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275. HELICONIACEAE

By W J. Kress.

Medium- to large-sized, perennial, rhizomatous herbs forming clusters of erect leafy shoots in groups of few (1-2) to many (> 50). Trunk (pseudostem) composed of overlapping sheathing leaf bases. Leaves simple, distichous, petiolate, usually large; petioles either nearly absent (plants then resembling gingers, i.e., *Zingiber*-like), medium-length (plants then resembling cannas, i.e., *Canna*-like) or long (plants then resembling bananas, i.e., *Musa*-like); blades with transverse venation, the base unequal on either side of the midrib, usually green on both sides. Terminal inflorescence erect or pendent, consisting of brightly colored, leaflike, distichous or spirally arranged bracts, each subtending a cluster of flowers. Flowers bisexual, each subtended by a membranous floral bract; perianth consisting of 2 whorls united at the base with varying degrees of fusion within and between the whorls; calyx with 2 partially fused sepals and 1 nearly free sepal; corolla with 3 petals, fused except for free margins opposite the free sepal; pollen bearing stamens 5, attached to the base of the perianth tube; staminode 1, of variable size and shape, opposite the free sepal; ovary inferior, 3-celled; ovules solitary, erect; style 1. Fruit a 1-3-seeded drupe, blue, rarely red or orange, at maturity; seed surrounded by stony, roughened endocarp (pyrenes). 1 gen., almost entirely neotropical from Mexico to N. Argentina and the Caribbean, except for 6 spp. in the South Pacific to Indonesia.

1. *Heliconia* L.; N.v.: Platanilla

Bihai Adans.

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Width measurements of the middle inflorescence bracts and perianth parts were taken at the base of these structures.

Bibliografía: Andersson, L. *Opera Bot.* 82: 5-123 (1985); *Opera Bot.* 111: 1-98 (1992). Berry, F. y Kress, W.J. *Heliconia: an Identification Guide*. Smithsonian Institution Press, Washington (1991). Daniels, G.S. y Stiles, F.G. *Brenesia* 15 (Supl.): 1-150 (1979). Kress, W.J. *J. Arnold Arbor.* 65: 429-532 (1984). Kress, W.J., Betancur, J. y Echeverry, B. *Heliconias – Llamadas de la Selva Colombiana*. Cristina Uribe Editores, Bogotá, Colombia (1999).

[Key to species to come here.]

1. *Heliconia adflexa* (Griggs) Standl., *J. Wash. Acad. Sci.* 17: 162 (1927). *Bihai adflexa* Griggs, *Bull. Torrey Bot. Club* 42: 325 (1915). Holotype: Guatemala, von *Türkheim II 2356* (NY!). Illustr.: Andersson, *Opera Bot.* 82: 45, t. 24I-L (1985).

Herbs with *Musa*-like habit, 1.5-4 m. Leaves 4-5 per shoot, green; midrib pilose below; longest blades c. 115 × 45 cm. Inflorescences to 30 cm, erect; cincinnal bracts 8-14

per inflorescence, distichous, steeply angled upward; middle bracts 13-23 × c. 3 cm, the outer surface red, pilose to glabrous. Flowers 10-15 per cincinnus; perianth 4.1-5.1 cm, yellow, sometimes with an orange tint, essentially densely pilose distally, uniformly curved and partially twisted to protrude at an oblique angle from the bract. Drupes 1.3-1.6 cm in diameter. *Cloud forests*. Ch (*Matuda 560*, MO); G (*Dwyer 14417*, MO). 1500-2100 m. (Mexico [Oaxaca, Veracruz], Mesoamérica.)

2. *Heliconia atropurpurea* G.S. Daniels et F.G. Stiles, *Brenesia* 15(Supl.): 15 (1979). Holotype: Costa Rica, *Daniels et al. 109* (F!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 90, t. 20 (1979).

Herbs with *Musa*-like habit, 1.5-2.5 m. Leaves 3-4 per shoot; blades with the lower surface green with purple venation or deep maroon; longest blades 85-95 × 25-35 cm. Inflorescences to 25 cm, erect; cincinnal bracts 7-15 per inflorescence, distichous, imbricate, flattened; middle bracts 8-10 × 9-9.5 cm, the outer surface glabrous, orange to red or yellow, the keel yellow or green, the margins red. Flowers 5-10 per cincinnus; perianth 5.5-6 cm × 7-10 mm wide at the base, white or yellow green with a pale green apex, essentially glabrous, uniformly curved 20-35° and partially twisted to protrude at an oblique angle from the bract. Drupes 1-1.5 cm. *Local in understory of wet forests on Caribbean slopes*. CR (*Bello 1216*, MO); P (*Churchill y Churchill 6176*, MO). 400-1200 m. (Mesoamerica, Colombia, Caribbean.)

3. *Heliconia aurantiaca* Ghiesbr., *Ill. Hort.* 9: t. 332 (1862). Lectotype (designated by Andersson, 1985): Lemaire, *Ill. Hort.* 9: t. 332 (1862). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 64, t. 7, 148, t. 48 (1979).

Bihai aurantiaca (Ghiesbr.) Griggs, *B. choconiana* (S. Watson) Griggs, *Heliconia brevispatha* Hook., *H. choconiana* S. Watson.

Herbs with *Zingiber*-like habit, 1.5-2 m. Leaves 10-12 per shoot, green; longest blades 30-35 × 8-10 cm. Inflorescences to 10 cm, erect; cincinnal bracts 5-8 per inflorescence, subdistichous to spirally arranged; middle bracts 4.5-9 × 3-3.5 cm, the outer surface red orange to orange or yellow (becoming green with age), glabrous. Flowers 5-7

per cincinnus; perianth 4.5-5.5 cm × 8-10 mm, creamy white or yellow, glabrous, nearly straight. Drupes c. 7 × 10 mm. *Forest understory and old secondary growth on Caribbaen slopes*. T (Fernández N. y Guadarrama-Zamudio 1360, MO); B (Holst 3884, MO); G (Stevens et al. 25571, MO); H (MacDougal et al. 3329, MO); N (Robleto 465, MO); CR (Haber y Bello 8243, MO); P (Duke 10030, MO). 100-800(-1200) m. (Endemic.)

4. *Heliconia barryana* W.J. Kress, *Selbyana* 9: 165 (1986). Holotype: Panama, Kress y Hammel 82-1348 (SEL!). Illustr.: Kress, *Selbyana* 9: 164, t. 6 (1986).

Herbs with *Musa*-like habit, 2 m. Leafy shoots in groups of 4; blades with the apex acute, the upper surface green, the midrib light green and glabrous, the lower surface green with the midrib yellow-green and red and glabrous; longest blades c. 1 m × 37 cm. Inflorescences to 17 cm, erect; cincinnal bracts 7 per inflorescence, subdistichous. Floral bracts c. 3 × 1.5 cm, translucent, persistent, yellow-green, glabrous to puberulous along the keel abaxially. Flowers 10 per cincinnus. Drupes unknown. *Rare; gaps in primary wet forests on steep hillsides*. P (Hammel y Trainer 14980, MO). 1000-1800 m. (Endemic.)

5. *Heliconia beckneri* R.R. Sm., *Phytologia* 30: 210 (1975). Holotype: Costa Rica, Smith 2317 (FLAS!). Illustr.: Daniels y Stiles, *Brenesia* 15 (Supl.), 100, t. 25 (1979).

Herbs with *Musa*-like habit, 2.5-3.5 m. Leaves 3-4 per shoot, green; longest blades 1-1.25 m × 25-30 cm. Inflorescences to 40 cm, erect; cincinnal bracts 7-13 per inflorescence, spirally arranged; middle bracts 15-18 × 9.5-10 cm, the outer surface yellow-orange with some green at the base and along the keel, glabrous. Flowers 9-15 per cincinnus; perianth 6-7 cm × 1-1.5 cm, white to pale green basally becoming green distally and glabrous, uniformly curved. Drupes 1.2-1 cm. *Cloud forest margins and understory*. CR (Kress 92-3478, MO). 1300-1800 m. (Endemic.)

6. *Heliconia bella* W.J. Kress, *Selbyana* 9: 158 (1986). Holotype: Panama, Kress 80-1186 (SEL!). Illustr.: Kress, *Selbyana* 9: 159, t. 2 (1986).

Herbs with *Musa*-like habit, 1-2 m. Leaves 3-4 per shoot, the upper surface dark green with the midrib burgundy red and glabrous, the lower surface light green with the

midrib yellow green and scurfy; longest blades 70-80 × 30-35 cm. Inflorescences to 40 cm, erect; cincinnal bracts 8-18 per inflorescence, distichous, the basal bract usually sterile; middle bracts 8-10 × 6.8-7.2 cm, the apex acuminate and reflexed, the margins involute basally and revolute distally, the inner surface red and puberulous, the outer surface scarlet and puberulous. Flowers 10-15 per cincinnus; perianth white to pale yellow basally, becoming yellow towards the apex, glabrous, slightly curved 10-15°. Drupes c. 1.3 × 1.1 cm, blue; seeds c. 10 × 6 mm. *Understory of undisturbed forests on steep slopes.* P (Hamilton y Krager 4015, MO). 900-1900 m. (Endemic.)

7. *Heliconia bourgaeana* Petersen, *Fl. Bras.* 3(3): 14 (1890). Lectotype (designated by Andersson, (1981): *Bourgeau* 2502 (P!). Illustr.: Berry y Kress, *Heliconia* 122 (1991).

Bihai bourgaeana (Petersen) Kuntze.

Herbs with *Musa*-like habit, 4.5 m. Leaves 5-6 per shoot; blades green with the midrib glabrous or sparsely pilose below; longest blades 200 × 40 cm. Inflorescences to 50 cm, erect; cincinnal bracts 10-12 per inflorescence, distichous, bulbous in the basal half; middle bracts 13.5-17.1 × 10.5-13 cm, the outer surface deep pinkish red, sparsely villous to glabrous. Flowers 20-30 per cincinnus; perianth 5.5-6 cm, deep yellow and green, essentially glabrous to sparsely villous along the margins, slightly sigmoid in shape. Drupes 1.1-1.4 × c. 0.9 cm. *Forest margins and secondary growth.* T (Davidse et al. 29507, MO); B (Dwyer y Liesner 12116, MO); G (Steyermark 45391, MO); H (Croat y Hannon 64616, MO). 20-400 m. (Mexico, Mesoamerica.)

8. *Heliconia brachyantha* L. Andersson, *Opera Bot.* 82: 64 (1985). Holotype: Venezuela, *Steyermark* 101752 (VEN!). Illustr.: Andersson, *Opera Bot.* 82: 65, t. 41B, 67, 42B-D (1985).

