

**ANGIOSPERMAE: MONOCOTS (9 August 2005 Revision)**

**AGAVACEAE (1)**

Ref.: Cerón, C. E. 1994. *Hombre y Ambiente* 31: 5-38.

1. *Furcraea* cf. *andina* Trel.

Fields & pastures, 1200-1250 m; plants 10-12 m, fls. greenish-white: 28299, 31000. "Cabuyo blanco"

**ALSTROEMERIACEAE (1) (\* det. M. Neuendorf)**

Refs.: Sodiro, L. 1908. *Sert. Fl. Ecuador*. 2: 43-57. Neuendorf, M. 1977. *Bot. Notiser* 130: 55-60. Harling, G. & M. Neuendorf. 2003. *Fl. Ecuador* 71: 1-108.

1. *Bomarea multiflora* Mirb. ssp. *caldasii* (Kunth) Neuend.

Prim. and upper mont. for. & scrub, 2000-2750 m; perianth orange: 28097, 30153\*; F 1284; H 29544; K 31985; Mantuano 27.

2. *Bomarea pardina* Herb.

Prim. & sec. for., 1300-2250 m; vine hanging from trees, sepals rose-pink, petals white spotted with purple: 28954, 29079, 30472\*, 30495, 31142\*, 31195, 32837, 32939; Holm-Nielsen 24411\*; Nanegal, 1800 m: Jameson 394\*. [This species with spectacularly showy flowers has been placed in a new section by Neuendorf (1977).]

3. *Bomarea patacosensis* Herb.

Sec. for., 1800-2500 m; vine with purplish bracts, perianth yellowish, with purplish spots inside: C 7180 (det. by R. E. Gereau as *Bomarea foliosa* Sodiro); L 13649\*.

**AMARYLLIDACEAE (2)**

Ref.: Meerow, A. W. 1990. *Fl. Ecuador* 41: 1-52.

1. *Eucharis moorei* (Baker) Meerow

Sec. for., 1300 m; gregarious; fls. snowy white, fragrant: 33587.

2. *Eucrosia dodsonii* Meerow & Dehgan

At edge of banana plantation, Hacienda El Carmen, 1250 m; fls. yellow: 29550.

**ARACEAE (8) (\* det. T. Croat)**

Refs.: Sodiro, L. 1903. *Antúrios ecuatorianos*. 1-231. Engler, A. 1905. *Das Pflanzenreich* IV.23B (Heft 21): 1-330. Engler, A., & K. Krause. 1913. *Das Pflanzenreich* IV.23Db (Heft 60): 1-143. Croat, T. B. 1983. *Ann. Missouri Bot. Gard.* 70: 211-420. Croat, T. B. & N. Lambert. 1986. *Aroideana* 9: 3-213.

[Presentation of the taxa of Araceae would have been impossible without the generous assistance of Dr. Thomas Croat (MO). The interpretation of the many names published by Sodiro in *Anthurium* is difficult, and the synonymy given here must be regarded as provisional.]

1. *Anthurium argyrostachyum* Sodiro (incl. *A. pandurifolium* Sodiro)  
Prim. & sec. for., 1100-1750 m; terr. or hemiep., spathe & spadix green: 27152\*, 27338\*, 28795\*, 30409\*; G 73235\*; Asplund 17268\*; Croat 38882, 38902, 38909, 82724; Nanegal Valley; scandent: Sodiro s.n., 3/1900.
2. *Anthurium aristatum* Sodiro  
Sec. for., 1175-2000 m; ep. vine, spathe & spadix green or reddish: 27915\*, 28748\*, 28813\*, 29347\*, 30161\*, 30351\*; C. Espinoza 41; Nanegal: Sodiro s.n., Jan 1901 (type).
3. *Anthurium brachypodum* Sodiro  
Prim. & sec. for., 1600-2000 m; terr., to 1 m, spathe green, spadix whitish: 30035\*, 30140\*.  
  
[*Anthurium carchiense* Croat, at 2175 m: Croat 72885, was found just east of the area.]
4. *Anthurium citrifolium* Sodiro  
Nanegal Valley; scandent: Sodiro s.n., 1901; Nanegal: Sodiro s.n., 7/1903 [*A. citrifolium* var. *verruculosum* Sodiro?] (type).
5. *Anthurium clathratum* Sodiro  
Nanegal (Gualea); terr.: Sodiro s.n., Dec 1900 [known only from the type; status somewhat uncertain].
6. *Anthurium cordiforme* Sodiro  
Prim. for., 1550-1700 m; hemiep.: C 39749; G 69922\*, 73123\*, 73155\*; Nanegal Valley, near Auca: Sodiro s.n., July 1906 (type).
7. *Anthurium corrugatum* Sodiro (incl. *A. dictyophyllum* Sodiro)  
Sec. for., 2100 m; scandent: Smith 1974\*; Nanegal and Gualea: Sodiro s.n. (type of *A. dictyophyllum* Sodiro).
8. *Anthurium cupulispatham* Croat & J. Rodr.  
Sec. for., 1500-1700 m; ep., spathe green, spadix purple: N 9795\*.
9. *Anthurium divaricatum* Sodiro (status somewhat uncertain, held by some to be synonym of *Anthurium truncicolum* Engl.)  
Subtrop. for., Nanegal Valley; scandent: Sodiro s.n., 3/1900; Nanegal: Sodiro s.n., May 1901.
10. *Anthurium dolichostachyum* Sodiro  
Prim. for., 1500-2600 m; terr. or ep., spathe green, spadix white or greenish to yellow: 28203\*, 30207\*; C 31718; F 1031, 1061; G 69910\*; Croat 50240, 50237A, 72887, 72896, 82704; C. Espinoza 21; Hurtado 1427\*; Suin 349\*, 396\*, 404\*. "Puchsi"
11. *Anthurium giganteum* Engl.  
Sec. for., 1200-2600 m; terr., spadix reddish: 27242\*, 27335\*, 27997\*; C 12426\*; G 73148\*, 73159\*; Croat 38888, 72892; C. Espinoza 28 (ep.); Filskov 37129\*; Leimbeck 311\*; Suin 378\*(ep.).

12. *Anthurium gualeanum* Engl.

Nanegal; terr.: Sodiro s.n., 1900. [= *A. cochliodes* Sodiro; said by Sodiro to be the most robust of all the Ecuadorean species, with lvs. to 1.5 x 0.9 m; Nanegal-Gualea: Sodiro s.n., Nov. 1901 (type).]

13. *Anthurium holmnielsenii* Croat

Prim. for., 2200-2250 m; terr., spathe & spadix green: 29417\*.

14. *Anthurium incomptum* Madison,

Between Calacalí & Nanegalito, 1000(?)–2175 m; terr., spathe green, spreading, spadix green, turning purple: Croat 72886, 82734.

15. *Anthurium incurvatum* Engl.

Nanegal; scandent: Sodiro s.n.

16. *Anthurium jimena* Croat

Upper mont. for., Cerro Montecristi, 2500 m; ep., petioles over 1 m, spathe white or pinkish, spadix pink: 30581\*.

17. *Anthurium lacinosum* Sodiro

Nanegal Valley; scandent: Sodiro s.n.

18. *Anthurium lancea* Sodiro

Prim. & sec. for., 1200–2225 m; mostly terr., sometimes ep. or scandent, lvs. to 1.5 m, spathe & spadix green: 27148\*, 27827\*, 28197\*, 29206, 29414\*, 30494\*, 31680, 31706; T 200\*; Cedeño 3\*; S. Espinoza 725\*.

19. *Anthurium latemarginatum* Sodiro

Between Nanegal and Gualea: Sodiro s.n., 12/1900 [known only from the type].

20. *Anthurium longicaudatum* Engl.

Prim. for., 1350–2225 m; terr. & ep., spathe & spadix green to reddish or brown: 27600\*, 29137\*, 29139\*, 29165\*, 29431\*, 30188\*, 32367; C 5898\*; Hurtado 1418\*.

21. *Anthurium margaricarpum* Sodiro

Sec. for., 1200–1600 m; ep., spathe green to brownish, purplish, or reddish, spadix green: 27481\*, 27595\*, 27634, 27652\*, 28119\*, 28127\*, 29121\*, 29307\*, 29634\*, 30294\*, 30313\*, 30404\*, 30508\*, 31757, 32917; Leimbeck 302\*; [Gualea: Sodiro s.n. (type)].

22. *Anthurium microspadix* Schott (incl. *A. lepturum* Sodiro & *A. nanegalense* Sodiro)

Prim. for., 1250–2400 m; terr., scrambling, or ep., spathe & spadix green: 27687\*, 28728\*, 29131\*, 29203\*, 30277\*, 30509\*, 31214\*, 31740, 32411, 32963; F 1390; Cedeño 4\*; Croat 82731; Suin 432\*; [Gualea: Sodiro s.n. (type of *A. nanegalense* Sodiro)]. [*A. gracilescens* Sodiro & *A. stenophyllum* Sodiro, based on Sodiro collections in the Nanegal Valley, are probable synonyms.]

23. *Anthurium mindense* Sodiro

Prim. & sec. to upper mont. for., 1200-2600 m; climbing, spathe mostly green, spadix reddish or purple: 27171\*, 27233\*, 27306\*, 27317\*, 27393, 27647, 28035\*, 28076, 28269, 28763\*, 29418, 29448\*, 30413\*, 30434b\*, 30569\*, 31681, 31897; C 5900\*; L 14039\*; N 8650\*; Cedeño 11\*; Hurtado 1422. "Piquihua"

24. *Anthurium nigrescens* Engl. (incl. *A. malacophyllum* Sodiro)

Prim. & sec. for., 1800-2000 m; ep., scandent, spathe & spadix green: 30158\*, 30180\*, 32426?; Hurtado 1439\*; Suin 354\*.

25. *Anthurium "nonoense"* Croat (ined.)

Sec. for., 1450 m; ep., spadix green, curved: Croat 38900.

[*Anthurium obovatum* Sodiro, type from Gualea: Sodiro s.n., Feb. 1900, may be found near Nanegal.]

26. *Anthurium obtusum* (Engl.) Grayum

Subtrop. for., Nanegal Valley; ep.: Sodiro s.n.

27. *Anthurium ochreatum* Sodiro (incl. *A. crebrinerve* Sodiro)

Prim. & rip. for., 1600-2400 m; terr. or hemiep. vine, spathe pale green, spadix green or yellow: 28230\*, 31058\*, 31073\*, 31252\*; F 1033; G 73198\*; N 8657\*; Z 110; Croat 82730; forests of Nanegal & Gualea: Sodiro s.n., Nov. 1900 (type); Nanegal: Sodiro s.n., Dec. (type of *A. crebrinerve* Sodiro); Suin 415.

