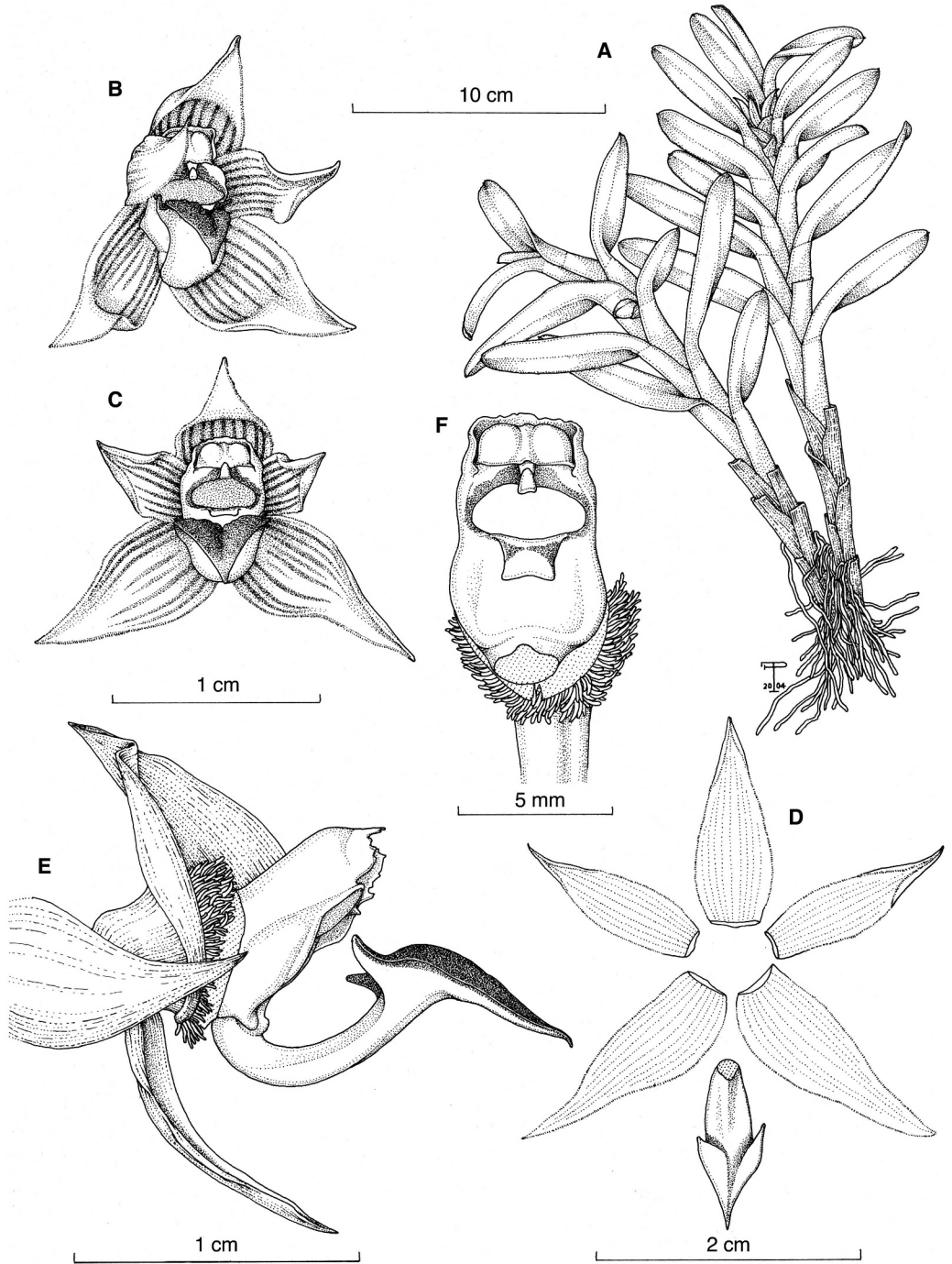


Figure 2. *Dichaea fragrantissima* subsp. *fragrantissima*. —A. Habit. —B. Flower, three quarters view. —C. Flower, frontal view. —D. Dissected perianth. —E. Column and lip, lateral view. —F. Column, ventral view. A, C–F, drawn from *Maduro & Olmos 189* (MO); B drawn from *Folsom 11283 NN* (photo of type).