Slender herbs with *Musa*- to *Canna*-like habit, 1-1.5 m. Leaves 4-5 per shoot; longest blades 40-50 × 9-11 cm. Inflorescences to 13 cm, erect; cincinnal bracts distichous, 3-6 per inflorescence; middle bracts 5-6.5 × 1.5-2 cm, the outer surface yellow-green basally, becoming pink to red distally, glabrous. Flowers 5-7 per cincinnus, resupinate; perianth 2.7-3 cm × 5-6 mm, green at the base, becoming dark green distally with a white

apex, glabrous, sharply triangular in cross-section, at anthesis uniformly curved 5° to subparabolic in shape. Drupes 9 × 6-7 mm, blue, glabrous. *Understory and gaps in wet forests*. P (Duke 8756, MO). 100-800 m. (Panama, Colombia, Venezuela, Brazil(?).)

9. *Heliconia calatheiphylla* G.S. Daniels et F.G. Stiles, *Brenesia* 15(Supl.): 17 (1979). Holotype: Costa Rica, *Daniels y Stiles* 122 (F!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 94, t. 22 (1979).

Herbs with *Canna*-like habit, 1.5-3 m. Leaves 5-6 per shoot, green with the lateral veins prominently raised; longest blades 55-60 × 17-20 cm. Inflorescences to 10-15 cm, erect; cincinnal bracts 3-5 per inflorescence, distichous; middle bracts 9-13 × 2.5-3 cm, the inner surface pale green basally, becoming pink distally, the outer surface pale green, becoming yellow near the rachis, glabrous. Flowers 8-10 per cincinnus; perianth 4.5-4.8 cm × 7-8 mm, pale yellow becoming green at the apex, glabrous, straight to uniformly curved. Drupes c. 1.1 × 1.3 cm. *Understory of wet forests, foothills*. CR (*Grayum et al.* 8834, MO). 300-700 m. (Endemic.)

10. *Heliconia champneiana* Griggs, *Bull. Torrey Bot. Club* 30: 657 (1903). Holotype: Guatemala, *Cook y Griggs* 528 (US!). Illustr.: Berry y Kress, *Heliconia* 123-125 (1991).

Bihai champneiana (Griggs) Griggs.

Herbs with *Musa*-like habit, to 5.5 m. Leaves 4-5 per shoot; longest blades 200 × 50 cm, green. Inflorescences to 45 cm, erect; cincinnal bracts 9-11 per inflorescence, distichous, nearly imbricate, bulbous; middle bracts 13-16 × 10-13 cm, the outer surface bright orange, often with red splashes, glabrous. Flowers 15-20 per cincinnus; perianth 6-6.5 cm, white basally with a dark green apex, essentially glabrous with 2 lines of pubescence on the abaxial side, uniformly curved. Drupes unknown. *Forest margins and light gaps*. G (*Stevens et al.* 25585, MO); H (*Liesner y Mejía* 26229, MO); N (*Araquistain y Moreno* 2322-A, MO). 50-800 m. (Endemic.)

11. *Heliconia clinophila* R.R. Sm., *Phytologia* 30: 212 (1975). Holotype: Costa Rica, *Smith 2207* (FLAS!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 76, t. 13 (1979).

Herbs with *Musa*-like habit, 1.5-2.5 m. Leaves 4-6 per shoot, green; longest blades 45-80 × 11-22 cm. Inflorescences to 22 cm, erect; cincinnal bracts 6-9 per inflorescence, distichous; middle bracts 13-15 × 3-3.5 cm, the outer surface yellow to yellow-orange sometimes with a green keel, glabrous, uniformly curved. Flowers 5-10 per cincinnus, semiresupinate; perianth 4.5-5 cm × 6-7 mm, with pale yellow green sepals and white petals, entirely glabrous. Drupes 10-13-9.5-12 cm. *Local in montane forests on Caribbean slopes, often "hanging" on steep, moist slopes.* CR (*Davidse et al. 23216*, MO); P (*McPherson 9830*, MO). 1000-1800 m. (Endemic.)

12. *Heliconia colgantea* R.R. Sm. ex G.S. Daniels et F.G. Stiles, *Brenesia* 15(Supl.): 18 (1979). Holotype: Costa Rica, *Burger y Matta 4662* (F!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 118, t. 34, 36 (1979).

Herbs with *Musa*-like habit, 2-3.5 m. Leaves 6 per shoot, green; longest blades 1-1.4 m × 15-25 cm. Inflorescences to 70 cm, pendent; cincinnal bracts 7-11 per inflorescence, spirally arranged; middle bracts 19.5-21.5 × 7-7.7 cm, the outer surface dark pink basally to light green distally, sparsely pubescent. Flowers 15-20 per cincinnus; perianth 4-5.4 cm × 8-9 mm, yellow, pubescent, sigmoid. Drupes sparsely pubescent. *Rare on wet forested slopes and ravines.* CR (*Herrera 3104*, MO); P (*Hammel et al. 16194*, MO). 40-800 m. (Endemic.)

13. *Heliconia collinsiana* Griggs, *Bull. Torrey Bot. Club* 30: 648 (1903). Holotype: Guatemala, *Cook y Griggs 352* (US!). Illustr.: Berry y Kress, *Heliconia* 250 (1991).

Bihai collinsiana (Griggs) Griggs.

Herbs with *Musa*-like habit, 4-6 m. Leaves 3-5 per shoot; blades glabrous or glaucous below; longest blades 1.1-2.5 m × 28-70 cm. Inflorescences to 72 cm, pendent; cincinnal bracts 7-18 per inflorescence, spirally arranged; middle bracts 11-17 × 6-8 cm, the outer surface red to red-orange, glabrous, often glaucous. Flowers 10-20 per cincinnus; perianth , 4.6-6 cm × 8-11 mm, yellow to orange, becoming reddish along the sepal

margins, glabrous to puberulous, at anthesis uniformly curved 15-25°. Drupes 1.2-1.5 × 1.6-1.8 cm, blue, glabrous. *Forested slopes and open secondary growth*. T-Ch, B-N. 50-1900 m. (Mexico, Mesoamerica.)

13a. Var. **collinsiana**. Illustr.: Kress, *J. Arnold Arbor.* 65: 528, t. 4B, D (1984).

Leaf blades with the lower surface glaucous; peduncle and rachis glabrous to tomentose; perianth and ovary yellow. T (*Menendez et al.* 223, MO); Ch (*Breedlove* 25595, MO); B (*Davidse y Brant* 32123, MO); G (*Kress et al.* 77-747, DUKE); H (*Yuncker et al.* 8537, MO); ES (*Croat* 42091, MO); N (*Moreno y Henrich* 8428, MO). 50-300 m. (Mexico, Mesoamerica.)

13b. Var. **velutina** W.J. Kress, *J. Arnold Arbor.* 62: 255 (1981). Holotype: Guatemala, *Kress et al.* 77-756 (DUKE!). Illustr.: ??.

Leaf blades with the lower surface not glaucous; peduncle and rachis tomentose to velutinous; perianth orange; ovary green. Ch (*Hernández y Torres* 368, MO); G (*Kress* 77-756, MO); ES (*Reyna de Aguilar et al.* MLR01485, MO). 1000-1900 m. (Endemic.)

14. *Heliconia crassa* Griggs, *Bull. Torrey Bot. Club* 30: 646 (1903). Holotype: Guatemala, *Cook y Griggs* 376 (US!). Illustr.: Andersson, *Opera Bot.* 82: 114, t. 83B (1985).

Bihai crassa (Griggs) Griggs.

Herbs with sub-*Zingiber*-like habit, 1.5-2 m. Leaves 8 per shoot; longest blades 23-35 × 5.1-10 cm, green, coriaceous. Inflorescences to 7 cm, erect; cincinnal bracts 3-4 per inflorescence, spirally arranged; middle bracts 3.8-5.1 × 1.4-1.8 cm, the outer surface bright orange with yellow margins, glabrous. Flowers 5-10 per cincinnus; perianth 2.5-3.1 × 1 cm, yellow, glabrous, uniformly curved and partially twisted to protrude at an oblique angle from the bract. Drupes c. 7 × 10 mm. *Rare along forest margins*. G (*Harmon y Dwyer* 2859, MO). c. 500 m. (Endemic.)

15. *Heliconia cucullata* W.J. Kress et L. Andersson, *Selbyana* 11: 49 (1989).

Holotype: Panama, *Kress et al. 86-1921* (SEL!). Illustr.: Kress y Andersson, *Selbyana* 11: 50, t. 1 (1989).

Herbs with *Musa*- to *Canna*-like habit, 1-1.5 m. Leaves 4-5 per shoot, green, the longest blades 35-45 × 8-13 cm. Inflorescences to 12 cm, erect; cincinnal bracts 4-5 per inflorescence, spirally arranged; middle bracts 6-7 × 4.8-5.2 cm, the outer surface red-orange, glabrous. Flowers 5-7 per cincinnus; perianth 4.5-5 cm × 8-10 mm, yellow, glabrous, at anthesis straight to slightly curved curved 10°. Drupes unknown. *Rare in the understory of middle elevation cloud forests*. P (*D'Arcy 16316*, MO). 900-1600 m. (Endemic.)

16. *Heliconia curtispatha* Petersen, *Fl. Bras.* 3(3): 15 (1890). Holotype: Panama, *Wagner s.n.* (M!). Illustr.: Kress, *J. Arnold Arbor.* 65: 493, f. 12, t. 5A, C (1984), as *H. sessilis*.

Bihai curtispatha (Petersen) Kuntze, *Heliconia sessilis* W.J. Kress.

Herbs with *Musa*-like habit, 5-7 m. Leaves 4 or 5 per shoot, green, slightly glaucous below; longest blades c. 2 m × 40-60 cm. Inflorescences to 90 cm, nodding to pendent; cincinnal bracts 23-31 per inflorescence, spirally arranged; middle bracts 7-9 × c. 9 cm, the outer surface red, glabrous. Flowers 15-20 per cincinnus; perianth 4.6-5.1 × 1.1-1.2 cm, deep yellow distally, becoming pale yellow at the base, glabrous except puberulous along the sepal margins, at anthesis uniformly curved 30-40° to subparabolic. Drupes 1.5-1.6 × 1-1.1 cm, blue, glabrous; seeds 10-12 × 6-7 mm. *Flooded secondary growth in coastal lowlands*. P (*Croat 11595*, MO). 0-100 m. (Mesoamerica, Colombia, Ecuador.)