28. *Anthurium oreophilum* Sodiro

Sec. for., 1750-2100 m; ep.: 30036\*; Schwertfeger 21132\*.

29. *Anthurium ortegianum* Engl.

Sec. for., 1200-1600 m; terr. & ep., spathe green, spadix reddish or purple: 27487\*, 27654\*, 27797\*, 27798\*. [31603, from 1920 m; an ep. vine with yellow spadix, may not belong here.] [Omitted from CVPE.]

30. *Anthurium ovatifolium* Engl. (incl. *A. elatius* Sodiro, *A. erectum* Sodiro, *A. macrostachyum* Sodiro, *A. miconiifolium* Sodiro, *A. pachyphyllum* Sodiro, *A. quitense* Sodiro, *A. soederstroemii* Sodiro)

Prim. & sec. for., 1200-2400 m; terr. & ep., spathe greenish, spadix brown: 27645\*, 27998\*, 28793\*, 29231, 29429\*, 30049\*, 30160\*, 30426\*, 31900, 32427; Croat 72871, 82720; S. Espinoza 726\*; Suin 419\*, 421\*; Nanegal: Sodiro s.n., 1/1901 (type of *A. elatius*), Sodiro s.n., 6/1906 (type of *A. erectum*), Sodiro s.n., 03/1905 (type of *A. macrostachyum*); Nanegal Valley: Sodiro s.n., 3/1902 (as *A. miconiifolium*); Nanegal Valley near Auca: Sodiro s.n. [53], 12/1900 (type of *A. quitense*); Nanegal: Sodiro s.n. (as *A. soederstroemii*). "Plato quiro"

31. *Anthurium pallatangense* Engl.

Prim. for., 1900-2225 m; terr., spathe & spadix green: 29413\*, 30189\*; Luteyn & Lebrón-Luteyn 6523.

32. *Anthurium patulum* Sodiro  
Nanegal; scandent: Sodiro s.n, 1900.
33. *Anthurium penningtonii* Croat  
Rip. for., 1900-2500 m; terr., spathe greenish-brown, spadix purple: 29457\*, 31588\*; C 32420\*.
34. *Anthurium plurisulcatum* Sodiro  
"Near Pahuma": Sodiro s.n., June 1906 (cited by Valencia et al., 2000: 81; known only from the type).
35. *Anthurium propinquum* Sodiro  
Sec. for., 1000-2000 m; terr., 0.8-1.7 m, spathe yellow-green, fl. spadix cream, fr. spadix brown: 27914\*, 31601\*; Croat 82727; Leimbeck 301, 310\*; Mantuano 17, 18\*.
36. *Anthurium pulverulentum* Sodiro  
Prim. & sec. for., 1400-2550 m; terr. or ep., spathe green, spadix green or brownish: 28928\*, 29415\*, 30068\*, 30303\*, 30380\*; G 69948\*; Croat 50229, 50236, 72890, 82707; C. Espinoza 43\*; Suin 348.
37. *Anthurium resectum* Sodiro  
Nanegal: Sodiro s.n. (cited by Valencia et al., 2000: 81)
38. *Anthurium rigidifolium* Engl. (incl. *A. lunatum* Sodiro)  
Nanegal; scandent: Sodiro s.n.
39. *Anthurium sarmentosum* Engl.  
Sec. for., 1250-1500 m; terr. & ep. vine, spathe green, spadix dark red or purplish: 27034\*, 27646\*, 27900\*, 31568.
40. *Anthurium scandens* (Aubl.) Engl. ssp. *scandens*  
Sec. for., 1300-2000 m; ep. vine, spathe green, spadix greenish to reddish: 27584, 27813\*, 28117\*, 30410\*; Delgado 64; C. Espinoza 52; Hurtado 1438\*; Suin 371\*, 446.
41. *Anthurium striatipes* Sodiro (incl. *A. subtrigonum* Engl.)  
Prim. & sec. to upper mont. for., 1175-2500 m; terr. & ep., petioles c. 1 m long, spathe green, spadix yellow or reddish: 27147\*, 27492\*, 27817\*, 27851\*, 27890\*, 27909\*, 27945\*, 28780\*, 28807\*, 29120\*, 29246\*, 29302\*, 29477\*, 29980\*, 30215\*, 30317\*, 30422\*, 30565\*; C 39720, 39735; G 73217\*; N 8651\*; Harling & Andersson 11584; Hurtado 1421\*; Nanegal: Sodiro s.n.
42. *Anthurium subcoerulescens* Engl.  
Nanegal; scandent: Sodiro 42.
43. *Anthurium tenuifolium* Engl.  
Prim. & sec. for., 1300-2000 m; usually ep., sometimes climbing, spathe mostly green, spadix green or creamy: 27815, 27824, 28324, 29454, 30052\*, 30191\*, 30434a\*; Q 120.

44. *Anthurium treleasei* Sodiro

Valle de Nanegal: Sodiro s.n., July 1907 "Crescit in silvis suband. occid. vulc. Pichincha" (cited by Valencia et al., 2000: 84).

45. *Anthurium tremulum* Sodiro (incl. *A. buglossum* Sodiro, *A. vexillare* Sodiro)

Prim. & sec. for., 1500-2100 m; terr., climbing, spathe green, spadix brownish: 27150\*, 27319\*, 27562\*, 28007\*, 28075\*, 28927\*, 30146\*; Leimbeck 303, 304\*; Nanegal Valley: Sodiro s.n., May 1901 (type), Sodiro s.n., Dec. 1899 & June 1900, Sodiro s.n., July 1899 & June 1900 (syntypes of *A. buglossum*), Sodiro s.n., 4/1900 (syntype of *A. vexillare*).

46. *Anthurium truncicolum* Engl.

Prim. & sec. for., 1200-1750 m; ep. or climbing, spathe green, spadix creamy: 27994\*, 28176\*, 28543\*, 28730\*; Asplund 17273 (det. M. Carlsen); Croat 38910, 61618; Nanegal: Sodiro s.n., Nanegal: Sodiro s.n., 3/1900 (type of *A. platylobum* Sodiro); Nanegal Valley: Sodiro s.n. (type of *A. subdeltoideum* Engl.).

47. *Anthurium umbraculum* Sodiro

Prim. & sec. for., 2175-2550 m; terr., subscandent, lf. blades & petioles each c. 1 m or more, spathe white or green, spadix green: F 1302, 1371; Croat 50228, 72888; Nanegal: Sodiro s.n.; Sparre 16797\*.

48. *Anthurium versicolor* Sodiro (incl. *A. hylaeum* Sodiro)

Prim. & sec. for., 1250-2050 m; climbing, spathe green, spadix green, white to yellow: 27039\*, 27040\*, 27552\*, 27666\*, 27944\*, 31336\*, 32373\*; F 1023, 1032, 1083; Croat 38881, 38908, 50234, 61616, 72984, 82733; Holm-Nielsen 24434\*; Hurtado 1415\*.

49. *Dieffenbachia daguensis* Engl.

Clearings in sec. for., 1200-1950 m; terr., spathe green below, yellowish above, sometimes reddish within, spadix creamy, with slight acrid fragrance: 28301, 28541\*.

50. *Dieffenbachia killipii* Croat

Sec. for., 00° 07' N 78° 38' W, 1200 m; terr.: Leimbeck 306\*.

51. *Monstera adansonii* Schott

Sec. for., 1200-1300 m; scandent: 28162\*, 31343, 32912.

52. *Monstera lechleriana* Schott

Sec. for., 1250-1630 m; ep.: 27321\*, 28962\*; G 69906\*.

53. *Philodendron acuminatissimum* Engl.

Prim. & sec. for., 1200-1750 m; climbing, spathe greenish to reddish or purplish below, whitish above, spadix white: 27559\*, 27948\*, 27999\*, 28751\*, 29282\*, 31551, 31731; V 12280\*; Leimbeck 300.

54. *Philodendron dodsonii* Croat & Grayum  
 Sec. for., 1250-1650 m; ep. or climber, spathe reddish below, white above, spadix white: 27500\*, 28781\*, 30069\*; Croat 38895.
55. *Philodendron "fibrosum"* Sodiro ex Croat (ined.)  
 Prim. & sec. for., 1200-1950 m; hemiep., spathe greenish outside, maroon inside, spadix maroon: 27599\*, 28074\*, 31616\*; G 73146\*; Asplund 17247\*; Croat 82732; Leimbeck 305\*. [Not in CVPE.]
56. *Philodendron gualeanum* Engl.  
 Nanegal & Gualea: Sodiro 13, Apr. 1900.
57. *Philodendron inaequilaterum* Liebm.  
 Roadcut in sec. for., El Carmen to Marianitas, 1200-1250 m; terr/hemiep.: 28148\*; Leimbeck 307\*.
58. *Philodendron musifolium* Engl.  
 Sec. for., 1700 m; ep.: 30372\*; Croat 82736. [Type locality Gualea, east of Nanegal.]
59. *Philodendron nanegalense* Engl.  
 Nanegal Valley; scandent: Sodiro 12f, 12/1901 [Known only from the type].
60. *Philodendron oligospermum* Engl.  
 Prim. & sec. for., 1150-2600 m; climbing vine, mostly ep., spathe white or pink, sometimes green at base, spadix white: 27320\*, 27412\*, 27560\*, 27663\*, 27773\*, 27995\*, 28011\*, 28828\*, 29125\*, 29343\*, 29346\*, 30046\*, 30176, 30405\*, 31929, 32410; C 5899\*; Croat 72891\*; C. Espinoza 32; Schwerdtfeger 21115\*; Nanegal: Sodiro, 1899.
61. *Philodendron rhodoaxis* G. S. Bunting ssp. *lewisii* Croat & Grayum  
 Sec. for., 1250-1400 m; ep.: 30332, 31545 (both det. M. H. Grayum).
62. *Philodendron sodiroanum* Engl.  
 Nanegal: Sodiro 47, Aug. 1874. [Not in CVPE, possibly a synonym of *P. tenue* K. Koch & Augustin.]
63. *Philodendron subhastatum* Engl. & K. Krause  
 Prim. & sec. for., 1150-1750 m; climbing vine, terr. or ep., spathe reddish, spadix white: 27044\*, 27853\*, 27996\*, 28396\*, 28836\*; Leimbeck 309\*; between Nanegal & Gualea: Sodiro 12g.
64. *Philodendron sulcatum* K. Krause  
 Rip. & sec. for., 1250-1725 m; climbing ep. vine, spathe dark green, spadix green and yellow: 27667, 31887 (both det. M. H. Grayum); Croat 72895.
65. *Philodendron validinervium* Engl.  
 Nanegal & Gualea: Sodiro 11 (type).