Dichaea fragrantissima is readily distinguished from *D. morrisii* by the short, obtuse, lateral lobes of the ecallose lip, by the subquadrate ligule, and by the long, narrow, subacuminate sepals and petals. The subspecies *fragrantissima* is known only from cloud forests in Coclé and Veraguas provinces in Panama and has been collected only a few times. It differs from the new subspecies *eburnea* (described below) primarily in flower coloration and in having somewhat larger lateral lobes, or retrorse angles, on the lip. The specimens of subspecies *fragrantissima* we have seen have a prominent callus between the column foot and the claw of the lip, and the claw of the lip has a distinct median keel. Both of these features are variable within Panamanian collections of subsp. *eburnea*.

Additional specimens examined. PANAMA. **Coclé:** trail to La Mina, Hills N of El Valle de Antón, *P. H. Allen 2874* (AMES), *A. Maduro & E. Olmos 189* (MO, PMA).

2b. *Dichaea fragrantissima* subsp. *eburnea* Dressler & Pupulin, subsp. nov. TYPE: Costa Rica. Alajuela: San Ramón, Res. Biol. A. M. Brenes, fl. in cult. at Jard. Bot. Lankester, 13 June 2000, *M. Blanco 513* (holotype, USJ). Figure 3.

A subspecies *fragrantissima* floribus eburneis, apicibus sepalorum petalorumque viridibus, labelli lobulis lateralibus brevioribus obtusis recedit.

Roots 0.7–1 mm diam.; stems with leaf bases 13–19 cm wide. Leaves 3.5–7.3 × 0.6–1.6 cm. Flowers ivory, with greenish ivory apices, margins of all perianth segments hispid-ciliate; dorsal sepal 14–16 × 4–6.5 mm; lateral sepals 14–15 × 5.5–7 mm; petals 12–14 × 4–5 mm; lip 10–14 × 5–6 mm, claw ca. 5.5 × 2–4 mm, dorsally keeled or not, with or without a rounded callus at base; midlobe 5–6 × 5–6 mm, lateral lobes from rounded angles to oblong, to 1.2 mm long; sometimes with a rounded callus between column foot and lip. Capsule ca. 18 × 15 mm, oblong, globose, muricate.

This newly described subspecies is the most common large *Dichaea* in Costa Rica and Panama, especially in wet forests on the Caribbean slope. In this subspecies the flowers are ivory in color, or occasionally with short reddish streaks at the bases of the sepals and petals, the sepals with greenish apices. The subsp. *eburnea* is much more widespread than subsp. *fragrantissima*, but we suspect that subsp. *fragrantissima* is closer to the ancestral form of the species, the ivory coloring of the flowers in subspecies *eburnea* representing floral albinism and some degree of autogamy. The plants of subsp. *eburnea* commonly bear large capsules and some are clearly self-

pollinated, as in *Blanco 513* (Blanco, pers. comm.), but we do not know how frequent this may be.

Etymology. The name *eburnea* (from the Latin “eburneus,” ivory white) was first suggested by A. R. Endres for a plant he collected in Costa Rica around 1867 (W 18375).

Distribution, habitat, and phenology. Nicaragua (1 specimen known), Costa Rica, and western Panama at 600–1500 m elevation; flowering all year.

Paratypes. COSTA RICA. **Alajuela:** San Ramón: Res. For., *A. Carvajal 347* (MO); Res. A. M. Brenes, ca. del Río Lorencito, fl. en cult., Jard. Bot. Lankester, *M. Germani 131* (USJ); Bajo la Balsa, *A. Carvajal 479* (MO); rd. from San Ramón through Balsa, Río Balsa at bridge, *W. D. Stevens 13802* (MO); Monteverde Res., S side Río Peñas Blancas Valley, near Refugio Alemán, *W. Morris & L. Obando 4042* (CR, MO, SEL). **Cartago:** Res. Tapantí, vertiente arriba de Quebrada Seca, *R. L. Dressler & Biología 350, No. 195* (USJ); Taus, *C. Todzia 3041994b* (CR). **Heredia:** Sarapiquí, along Río San Fernando betw. Cariblanco & Colonia del Socorro, *K. Barringer, E. Christenson, B. Pérez 3672* (MO). **Puntarenas:** Monteverde Res., Peñas Blancas Valley, *J. T. Atwood 89-314* (SEL). **San José:** P. N. Braulio Carrillo, trail from hwy. to Río Hondura/Bajo La Hondura, ca. 5 km after tunnel, *S. Ingram & K. Ferrell 812* (CR); Braulio Carrillo N. P., *J. P. Folsom 11,010* (CR); without specific locality, *A. R. Endrés 161* (W). NICARAGUA. **Zelaya:** Cerro El Hormiguero, W range, elfin forest, *J. H. Pipoly 5156* (MO). PANAMA. **Chiriquí:** Camp Hornito, Fortuna dam site, *R. L. Dressler 5338* (PMA). **Veraguas:** third branch of Río Santa María to drop-off to Calovébora, 12–15 km NW of Santa Fé, *R. L. Dressler 5144* (PMA); *R. L. Dressler 4838* (MO).

