

or inconspicuously dentate with 1–2 low teeth per cm, inconspicuously appressed pubescent especially on the veins on both the upper and lower surfaces; petioles stout, ca. 1 cm long, 2 mm in diameter, sparingly appressed pubescent. *Flowers* ca. 4.8 cm long; pedicels slender, solitary in the upper leaf axils, arching to ascendant, ebracteolate, ca. 6 cm long; hypanthium in anthesis campanulate to cylindric, 7–9 mm long, 5–7 mm in diameter, glabrous to sparingly appressed pubescent; calyx lobes 12–15 mm long, 2–2.5 mm wide, obtuse, entire to inconspicuously denticulate; corolla glabrous, greenish, the tube ca. 25 mm long, basally ca. 4 mm in diameter, gradually flaring above to ca. 6 mm in diameter, the lobes narrowly linear-oblong, falcate, the 2 upper lobes 14–17 mm long and 4–5 mm wide, the 2 lateral lobes ca. 11 mm long, the lowermost lobe 8–9 mm long; filament tube ca. 33 mm long, glabrous throughout, the longer anthers ca. 8 mm long, the shorter anthers ca. 5 mm long, all anthers externally glabrous, the 2 lowermost apically densely pilose with whitish trichomes 2.0–2.2 mm long. *Berries* globose or subglobose, 15–18 mm in diameter; seeds fusiform, ca. 0.8 mm long.

DARIÉN: Cloud forest, Cerro Pirre, *Duke 6081* (MO). Cerro Pirre, 2500–4500 ft, *Duke & Elias 13835* (MO, in part).

11. ***Burmeistera parviflora*** F. E. Wimmer ex Standley, Publ. Field Mus. Nat. Hist., Bot. Ser. 18: 1408. 1938. TYPE: Costa Rica, Prov. de Alajuela, Cerros de San Antonio de San Ramón, 1100 m, *Brenes 5636* (F).

Epiphytic or terrestrial, suffrutescent *herbs*; stems hollow, 30–50(–100) cm high, glabrous or sparingly to moderately puberulous above. Principal *leaves* with blades elliptic, oblong or ovate, 6.5–12 cm long, (1.5–)2.5–4(–5) cm wide, usually 2.5–3.5 times as long as wide, apically abruptly narrowed to an acuminate tip (0.5–)1–2 cm long, basally cuneate to somewhat rounded, marginally shallowly crenate-serrulate with 4–6(–10) callose-tipped teeth per cm and with a prominent submarginal vein extending the length of the blade, sparsely to densely but microscopically papillate or strigillose especially on the veins beneath but appearing glabrate; petioles 1–3 cm long, glabrous or minutely puberulous. *Flowers* 2–2.5 cm long; pedicels solitary in the upper leaf axils, spreading-ascending, somewhat flexuous, slender, glabrous, ebracteolate, 4–9 cm long; hypanthium in anthesis glabrous, obconic, basally subacute, pale green to dark reddish purple, 3–6 mm long; calyx lobes acutely to bluntly triangular, 2–3(–4) mm long, glabrous, entire or with a few inconspicuous marginal callosities, dark red or purplish, erect or somewhat spreading; corolla glabrous, clear yellow, the tube (5–)7–14 mm long, the lobes lance-ovate, the 2 upper lobes 5–9 mm long, the lateral lobes (3–)5–8 mm long, the lowest lobe 3–5 mm long; filament tube 12–19 mm long, distally puberulent, glabrous below, the filaments not adnate to the corolla tube, the 3 upper anthers glabrous and ca. 4 mm long, the 2 shorter or lower anthers ca. 2.5 mm long, with a scanty fringe of soft white hairs. *Berries* scarcely inflated, obovoid, 5–6 mm in diameter, pinkish to white; seeds light brownish, oblongish, 0.8–1.0 mm long, shallowly pitted with depressions slightly longer than wide.

This species occurs in mountain forests in Chiriquí and also in Costa Rica between 1,100–2,700 m.

CHIRIQUÍ: Cerro Pando at the Costa Rican-Panamanian border between 2000–2482 m, *Mori & Bolten 7279* (DUKE, MO).

12. *Burmeistera pirrensis* Wilbur.¹⁰ TYPE: Panama, *Gentry & Clewell 7084* (DUKE, holotype; MO, isotype).