66. *Philodendron verrucosum* L. Mathieu ex Schott  
Prim. & sec. for., 1300-2000 m; common climber or ep., spathe reddish inside, spadix white: 27177\*, 27748, 27949\*, 31608\*; Z 117; Suin 398\*.
67. *Philodendron* sp. 1  
Sec. for., Cerro Santa Lucia, 1400 m; ep.: 30338. [Possibly a form of *P. dodsonii*.]
68. *Philodendron* sp. 2  
Prim. for., 1900-2300 m; ep., scandent, petioles to 1.3 m, leaf blade 1 m, spathe dark red, spadix creamy, with peppery odor: 29228. [28006 and 28922 may also belong here.]  
  
[*Rhodospatha dammeri* Sodiro, collected at Gualea: Sodiro s.n., 1902 (cited by Valencia et al., 2000: 86), of doubtful status.]
69. *Rhodospatha densinervia* Engl. & K. Krause  
Prim. for., 1550-1800 m; climber: 28198\*.
70. *Rhodospatha statutii* Sodiro  
In "silv. subtrop. vall. Nanegal et Gualea"; Sodiro s.n.
71. *Spathiphyllum grandifolium* Engl.  
Sec. for., 1175 m; terr., spathe & spadix green: 28808\*.
72. *Stenospermation densiovulatum* Engl. (incl. *S. porteri* Sodiro)  
Prim., rip. & sec. for., 1250-2000 m; scandent, frs. green: 28196\*, 31033\*, 31155\*; G 73203\*.
73. *Stenospermation longifolium* Engl.  
Prim. for., 1975-2350 m; terr., spathe green, spadix white: 28712\*, 30203\*; Croat 50235; Nanegal/Gualea: Sodiro s.n., 1900.
74. *Stenospermation longipetiolatum* Engl.  
Sec. for., 1600-1700 m; terr., spathe & spadix whitish: 30433\*, 32953.
75. *Stenospermation mathewsii* Schott var. *stipitatum* Engl.  
Sec. for., El Pahuma, 2000-2500 m: C 32412\* (det. only to species); Nanegal & vicinity, c. 1000-1600 m: Radrigan 17443\*; Sodiro, Apr. 1900 (type).
76. *Stenospermation sparrei* Croat & J. Rodr.  
Upper mont. for., 2350-2700 m; terr., spathe green or brown, spadix white or yellow: 29452\*, 29473\*, 30562\*. [Taxon status uncertain.]
77. *Xanthosoma daguense* Engl.  
Prim. & sec. for., 1500-2100 m; terr., spathe green below, yellowish above, spadix creamy: 30488\*, 31618; Croat 82709. [Not in CVPE.]

78. *Xanthosoma undipes* (K. Koch & C. D. Bouché) K. Koch

Prim. & sec. for., 1000-2000 m; common giant herb to 3 m, lvs. to 2 m, spathe & spadix whitish: 27241\*, 27822\*, 30218\*, 31622; Croat 82721. [Commonly listed as *X. sagittifolium* (L.) Schott.] "Camacho"

**ARECACEAE** (9) (\* det. H. Balslev; \*\* det. B. Bergmann; \*\*\* det. F. Borchsenius)

Refs.: Balslev, H. 1990. AAU Rep. 25: 23-26. Balslev, H., & A. Barfod. 1987. Opera Bot. 92: 17-35. Svenning, J. C. & H. Balslev. 1998. Principes 42: 218-226.

1. *Aiphanes chiribogensis* Borchs. & Balslev

Prim. for., slopes above Río Pichán, 1500-2000 m; trunk 1-3 m, fronds 1 m, infls. erect, purplish: 30169\*\*\*; F 1178\*.

2. *Aiphanes erinacea* (H. Karst.) H. Wendl.

Prim. & sec. for., 1300-1800 m; trunk 2-8 m, infl. axes purplish, fls. white: 27113, 27262\*; C 12415\*; G 69925\*; N 9794\*\*\*.

3. *Bactris setulosa* H. Karst.

Between Nanegalito & Nanegal, and Maquipucuna, 1200-1400 m; multistemmed, to 10 m: Balslev (sight observation). "Chonta fina"

4. *Ceroxylon alpinum* Bonpl. ex DC. ssp. *ecuadorensis* Galeano

Between Nanegalito & Nanegal, and Maquipucuna: Balslev (sight observation). "Ramos", "Palma de cera", "Palma de ramo"

5. *Chamaedorea linearis* (Ruiz & Pav.) Mart.

Sec. for., less commonly in prim. for., 1300-1800 m; trunk 3-10 m, fronds 1.5-2 m, fls. creamy white, frs. orange: 27499\*, 27501\*, 31763, 31896; C 13072\*. "Palmiche", "Chonte verde", "Coco"

6. *Chamaedorea pinnatifrons* (Jacq.) Oerst.

Prim. & sec. for., 1250-2000 m; trunk 2-10 m, frs. orange: 27675\*\*, 28788\*, 29285\*, 30070\*\*\*, 30165, 31606, 31692; C 5950\*, 39722; F 1022, 1060, 1522\*; N 9797\*. "Molinillo"

7. *Geonoma undata* Klotzsch

Prim. & sec. for., 1300-1700 m; fronds 2-2.5 m, infl. axes orange: 27391; Z 88. "Corozo"

8. *Oenocarpus bataua* Mart.

Río Alambi between Nanegalito & Nanegal, 1200 m; over 20 m tall: Svenning & Balslev (sight observation).

9. *Phytelephas aequatorialis* Spruce

Between Nanegalito & Nanegal: Balslev (sight observation). "Tagua"

10. *Prestoea acuminata* (Willd.) H. E. Moore var. *acuminata*  
Prim. & sec. for., 1250-2000 m; trunk 10-15 m, infl. axes brownish, fls. pink, frs. blackish:  
27476\*, 28774\*; F 1078, 1104\*, 1184\*, 1551\*; C 39767; G 69907, 73149\*. "Pambil", "Palmito"

11. *Socratea rostrata* Burret

Between Nanegalito & Nanegal, and Maquipucuna, 1100-1300 m: Balslev (sight observation).

**BROMELIACEAE** (11) (\* det. H. Luther; \*\* det. M. A. Spencer; \*\*\* det. M. Manzanares)

Refs.: Gilmartin, A. J. 1972. The Bromeliaceae of Ecuador (Phaner. Monogr. 4). Luther, H. 1989. *Phytologia* 67: 312-330. Manzanares, J. 1998. *J. Bromeliad Soc.* 48: 108-120. 2001. *Jewels of the Jungle: Bromeliaceae of Ecuador (Part 1 - Bromelioideae)*, 240 pp.

[*Aechmea involucrata* André, near Gaulea: Sodiro 171/2, Oct. 1889.]

1. *Aechmea magdalenae* (André) André ex Baker var. *magdalenae*

Nanegal, near Río Alambi, 1100 m; terr., lvs. to 3.5 m, fls. red: Manzanares 6655.

2. *Ananas comosus* (L.) Merr.

Nanegalito, 1200-1800 m; cult.: C 6854, 13062.

3. *Ananas nanus* (L. B. Sm.) L. B. Sm.

Nanegal, 1000 m; cult.: Manzanares 7128. [Not in CVPE.]

4. *Catopsis sessiliflora* (Ruiz & Pav.) Mez

Sec. for., 1250-1400 m; ep., fls. white: 27398, 27541, 27543.

5. *Greigia sodiroana* Mez.

Nanegal Valley: Sodiro 171/1A, 1902 (type).

6. *Guzmania amplexans* L. B. Sm.

Sec. for., 1600-2000 m; terr. or ep., bracts red, sometimes with greenish tips: 30383\*, 32961; Manzanares 7089 (cf.), 7715.

7. *Guzmania angustifolia* (Baker) Wittm.

Between Calacalí & Los Bancos, 00° 06' N 78° 40' W, 1450 m; terr., bracts red-orange: Manzanares 6520; [34132, at 1300 m, may belong here].

8. *Guzmania bracteosa* (André) André ex Mez

Sec. for., 2100-2600 m; ep., bracts purplish, fls. yellow: Manzanares 3070, 6402.

9. *Guzmania coriostachya* (Griseb.) Mez

Sec. for., km 20, Calacalí-Nanegalito, 2000 m; ep. to 0.5 m, infls. to 0.3 m, bracts brownish, fls. white: Manzanares 5827(?).

10. *Guzmania danielii* L. B. Sm.  
Upper mont. for., 2660 m; ep., bracts red, fls. white: Manzanares 6391.
11. *Guzmania* cf. *devansayana* E. Morren  
Prim. for., 1750 m; ep.: 27767. "Huicundo"
12. *Guzmania fusispica* Mez & Sodiro  
Prim. & sec. for., 1150-2500 m; terr./ep. to 0.3 m, bracts reddish-orange to pinkish, fls. yellow: 31158\*; Filskov 37134\*; Manzanares 5980, 6429, 6436, 7641.
13. *Guzmania gloriosa* (André) André ex Mez  
Prim. & upper mont. for., 2000-2750 m; terr. or ep. to 0.65 m, bracts green with red or orange tips, fls. yellow: 29154\*\*\*, 29501\*\*\*; F 1292; C. Espinoza 22; Manzanares 5909, 6388, 6411.
14. *Guzmania jaramilloi* H. Luther  
Prim. & sec. for., 1200-2000 m; ep. to 2 m, bracts red, fls. yellow: 28340\*, 31057\*; C 5935\*; N 8652\*; T 606\*; S. Espinoza 723\* (also det as *G. melinonis*); Hurtado 1410\*; Manzanares 6419, 6447, 6498, 6521, 7086; Suin 395 (aff.), 463.
15. *Guzmania lehmanniana* (Wittm.) Mez  
Prim. & sec. for., 1200-2600 m; terr. or ep. to 1.4 m, infls. to 0.5 m, bracts reddish-green (tertiary red), fls. white: 31065\*; C. Espinoza 23; S. Espinoza 730\*; Manzanares 6439, 7088; Suin 439.
16. *Guzmania melinonis* Regel  
Prim. & sec. for., 1500-2000 m; ep., bracts red, fls. yellow: 27558, 27695\*\*, 28049; F 1116; S. Espinoza 723\*\*\* (last specimen also det. as *G. jaramilloi*).
17. *Guzmania monostachia* (L.) Rusby ex Mez  
Sec. for., 1200-1250 m; ep., bracts green with red tips, fls. white: 29978\*.
18. *Guzmania multiflora* (André) André ex Mez  
Prim. for., 2600 m; ep. to 0.8 m, infl. reddish, fls. yellow to white: Manzanares 6399.
19. *Guzmania musaica* (Linden & André) Mez var. *concolor* L. B. Sm.  
Sec. for., 1300 m; ep.: 27713\*\*.
20. *Guzmania patula* Mez & Wercklé  
Sec. for., 1000-1700 m; ep. to 0.35 m, bracts yellow-green, fls. whitish to green: 27540, 27542, 27711\*\*, 29272, 31121; Manzanares 6217, 6427, 6437, 6932.
21. *Guzmania rhonhofiana* Harms  
Sec. for., 1300-1325 m; terr., infl. axes red, bracts yellow: 31017\*.