3. *Dichaea globosa* Dressler & Pupulin, sp. nov. TYPE: Costa Rica. San José: Pérez Zeledón, El General Valley, vic. of San Isidro del General, 730 m, 3 Mar. 1966, *A. Molina R., W. C. Burger & B. Wallenta 18291* (holotype, F; isotype, CR). Figure 4.

Dichaeae morrisii similis, sepalis petalisque obtusioribus, labello ecalloso, basi latiori, apice truncato, ligula columnae deltoidea recedit.

Epiphytic, caespitose, roots 0.5–1 mm diam.; stems 10–50 cm long, 16–20 mm wide across conduplicate sheaths. Leaves 3.8–6.3 × 1–2.1 cm, elliptic-oblong, obtuse, apiculate; peduncle 10–15 mm long; sheathing bract ca. 10 × 8 mm, infundibuliform, acuminate; floral bract 9–10 × 6–8 mm, broadly ovate, acuminate, secondary bract lanceolate, ca. 9 × 2 mm; flowers green, sepals and petals with purple spots, lip dark purple or pinkish purple; dorsal sepal 11.5–15 × 5–10 mm, broadly ovate, acute; lateral sepals 12–14 × 6–9 mm, broadly ovate, acute or apiculate; petals 10–12 × 5–7 mm, obovate, apiculate; lip 10–13 × 10–12 mm, claw 7–8 × 5–8 mm, broadly obovate, midlobe 2–4 × 12 mm, subtrun-