17. *Heliconia danielsiana* W.J. Kress, *J. Arnold Arbor.* 65: 507 (1984). Holotype: Costa Rica, *Kress y Clarkson 79-1097* (DUKE!). Illustr.: Kress, *J. Arnold Arbor.* 65: 508, f. 13, t. 8A, D (1984).

Herbs with *Musa*-like habit, 4.5-8 m. Leaves 2-4 per shoot, green; longest blades 2-2.8 m × 45-57 cm. Inflorescences to 1 m, pendent; cincinnal bracts 20-30 per inflorescence, distichous to subspirally arranged; middle bracts 9.5-11 × 8-10 cm, the outer

surface orange-red, woolly with buff to orange hairs. Flowers 15-20 per cincinnus; perianth 5.1-5.7 × 1-1.2 cm, white basally to yellow distally, glabrous basally to velutinous with buff to cinnamon hairs distally, sigmoid. Drupes 13-14 × 9-10 mm. *Pacific slopes along open, disturbed forest margins*. CR (Kernan y Phillips 1002, MO); P (Croat 66552, MO). 0-1200 m. (Endemic.)

Daniels y Stiles (1979) misapplied the name *Heliconia vellerigera* Poepp. to this species.

18. *Heliconia darienensis* L. Andersson, *Opera Bot.* 111: 69 (1992). Holotype: Colombia/Panama, Gentry et al. 28710 (MO!). Illustr.: Andersson, *Opera Bot.* 111: 69, 41E (1992).

Herbs with *Musa*-like habit, 1.5-2 m. Leaves 4-5 per shoot, green; longest blades 50-67 × 15-28 cm. Inflorescences to 22 cm, erect; cincinnal bracts 6-10 per inflorescence, subdistichous to spirally arranged; middle bracts 8.6-11 × 3-3.5 cm, the outer surface yellow-green to yellow along the margins or red, glabrous to sparsely tomentose or hirtellous. Flowers 8-10 per cincinnus; perianth 3.8-4.5 cm × 5-6 mm, twisted at an 70° angle to the cincinnal bract at maturity, yellow basally to yellow-green distally, glabrous, at anthesis uniformly curved 45° to parabolic. Drupes c. 9 × 8-10 mm. *Rare in cloud forests*. P (Hammel et al. 14873, MO). 800-1600 m. (Endemic.)

19. *Heliconia faunorum* W.J. Kress et L. Andersson, *Selbyana* 11: 52 (1989). Holotype: Panama, Kress y Knapp 82-1412 (SEL!). Illustr.: Kress y Andersson, *Selbyana* 11: 51, t. 2 (1989).

Herbs with *Musa*-like habit, 1.5-2 m. Leaves 3-4 per shoot, green; longest blades 40-50 × 9-11 cm. Inflorescences to 15 cm, erect; cincinnal bracts 5-6 per inflorescence, spirally arranged; middle bracts 6-8 × 4-5 cm, the outer surface red-orange, glabrous. Flowers 8-10 per cincinnus; perianth 3.5-4 cm × 5-6 mm, white basally to pale yellow distally, glabrous, at anthesis uniformly curved 60° to slightly parabolic. Drupes unknown. *Rare in the understory of cloud forests*. P (McPherson 10736, MO). 800-1300 m. (Endemic.)

20. *Heliconia gracilis* G.S. Daniels et F.G. Stiles, *Brenesia* 15(Supl.): 21 (1979).

Holotype: Costa Rica, *Daniels* 92 (F!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 70, t. 10 (1979).

Herbs with *Musa*-like habit, to 1 m. Leaves 3-4 per shoot, deep lustrous green with a pale white contrastig midrib above; longest blades 22-27 × 5-7 cm. Inflorescences to 12 cm, erect; cincinnal bracts 4-6 per inflorescence, distichous; middle bracts 5-6 × c. 2 cm, the outer surface red to orange, glabrous. Flowers 4-6 per cincinnus, semiresupinate; perianth c. 4.5 cm × 6 mm, pale yellow to creamy white, glabrous, uniformly curved. Drupes c. 6 × 8 mm. *Shady cloud forest understory. CR (Herrera et al. 2033 (CR). 1000-2000 m. (Endemic.)*

21. *Heliconia hirsuta* L. f., *Suppl. Pl.* 158 (1781 [1782]). Neotype (designated by Andersson, 1985): Panama, *Nee* 7304 (MO!). Illustr.: Berry y Kress, *Heliconia* 189-197 (1991).

Bihai harrisiana Griggs, *B. hirsuta* (L. f.) Kuntze, *B. straminea* Griggs, *Heliconia bicolor* Klotzsch, *H. burle-marxii* Emygdio, *H. cannoidea* A. Rich. var. *villosa* Petersen, *H. cararensis* Abalo et G.L. Morales, *H. cardenasii* L.B. Sm., *H. costanensis* Aristeg., *H. harrisiana* (Griggs) L.B. Sm., *H. hirsuta* L.f. fo. *laxa* Barreiros, *H. hirsuta* fo. *magnifolia* Lane ex Barreiros, *H. hirsuta* fo. *valida* Barreiros, *H. hirsuta* var. *glabra* Barreiros, *H. hirsuta* var. *rubiflora* R.R. Sm., *H. hirsuta* var. *villosula* Loes., *H. straminea* (Griggs) Standl.

Slender herbs with *Zingiber*-like habit, 1.5-4 m. Leaves 9-25 per shoot, green; longest blades 38-40 × 11-14 cm. Inflorescences to 15 cm, erect, sometimes terminating specialized dimorphic, leafless shoots; cincinnal bracts 5-10 per inflorescence, distichous; middle bracts 6-13 × 1-2 cm, the outer surface variable in color, usually orange, basally becoming red distally, sometimes green and yellow, glabrous to sparsely puberulous, sometimes glaucous distally. Flowers 7-10 per cincinnus; perianth 2.5-5 cm × 5-9 mm, yellow or orange with dark green "eye-spots" towards the apex on the free sepal and petals, usually glabrous, conspicuously flattened on the sides but inflated towards the apex, at

anthesis uniformly curved 10-30° to subparabolic. Drupes 7-10 × 6-8 mm. *Variety of open habitats*. B (*Schipp* 835, MO); H (*Hernández O.* 204, MO); N (*Stevens* 7763, MO); P (*Knapp* 5065, MO). 0-1000 m. (Mesoamerica, Colombia, Venezuela, Guayanas, Ecuador, Perú, Bolivia, Brasil, Paraguay, Argentina, Caribbean.)

This species is cultivated as a garden ornamental and commercially for cut-flowers.

22. *Heliconia ignescens* G.S. Daniels et F.G. Stiles, *Brenesia* 15(Supl.): 22 (1979). Holotype: Costa Rica, *Daniels et al.* 113 (F!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.) 68, t. 9 (1979).

Herbs with *Canna*-like habit, 1.3-1.5 m. Leaves 3-5 per shoot, green with the lateral venation slightly pronounced; longest blades 40-45 × 12-14 cm. Inflorescences to 20 cm, erect; cincinnal bracts 6-7 per inflorescence, distichous, middle bracts 8-9 × 3-3.5 cm, the outer surface orange to red-orange, glabrous. Flowers 6-7 per cincinnus, semiresupinate; perianth 4.5-4.7 cm × 6-8 mm, yellow, glabrous, uniformly curved. Drupes 6-8 × 8-10 mm. *Uncommon in cloud forest understory on Caribbean slopes*. CR (*Herrera* 3243, MO); P (*Croat* 66629, MO). 600-1400 m. (Endemic.)

23. *Heliconia imbricata* (Kuntze) Baker, *Ann. Bot. (Oxford)* 7: 191 (1893). *Bihai imbricata* Kuntze, *Revis. Gen. Pl.* 2: 684 (1891). Holotype: Costa Rica, *Kuntze s.n.* (NY!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 86, t. 18, 148, t. 48 (1979).

Bihai densa Griggs, *B. imbricata* Kuntze, *Heliconia densa* (Griggs) L.B. Sm.

Herbs with *Musa*-like habit, 3.5-6 m. Leaves 3-4 per shoot, the lower surface of the blades with a minute reticulate pattern, sometimes suffused with maroon (especially in juvenile plants); longest blades 1.3-2.3 m × 30-50 cm. Inflorescences to 60 cm, erect; cincinnal bracts 20-30 per inflorescence, distichous, imbricate, bulbous and inflated; middle bracts 4-5.5 × 8-11 cm, the outer surface red with green and/or yellow along the keel, glabrous. Flowers 10-15 per cincinnus, resupinate; perianth 2.8-3 cm × 6-7 mm, green distally, becoming white or yellow basally, glabrous to sparsely hirsute along the sepal margins, sigmoid. Drupes 7-10 × 8-11 mm. *Common in wet lowlands, open*

secondary growth on both Caribbean and Pacific slopes. CR (Cordero 55, MO); H (¿?????); P (McPherson 15866, MO). 0-700 m. (Mesoamerica, Colombia.)

24. *Heliconia irrasa* R.R. Sm., *Phytologia* 30: 66 (1975). Holotype: Panama, *Allen 3547* (MO!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.) 110, t. 30 (1979).

Heliconia irrasa R.R. Sm. var. *glabra* G.S. Daniels et F.G. Stiles.

Herbs with *Musa*-like habit, 1.5-2 m. Leaves green; longest blades 65-100 × 13-27 cm. Inflorescence to 29 cm, erect; cincinnal bracts 6-9 per inflorescence, spirally arranged; middle bracts 9-12 × 5-6 cm, apically often circinnate, the outer surface red and/or yellow with red margins, glabrous to tomentose. Flowers 10-15 per cincinnus; perianth 5.5-6.5 cm × 6-8 mm, white to pale yellow basally, becoming yellow distally, essentially glabrous to sparsely pubescent along the sepal margins, uniformly curved. Drupes 6-10 × 7-9 mm. *Wet forest understory and margins throughout the Caribbean and Pacific slopes. N-P. 0-1200 m. (Endemic.)*

24a. Subsp. *irrasa*. Illustr.: Berry y Kress, *Heliconia* 216 (1991).

Cincinnal bracts glabrous or pubescent, the margins involute at the base. CR (*Gómez-Laurito et al. 11604*, MO); P (*McPherson 9967*, MO). 300-900 m. (Endemic.)

24b. Subsp. *undulata* G.S. Daniels et F.G. Stiles, *Brenesia* 15(Supl.): 25 (1979). Holotype: Costa Rica, *Daniels y Stiles 39* (F!). Illustr.: Daniels y Stiles, *Brenesia* 15 (Supl.): 108, t. 29 (1979).