22. *Guzmania roseiflora* Rauh  
Upper mont. & sec. for., 1700-2500 m; terr. to 0.75 m, infl. green, fls. white: Manzanares 6424; (also cited by Valencia et al., 2000: 140).
23. *Guzmania sanguinea* var. *comosa* H. Luther  
Nanegal; cult.(?): Manazares 6948.
24. *Guzmania squarrosa* (Mez & Sodiro) L. B. Sm. & Pittendr.  
Prim. for., 2000-2600 m; ep., infls. red and green, tertiary bracts yellow, filled with mucilage: Manzanares 6403; Suin 399\*.
25. *Guzmania teuscheri* L. B. Sm.  
Prim. for., 1390-1675 m; terr. or ep. to 1.2 m, bracts brownish, filled with mucilage, fls. yellow: 30365\*; Manzanares 6430.
26. *Guzmania variegata* L. B. Sm.  
Prim. for., 1560-2600 m; ep., infls. to 1 m, bracts red with white tips, fls. white: 27112\*\*, 27551\*\*, 29185, 29197, 31677; F 1213, 1292\*\*\*, 1415\*\*\*; C. Espinoza 25; Manzanares 1201, 6412, 6413, 6438; Suin 438, 463; [29494, at 2700-2750 m on Montecristi, may belong here].
27. *Guzmania wittmackii* (André) André ex Mez  
Sec. for., 1250 m; ep., bracts magenta-tipped (secondary bracts white): 31345\*.
28. *Guzmania xanthobracteata* Gilmartin  
Prim. & sec. for., 1300-1900 m; terr. or ep. to 1.2 m, bracts red (sometimes with green tips), secondary bracts & fls. yellow: 27475\*\*, 31064\*, 31117\* [atypical], 31919; N 9799\*; Manzanares 6423, 6441; Till 13029.
29. *Mezobromelia bicolor* L. B. Sm.  
Upper mont. for., 2600-2690 m; terr. or ep. to 0.6 m, bracts red or greenish, fls. white: Manzanares 6387, 6394, 6400.
30. *Mezobromelia capituligera* (Griseb.) J. R. Grant  
Prim. & sec. for., 1250-2340 m; terr./ep. to 0.7 m, bracts red distally, filled with mucilage, fls. white: 30513\*\*\* (also det. as *M. pleiosticha*); Manzanares 6414, 6434; Till 13015.
31. *Mezobromelia lyman-smithii* Rauh & Barthlott  
Banks, east of Nanegalito, 1600-2200 m; terr. or ep., infls. to 3.4 m, bracts & fls. yellow: F 1485\*\*\*; Dodson et al. 6981\*\*\*; Manzanares 7713; Till 13024.
32. *Mezobromelia pleiosticha* (Griseb.) Utley & H. Luther  
Prim. for., 1250-2100 m; terr. or ep., bracts red with greenish tip, filled with mucilage; fls. white: 30387\*, 30503\*, 30513\* (also det. as *M. capituligera*), 31138\*; Manzanares 5897, 6216.
- [*Pepinia alborubra* (Baker) G. S. Varad. & Gilmartin, collected just south of flora boundary: Manzanares 6253, may be found within our limits.]

33. *Pitcairnia* cf. *bakeri* (André) André ex Mez  
Prim. for., 2030 m; terr., 1.3 m: 30209.
34. *Pitcairnia commixta* L. B. Sm.  
Sec. for., 1300-1600 m; terr. to 1.9 m, infls. & fls. red, frs. reddish: 31125\*; Manzanares 6433.
35. *Pitcairnia fusca* H. Luther  
Upper mont. for., 2050-2750 m; terr. to 1.8 m, bracts brownish, fls. white or pale yellow: 30579; H 29549\*; Manzanares 6410, 6416; Nanegalito, 1800-2050 m: Manzanares 7716; Till 13018.
36. *Pitcairnia lehmannii* Baker  
Banks in sec. for., 1200-1400 m; terr., lvs. nearly 2 m, infls. 1.5 m, fls. scarlet: 29265, 32382.
37. *Pitcairnia nigra* (Carrière) André  
Prim. & sec. for., 1500-2100 m; ep. to 0.45 m, bracts reddish to bright red, fls. yellow to dark violet: 27498\*\*, 28739\*\*\*, 28882, 30029, 30345, 31901; F 1538; Manzanares 6422, 6425, 6440, 7087.
38. *Pitcairnia pungens* Kunth  
Prim. for., between Calacalí and Nanegalito, 2630 m; terr., infls. simple, red: Manzanares 6214; Till 13013. [May be extralimital.]
39. *Pitcairnia sceptrigera* Mez  
Sec. for., Marianitas to Montecristi, 1200-2700 m; terr., lvs. & spikes c. 2 m, fls. yellow: 28316; K 31992.
40. *Pitcairnia sodiroi* Mez  
Prim., sec. & upper mont. for., 1750-2700 m; terr. or ep. to 0.7 m, infls. & fls. orange: 28659, 28879, 28888, 29191, 29424, 30576\*, 32417\*\*\*; C 7176\*; F 1271; Manzanares 6384, 6385, 6401; Nicolalde 362; Suin 24, 329, 349, 379, 425.
41. *Racinaea adpressa* (André) J. R. Grant subsp. *orthiantha* (Standl.) J. R. Grant  
Prim. & upper mont. for., 1560-2340 m; ep., bracts green, fls. white: Manzanares 6417, 6444.
42. *Racinaea elegans* (L. B. Sm.) M. A. Spencer & L. B. Sm.  
Upper mont. for., 2500-2750 m; basket ep. to 1.5 m across, infls. 1 m, brownish, fls. yellow: 29478, 30546\*, 31509; Manzanares 6386, 6392.
43. *Racinaea homostachya* (André) M. A. Spencer & L. B. Sm.  
El Pahuma, 2000-2600 m; ep., lvs. yellow, bracts brown, fls. clear green: C. Espinoza 24; Suin 373\*, 442\*.

44. *Racinaea monticola* (Mez & Sodiro) M.A. Spencer & L. B. Sm.  
Upper mont. for., 2470-2680 m; ep., bracts brownish, infls. green, fls. white: F 1376\*; Manzanares 6390, 6393; [Dodson 10766\* is perhaps within the area].
45. *Racinaea quadripinnata* (Mez & Sodiro) M.A. Spencer & L. B. Sm.  
Upper mont. for., 2690 m; terr. or ep., bracts brownish, fls. white: Manzanares 6382.
46. *Racinaea ropalocarpa* (André) M. A. Spencer & L. B. Sm.  
Sec. for., 1900-2600 m; ep., infls. yellow: 31644; C. Espinoza 26, 49\*\*\* (as *Tillandsia ropalocarpa* André).
47. *Racinaea tandapiana* (H. Luther) M. A. Spencer & L. B. Sm.  
Prim. for., 1450-2470 m; ep., bracts brownish, fls. whitish: Manzanares 6215, 6405, 7093; Till 13026.
48. *Racinaea tetrantha* (Ruiz & Pav.) L. B. Sm. & M. A. Spencer var. *miniata* (André) L. B. Sm. & M. A. Spencer  
Upper mont. for., 2660-2750 m; ep., bracts orange, fls. yellow: 30522\*; Manzanares 6389 (to species only), 6396.
49. *Tillandsia* cf. *buseri* Mez  
Sec. for., Cerro Negro, 1800-1850 m; terr., bracts red, secondary bracts yellow: 31943.
50. *Tillandsia complanata* Benth.  
Prim. & upper mont. for., 1560-2680 m; ep., bracts red, fls. violet: 30102\*, 30175\*; C 5936\*; F 1212\*; Suin 374\*, 400\*; Manzanares 6395, 6415, 6443, 6445; Till 13025. "Hacienda" "Huicundo"
51. *Tillandsia cornuta* Mez & Sodiro  
In shrubs along Rio Umachaca, 1300 m; ep: Manzanares 6431.
52. *Tillandsia emergens* Mez & Sodiro  
2690 m; ep. to 0.7 m, infls. red, fls. violet: Manzanares 6449.
53. *Tillandsia fendleri* Griseb.  
Sec. for., near Nanegal, 1100-1990(?) m; ep.: Manzanares 6218; Till 13022.
54. *Tillandsia maculata* Ruiz & Pav.  
Remnants of upper mont. for., 2690 m; ep. to 1.5 m, infls. red, fls. violet: Manzanares 6407.
55. *Tillandsia pretiosa* Mez  
Sec. for., 1300-1700 m; ep., bracts pink or orangish, fls. purple: 30063\*, 31902; Manzanares 6428, 6432.
56. *Tillandsia sceptriformis* Mez & Sodiro  
Prim. for., 2690 m; ep. to 1.7 m, bracts red with yellow tips, fls. violet: Manzanares 6383.

57. *Tillandsia spathacea* Mez & Sodiro  
Sec. for., 2690 m; ep., fls. green with violet margins: Manzanares 6448.
58. *Tillandsia superba* Mez  
Sec. & upper mont. for., 1900-2690 m; ep., to 1.6 m, infls. red, fls. violet: Dodson 10765; Manzanares 6381, 6397, 6409; Till 13027a.
59. *Tillandsia truncata* L. B. Sm.  
Prim. for., 1560-2690 m; ep. to 0.5 m, bracts red, fls. white or green: 30193\*; C 5937\*; F 1194, 1201, 1477\*\*; Manzanares 6398, 6408, 6442.
60. *Tillandsia venusta* Mez & Wercklé  
Sec. for., 1300 m; ep.: 28181.
61. *Vriesea cylindrica* L. B. Sm.  
Sec. for., 1300 m; ep. to 0.6 m: Manzanares 6435.
62. *Vriesea rubrobracteata* Rauh  
Nanegalito, 1840 m; infls. reddish: Manzanares 7090. [Not in CVPE.]
63. *Vriesea tequendamae* (André) L. B. Sm.  
Rip. for., 2100 m; ep., infls. orange, fls. green-violet: Manzanares 6404.
64. *Werauhia paupera* (Mez & Sodiro) J. R. Grant  
Prim. for., 1560 m; ep. to 0.45 m, fls. green: Manzanares 6446.