Suffruticose terrestrial or epiphytic *herbs*; branches sparingly to densely puberulous. Principal *leaves* with blades elliptic to ovate, 8–15 cm long, 3.5–7.0 cm wide, ca. 2–2.5 times as long as wide, apically acute, basally cuneate to broadly rounded, marginally appearing entire but indistinctly repand-serrulate with 1–3 callose serrulations per cm, glabrate above with a few, scattered trichomes in the median groove, moderately to densely puberulent on the principal veins beneath; petioles puberulous, 1.5–3 cm long. *Flowers* 2–2.5 cm long; pedicels solitary in the upper leaf axils, erect to ascendant, slender, glabrous, ebracteolate, 2–3 cm long; hypanthium in anthesis cylindrical to somewhat obconic, glabrous, basally acute, ca. 5 mm long, 3 mm in diameter; calyx lobes ovate to oblong, obtuse, entire, glabrous, 1.5–2.5 mm long, ca. 1–1.5 mm wide; corolla glabrous, greenish, the tube 10–13(–15) mm long, ca. 2.5 mm in diameter, the lobes narrowly oblong to ovate-oblong, the upper lobes 9–11 mm long, the lateral lobes ca. 7 mm long, the lowermost lobe 5–6 mm long; filament tube inconspicuously and finely puberulous, 22–25 mm long, the anthers externally sparingly to moderately puberulous, the two lowermost with a thin pilose fringe. *Berries* globose, ca. 6 mm in diameter, white.

With four different collections, this species is the best represented and hence best known of the *Burmeistera* species found in the Province of Darién.

DARIÉN: Ascent of Cerro Pirre, S of El Real, 750–1030 m, *Duke 5350* (MO). Between Upper Río Membrillo and Camp 7 on the Construction Road to San Blas, 100–800 m, *Duke 10890* (MO). Cerro Pirre, 2500–4500 ft, *Duke & Elias 13836, 13791* (both MO). Cloud forest, summit of Cerro Pirre, 1000–1400 m, *Gentry & Clewell 7084* (DUKE, MO).

13. *Burmeistera tenuiflora* Donnell Smith, Bot. Gaz. (Crawfordsville) 25: 147. 1898. TYPE: Costa Rica, Prov. de Heredia, Volcán Barba, *Pittier 19* (US, holotype; CR, isotype).

Epiphytic or terrestrial (?), suffrutescent *herbs*; stems (0.7–)1–2.5 m long, glabrous or pubescent above. Principal *leaves* with blades elliptic to oblong, 5–16 cm long, 2.5–5.5 cm wide, mostly ca. 3 times as long as wide, apically acuminate, basally rounded to subacute, marginally subentire or sinuate and obscurely denticulate, glabrous above, beneath glaucous and short-pubescent on the veins with

¹⁰ *Burmeistera pirrensis* Wilbur, sp. nov. Planta suffruticosa, terrestris vel epiphytica; ramuli puberuli. Lamina foliorum elliptica vel ovata, 8–15 cm longa et 3.5–7 cm lata, ca. 2–2.5-plo longiora quam lata, acuta ad apicem et basi cuneata vel rotundata, margine repand-serrulata, 1–3 callososerrulatis per cm, nervis subtus puberulis; petioli puberuli, 1.5–3 cm longi. Flores 2–2.5 cm longi; pedicelli glabri, 2–3 cm longi. Hypanthia cylindrica vel obconica, glabra, ca. 5 mm longa et 3 mm lata; lobi calycis ovati vel oblongi, obtusi, integri, glabri, 1.5–2.5 mm longi et 1–1.5 mm lati. Corolla glabra, virenta; tubus 10–13(–15) mm longus et ca. 2.5 mm latus; lobi oblongi vel ovato-oblongi; lobi superiores 9–11 mm longi, laterali ca. 7 mm longi et inferiores ca. 5 mm longi. Filamenta puberula, 22–25 mm longa; antherarum tubus puberulus. Bacca globosa, alba, ca. 6 mm longa et lata.

appressed to strongly spreading hyaline to tawny trichomes 0.1–0.3 mm long; petioles short-pubescent, 0.5–1 cm long. *Flowers* ca. 4 cm long; pedicels solitary in the upper leaf axils, glabrous, spreading to ascendant, stiff, ebracteolate, 4.5–8 cm long; hypanthium in anthesis narrowly turbinate or obconic, basally acute and long-attenuate, glabrous; calyx lobes linear with a blunt tip, entire or inconspicuously callose-denticulate, glabrous, (7–)11–20 mm long; corolla glabrous or sparsely pubescent externally, greenish or yellowish white, the tube 11–15 mm long, broadest basally and distally, the lobes falcate, the upper lobe 9–10 mm long, the 3 lower lobes ca. 7 mm long; filament tube ca. 2.2 cm long, distally pubescent and otherwise glabrous, basally distinct and completely free from the corolla tube, the upper anthers 5.5–6 mm long, sparsely pilose apically, all anthers sparsely short-pubescent at the base and on the back. *Berries* little inflated, obovoid, 7–10 mm long, 5 mm in diameter, basally acute; seeds oblong.