Heliconia undulata (G.S. Daniels et F.G. Stiles) L. Andersson.

Cincinnal bracts glabrous, the margins revolute at the base. N (*Araquistain 3204*, MO); CR (*Herrera 2059*, MO). 0-1200 m. (Endemic.)

24c. Var. *albicosta* G.S. Daniels et F.G. Stiles, *Brenesia* 15(Supl.): 27 (1979). Holotype: Costa Rica, *Daniels y Stiles 104* (F!). Illustr.: ????

Heliconia albicosta (G.S. Daniels et F.G. Stiles) L. Andersson.

Cincinnal bracts densely pubescent, the margins revolute at the base. CR (*Kress et al.* 80-1228, DUKE). 200-400 m. (Endemic.)

25. *Heliconia lankesteri* Standl., *J. Wash. Acad. Sci.* 17: 162 (1927). Holotype: Costa Rica, *Standley 39494* (US!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 72, t. 11-12 (1979).

Herbs with *Musa*-like habit, 2-3.5 m. Leaves 3-4 per shoot, green with prominently raised lateral veins; longest blades 85-135 × 24-37 cm. Inflorescences to 37 cm, erect; cincinnal bracts 10-15 per inflorescence, distichous; middle bracts 9-15 × 6-7.5 cm, the outer surface yellow-orange or red, sometimes with green, glabrous. Flowers 7-13 per cincinnus, semiresupinate; perianth 4.5-5.2 cm × 6-8 mm, white to yellow basally, to pale green or yellow-green distally, glabrous, uniformly curved. Drupes 1.3-1.4 × 1.2-1.3 cm. *Cloud forest understory and margins as well as secondary growth on Caribbean and Pacific slopes.* CR (*Kennedy et al.* 4539, MO); P (*Croat 74882*, MO). 800-2200 m. (Endemic.)

26. *Heliconia latispatha* Benth., *Bot. Voy. Sulphur* 170 (1846). Lectotype (designated by Andersson, 1985): Colombia, *Hinds s.n.* (K!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 96, t. 23-24 (1979).

Bihai latispatha (Benth.) Griggs, *Heliconia aequatoriensis* Loes.

Herbs with *Musa*-like habit, 2-4 m. Leaves 3-5 per shoot, green; longest blades 75-150 × 18-33 cm. Inflorescences to 45 cm, erect; cincinnal bracts 8-13 per inflorescence, spirally arranged; middle bracts 14-19.5 × 5-7 cm, the outer surface orange and/or red, glabrous. Flowers 10-15 per cincinnus; perianth 3.5-4.6 cm × 7-8 mm, green, yellow or orange with dark green sepal margins, glabrous, sometimes sparsely puberulous along the fused sepal margins, nearly straight, the base gibbous. Drupes 10-13 × 8-9 mm. *Common and often abundant in open secondary growth and recently cut areas, throughout the lowlands of both coasts.* T (*Menéndez et al.* 23, MO); Ch (*Breedlove 25593*, MO); B (*Balick et al.* 2015, MO); G (*Davidson 3323*, MO); H (*Nelson et al.* 2901, MO); ES

(Villacorta y Chávez RV-01233, MO); N (Stevens 13524, MO); CR (Kress 89-2761, US); P (Woodson 864, US). 0-1000 m. (Mexico, Mesoamerica, Colombia, Venezuela, Ecuador.)

27. *Heliconia lennartiana* W.J. Kress, *Selbyana* 9: 161 (1986). Holotype: Panama, Kress y Hammel 83-1593 (SEL!). Illustr.: Kress, *Selbyana* 9: 161, t. 4 (1986).

Herbs with *Musa*-like habit, 2-3 m. Leaves 3 or 4 per shoot, green with the midrib deep maroon; longest blades 1.3-1.6 m × 25-31 cm. Inflorescences to 40 cm, erect; cincinnal bracts 5-9 per inflorescence, distichous; middle bracts 11-14 × 7-9 cm, the outer surface red with yellow and green margins, glabrous. Flowers 10-20 per cincinnus; perianth 5.6-5.9 cm × 8 mm, white with a dark green apex, essentially glabrous, at anthesis curved 70-90° and slightly sigmoid. Drupes 12-13 × 6-7 mm. *Cloud forests*. P (de Nevers y Herrera 4216, MO). 300-700(-1200) m. (Endemic.)

28. *Heliconia librata* Griggs, *Bull. Torrey Bot. Club* 30: 649 (1903). Holotype: Guatemala, Cook y Griggs 696 (US!). Illustr.: Berry y Kress, *Heliconia* 171 (1991).

Bihai librata (Griggs) Griggs.

Herbs with *Musa*-like habit, 2-3 m. Leaves 3 or 4 per shoot, green with the midrib deep maroon; longest blades 1.3-1.6 m × 25-31 cm. Inflorescences to 40 cm, erect; cincinnal bracts 5-9 per inflorescence, distichous; middle bracts 11-14 × 7-9 cm, the outer surface red with yellow and green margins, glabrous. Flowers 10-20 per cincinnus; perianth 5.6-5.9 cm × 8 mm, white with a dark green apex, essentially glabrous, at anthesis curved 70-90° and slightly sigmoid. Drupes 12-13 × 6-7 mm. *Forest margins and secondary growth mainly in the lowlands*. Ch (Huft y Cabrera 2439, MO); B (Balick et al. 2012, MO); G (Harmon 2515, MO); H (MacDougal et al. 3266, MO); N (Sandino 118, MO). 300-1500 m. (Mexico [Veracruz], Mesoamerica.)

29. *Heliconia lindsayana* W.J. Kress, *Selbyana* 9: 158 (1986). Holotype: Panama, Kress y Cooper-Smith 76-650 (SEL!). Illustr.: Kress, *Selbyana* 9: 160, t. 3 (1986).

Herbs with *Musa*-like habit, 1.8-2.5 m. Leaves 4-5 per shoot; petioles deep burgundy; blades lightly to densely glaucous and burgundy below; longest blades 70-85 ×

15-20 cm. Inflorescences to 35 cm, erect; cincinnal bracts 7-10 per inflorescence, spirally arranged; middle bracts 10-15 × 5-6 cm, the outer surface bright pink, glabrous. Flowers 15-20 per cincinnus; perianth 3.3-3.7 cm × 6-7 mm, yellow to yellow-green toward the apex, glabrous, at anthesis curved 20-30° and slightly parabolic. Drupes unknown.

Understory of middle elevation cloud forests in gaps and margins. P (McPherson 10848, MO). 300-1200 m. (Endemic.)

30. *Heliconia longa* (Griggs) H.J.P. Winkl., *Nat. Pflanzenfam.* (ed. 2) 15a: 536 (1930). *Bihai longa* Griggs, *Bull. Torrey Bot. Club* 31: 446 (1904). Holotype: Costa Rica, Cook y Collins 47 (US!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 130, t. 40, 148, t. 48 (1979).

Herbs with *Musa*-like habit, 5-7 m. Leaves 4-7 per shoot, green with a white waxy coating below; longest blades 1.7-3 m × 35-55 cm. Inflorescences to 1.6 m, pendent; cincinnal bracts 12-40 per inflorescence, usually distichous to subdistichous, sometimes spirally arranged; middle bracts 8.5-11.5 × 6-10 cm, the outer surface red to yellow-orange, sometimes yellow near the rachis, glabrous to puberulous, Flowers 10-20 per cincinnus; perianth 5.2-6.5 cm × 9-10 mm, white, to yellow basally, becoming deep yellow distally, entirely glabrous or slightly puberulous toward the apex, parabolic. Drupes c. 1.7 × 1 cm. *Forested slopes and old secondary growth at higher elevations, invading abandoned agricultural land and disturbed areas near sea level, Caribbean slopes and lowlands.* N (Salick 7902, MO); CR (Aguilar 2428, CR); P (Dwyer y Gentry 9549, MO). 0-900 m. (Mesoamerica, Colombia, Ecuador.)

Kress (1981) misapplied collections of this species from Costa Rica and Nicaragua to *Heliconia curtispatha*.

31. *Heliconia longiflora* R.R. Sm., *Phytologia* 36: 255 (1977). Holotype: Panama, Allen 3590 (US!). Illustr.: Daniel y Stiles, *Brenesia* 15(Supl.) 66, f. 8, 148, t. 48 (1979).

Slender herbs with *Zingiber*-like habit, 1-3 m. Leaves 10-16 per shoot, green; petioles 3-4 mm; longest blades 26-36 × 6.5-8 cm. Inflorescences to 16 cm, erect; cincinnal bracts 4-8 per inflorescence, distichous; middle bracts 6.5-7 × 1.7-2 cm, the outer surface

orange, sometimes with red distally, glabrous. Flowers 7-8 per cincinnus, resupinate, exceptionally conspicuous; perianth c. 7 cm × 5 mm, entirely yellow or white becoming orange at the base, glabrous, uniformly curved or slightly parabolic with flared sepal margins. Drupes 11-13 × 6-9 mm. *Wet forest understory and margins*. N (Ortiz 1181, MO); CR (Herrera 1752, MO); P (Hammel et al. 16223, MO). 0-900(-1200) m. (Mesoamerica, Colombia, Ecuador.)

32. *Heliconia lophocarpa* G.S. Daniels et F.G. Stiles, *Brenesia* 15(Supl.): 31 (1979). Holotype: Costa Rica, *Daniels y Stiles 37* (F!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 84, t. 17 (1979).

Herbs with *Musa*-like habit, 2-4 m. Leaves 4-5 per shoot green; petioles villous; blades with prominently raised lateral veins, sometimes suffused with maroon below; longest blades 1.35-1.70 m × 33-40 cm. Inflorescences to 30 cm, erect; cincinnal bracts 13-17 per inflorescence, distichous; middle bracts 7-8.5 × 4-6 cm, the margins becoming necrotic, the outer surface rose-red, tomentose. Flowers 8-10 per cincinnus, resupinate; perianth c. 3.5 cm × 8 mm, pale green basally, becoming white distally, hirsute, uniformly curved. Drupes 9-12 mm. *Rare in understory of wet forests, often along small streams, on Caribbean slopes*. CR (Herrera et al. 2303 (MO); P (Antonio 2156, MO). 200-1600 m. (Mexico [Oaxaca], Mesoamerica.)

33. *Heliconia lutea* W.J. Kress, *Selbyana* 9: 163 (1986). Holotype: Panama, *Kress y Hammel 83-1561* (SEL!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 84, t. 17 (1979).