#### **CANNACEAE (1)**

Ref.: Maas, P. J. M., & H. Maas. 1988. Fl. Ecuador 32: 1-9.

1. *Canna jaegeriana* Urb.  
Sec. for., 1300-2000 m; herb to 3 m, fls. yellow-orange, frs. yellowish-green with purple indumentum: 27724, 31188, 31849.

#### **COMMELINACEAE (5) (\* det. R. Faden)**

Ref.: Macbride, J. F. 1936. Publ. Field Mus. Nat. Hist., Bot. 13(1): 592-608.

1. *Callisia gracilis* (Kunth) D. R. Hunt  
Sec. for., clearings, 1250-2000 m; fls. white: 27657, 27946\*; Z 70, 179; Delgado 17\*.
2. *Commelina diffusa* Burm. f.  
Sec. for., 1500 m; spreading herb, fls. blue: Z 56. "Suelta"
3. *Commelina obliqua* Vahl  
Sec. for., 1150-1500 m; fls. blue: 27416, 27887\*, 28128\*, 28803\*; Z 62, 142. "Cacharillo"

4. *Elasis hirsuta* (Kunth) D. R. Hunt  
Upper mont. sec. for., 2750 m; common, fls. pink: 31512; K 31976.
5. *Tradescantia zanonía* (L.) Sw. (= *Campelia zanonía* (L.) Kunth)  
Sec. for., 1200-2000 m; common, to 1.5 m, fls. white: 27308, 27889, 29329, 30290, 32799, 32930; Delgado 27\*; Hurtado 1444 (det. P. J. M. Maas); Suin 331\*.
6. *Tripogandra serrulata* (Vahl) Handlos  
Sec. for., 1250-1725 m; weed with white fls.: 27191\*, 27891\*, 27924\*, 31927, 32931; Z 204.

#### **COSTACEAE (1)**

Ref.: Maas, P. J. M. 1976. Fl. Ecuador 6: 1-49.

1. *Costus guanaiensis* Rusby  
Sec. for., 1200-1300 m; giant herb to 4 m, bracts red, fls. yellowish-white: 27624, 31272.
2. *Costus laevis* Ruiz & Pav.  
Prim. & sec. for., 1200-1800 m; bracts red, fls. striped red & yellow: 27437, 28213A, 28313, 29996. "Caña agria"
3. *Costus pulverulentus* C. Presl  
Sec. for., 1200-1400 m; 1-5 m, bracts red: 27285, 27517, 27588, 28289, 28837.

#### **CYCLANTHACEAE (4) (\* det. R. Eriksson)**

Ref.: Harling, G. 1973. Fl. Ecuador 1: 1-48.

1. *Asplundia nonoensis* Harling  
Sec. for., Los Puentes, 1400-1500 m: Asplund 17290 (type).
2. *Asplundia stenophylla* (Standl.) Harling  
Prim. for., 1550-2000 m; hemiep. climber, infls. green: C 39728; F 1025; G 73154 (det. B. Hammel); Suin 328, 397. [Not in CVPE.]
3. *Asplundia utilis* (Oerst.) Harling  
Sec. for., 1300-1400 m; terr., uncommon: 29303 (det. B. Hammel).
4. *Asplundia* sp. 1 (subg. *Choanopsis*)  
Prim. for., 1700-1800 m; ep., infls. green: 28210\*.
5. *Asplundia* sp. 2 (subg. *Asplundia*)  
Sec. for., 1700 m; ep.: 30071\*.

[Additional specimens of *Asplundia* remain unidentified.]

6. *Cyclanthus bipartitus* Poit.  
Sec. for., 1300-1500 m; lvs. 1.5-2 m: 27899, 31903; Z 103.

7. *Ludovia bierhorstii* G. Wilder

Sec. for., 1250-1500 m; hemiep. climber, bracts & spikes yellow: 28273\*, 31552.

8. *Sphaeradenia hamata* Harling

Prim. for., 1550-2600 m; ep. or terr., sometimes climbing, fls. & frs. white: 27111\*, 27135\*, 27477\*, 27549\*, 27803\*, 28214\*, 28764\*, 31676, 31891; G 73151, 73251 (both det. M. Merello); C. Espinoza 29 (aff.).

9. *Sphaeradenia horrida* (Harling) Harling

Prim. for., 1400-2750 m; ep. or terr., infl. red.: 28955\*, 29202\*, 29447\*, 30521, 31053, 31317; F 1200, 1303; K 31977; L 13672\*; C. Espinoza 27 (cf.).

**CYPERACEAE** (9) (\* det. G. Davidse; \*\* det. T. Reznicek; \*\*\* det. K. Camelbeke)

Refs.: Clarke, C. B. 1905. Bot. Jahrb. 34, Beibl. 78: 5. Tucker, G. C. 1983. Syst. Bot. Monogr. 2: 1-85 [*Cyperus*]. 1987. J. Arnold Arb. 68: 361-445.

1. *Carex jamesonii* Boott

Prim. for., along stream, Quebrada Santa Rosa, 2000 m: 31236\*\*, 32420.

2. *Carex polystachya* Sw. ex Wahlenb.

Prim. & sec. for., 1300-2500 m: 31149\*\*, K 31805; L 13662.

3. *Carex sodiroi* Kük.

Sec. for., 4 km NW of Nanegalito, "Crescit in silvis ad pagum Gualea", 1500-1600 m: Sodiro 199/69, Oct 1886 (cited by Valencia et al., 2000: 175).

4. *Carex* sp. 1

Banks, 1300 m: K 32118.

5. *Cyperus aggregatus* (Willd.) Endl. (incl. *Cyperus tenuis* Sw.)

Sec. for. & rocky areas, 1200-2000 m: 28280, 29067, 32393; Z 163; Holm-Nielsen 16155\*\*\*.

6. *Cyperus chalaranthus* J. Presl & C. Presl

Sec. for., scrub, roadsides, 1200-1400 m: 27418, 28108\*\*\*, 28279, 29066; Z 11; Filskov 37087\*\*\*.

7. *Cyperus diffusus* Vahl

Fields, 1200-1400 m: Filskov 37089 (det. S. Laegaard).

8. *Cyperus hermaphroditus* (Jacq.) Standl.

Pastures & along streams, 1400-1920 m: 30114, 32398; Z 222.

9. *Cyperus luzulae* (L.) Rottb. ex Retz.

Fields & roadsides, 1200-1350 m: 27161, 27424; Z 171. "Zacate estrella", "Cabezona"

10. *Cyperus mutisii* (Kunth) Andersson  
Fields, 1250-1300 m: 28151\*\*\*.
11. *Cyperus odoratus* L.  
Ditches, 1600 m: 32795; Z 57; El Pahuma, 2000 m: Delgado 30.
12. *Cyperus prolixus* Kunth  
Moist fields between Nanegal & Nanegalito, 1200-1300 m; stems to 1.5 m: 28899\*.
13. *Cyperus simplex* Kunth  
Ditches, 1700-1900 m: 31637; Laegaard 53111.
14. *Eleocharis elegans* (Kunth) Roem. & Schult.  
Sec. for., 1250-2100 m: 27162, 27165, 30489, 31349, 33608; C 13125.
15. *Eleocharis geniculata* (L.) Roem. & Schult.  
Wet banks, 1250 m; diminutive annual: 31569.
16. *Eleocharis maculosa* (Vahl) Roem. & Schult.  
Sec. for., 1250-1300 m: 27934\*\*\*.
17. *Eleocharis retroflexa* (Poir.) Urb.  
Fields & sec. for., 1250-1300 m: 28131 (det. J. Bruhl).
18. *Fimbristylis dichotoma* (L.) Vahl  
Roadsides, 1200-1250 m: 27164; Z 157.
19. *Kyllinga pumila* Michx.  
Sec. for., 1250-1350 m: 27381, 27425; Z 58.
20. *Pycneus bipartitus* (Torr.) C. B. Clarke  
Fields in sec. for., 1250 m: 28140\*\*\*.
21. *Pycneus niger* (Riuz & Pav.) Cufod.  
Bed of Río Pichán, 1900 m: 32399.
22. *Rhynchospora polyphylla* Vahl  
Sec. for., 1250-2750 m: 27441\*\*, 27660, 28719\*\*, 30356\*, 31502.
23. *Rhynchospora polystachys* (Turrill) H. Pfeiffer  
Sec. for. & riversides, 1250-1400 m: 27941\*; Laegaard 53108\*\*\*.
24. *Rhynchospora puberula* (Boeck.) L. B. Sm. (= *Pleurostachys puberula* Boeck.)  
Sec. for., 1250-1850 m: 27936\*\*, 28852\*\*, 30051.

25. *Rhynchospora radicans* (Schltdl. & Cham.) H. Pfeiffer  
Sec. for., 1300-1400 m: 27155.

26. *Rhynchospora ruiziana* Boeck.  
Rip. for., 2000 m: 31235\*\*, 32423; Sodiro 43e.

27. *Rhynchospora vulcani* Boeck.  
Sec. for., Cerro Negro, 1500-2000 m: 28029\*\*.

28. *Rhynchospora watsonii* (Britton) Davidse  
Banks, 1250-1550 m: 31781, 32355.

29. *Rhynchospora* sp. 1.  
Prim. for., 2750 m; infls. to 1.5 m: H 29542.

[*Scleria mexicana* (Liebm.) Boeck., cited by Clarke (as *Scleria sororia* Kunth) on the basis of Sodiro 199/53 from Nanegal Valley & Río Pilatón, requires confirmation.]

30. *Scleria microcarpa* Nees ex Kunth  
Nanegal Valley: Sodiro 199/55.

31. *Uncinia hamata* (Sw.) Urb.  
Prim. for., 1800-2215 m: 29129, 29411; C 13068; Cedeño 16. "Cortadira", "Pega-pega"

#### **DIOSCOREACEAE (1)**

Ref.: Ayala F., F. 1981. Ann. Missouri Bot. Gard. 68: 125-131.

1. *Dioscorea* cf. *coriacea* Humb. & Bonpl. ex Willd.  
Sec. for., 1150 m; vine with reddish fls.: 29075.