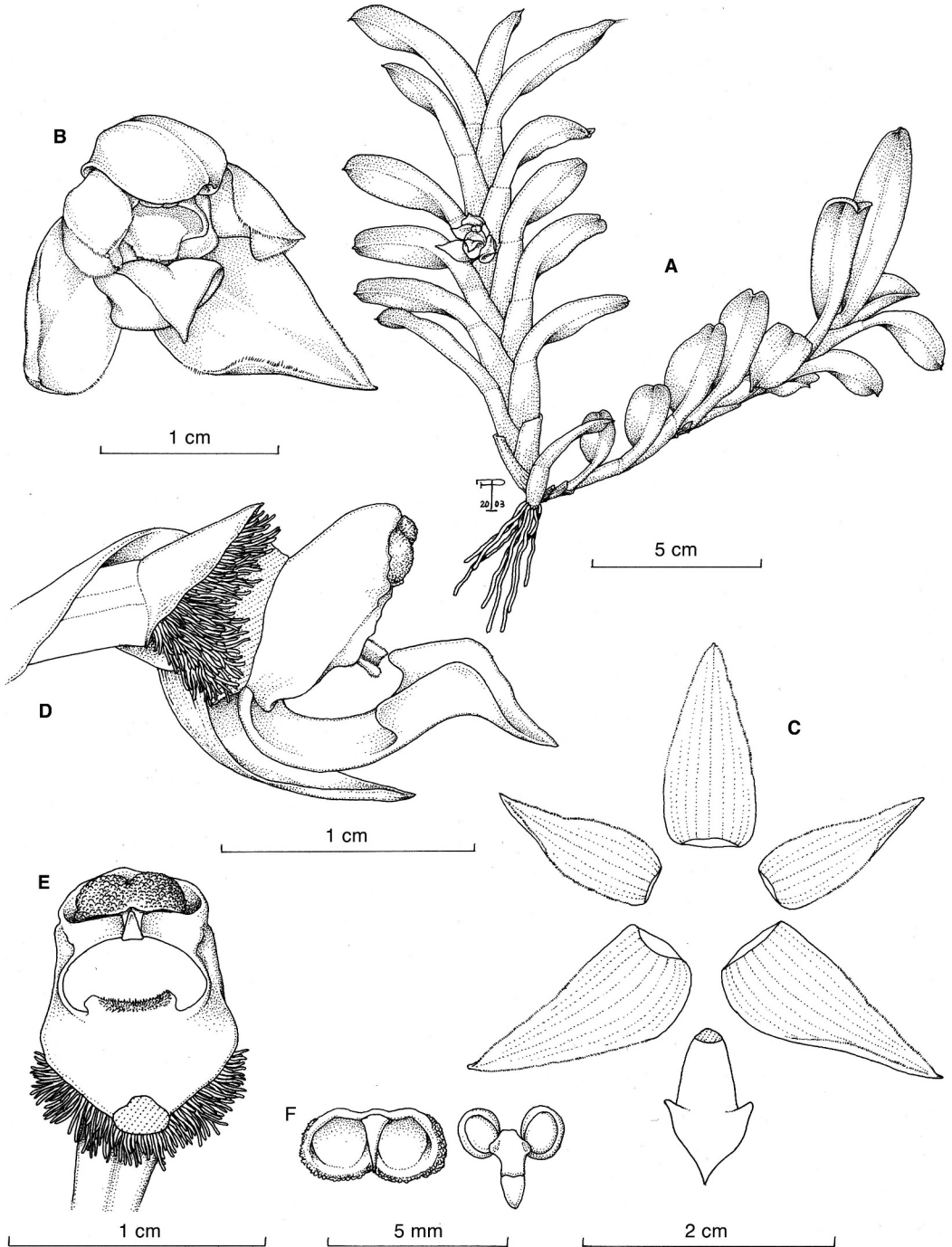


Figure 3. *Dichaea fragrantissima* subsp. *eburnea* Dressler & Pupulin. —A. Habit. —B. Flower. —C. Dissected perianth. —D. Column and lip, lateral view. —E. Column, ventral view. —F. Anther and pollinarium. Drawn from *Blanco 513* (USJ).

cate, lateral lobes 4–5 mm long, falcate; column 6–7 mm long, with prominent foot, ligule ca. 3 × 2 mm, triangular; ovary ca. 2 mm long, muricate, capsule ca. 21 × 17 mm, subglobose-oblong, muricate.

Within Mesoamerica, this new species is immediately distinguished from *Dichaea morrisii* by the fleshy, subtruncate lip, by the very broad claw of the lip, and by the distinctly obovate, apiculate petals. In