Herbs with *Musa*-like habit, 1-3 m. Leaves 3-6 per shoot, green, the midrib red below; longest blades 0.7-1.2 m × 18-26 cm. Inflorescences to 35 cm, erect; cincinnal bracts 7-9 per inflorescence, spirally arranged; middle bracts 13-15 × 6-8 cm, the outer surface yellow to green along the keel, glabrous. Flowers 10-15 per cincinnus; perianth 6.6-7 cm × 6-8 mm, white basally, becoming green at the apex, glabrous, at anthesis uniformly curved 40-50° to slightly parabolic. Drupes unknown. *In forest light gaps and margins*. P (McPherson 14041, MO). 100-700 m. (Endemic.)

34. *Heliconia maculata* W.J. Kress, *J. Arnold Arbor.* 62: 244 (1981). Holotype: Panama, *Kress y Knapp 80-1240* (DUKE!). Illustr.: Kress, *J. Arnold Arbor.* 65: 465, f. 9, t. 1C-D (1984).

Herbs with *Musa*-like habit, 2-2.5 m; leafy shoots with the pseudostem pale greenish-gray with distinctive brown spots throughout. Leaves 6 per shoot; blades green, all tending to lie in a single plane; longest blades 1.1-1.3 m \times 24-26 cm, widest near the apex. Inflorescences to 51 cm, pendent; cincinnal bracts 7-8 per inflorescence, spirally arranged; middle bracts 14-17 \times 4-4.5 cm, the outer surface red basally, to yellow or green distally, glabrous. Flowers 15-20 per cincinnus; perianth c. 5 \times 1 cm, yellow basally, becoming greenish distally, glabrous to slightly puberulous, at anthesis uniformly curved 30-50°. Drupes c. 8 \times 9 mm, glabrous to puberulous. *Along streams and adjacent understory of primary forests. P (LaFrankie 85-47, MO). 0-1000 m. (Endemic.)*

35. *Heliconia magnifica* W.J. Kress, *J. Arnold Arbor.* 62: 246 (1981). Holotype: Panama, *Kress et al. 77-850* (DUKE!). Illustr.: Kress, *J. Arnold Arbor.* 65: 511, f. 14, t. 8B, E (1984).

Herbs with *Musa*-like habit, 4-6 m. Leaves 3-4 per shoot, green, with maroon margins below; longest blades 1.1-1.9 m \times 36-55 cm. Inflorescences to 94 cm, pendent; peduncles dark red to burgundy, wooly with golden hairs; cincinnal bracts up to 35 per inflorescence, spirally arranged; middle bracts 8-10 \times 7.5-9.5 cm, the outer surface red to burgundy, velutinous to villous with golden hairs. Flowers 10-15 per cincinnus; perianth 5.5-6 \times 1-1.2 cm, white basally, becoming yellow towards the apex, glabrous basally, becoming tomentose with golden hairs towards the apex, at anthesis curved 80-90° and parabolic. Drupes 12-13 \times 8-10 mm. *Understory of cloud forests. P (de Nevers et al. 8036, MO). 200-1200 m. (Endemic.)*

36. *Heliconia marginata* (Griggs) Pittier, *Man. Pl. Usual. Venez.* 299 (1926). *Bihai marginata* Griggs, *Bull. Torrey Bot. Club* 42: 323 (1915). Holotype: Panama, *Williams 696* (NY!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 126 (1979).

Heliconia marginata (Griggs) Pittier fo. *lutea* Aristeg.

Plant with *Musa*- to *Canna*-like habit, 2-4 m. Leaves 4-6 per shoot, held stiffly erect, green; longest blades 60-120 × 17-25 cm. Inflorescences to 40 cm, pendent; cincinnal bracts 9-20 per inflorescence, distichous to spirally arranged; middle bracts 7-9.5 × 4.5-8 cm, the outer surface red with yellow along the margins or entirely yellow, glabrous to puberulous. Flowers 7-15 per cincinnus; perianth 4.9-5.5 cm × 8-11 mm, yellow, glabrous to puberulous along the margins, uniformly curved. Drupes 1.6-2.1 × 1-1.3 cm. *Open swampy areas, one of the few truly aquatic species in the genus.* CR (Kress y Roesel 89-2727, MO); P (Duke 4817A, MO). 0-200(-400) m. (Mesoamerica, Colombia, Venezuela, Guayanas, Ecuador, Perú, Bolivia, Brasil, Trinidad.)

37. *Heliconia mariae* Hook. f., *J. Proc. Linn. Soc., Bot.* 7: 69 (1864). Holotype: Colombia, *Anthoine s.n.* (K!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 142, t. 45, 146, t. 47, 148, t. 48 (1979).

Bihai elegans (Petersen) Kuntze, *B. mariae* (Hook. f.) Kuntze, *B. punicea* Griggs, *Heliconia elegans* Petersen, *H. punicea* (Griggs) L.B. Sm.

Robust herbs with *Musa*-like habit, 4-7.5 m. Leaves 4-6 per shoot, green; longest blades 1.7-2.5 m × 45-65 cm. Inflorescences to 65 cm, pendent, long lived; cincinnal bracts 40-65 per inflorescence, distichous, imbricate; middle bracts 4.5-6.5 × 7.5-9 cm, the outer surface pink to red (becoming yellow with age), glabrous to scurfy. Flowers 20-30 per cincinnus; perianth 3-4 cm × 5-6 mm, basally white and glabrous, apically pink to red and puberulous, parabolic. Drupes 1-1.2 × 7-9 mm. *Common and conspicuous in secondary growth and wet forest margins.* B (Proctor 35858, MO); G (Harmon 2551, MO); H (Nelson y Cruz 9267, MO); N (Robleto 1777, MO); CR (Kress y Roesel 89-2848, MO); P (de Nevers et al. 6883, MO). 0-900 m. (Mesoamerica, Colombia, Venezuela.)

38. *Heliconia mathiasiae* G.S. Daniels et F.G. Stiles, *Brenesia* 15(Supl.): 33 (1979). Holotype: Costa Rica, *Daniels y Stiles 120* (F!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 52, t. 1, 56, t. 3, 148, t. 48 (1979).

Heliconia vaginalis Benth. subsp. *mathiasiae* (G.S. Daniels et F.G. Stiles) L. Andersson.

Herbs with *Zingiber*-like habit, 3-4.5 m. Leaves 7-10 per shoot, green; longest blades 70-80 × 15-20 cm. Inflorescences to 20 cm, erect; cincinnal bracts 5-10 per inflorescence, distichous; middle bracts 9-11 × 4-4.5 cm, the outer surface red-orange, glabrous. Flowers 8-15 per cincinnus, resupinate; perianth 5-5.5 cm × 9-10 mm, red-orange basally, becoming pure yellow distally, glabrous, slightly uniformly curved. Drupes c. 1 × 1 cm. *Understory and margins of wet forests on Pacific slopes and more commonly on Caribbean slopes.* G (Martínez S. et al. 23703, MO); N (Ortiz 1009, MO); CR (Haber y Zuchowski 9438, MO). 0-1400 m. (Endemic.)

39. *Heliconia metallica* Planch. et Linden ex Hook., *Bot. Mag.* 88: t. 5315 (1862). Lectotype (designated by Andersson, 1985): Hooker, *Bot. Mag.* 88: t. 5315 (1862). Illustr.: Berry y Kress, *Heliconia* 183 (1991).

Bihai metallica (Planch. et Linden ex Hook.) Kuntze, *Heliconia nana* G. Rodr., *H. nitens* hort., *H. osaensis* Cufod. var. *rubescens* Stiles, *H. vinosa* Ender.

Herbs with *Canna*-like habit, 1.2-3 m. Leaves 6 per shoot; blades dark velvety lustrous green with a pale midrib above, green or maroon below; longest blades 57-125 × 17-30 cm. Inflorescences to 25 cm, erect, sometimes found on dimorphic nearly leafless shoots; cincinnal bracts 3-8 per inflorescence, distichous; middle bracts 6-7.5 × 2.5-3 cm, the outer surface green or red to pink or both, glabrous or with an arachnoid indument. Flowers 5-10 per cincinnus, resupinate; perianth 4.5-5.2 cm × 9-10 mm, rose-red with a white apex, glabrous, uniformly curved. Drupes 8-9 × 8-10 mm. *In light gaps and margins of seasonally dry evergreen forests.* H (Blackmore y Heath 2139, MO); ES (Berendsohn 382, MO); N (Sandino 2351, MO); CR (Hammel et al. 20437, MO); P (Sullivan 704, MO). 0-1200 m. (Mesoamerica, Colombia, Venezuela, Ecuador, Peru, Bolivia, Brazil.)

40. *Heliconia monteverdensis* G.S. Daniels et F.G. Stiles, *Brenesia* 15(Supl.): 34 (1979). Holotype: Costa Rica, Daniels y Stiles 123 (F!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 104, t. 27, 148, to. 48 (1979).

Heliconia monteverdensis G.S. Daniels et F.G. Stiles var. *vulcanicola* (F.G. Stiles) W.J. Kress, *H. vulcanicola* F.G. Stiles..

Herbs with *Musa*-like habit, 1.25-2.5 m. Leaves 4-5 per shoot, green; longest blades 35-83 × 15-28 cm. Inflorescences to 15 cm, erect; cincinnal bracts 5-10 per inflorescence, spirally arranged; middle bracts 7-12 × 4-5 cm, the outer surface red or yellow, glabrous. Flowers 10-20 per cincinnus; perianth 2.2-3 cm × 5-6 mm, pale yellow to yellow-green, glabrous, uniformly curved. Drupes 8-9 × 7-8 mm. *Uncommon in understory and margins of cloud forests. CR (Haber y Bello 2827, MO). 1300-1800 m. (Endemic.)*

41. *Heliconia mooreana* R.R. Sm. in McVaugh, *Fl. Novo-Galiciana* 15: 83 (1989). Holotype: Mexico, Guerrero, *Moore 6204* (GH!). Illustr.: Smith, *Fl. Novo-Galiciana* 15: 85, t. 11 (1989).

Herbs with *Musa*-like habit, 2-5 m. Leaves 6-8 per shoot; longest blades 100-200 × 30-50 cm, green, the lower surface slightly glaucous, Inflorescences to 60 cm, arching to pendent; cincinnal bracts 4-9 per inflorescence, distichous; middle bracts 5-7 × 1.3-1.8 cm, the outer surface red, essentially glabrous. Flowers 10-20 per cincinnus; perianth 2.5-3 cm × c. 1.5 mm, yellow, glabrous, uniformly curved. Drupes 1.3-1.5 × 1 cm. *On slopes in secondary growth and along forest margins. 50-1000 m. (Mexico [Guerrero, Nayarit].)*

42. *Heliconia necrobracteata* W.J. Kress, *J. Arnold Arbor.* 62: 248 (1981). Holotype: Panama, *Kress et al. 77-842* (DUKE!). Illustr.: Kress, *J. Arnold Arbor.* 65: 465, f. 8, t. 1A-D (1984).