2. *Dioscorea pilosiuscula* Bertero ex Spreng.  
Sec. for., 1900-2200 m; vine with dull purple fls.: Zak & Jaramillo 3253 (det. O. Tellez).

3. *Dioscorea polygonoides* Humb. & Bonpl. ex Willd.  
Sec. for., 1800-2000 m; vine, fls. greenish: 31538, 31942.

4. *Dioscorea* cf. *syringifolia* Kunth & Schomb. ex Schomb.  
Sec. for., 1300-1500 m; vine with purplish fls.: 27910. [Not in CVPE.]

5. *Dioscorea* sp. 1  
Prim. for., 2000-2375 m; vine: 29462.

## HAEMODORACEAE (1)

Ref.: Maas, P. & H. 2003. Fl. Ecuador 71: 111-114.

### 1. *Xiphidium caeruleum* Aubl.

Sec. for., 1200-1250 m; fls. whitish, frs. orange: 27373, 28165.

## HELICONIACEAE (1) (\* det. W. J. Kress; \*\* det. L. Andersson)

Refs.: Andersson, L. 1985. Fl. Ecuador 22: 1-86. 1985, 1992. Opera Bot. 82: 1-123; 111: 1-98.

### 1. *Heliconia burleana* Abalo & G. L. Morales

Prim. for., 1700-2050 m; stem 1.5 m, lvs. to 2.5 m, infls. erect, bracts red, ovary greenish or yellow, perianth yellow or green: 27561\*, 27854\*, 30219\*, 30373, 30378, 31223\*; Morales & Abalo 294 (type).

### 2. *Heliconia griggsiana* L. B. Sm.

Sec. for., 1200-1700 m; to 8 m, lvs. 1.5 m, infls. pendent, bracts red, fls. yellow, frs. orange: 27623\*, 29046\*; C 13071\*; Filskov 37135\*\*; Holm-Nielsen 24454\*\*.

### 3. *Heliconia impudica* Abalo & G. L. Morales

Sec. for., 1600-2000 m; to 2 m high, infls. erect, bracts red or red & yellow, fls. yellow or orange: 27102\*, 27622\*, 28063\*, 28200\*; C 5934\*; Delgado 40\*\*. "Platanillo"

### 4. *Heliconia pardoii* Abalo & G. L. Morales

Rip. sec. for., 1400 m; 3 m high, infls. erect, fls. yellow, frs. green: 27273\*.

### 5. *Heliconia sclerotricha* Abalo & G. L. Morales

Sec. for., 1250-1600 m; to 2 m high, infls. pendent, bracts red, fls. yellow: 27375\*, 27466.

### 6. *Heliconia virginalis* Abalo & G. L. Morales

Prim. & sec. for., 1250-1700 m; to 3.5 m, lvs. 1 m, infls. erect, bracts red, fls. white, frs. yellow turning blue: 27173\*, 27414\*, 27488\*, 27564\*, 27742\*, 27788\*, 29300\*, 30272, 30295, 31741.

## HYPOXIDACEAE (1)

### 1. *Hypoxis decumbens* L.

Sec. for., 1200-1400 m; fls. yellow: 27386, 27799; Z 194; Filskov 37063(?).

## IRIDACEAE (1)

### 1. *Sisyrinchium micranthum* Cav.

Open areas, 1250-1350 m; fls. lavender: 27371, 27410, 28110.

## **JUNCACEAE (1)**

Ref.: Balslev, H. 1979. Fl. Ecuador 11: 1-45.

1. *Juncus tenuis* Willd.  
Open areas, 1300-2300 m: 28030, 31636, 32820; Acosta Solís 19150.
2. *Juncus imbricatus* Laharpe  
El Pahuma, 2000 m: Delgado 28.

## **MARANTACEAE (3) (\* det. H. Kennedy)**

Ref.: Kennedy, H., L. Andersson & M. Hagberg. 1988. Fl. Ecuador 32: 11-191.

1. *Calathea ischnosiphonoides* H. Kenn.  
Prim. for., 1500-1800 m; to 3 m, bracts brownish, fls. white or pink: 27331, 28204\*, 31700; N 9801\*.
2. *Calathea plurispicata* H. Kenn.  
Sec. for., 1300-1400 m; lvs. to 4 m, infls. to 2.5 m: 29325\*.
3. *Calathea selbyana* H. Kenn.  
Sec. for., 1350-1400 m; plants 1.5 m, bracts green: 30274\*.
4. *Pleiostachya pruinosa* (Regel) K. Schum.  
Sec. for., 1100 m; lvs. 1.5 m, fls. blue: 29266\*.
5. *Stromanthe stromanthoides* (J. F. Macbr.) L. Andersson  
Sec. for., 1200-1600 m; lvs. to 2 m, bracts orange, fls. whitish: 27491\*, 29327\*, 31021, 31091.

[Musaceae, *Musa acuminata* Colla, at 1200 m; cult.: Filskov 37136 (det. J. Kress).]

## **ORCHIDACEAE (82) Reviewed and augmented by Alexander Reynolds [AR] (\* det. C. Dodson; \*\* det. J. Beckner; \*\*\* det. L. Endara; others as indicated.)**

Taxa may be vouchered/illustrated by photos (provided by A. Reynolds and collaborators); these can be seen by selecting their hyperlinked names.

Refs.: Garay, L. 1978. Fl. Ecuador 9: 1-304. Dodson, C. H. & P. M. Dodson. 1978-1984. Icones Plantarum Tropicarum, Ecuador vols. 1-5, 10; series 2, vols. 5, 6, 1989. Luer, C. A. 1986. Missouri Bot. Gard. Syst. Monogr. 20: 1-109. Dodson, C.H. & R. Escobar. 1996-2002. Orquideas Nativas del Ecuador, vols. 1-3. Dodson, C. H. et al. 2003. Orchids of Ecuador. Unpublished manuscript. Endara, L. & L. Jost. 2000. Orchidaceae. in Libro rojo de las plantas endemias del Ecuador. Valencia, R., N. Pitman, S. Leon-Yañez & P. Jorgensen, (eds.) Herbario QCA, Pontificia Universidad Católica del Ecuador, Quito. Jorgenson, P. M. & S. Leon-Yañez (eds.) 1999. Catalogue of the Vascular Plants of Ecuador, Missouri Bot. Gard. Press. Reynolds, A. 2004. Orchids of Maquipucuna. Rapid Color Guide 166; Field Museum, Chicago.

[A large number of orchids have been collected by Dodson, Luer, and others, often along the road between Nono & Tandayapa, or along the road running west from Calacalí, with most of these lying outside our boundaries; those within approximately 1' are listed in brackets. For a few taxa, after the collections made within the floristic area, we list selected collections made just beyond the floristic area.]

1. *Ackermania cornuta* (Garay) Dodson & R. Escobar

Prim. for., Sendero Tranquilo, Río Umachaca, 1200-2000 m; ep., lvs. grayish-green, fls. cream-yellow with red markings, lip apically pointed: AR 21, alcohol voucher, photo vouchers.

2. *Ada elegantula* (Rchb. f.) N. H. Williams

Prim. & sec. for., 1300-1600 m; ep., fls. small, greenish with pink spots on lip: 32921 (cf., det. E. A. Christenson); AR photo voucher; Hirtz 1287 (photo).

3. *Ada glumacea* (Lindl.) N. H. Williams

Prim. for., Tandayapa, 1600-1800 m; ep.: Dodson 18794; Hirtz 1319.

4. *Ada ocanensis* (Lindl.) N. H. Williams

Orchid garden, 1250 m; ep.: AR alcohol voucher, photo voucher; Tandayapa, prim. for., 2000-2200 m; ep.: Dodson 1097; Luer 4711\* [these two collections may be extralimital].

5. *Altensteinia fimbriata* Kunth

Calacalí to Nanegalito, 2400 m; terr.: AR photo voucher; K 1015, 1496.

6. *Altensteinia virescens* Lindl.

Roadside embankments, Calacalí-Nanegalito, 2200-2500 m; terr., fls. greenish yellow: AR alcohol voucher, photo voucher.

7. *Anguloa virginalis* Linden ex B. S. Williams

Sec. for., El Pahuma, 1800 m; fls. fleshy pink or white with maroon spots, strongly fragrant: AR (field det.).

8. *Barbosella cucullata* (Lindl.) Schltr.

El Pahuma, 2000 m; ep.: Suin 459; [Nono-Tandayapa, km 17, 2160 m; ep.: Dodson 10783].

[*Barbosella* sp. 1, Río Alambi, 2250 m: Molau & Ohman 1391.]

9. *Brachionidium* sp.

Upper mont. for., Cerro Montecristi, 2750 m; terr., perianth purplish & green: 30558\*.

10. *Brachtia andina* Rchb. f.

Upper mont. for., 1800-2470 m; ep., fls. yellow: AR photo voucher; F 1380, 1479; P 3578; Croat 72873 (det. E. A. Christenson); Dalström 1604.

11. *Brassia arcuigera* Rehb. f.  
Sec. for., 1200-1350 m; ep., fls. pale greenish mottled with brown: 31025; AR alcohol voucher, photo voucher.
12. *Brassia* sp. 1  
Sec. for., 1250 m; ep., fls. pale yellow: 31008.
13. *Campylocentrum polystachyum* (Lindl.) Rolfe  
1000-2500 m; ep., infl. extending past lvs., fls. white: AR photo voucher.
14. *Chondrorhyncha embreei* Dodson & Neudecker  
Sec. for., 1200-2000 m; ep., fls. greenish-white with burgundy markings: 27648\*, 27649\*, 28842\*, 30308, 31173; AR photo voucher; C 5933\*.
15. *Chondrorhyncha thienii* (Dodson) Dodson  
Prim. for., 2000 m; ep., fls. pale yellow, column purple-spotted: 28723\*.
16. *Cleistis* sp.  
Sec. for., 1725 m; terr., fls. orange: 31925.
17. *Comparettia falcata* Poepp. & Endl.  
Sec. for., 1250-1900 m; ep., fls. magenta: 31001; AR photo voucher; C 13045; Suin 501\*.
18. *Cranichis antioquiensis* Schltr.  
Orchid garden, 1250 m; terr., fls. green and white: AR alcohol voucher, photo voucher; [Nono-Nanegal, 2200 m; terr.: Sparre 16815].
19. *Cranichis ciliata* (Kunth) Kunth  
Prim. for., Tandayapa, 2320 m; terr.: AR photo voucher; Luer 7305 [may be extralimital].
20. *Cranichis fertilis* (F. Lehm. & Kraenzl.) Schltr.  
Banks in sec. for., 1250-1800 m; terr., fls. white: 27166\*, 27636\*; AR photo voucher; V 12265; Harling & Andersson 11623; Todzia & Grimes 2479.
21. *Cranichis* sp. 1  
Sec. for., 1200-1300 m; terr., fls. whitish: 27783, 28840; AR alcohol voucher, photo voucher.
22. *Cranichis* sp. 2  
El Pahuma, 1800 m; terr., fls. red: AR photo voucher.
23. *Crossoglossa caulescens* (Lindl.) Dodson  
Nanegal, 1500 m; terr.: Jameson s.n., 1855.
24. *Crossoglossa nanegalensis* Dodson  
Sec. for., Tandayapa, 1700 m; terr., fls. yellow-green: Hirtz 2210\* (type).