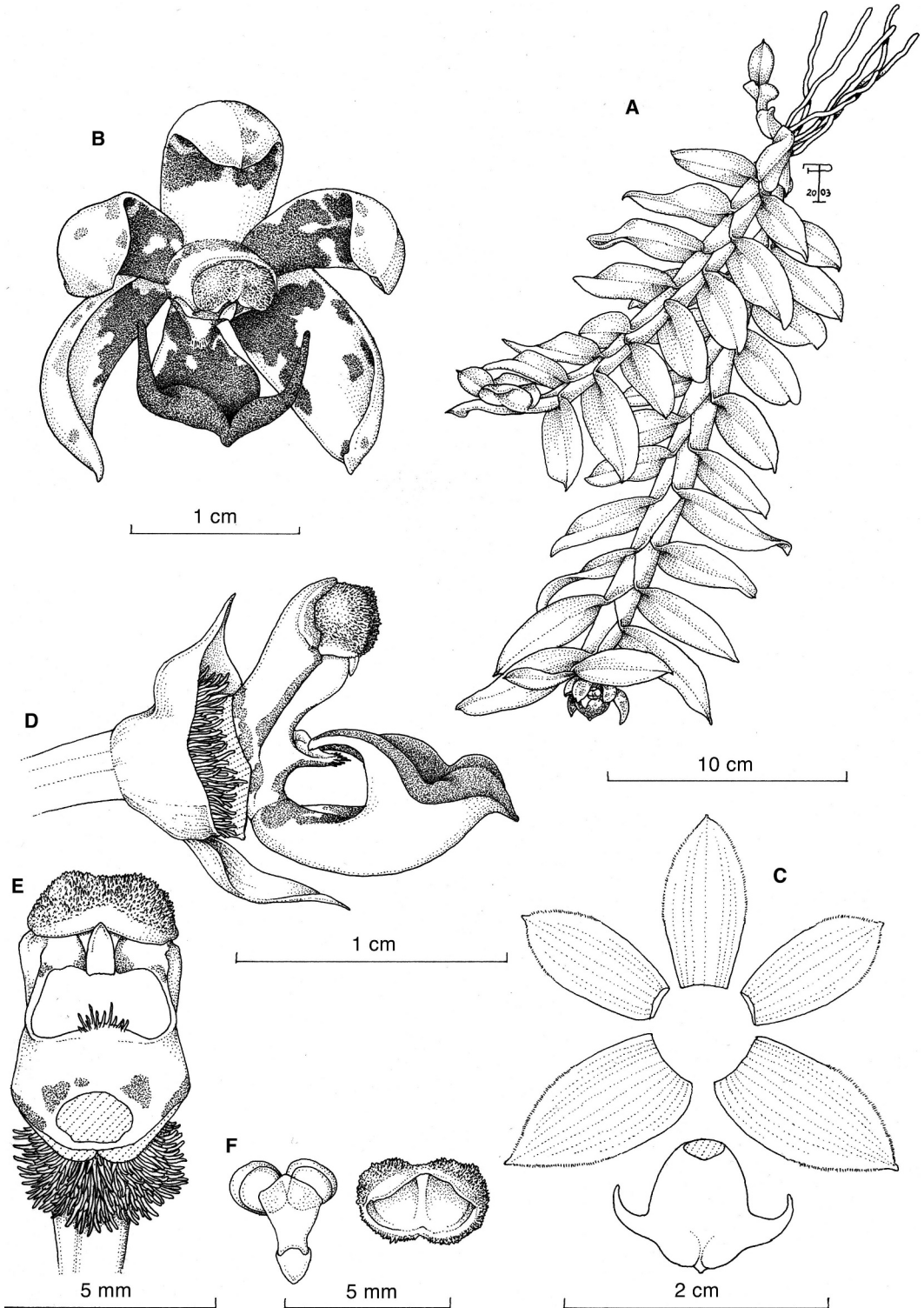


Figure 4. *Dichaea globosa* Dressler & Pupulin. —A. Habit. —B. Flower. —C. Dissected perianth. —D. Column and lip, lateral view. —E. Column, ventral view. —F. Pollinarium and anther. Drawn from Pupulin, Castelfranco, Cribb & Dressler 3165.

Ecuador, Peru, and Bolivia, the lip of *D. morrisii* is fleshier, is subtruncate, and has a much wider claw (Dodson & Dodson, 1980; Dodson & Vásquez, 1989), thus leading Dressler to use the name *D. robusta* Schlechter (based on a Bolivian plant) for the Central American *D. globosa*. However, the shape of the petals, the color pattern, and the distinct callus at the base of the lip all indicate that the South American plants are more closely allied to *D. morrisii* than to *D. globosa*. Until the variation pattern in South America is better understood, we consider *D. robusta* to be a synonym of *D. morrisii*. The plants of *D. morrisii* of Costa Rica, Venezuela, and Colombia agree very closely with West Indian *D. morrisii*. *Dichaea globosa* is a plant of the Pacific slope, and probably of drier forests than either *D. morrisii* or *D. fragrantissima*.

Distribution, habitat, and phenology. Costa Rica and western Panama at 700–1200 m elevation; flowering all year.

Paratypes. COSTA RICA. **Puntarenas:** Aguirre: rd. from Quepos to San Marcos de Tarrazu, *F. Pupulin* 2639, *D. Castelfranco* & *J. Cambroner* (USJ); Savegre, Quebrada Arroyo, *F. Pupulin*, *D. Castelfranco*, *P. Cribb*, *R. L. Dressler* 3165 (USJ-spirit); Coto Brus, Zona Protectora Las Tablas, Las Alturas de Cotón, *F. Pupulin* 4517, *H. León-Páez* & *A. C. Rodríguez* (USJ); SE of San Vito, *R. L. Dressler* 6408 (MO); Cantón de Osa, Rancho Quemado, Sector este, Sierpe, ca. de una laguna, *J. Marín* y *F. Quesada* 273 (CR, MO). **San José:**

Pérez Zeledón, Fila Costeña, Zapote de Pejivalle, *F. Pupulin* 2639 & *D. Castelfranco*, *J. Cambroner* (USJ); Dota, Crest of Cerro Nara, pressed from cult., *F. Pupulin* 1124, *D. Castelfranco* & *M. L. Spadari* (MO), *F. Pupulin* 1123, *M. L. Spadari* & *McFarland* (USJ), *F. Pupulin et al.* 2080 (USJ); Nubes de Quizarrá, *F. Pupulin* 1189, *D. Castelfranco* & *M. L. Spadari* (USJ); La Unión General, *C. H. Lankester s.n.* (AMES). PANAMA. **Chiriquí:** Potrerillos, *A. Maduro* y *J. Nuñez* 220 (MO).

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