Herbs with *Musa*-like habit, 4-4.5 m; pseudostems dull grayish-green with brown spots. Leaves 3-5 per shoot; blades green, the base attenuate along the petiole; longest blades 1.9-2.4 m × 25-35 cm, widest towards the apex. Inflorescences to 55 cm, pendent; cincinnal bracts 10-22 per inflorescence, spirally arranged; middle bracts 12- 17 × 7-8 cm, the outer surface red, glabrous to puberulous, all becoming necrotic soon after anthesis. Flowers 8-13 per cincinnus; perianth 4.5-5 cm × 6-9 mm, yellow to deep yellow, glabrous to puberulous along the margins, curved 50-80° and slightly sigmoid. Drupes unknown. *Steep forested slopes. P (Kress et al. 80-1158, MO). 600-1000 m. (Endemic.)*

43. *Heliconia nigripraefixa* Dodson et A.H. Gentry, *Selbyana* 2: 296 (1978).

Holotype: Ecuador, *Dodson 5188* (SEL!). Illustr.: Dodson y Gentry, *Selbyana* 2: 295, t. 2D (1978).

Herbs with *Musa*-like habit, 5-7 m. Leaves usually 4 per shoot, green; longest blades 2.4-3.6 m × 38-50 cm. Inflorescences to 1 m, pendent; cincinnal bracts 28-33 per inflorescence, subdistichous; middle bracts 7-9 × 9-13 cm, the apex necrotic, black, the outer surface red to red-orange, glabrous to sparsely puberulous. Flowers 10-20 per cincinnus; perianth pale yellow or white basally, to pale yellow distally, glabrous, curved 30-50° and slightly sigmoid. Drupes 1.4-1.6 × 1.1-1.2 cm, blue, glabrous; seeds 8-12 × 5-6 mm. *Wet, often swampy areas in light gaps and open growth.* P (*Croat 27140*, MO). 600-1000 m. (Mesoamerica, Colombia, Ecuador.)

44. *Heliconia nutans* Woodson, *Ann. Missouri Bot. Gard.* 26: 276 (1939).

Holotype: Panama, *Woodson et al. 968* (MO!). Illustr.: Kress, *J. Arnold. Arbor.* 65: 477, f. 10, t. 3 E-F (1984).

Heliconia allenii Standl. et L.O. Williams.

Herbs with *Musa*-like habit, 0.5-2 m. Leaves 3 to 4 per shoot, green; longest blades 0.6-1 m × 20-30 cm. Inflorescences to 45 cm, pendent; cincinnal bracts 5-13 per inflorescence, usually spirally arranged; middle bracts 8-12 × 4-6 cm, the outer surface red to red-orange, glabrous to sparsely pubescent. Flowers 10-20 per cincinnus; perianth 4-5 cm × 5-9 mm, yellow, glabrous to sparsely pubescent along the sepal edges, uniformly curved. Drupes 1-1.1 × 1-1.1 cm. *Uncommon in the forest understory and along forest margins on Pacific slopes.* CR (*Bittner 1461*, MO); P (*Hammel y Trainer 14962*, MO). 1000-2100 m. (Endemic.)

45. *Heliconia osaensis* Cufod., *Arch. Bot. Sist.* 9: 189 (1933). Neotype: (designated by Daniels y Stiles, 1979): Costa Rica, *Daniels y Stiles 90* (F!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 60, t. 60 (1979).

Herbs with *Canna*-like habit, 1-3 m. Leaves 5-6 per shoot, green; longest blades c. 1.5 m × 25 cm. Inflorescences to 20 cm, erect, sometimes on separate, nearly leafless

shoots; cincinnal bracts 5-12 per inflorescence, distichous; middle bracts 5.8-12 × 2-3 cm, the outer surface orange-red to red, hirsute. Flowers 8-12 per cincinnus, resupinate; perianth orange or red-orange basally, yellow-green or green distally, sparsely hirsute, uniformly curved. Drupes 7-8 × 7-8 mm. *Forest edges and open secondary growth, usually in seasonally dry regions.* CR (*Liesner et al. 15121*, MO); P (*Croat 22109*, MO). 0-300 m. (Mesoamerica, Colombia, Venezuela.)

46. *Heliconia platystachys* Baker, *Ann. Bot. (Oxford)* 7: 194 (1893). Lectotype (designated by Daniels, 1978): Colombia, *Purdie s.n.* (K!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 124, t 37 (1979).

Bihai platystachys (Baker) Griggs, *Heliconia catheta* R.R. Sm.

Herbs with *Musa*-like habit, 3-4 m. Leaves 3-6 per shoot, green; petioles glaucous; blades lacerating into thin lateral segments. the lower surface glaucous; longest blades 1-1.7 m × 32-40 cm. Inflorescences to 80 cm, pendent; cincinnal bracts 10-20 per inflorescence, spirally arranged; middle bracts 11-16 × 7.5-11 cm, the outer surface puberulous and red basally, becoming yellow green along the margins and apex. Flowers 10-15 per cincinnus; perianth yellow to yellow-green, glabrous to minutely puberulous, uniformly curved to subparabolic. Drupes 1.5-1.8 × 1.4-1.5 cm. *Undisturbed moist forests and open secondary growth.* CR (*Cooper-Smith y Kress 76-633*, CR); P (*Grayum y Evans 9872*, MO). 0-600 m. (Mesoamerica, Colombia, Venezuela.)

47. *Heliconia pogonantha* Cufod., *Arch. Bot. Sist.* 9: 191 (1933). Neotype (designated by Daniels y Stiles, 1975): Costa Rica, *Daniels y Stiles 14* (F!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 134, t. 42 (1979).

Plants with *Musa*-like habit, 4-7.5 m. Leaves 3-6 per shoot, green; longest blades 1.2-3.3 m × 40-65 cm. Inflorescences to 1.6 m, pendent; cincinnal bracts 20-55 per inflorescence, usually spirally arranged; middle bracts 8-12.5 × 9-16 cm, the outer surface red (sometimes yellow near the rachis), glabrous to velutinous. Flowers 10-30 per cincinnus; perianth yellow, glabrous basally, becoming velutinous with golden hairs

toward the apex, sigmoid. Drupes 1.6-2 × 1.1-1.3 cm. *Old secondary growth and wet forest margins*. 0-900 m. N-P. (Mesoamerica, Colombia.)

47a. Var. **holerythra** G.S. Daniels et F.G. Stiles, *Brenesia* 15(Supl.): 39 (1979).

Holotype: Costa Rica, *Baker y Burger 80* (F!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 132, t. 41 (1979).

Plants greater than 5 m. Lower surface of the leaf blades green. Inflorescences entirely red; peduncle, rachis and cincinnal bracts puberulous. CR (*Grayum et al. 4424*, MO); P (*Antonio 4822*, MO). 50-600 m. (Mesoamerica, Colombia.)

47b. Var. **pogonantha**. Illustr.: Berry y Kress, *Heliconia* 237 (1991).

Plants greater than 5 m. Lower surface of the leaf blades green. Inflorescences red and yellow; peduncle, rachis and cincinnal bracts essentially glabrous. N (*Stevens 4949*, MO); CR (*Liesner et al. 15064*, MO). 50-700 m. (Endemic.)

47c. Var. **pubescens** G.S. Daniels et F.G. Stiles, *Brenesia* 15(Supl.): 37 (1979).

Holotype: Costa Rica, *Daniels y Stiles 40* (F!). Illustr.: ???

Plants greater than 5 m. Lower surface of the leaf blades green. Inflorescences red and yellow; peduncle, rachis and cincinnal bracts velutinous to woolly. CR (*Liesner 14417*, MO). 200-900 m. (Endemic.)

47d. Var. **veraguasensis** W.J. Kress, *J. Arnold Arbor.* 62: 256 (1981). Holotype:

Panama, *Kress et al. 77-825* (DUKE!). Illustr.: Kress, *J. Arnold Arbor.* 65: 531, t. 7A, C (1984).

Plants less than 5 m. Lower surface of the leaf blades maroon tinted. Inflorescences red and yellow; peduncle, rachis and cincinnal bracts essentially glabrous. P (*Croat y Folsom 33846*, MO). 400-900 m. (Endemic.)

48. *Heliconia ramonensis* G.S. Daniels et F.G. Stiles, *Brenesia* 15(Supl.): 39 (1979). Holotype: Costa Rica, *Daniels et al. 111* (F!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 136, t. 43, 138, t. 439 (1979).

Herbs with *Musa*-like habit, 4-6 m. Leaves 3-5 per shoot, green, the lower surface sometimes maroon; longest blades 1.1-2 m × 30-60 cm. Inflorescences to 90 cm, pendent; cincinnal bracts 20-40 per inflorescence, distichous to subspirally arranged; middle bracts 7-12 × 7-10 cm, the outer surface pink to rose-red, glabrous to woolly with rusty orange hairs. Flowers 10-30 per cincinnus; perianth white to light pink, glabrous basally, becoming velutinous with bright yellow or rusty orange hairs apically, sigmoid. Drupes 13-15 × 8-10 mm. *Localized on Caribbean slopes along the margins and slopes of moist forests and secondary growth.* 600-1300 m. CR-P. (Endemic.)

48a. Var. *glabra* W.J. Kress, *J. Arnold Arbor.* 65: 505 (1984). Holotype: Panama, *Kress y Hammel 83-1589* (DUKE!). Illustr.: ??

Peduncle, rachis and cincinnal bracts essentially glabrous. P (*Kress y Hammel 83-1589*, MO). c. 800 m. (Endemic.)

48b. Var. *lanuginosa* W.J. Kress, *J. Arnold Arbor.* 65: 506 (1984). Holotype: Panama, *Kress y Hammel 83-1602* (DUKE!). Illustr.: Kress, *J. Arnold Arbor.* 65: 531, t. 7B, D (1984).

Peduncle, rachis and cincinnal bracts densely woolly. P (*Kress y Hammel 83-1602*, MO). 1200-1300 m. (Endemic.)

48c. Var. *ramonensis*. Illustr.: Berry y Kress, *Heliconia* 241 (1991).

Peduncle and rachis woolly; cincinnal bracts glabrous to villous and red. CR (*Daniels et al. 111* (MO)). 800-1000 m. (Endemic.)