25. *Crossoglossa tipuliodes* (Lindl.) Dodson  
Sec. for., Nanegal, 1200-1300 m; terr.: Harling & Andersson 11599\*.
26. *Cryptocentrum latifolium* Schltr.  
Sec. for., 1300-1550 m; ep. on mossy trunks, lvs. 1.5 cm wide, fls. yellow-green: 31958; AR 4, alcohol voucher, photo vouchers.
27. *Cryptocentrum lehmannii* (Rchb. f.) Garay  
Sendero Tranquilo, 1100-2000, 2500-3000(?) m; ep., lvs. <1 cm wide, fls. yellow-green: AR 5, alcohol voucher, photo voucher.
28. *Cryptocentrum* sp. 1  
Sec. for., 1400 m; ep., lvs. < 1 cm wide, fls. yellow-green, smallest of the three species, base of petals extend past base of sepals: AR 13, alcohol voucher.
29. *Cyclopogon inaequilaterus* (Poepp. & Endl.) Schltr.  
Sec. for., 1200-1350 m; terr., fls. yellowish-green: 27780\*, 28109\*, 28169\*.
30. *Cyclopogon ovalifolium* C. Presl  
Sec. for., 1300 m; terr., fls. white: 28783\*.  
  
[*Cyclopogon pelagalloanus* Dodson, from its type locality at 2800 m near Loma Pelagallo: Hirtz 2618, is 1' E of the area boundary.]
31. *Cyclopogon* sp. 1  
Sec. for., 1300 m; terr., roots fleshy, fls. green with white lip: 27616; AR photo voucher.
32. *Cyclopogon* sp. 2  
Sec. for., 1300 m; terr., roots fleshy, fls. green with pink lip: 27617; AR photo voucher.  
  
[Two additional collections of *Cyclopogon*, 28725 and 29994, remain unidentified.]
33. *Cyrtochiloides riopalenqueana* (Dodson) N. H. Williams & M. W. Chase  
Sec. for., El Pahuma, 1800 m; ep., yellow-red with white lip: AR photo voucher. [In CVPE as *Oncidium riopalenqueanum* Dodson.]
34. *Cyrtochilum cimiciferum* (Rchb. f.) Dalström  
Sec. for., El Pahuma, 1800-2400 m; ep., long infl., fls. yellow-brown: AR photo voucher; Suin 430; [Calacalí-Nieblí, 2000 m: Hirtz 1482] (last two det. S. Dalström).
35. *Cyrtochilum flexuosum* Kunth (incl. *Oncidium hartwegii* Lindl.)  
Prim. for., 2050-2275 m; ep., fls. brown and yellow: 28934\*, 29213; AR photo voucher.  
  
[*Cyrtochilum geniculatum* Königer, Yunguilla-Sta. Lucia trail: AR alcohol voucher, photo voucher; Nono-Nanegal, sec. for., 2200 m; ep., fls. red with pink edges: Hirtz 1041; La Liberia, 2200 m: Hirtz 1288 (det. S. Dalström).]

36. *Cyrtochilum macranthum* (Lindl.) Kraenzl.  
 Sec. for., 1900 m; terr., fls. large, orange, yellow and purple: 30591, 30610; El Pahuma, 2400 m; ep.: Suin 428 (det. S. Dalström). [In CVPE as *Oncidium macranthum* Lindl.]
37. *Cyrtochilum meirax* (Rchb. f.) Dalström  
 Prim. & sec. for., 1200-2100 m; ep., fls. dull yellow with brown spots: 27447 ex p.\*, 27450\*, 28132\*, 28951\*, 29308\*, 30371\*, 32977 (det. E. A. Christenson); AR alcohol voucher, photo voucher; T 177\*; Filskov 37080 (det. S. Dalström), 37131 (det. J. Ackerman). [In CVPE as *Oncidium meirax* Rchb. f.]
38. *Cyrtochilum orthotis* (Rchb. f.) Kraenzl.  
 Sec. for., 1300-1600 m; ep., fls. yellow with brown spots: 27937\*; AR alcohol voucher, photo voucher; Dodson 16510. [In CVPE as *Oncidium orthotis* Rchb. f.]
39. *Cyrtochilum ramosissimum* (Lindl.) Dalström  
 Nanegal; ep.: Sodiro 112. [In CVPE as *Odontoglossum ramosissimum* Lindl.]
40. *Cyrtochilum serratum* (Lindl.) Kraenzl.  
 Prim. & sec. for. & clearings, 1500-2225 m; common, ep. or terr., infl. to 4 m, twining or clambering, fls. yellow & brown: 27960\*, 28058\*, 28891\*, 29402, 30100\*, 30590; AR alcohol voucher, photo voucher; F 1192; Holmgren 851; Holm-Nielsen 24484\*; Suin 367 (det. S. Dalstrom), 441(?); [Dodson & Thien 1102]. "Margarita" [In CVPE as *Oncidium serratum* Lindl.]
41. *Cyrtochilum williamsianum* (Dodson) Dalström  
 Sec. for., Sendero Tranquilo, 1500 m; ep., fls. pink with pink callus: AR alcohol voucher, photo voucher. [In CVPE as *Oncidium williamsianum* Dodson.]
42. *Cyrtochilum* sp. 1  
 Roadside embankment, Utopia, 1800 m; ep./terr., fls. yellow: AR photo voucher.
43. *Cyrtochilum* sp. 2  
 Utopia, Río Alambi, 2000 m; fls. reddish brown with yellow: AR photo voucher.
44. *Dichaea longa* Schltr.  
 Sec. for., Tandayapa, 1500 m; ep.: AR photo voucher; Dodson 16506.
45. *Dichaea morrisii* Fawc. & Rendle  
 Sec. for., 1500-2200 m; ep.: 28020\*, 28761\*; AR photo voucher; Holm-Nielsen 24451\*; Sparre 17045.
46. *Dichaea sodiroi* Schltr. (incl. *Dichaea pendula* (Aubl.) Cogn. & *Dichaea chasei* Dodson)  
 Prim. & sec. for., 1500-2100 m; ep., fls. yellow with purplish lip: 27453\*, 28874\*, 28900\*, 33594; AR photo voucher; C 5903\*; Luer s.n., 1979; Suin 391; [Calacalí-Nieblí, 2200 m: Hirtz 1496].

47. *Dichaea* sp. 1  
Prim. & sec. for., 1300-1775 m; ep.: 27579, 29273, 29579, 30391; AR alcohol voucher.  
  
[*Dracula dodsonii* (Luer) Luer, Nono-Tandayapa, km 17, 2160 m; ep.: Dodson 10792, 16501.]
48. *Dracula felix* (Luer) Luer  
Sendero Tranquilo, 1000-2500 m; ep., fls. white with purple: AR alcohol voucher, photo voucher.
49. *Dracula navarroorum* Luer & Hirtz  
Sec. for., Nanegalito, Tandayapa, 1600-1800 m; ep.: Dalström 1661; Hirtz 4854 (type); Luer 15259.
50. *Dracula sodiroi* (Schltr.) Luer  
Sec. for., 1750-2400 m; ep.: AR photo voucher; F 1199\*; Suin 427; [Dodson 15972].
51. *Dracula vespertilio* (Rchb. f.) Luer  
Prim. for., El Pahuma, 1800 m; ep., fls. yellow, spotted with purple, lip white with pink spots: AR photo voucher (det. S. Dalström).
52. *Dracula wallisii* (Rchb. f.) Luer  
Prim. for., El Pahuma, 1800 m; ep., fls. whitish, spotted brown or purple, lip white, mobile: AR photo voucher (det. S. Dalström). [Taxon listed in CVPE as a misidentification.]
53. *Dressleria fragrans* Dodson  
Sec. for. & orchid garden, 1100-1250 m; ep., fls. greenish, fleshy, fragrant: AR alcohol voucher, photo voucher.
54. *Dryadella simula* (Rchb. f.) Luer  
Near Utopia, 2000 m; ep., fls. greenish with purple markings: AR alcohol voucher, photo voucher.
55. *Dryadella* sp. 1  
Prim. for., 2000 m; ep., fls. purplish: 31843.
56. *Elleanthus aristatus* Garay  
Cerro Negro, 1800 m; ep., fls. orange: 30449\*.
57. *Elleanthus aurantiacus* (Lindl.) Rchb. f.  
Sec. for., 2000-2500 m; ep./terr.: K 1521; Suin 494\*.
58. *Elleanthus capitatus* (Poepp. & Endl.) Rchb. f.  
Sec. for., 1300-2000 m; ep./terr., stems to 1 m: 27534\*, 27611\*, 29292, 31547; AR photo vouchers; C 5905\*; Bohlin 1100; Suin 401; [L 11327].