This species is known from the Cordillera de Tilarán and the Cordillera Central of Costa Rica and in Panama from both the Boquete region and also near Santa Fé de Veraguas. These discontinuities are probably due to incomplete collecting.

BOCAS DEL TORO: Cerro Horqueta, 6000–7000 ft, *Allen 4951* (MO). CHIRIQUÍ: Bajo Chorro, 6000 ft, *Davidson 79* (F, GH, US). N of San Félix on Cerro Colorado coppermine road, 5000–5500 ft, *Mori & Kallunki 5829* (DUKE, MO). SW slopes of Cerro Horqueta, ca. 6 km NW of Boquete, 1700–1800 m, *Wilbur et al. 15439* (DUKE, MO). S slope of Cerro Horqueta, 6500–7500 ft, *Wilbur et al. 17305* (DUKE). PANAMÁ: Cerro Jefe, 1000 m, *Mori & Kallunki 3796* (MO). VERAGUAS: Cerro Tute, vic. of Santa Fé, 3000 ft, *Allen 4346* (MICH, in part). Río Primero Brazo, 2.5 km beyond Agriculture School near Santa Fé, 700–750 m, *Croat 25488* (MO). Road between Escuela Agrícola and Alto Piedra and Río Dos Bocas, 730–770 m, *Croat 25959* (MO). 12–15 km NW of Santa Fé, 650–750 m, *Dressler 4825, 5007* (both DUKE). Above Río Primero Brazo, 5 mi NW of Santa Fé, 700–1200 m, *Liesner 803* (MO). NW of Santa Fé, 8.8 km from Escuela Agrícola, *Mori & Kallunki 3249* (MO); *Mori et al. 3959* (MO). Cerro Tute, ca. 5 km NW of Santa Fé, 1100–1400 m, *Mori et al. 7596* (MO). 8.8 km from Escuela Agrícola Alto de Piedra, *Mori & Kallunki 3249* (DUKE, MO), *3959, 6166* (both DUKE). Cerro Tute, ca. 10 km NW of Santa Fé, *Mori 6758* (DUKE, MO). Ca. 2 km N of Santa Fé, *Wilbur & Luteyn 19108* (DUKE, MICH).

14. *Burmeistera toroensis* Wilbur.¹¹ TYPE: Panama, *Kirkbride & Duke 983* (MO, holotype).

Suffrutescent *herbs*; stems purplish, glabrous throughout. Principal *leaves* with blades apparently somewhat thickened or fleshy, elliptic, 4–7.5 cm long, 1.5–2.7 cm wide or ca. 2.5–3 times as long as wide, apically acute to acuminate, basally acutely tapering, marginally with a slightly thickened border and entire or obscurely serrulate with 1–2(–4) slightly incurved, callose-tipped serrulations per cm, both surfaces glabrous; petioles 6–9 mm long. *Flowers* 3(–4?) cm long; pedicels solitary in the upper leaf axils, straight, divergent, glabrous, ebracteolate,

¹¹ *Burmeistera toroensis* Wilbur, sp. nov. Planta suffruticosa; rami tereti glabri. Lamina foliorum elliptica, 4–7.5 cm longa et 1.5–2.7 cm lata, ca. 2.5–3-plo longiora quam lata, acuta, basi cuneata, margine subintegra remote calloso-serrulata 1–2(–4) denticulis per cm, glabra; petioli 6–9 mm longi, glabri. Flores 3 cm longi; pedicelli glabri, ca. 5 cm longi. Hypanthium obconicum, glabrum, 6 mm longum; lobi calycis erecti, ovati, integri, glabri, obtusi, 6 mm longi. Corolla glabra, atro-violacea; tubus ca. 13–15 mm longus; lobi lance-oblongi, acuti, 2 superiores 7 mm longi. Filamenta glabra; tubus antherarum glaber.