48d. Var. *xanthotricha* W.J. Kress, *J. Arnold Arbor.* 62: 258 (1981). Holotype: Panama, *Kress et al. 77-840* (DUKE!). Illustr.: ????

Peduncle and rachis woolly; cincinnal bracts glabrous to villous and pink; hairs on

the perianth bright yellow. P (*Grayum y Evans 9889* (MO). 800-1000 m. (Endemic.)

49. *Heliconia reticulata* (Griggs) Winkl., *Nat. Pflanzenfam.* (ed. 2) 15a: 536 (1930). *Bihai reticulata* Griggs, *Bull. Torrey Bot. Club* 31: 446 (1904). Holotype: Costa Rica, *Cook y Collins 149* (US!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 88, t. 19 (1979).

Heliconia marmoliana Dodson et A.H. Gentry.

Herbs with *Musa*-like habit, 1.3-1.75 m. Leaves 4 per shoot, green, coriaceous, the lower surface sometimes maroon with a conspicuous reticulate cellular pattern; longest blades 77-105 × 31-40 cm. Inflorescences to 40 cm, erect, sometimes on a separate, nearly leafless shoot; middle bracts 7-9 × 8-13 cm, the outer surface pink to dull red, glabrous to sparsely puberulous, prematurely necrotic and decomposing before the fruits mature. Flowers 6-10 per cincinnus, resupinate; perianth constricted 1.5 cm above the ovary, white to pale green distally, especially on the petals, glabrous to sparsely hirsute on the fused sepals, parabolic to sigmoid. Drupes 1.3-1.4 × 1.5-2 cm, red becoming blue. *Local in the understory of middle elevation cloud and rain forests.* CR (*Haber 9216*, MO); P (*Croat y Grayum 60419*, MO). 400-1100 m. (Mesoamerica, Colombia, Ecuador.)

50. *Heliconia rodriguezii* F.G. Stiles, *Brenesia* 19-20: 222 (1982). Holotype: Costa Rica, *Stiles 80-27* (USJ!). Illustr.: Stiles, *Brenesia* 19-20: 229, t. 1 (1982).

Herbs with *Musa*-like habit, 75-150 cm. Leaves 3-4 per shoot, green; longest blades 50-80 × 15-18 cm. Inflorescences to 15 cm, erect; cincinnal bracts 5-11 per inflorescence, distichous, imbricate; middle bracts 6-8 × 6-7 cm, the outer surface red to red-orange, glabrous. Flowers 4-8 per cincinnus; semiresupinate; perianth c. 5 cm × 4-5 mm, bright yellow, glabrous, uniformly curved. Drupes c. 1 × 1 cm. *Rare in the understory of forested slopes and ravines on Caribbean slopes.* CR (*Maas et al. 7809* (INB). 800-1800 m. (Costa Rica.)

51. *Heliconia sarapiquensis* G.S. Daniels et F.G. Stiles, *Brenesia* 15(Supl.): 41 (1979). Holotype: Costa Rica, *Daniels y Stiles 117* (F!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 102, t. 26 (1979).

Herbs with *Musa*-like habit, 2-3.5 m. Leaves 5-6 per shoot, green; longest blades 1.1-1.2 m × 30-40 cm. Inflorescences to 55 cm, erect; cincinnal bracts 8-14 per inflorescence, spirally arranged; middle bracts 15-21 × 7-8 cm, the outer surface red or rarely yellow, glabrous. Flowers 13-18 per cincinnus; perianth 4-4.5 cm × 6-7 mm, pale yellow basally, becoming deep yellow distally, glabrous to sparsely hirsute along the sepal margins, uniformly curved and gibbous on the ventral side towards the base. Drupes c. 9 × 8 mm. *Light gaps, often in swampy areas, in wet forests and old secondary growth. CR (Vargas 174, INB); P (Sullivan 492, MO). 50-500(-900) m. (Endemic.)*

52. *Heliconia schiedeana* Klotzsch, *Linnaea* 20: 463 (1847). Neotype (designated by Andersson, 1985): Mexico, Veracruz, *Schiede 1031* (F, photo of B holotype). Illustr.: Berry y Kress, *Heliconia* 200 (1991).

Bihai geniculata Griggs, *B. schiedeana* (Klotzsch) Kuntze, *Heliconia geniculata* (Griggs) L.B. Sm.

Herbs with *Musa*-like habit, 1.5-3 m. Leaves 3-4 per shoot; longest blades c. 150 × 27 cm, green. Inflorescences to 35 cm, erect; cincinnal bracts 5-14 per inflorescence, spirally arranged; middle bracts 8-16 × 0.7-1.3 cm, the outer surface red, occasionally greenish or yellowish, hirsute, especially along the keel. Flowers 10-15 per cincinnus; perianth 3-3.8 × c. 1 cm, yellow with the free sepal and lateral petals green distally, glabrous to sparsely hirsute, sharply bent near base to 80-90° and partially twisted to protrude at an oblique angle from the bract. Drupes 1-1.2 × c. 0.95 cm. *Forested habitats, including cloud forests. B (Sutton et al. 9, MO). 400-1700 m. (Mexico [Hidalgo y San Luis Potosí a Veracruz], Mesoamerica.)*

53. *Heliconia secunda* R.R. Sm., *Phytologia* 30: 214 (1975). Holotype: Costa Rica, *Smith 2206* (FLAS!). Illustr.: Berry y Kress, *Heliconia* 251 (1991).

Herbs with *Musa*-like habit, 2-3 m. Leaves 2-5 per shoot, green; longest blades 0.8-1.2 m × 20-40 cm. Inflorescences to 50 cm, nodding; rachis contorted; cincinnal bracts 8-12 per inflorescence, subdistichous and arranged on one side of the inflorescence by twisting of the rachis, or spirally arranged; middle bracts 10-14 × 5.3-8 cm, the outer surface red, glabrous to slightly scurfy. Flowers 10-25 per cincinnus; perianth 5.5-6 cm × 8-10 mm, all yellow or white basally to green distally and glabrous to puberulous along the sepal margins, uniformly curved. Drupes 1.4-1 cm. *Primary and old secondary growth in cloud forests on Caribbean slopes.* N-CR. 200-1800 m. (Endemic.)

53a. Var. **secunda**. Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 114, t. 32, 148, t. 48 (1979).

Lower surface of leaf blades green; perianth yellow; ovary pale green. N (*Grijalva* 937, MO). 1000-1800 m. (Endemic.)

53b. Var. **viridiflora** G.S. Daniels et F.G. Stiles, *Brenesia* 15(Supl.): 42 (1979).
Holotype: Costa Rica, *Stiles s.n.* (USJ-16471!). Illustr.: ??

Heliconia viridiflora (G.S. Daniels et F.G. Stiles) F.G. Stiles.

Lower surface of leaf blades usually maroon; perianth green; ovary yellow to green. N (*Stevens 4881*, MO); CR (*Herrera 1072*, CR). 200-500 m. (Endemic.)

54. Heliconia spissa Griggs, *Bull. Torrey Bot. Club* 30: 652 (1903). Holotype: Guatemala, *Cook y Griggs 359* (US!). Illustr.: Berrry y Kress, *Heliconia* 201-202 (1991).

Bihai spissa (Griggs) Griggs, *Heliconia schiedeana* var. *spissa* (Griggs) R.R. Sm.

Herbs with *Musa*-like habit, 1-3 m. Leaves 4-5 per shoot; longest blades c. 120 × 32 cm, green. Inflorescences to 15 cm, erect; cincinnal bracts 7-23 per inflorescence, spirally arranged; middle bracts 5.4-12 × 0.6-1 cm, the outer surface yellow or greenish with a red base, to red with a yellow or greenish tip, densely hirsute with long thick-walled hairs. Flowers 10-15 per cincinnus; perianth 2.7-3.4 × c. 1 cm, yellow or yellowish orange, essentially densely lanate with long thick-walled hairs, uniformly straight and partially twisted to protrude at an oblique angle from the bract. Drupes 7-9 × 8.5-11.5 cm. *Open*

habitats in secondary growth and old landslides. Ch (Hammel et al. 15617, MO); B (Arvigo et al. 541, MO); G (Tún Ortíz 2262, MO); H (Evans 1456, MO); N (Moreno y Sandino 7880, MO); P (Hammel 4619 (MO). 1000-1700 m. (Mexico [Oaxaca, Veracruz], Mesoamerica.)

55. *Heliconia stilesii* W.J. Kress, *Brenesia* 19-20: 202 (1982). Holotype: Costa Rica, *Kress y Clarkson 79-1096* (DUKE!). Illustr.: Kress, *J. Arnold Arbor.* 65: 491, f. 11, t. 4B-D (1984).

Herbs with *Musa*-like habit, 5-6 m. Leaves 4-6 per shoot, green, the lower surface with a white waxy coat; longest blades 1.7-2.3 m × 45-55 cm. Inflorescences to 1 m, pendent; cincinnal bracts 20-35 per inflorescence, distichous, often touching one another; middle bracts 8.5-9 × 6-7.5 cm, the outer surface rose-red, puberulous to scurfy. Flowers 10-20 per cincinnus; perianth 5.1-6.2 × c. 1 cm, white to pale yellow basally, deep yellow distally, glabrous to puberulous along the sepal margins, parabolic. Drupes 12-15 × 7-9 cm. *Steep slopes in old secondary growth on Pacific slopes. CR (Induni 86, INB); P (Liesner 85, MO). 0-600 m. (Mesoamerica.)*

56. *Heliconia tacarcunae* L. Andersson, *Opera Bot.* 82: 113 (1985). Holotype: Panama, *Gentry y Mori 13842* (MO!). Illustr.: Andersson, *Opera Bot.* 82: 114, t. 80M, 83A (1985).

Herbs with *Zingiber*-like habit, 1-1.5 m. Leaves 6-7 per shoot; longest blades 24-32 × 7-7.5 cm, green. Inflorescences to 10 cm, erect; cincinnal bracts 7-8 per inflorescence, distichous; middle bracts 8.7-9.2 × 1.6-1.8 cm, the outer surface orange with a green tip, glabrous. Flowers 7-10 per cincinnus; perianth c. 5.7 × 1.5 cm, white, glabrous, slightly parabolic and partially twisted to protrude at an oblique angle from the bract. Drupes c. 0.7 × 0.7 cm. *Rare, margins and understory of montane forests. P (Cuadros et al. 3918, MO). 1000-1400 m. (Endemic.)*

57. *Heliconia talamancana* G.S. Daniels et F.G. Stiles, *Brenesia* 15(Supl.): 42 (1979). Holotype: Costa Rica, *Daniels et al.* 115 (F!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 128, t. 39 (1979).

Herbs with *Musa*-like habit, 4-4.5 m. Leaves 5 per shoot, green; longest blades 2.1-2.5 m × 32-35 cm. Inflorescences to 65 cm, pendent; rachis red; cincinnal bracts 8-13 per inflorescence, spirally arranged; middle bracts 17-20 × 6-7.7 cm, the outer surface green, becoming red at rachis, glabrous. Flowers 15-20 per cincinnus; perianth 5-5.2 × c. 1 cm, white basally to green apically, puberulous, slightly sigmoid. Drupes 1-1.2 × 1.2-1.5 cm. *Local on steep wooded slopes in primary wet forests and old secondary growth on Caribbean slopes.* CR (*Burger y Antonio 11000*, MO); P (*Croat 25928*, MO). 0-1000 m. (Endemic.)

58. *Heliconia thomasiana* W.J. Kress, *Selbyana* 9: 156 (1986). Holotype: Panama, *Kress 80-1251* (SEL!). Illustr.: Kress, *Selbyana* 9: 157, t. 1 (1986).

Herbs with *Musa*-like habit, 1-1.5 m. Leaves 3-5 per shoot, green; longest blades 35-50 × 12-14 cm. Inflorescences to 20 cm, erect; cincinnal bracts 4-5 per inflorescence, spirally arranged; middle bracts 7-12 × 4-5 cm, the outer surface red basally to yellow distally, glabrous. Flowers 5-15 per cincinnus; perianth 7-7.5 cm × 6-7 mm, white basally to yellow or yellow green distally, glabrous, uniformly curved 35- 40° or slightly sigmoid. Drupes unknown. *Understory of wet forests in light gaps.* P (*Miller y Miller 982*, MO). 700-1300 m. (Endemic.)

59. *Heliconia tortuosa* Griggs, *Bull. Torrey Bot. Club* 30: 650 (1903). Holotype: Guatemala, *Cook y Griggs 17* (US!). Illustr.: Daniles y Stiles, *Brenesia* 15(Supl.): 106, t. 28 1979).

Bihai tortuosa (Griggs) Griggs.

Herbs with *Musa*-like habit, 2-3.5 m. Leaves 3-5 per shoot, green; longest blades 60-100 × 17-34 cm. Inflorescences to 45 cm, erect; cincinnal bracts 6-12 per inflorescence, spirally arranged; middle bracts 10-15 × 5-6.5 cm, the apex sometimes circinnate at the tip, the outer surface red (rarely yellow or yellow green), glabrous to sparsely arachnoid.

Flowers 7-15 per cincinnus; perianth 5.7-6.8 cm × 7-8 mm, pale yellow basally to deep yellow distally, glabrous with the sepal margins sparsely puberulous. Drupes 1.3-1.6 × 1.1-1.2 cm. *Widespread in middle elevation forest understory, margins and secondary growth on Atlantic and Pacific slopes.* G (Tenorio L. et al. 14527, MO); H (Liesner 26655, MO); ES (Linares 2498, MO); N (Gentry et al. 44055 (MO); CR (Haber y Zuchowski 9237, MO); P (Croat 66257, MO). 400-1800 m. (Mexico [Oaxaca], Mesoamerica.)

60. *Heliconia trichocarpa* G.S. Daniels et F.G. Stiles, *Brenesia* 15(Supl.): 44 (1979). Holotype: Costa Rica, *Daniels et al. 112* (F!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 116, t. 33, 120, t. 35, 148, t. 48 (1979).

Heliconia trichocarpa var. *caducispatha* G.S. Daniels et F.G. Stiles.

Herbs with *Musa*-like habit, 2-4 m. Leaves 4-6 per shoot, all tending to lie in a horizontal plane, green; longest blades 85-175 × 17-30 cm. Inflorescences to 60 cm, pendent; cincinnal bracts 6-10 per inflorescence, spirally arranged; middle bracts 12-28 × 6-8 cm, the outer surface red to rose-red, rarely with yellow, glabrous to puberulous. Flowers 10-20 per cincinnus; perianth 4.6-5.5 × 1-1.2 cm, yellow, glabrous to puberulous, sigmoid. Drupes tomentose. *Wide range of habitats from primary forests understory, often along streambeds and on steep slopes, to roadside embankments in secondary growth.* CR (Haber 839, MO); P (Herrera 1388, MO). 50-1000 m. (Mesoamerica, Colombia.)

61. *Heliconia umbrophila* G.S. Daniels et F.G. Stiles, *Brenesia* 15(Supl.): 45 (1979). Holotype: Costa Rica, *Daniels y Stiles 118* (F!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 92, t. 21 (1979).

Herbs with *Musa*-like habit, 1.5-2.5 m. Leaves 3-4 per shoot, dark green, the lower blade surface often purple; petioles arachnoid; longest blades 90-100 × 15-20 cm. Inflorescences to 12 cm, erect; cincinnal bracts 4-7 per inflorescence, subdistichous to irregularly twisted; middle bracts 6.5-9.5 × 6-7 cm, the outer surface dull yellow to green along the keel, densely hirsute. Flowers 12-17 per cincinnus; perianth 4.5-5 cm × 9-10 mm, creamy white basally, becoming yellow distally, glabrous to slightly puberulous along the sepal margins, straight to slightly curved. Drupes c. 12 × 8 mm. *Rare, local in wet*

forest understory in foothills and lowlands of Caribbean slopes. CR (Hammel 20239, INB). 40-600 m. (Endemic.)

62. *Heliconia vaginalis* Benth., *Bot. Voy. Sulphur* 171 (1846). Holotype: Colombia, *Hinds s.n.* (K!). Illustr.: Daniels y Stiles, *Brenesia* 15 (Supl.): 54, t. 2-3, 148, t. 48 (1979), as *H. golfodulcensis*.

Heliconia deflexa G.S. Daniels et F.G. Stiles, *H. golfodulcensis* G.S. Daniels et F.G. Stiles.

Slender to coarse herbs with *Zingiber*- to *Canna*-like habit, 2.5-5 m. Leaves 8-10 per shoot, green; longest blades 51- 90 × 12-17 cm. Inflorescences to 21 cm, erect; cincinnal bracts 5-8 per inflorescence, distichous; middle bracts 8-12 × 3 cm, the outer surface red, essentially glabrous. Flowers 8-19 per cincinnus, resupinate; perianth 5.1-6 cm × 8-10 mm, yellow with a green apex, glabrous, uniformly curved. Drupes 8-11 × 8-12 mm. *Along streams, light gaps and forest margins, and often invading secondary growth on Atlantic and Pacific slopes. T (Conrad et al. 2809, MO); B (Vanderveen 599, MO); G (Harmon y Fuentes 5726, MO); H (Liesner 26312, MO); N (Ortiz 2164, MO); CR (Herrera et al. 2034, MO); P (Churchill 5835, MO). 0-1200 m. (Mexico [Oaxaca, Veracruz], Mesoamerica, Colombia, Ecuador.)*

63. *Heliconia wagneriana* Petersen, *Fl. Bras.* 3(3): 13 (1890). Holotype: Panama, *Wagner s.n.* (M!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 78, t. 14, 148, t. 48 (1979).

Bihai elongata (Griggs) Griggs, *B. wagneriana* (Petersen) Kuntze, *Heliconia elongata* Griggs.

Herbs with *Musa*-like habit, 1.75-4 m. Leaves 3-4 per shoot, green; blades undulate; longest blades 95-150 × 24-30 cm. Inflorescences to 45 cm, erect; cincinnal bracts 7-13 per inflorescence, distichous; middle bracts 12-15 × 11-12 cm, the outer surface rose-red to pink with green margins and keel, glabrous. Flowers 15-20 per cincinnus; perianth 5.5-6 cm × 7-8 mm, white basally, dark green distally, essentially glabrous, sometimes sparsely hirsute on the sepals distally, uniformly curved to parabolic. Drupes 10-13 × 6-7 mm. *Common and abundant in open secondary growth in wet lowlands on*

Atlantic and Pacific coasts. B (Holst 4505, MO); G (Harmon y Fuentes 1865, MO); H (Vargas et al. 403, MO); N (Ortiz 1563, MO); CR (Kernan 1068, MO); P (Davidse y Hamilton 23554, MO). 0-700 m. (Mesoamerica, Colombia, Ecuador.)

May also be cultivated as a garden ornamental and commercially for cut-flowers.

64. *Heliconia wilsonii* G.S. Daniels et F.G. Stiles, *Brenesia* 15(Supl.): 46 (1979).

Holotype: Costa Rica, *Daniels y Stiles 91* (F!). Illustr.: Daniels y Stiles, *Brenesia* 15(Supl.): 58, t. 304, 148, t. 48 (1979).

Herbs with *Canna*-like habit, 3-5 m. Leaves 5-6 per shoot, green; petioles absent in terminal leaves and up to 75 cm in basal leaves; longest blades at base of shoots c. 1 m × 20 cm. Inflorescences to 30 cm, erect; cincinnal bracts 5-9 per inflorescence, distichous; middle bracts 7-9 × 2-3 cm, the outer surface red to red-orange, sparsely puberulous. Flowers 8-15 per cincinnus, resupinate; perianth c. 5.5 cm × 9-10 mm, entirely yellow, glabrous, slightly uniformly curved; ovary red. Drupes c. 1 × 1.1 cm. *Gaps and forest margins at middle elevations.* CR (*Grayum 5593*, MO). 500-1400 m. (Endemic.)

65. *Heliconia xanthovillosa* W.J. Kress, *J. Arnold Arbor.* 62: 253 (1981).

Holotype: Panama, *Kress y Knapp 80-1233* (DUKE!). Illustr.: Kress, *J. Arnold Arbor.* 65: 513, f. 15, t. 8C, F (1984).

Heliconia dresslerana Abalo et Antonio.

Herbs with *Musa*-like habit, 3.5-4.5 m. Leaves 4-5 per shoot, green; longest blades 1.9-2.3 m × 49-55 cm. Inflorescences to 86 cm, pendent; cincinnal bracts to 35 per inflorescence, distichous to subspirally arranged; middle bracts 8-10 × 7-8 cm, the outer surface bright yellow to yellow-green, sometimes red distally, wooly with yellow hairs. Flowers 12-20 per cincinnus; perianth 5.1-5.5 cm × 9-11 mm, white basally to yellow distally, velutinous basally to villous with bright yellow hairs distally, curved 85-90° and sigmoid. Drupes 11-12 × 8 mm. *In open and disturbed areas.* P (*de Nevers y González 3676*, MO). 300-500 m. (Endemic.)