59. *Elleanthus discolor* (Rchb. f. & Warsz.) Rchb. f.  
Sec. for., 1300 m; ep./terr., bracts yellowish: 27708\*; AR photo voucher.
60. *Elleanthus formosus* Garay  
Banks, 1200-3000 m; terr., fls. brick orange: 27301\*; AR photo voucher.
61. *Elleanthus fractiflexus* Schltr.  
Sec. for., 1400-1550 m; terr., fls. white: AR photo voucher; C 39783; Dodson 6982; Sodiro 35 (type).
62. *Elleanthus gastroglottis* Schltr.  
Sec. for., 1800-2500 m; ep./terr., perianth purple: C 5939\*; Hurtado 1425\*; Suin 493; [Luer 2363].
63. *Elleanthus graminifolius* (Barb. Rodr.) Lojtnant  
Sec. for., 1200-1250 m; ep./terr.: 27531\*, 28966\*; AR photo voucher.
64. *Elleanthus linifolius* C. Presl  
Sec. for., 1200-1250 m; ep./terr.: 28967\*.
- [*Elleanthus myrosmatis* (Rchb. f.) Rchb. f., at Yunguilla, 2580 m: AR photo voucher; Dodson et al. 16499.]
65. *Elleanthus oliganthus* (Poepp. & Endl.) Rchb. f. ?  
1000-2700 m; ep./terr., fls. orange-red: AR photo voucher. [Possibly *E. aurantiacus*.]
66. *Elleanthus petrogeiton* Schltr.  
Prim. for., Yunguilla-Sta. Lucia, 2500 m; terr., fls. white with purple: AR photo voucher; K 1538; Alaspungo-Gualea, 1500 m: Holmgren 640. [May be extralimital.]
67. *Elleanthus robustus* (Rchb. f.) Rchb. f.  
Prim. for., 1300-1800 m; ep. or terr., stems to 1 m: 27447 ex p.\*, 31565(?), 31917; AR photo voucher; Alvarado 409.
68. *Elleanthus smithii* Schltr.  
Banks, 1200-2000 m; terr., fls. orange, foetid: 28161\*; AR photo voucher; Dodson & Thien 1107, Dodson 16505; Harling & Andersson 11613.
69. *Elleanthus vernicosus* Garay  
Sec. for., Tandayapa, 2000 m; terr.: AR photo voucher; Plowman & Davis 4446\*.
70. *Elleanthus* sp. 1  
Sec. for. & banks, 1550-1600 m; fls. white or magenta: 31119, 31122.

71. *Elleanthus* sp. 2

Sec. for., Sendero del Río, 1300 m; ep., fls. white, solitary from terminal cone: AR photo voucher.

72. *Elleanthus* sp. 3

Sec. for., orchid garden, 1250 m; terr., lvs. purplish below, fls. orange, in terminal cone: AR photo voucher.

73. *Epibator hirtzii* (Luer) Luer

Sec. for., 1600-1800 m; ep., fls. yellow: AR photo voucher; Hirtz 2166; Luer 13324.

74. *Epidendrum arachnoglossum* Rchb. f. ex André

Sec. scrub, above Río Pichán, 2050 m; terr., fls. white, lip with yellow spots: 30099\*.

75. *Epidendrum arbusculum* Lindl., vel aff.

Prim. for., 1950-2000 m; ep., fls. green: 28715\*; AR photo voucher.

76. *Epidendrum aristatum* Ackerman & Montalvo

Prim. & sec. for., 1500-2250 m; ep. or terr.: 28004\*, 28932\*.

77. *Epidendrum blepharistes* Barker ex Lindl.

Sec. for., Carretera Nanegal-Marianitas, 1300 m; ep., white fls: AR alcohol voucher, photo voucher.

78. *Epidendrum brachyglossum* Lindl.

Sec. for., 1800-2400 m; ep./terr.: AR photo voucher; Dodson 6990; Hartweg 1417 (type); Luer 2372; Suin 431; [Molau & Eriksen 3057].

[*Epidendrum brachystele* Schltr., Nono-Nanegalito via Tandayapa, sec. for., 2160 m; ep., fls. green, non-resupinate: AR photo voucher; Dodson & Thien 1093, Dodson & Dodson 16502].

79. *Epidendrum calanthum* Rchb. f. & Warsz.

Sec. for., 1250 m; ep., fls. yellow.: 28132\*(?), 28153 (det. E. A. Christenson); AR photo voucher.

80. *Epidendrum caloglossum* Schltr.

Sec. for., Nanegalito, 1600 m; ep.?: Dodson 6987.

81. *Epidendrum cochlidium* Lindl.

Prim. & upper mont. scrub, 1700-2500 m; ep. or terr., fls. red or orange: 28085\*, 28104\*, 30094, 30260\*, 30587\*; AR alcohol voucher, photo voucher; F 1491; Holm-Nielsen 24413\*; Suin 447; [Asplund 17265; Dodson & Thien 1104].

82. *Epidendrum* cf. *cornanthera* Lehm. & Kraenzl.

Sec. for., 1550 m; ep.?, viny: 31785.

83. *Epidendrum coryophorum* (Kunth) Rehb f.  
El Pahuma ("Loma Pahuamba"), 2300 m; ep./terr., fls. white with purple spots: AR photo voucher; F 1446\*.
84. *Epidendrum diothonaeoides* Schltr.  
El Pahuma ("Loma Pahuamba"), 2300-2450 m; ep./terr.: AR photo voucher; F 1350, 1434.
85. *Epidendrum elleanthoides* Schltr.  
Prim. for., 21 km west of Calacalí, 2500 m; terr., fls. pale greenish: L 13681.
86. *Epidendrum embreei* Dodson  
Sec. for., 2000-2225 m; fls. reddish pink: 30098; AR photo voucher; P 3589; Dodson & Thien 1090; Molau 2215.  
  
[*Epidendrum excisum* Lindl., Yunguilla, sec. for., 2600 m; ep., large paniculate infl., fls. creamy yellow-white: AR photo voucher (det. E. Hágsater).]
87. *Epidendrum fimbriatum* Kunth  
Sec. for., 1800-2000 m; usually terr., fls. white with purple markings: AR photo voucher; K 1466; L 14046, 14048; Bohlin 1119; Dodson & Thien 1095; Harling & Andersson 11611 .
88. *Epidendrum gastropodium* Rehb. f.  
2200-2500 m; ep. or terr.: K 1564; Dodson 10764; Suin 495.
89. *Epidendrum geminiflorum* Kunth  
Sec. & upper mont. for., 2000-2700 m; ep./terr., fls. green, non-resupinate: AR photo voucher; F 1413; K 1468; Dodson & Thien 1100; Plowman & Davis 4436; Suin 426, 473.
90. *Epidendrum goodspeedianum* A. D. Hawkes  
Prim. for., 1800-2000 m; ep./terr., fls. green with pink lip: 28688\*; AR alcohol voucher, photo voucher; Bohlin 1127; Suin 327; [Nono-Tandayapa, 2160 m: Dodson 10819]. [Listed in CVPE as a misidentification of *Epidendrum agoyanense* Hágsater & Dodson.]
91. *Epidendrum hymenodes* Lindl.  
Sec. for., 1250-2000 m; ep., fls. green with white lip: 27510\*; AR photo voucher; Suin 466.
92. *Epidendrum* cf. *incomptum* Rehb. f.  
Sec. for., 1550-1600 m; ep., fls. greenish- or pinkish-brown: 31120, 32962. [Not in CVPE.]
93. *Epidendrum jamiesonis* Rehb. f. (incl. *E. evectum* Hook f.)  
Banks in sec. for., 2000 m; ep./terr., to 1.5 m, fls. magenta: 28652, 31854; [Nono-Nanegal, km 18, 2000 m: Dodson & Thien 1098, Dodson 3730, 3732; Stevenson 72767-7; these likely from just outside the area].
94. *Epidendrum lloense* (Lindl.) Hágsater & Dodson  
Nono to Nanegal, km 34, 1550 m: Dodson 3839 (det. E. Hágsater).

95. *Epidendrum longiflorum* Kunth  
Utopia, Río Alambi, 2000 m; ep., fls. green with white lip: AR photo voucher (det. confirmed E. Hágsater).
96. *Epidendrum macroöphorum* Hágsater & Dodson  
Nanegal, 1000-1800 m; ep./terr., fls. greenish white with white lip, ovary up to 25 cm long: Sodiño 53 (Aug 1874); Wallis 3219; Banks, 1200-2000 m; terr., stems to 2 m, fls. greenish-white with creamy white lip: 28163\*, 28389, 30467, 31922; AR alcohol voucher, photo voucher; Hirtz 3199. [Not in CVPE.]
- [*Epidendrum macrostachyum* Lindl., at Pelagallo, 2800 m: Hirtz 2466.]
97. *Epidendrum mancum* Lindl.  
2500 m; ep., fls. reddish purple with white: AR photo voucher.
98. *Epidendrum marsupiale* F. Lehm. & Kraenzl.  
Banks in sec. for., 1250 m; ep./terr., fls. pale green: 31087\*\*; AR alcohol voucher, photo voucher; Tandayapa, 2200 m: MacBryde 111 [possibly extralimital].
99. *Epidendrum microcarpum* Hágsater & Dodson  
Prim. for., 2400 m; ep./terr., fls. small, greenish-yellow: AR photo voucher (det. E. Hágsater). [Not in CVPE.]
100. *Epidendrum "microsecundum"* Hágsater & Dodson (ined.?)  
Sec. for., 1200 m; ep., fls. orange: 27502\*. [Not in CVPE.]
101. *Epidendrum montisillinicense* Hágsater & Dodson  
Prim. for., 2600 m: 30571 (det. E. Hágsater). [Not in CVPE.]
102. *Epidendrum nanegalense* Hágsater & Dodson  
Nono-Nanegal, Río Alambi, km 43-45, 2200-2500 m: Sparre 15960 (type); Nanegalito, Sendero Principal, 1700 m; ep., terminal infls., pink fls.: AR alcohol voucher, photo voucher; Sparre 14866. [Not in CVPE.]
103. *Epidendrum odontantherum* Hágsater & Dodson  
Prim. for., 21 km west of Calacalí, 2500 m; terr.: L 13673 (type); [Yunguilla-Sta. Lucia, 2200 m: AR photo voucher\* (may be within area)].
- [*Epidendrum pallatangae* Schltr., Nono-Nanegal, 2200 m: Harling 14866.]
104. *Epidendrum paniculatum* Ruiz & Pav., vel aff.  
Sec. for., Nono-Nanegal, 1600-2000 m; terr.: Dodson & Thien 1094, Dodson 6986. [Endemic to Peru, needs to be revised.]
105. *Epidendrum parvilabre* Lindl.  
Upper mont. for., Cerro Montecristi, 2250 m; ep., fls. green with white lip: 28917\*.

106. *Epidendrum peraltum* Schltr.  
Prim. for., 2000 m; ep., fls. magenta: 28861\*.
107. *Epidendrum porphyreum* Lindl. (incl. *Epidendrum spathatum* Schltr.)  
Sec. for., banks, & scrub, 1650-2450 m; ep. or terr., fls. orange to pink & magenta: 30067\*, 31181\*\*, 31792, 31918; F 1068, 1334, 1402; AR photo voucher; Croat 72862\*; Dodson 3731; Hurtado 1437\*, 1441\*; Suin 361, 376, 429.
108. *Epidendrum quitensium* Rchb. f.  
Prim. for., 2000-3000 m; ep./terr., fls. purple, non-resupinate: AR photo voucher; Dodson 3732. [Listed in CVPE as synonym of *Epidendrum jamiesonis* Rchb. f.]
109. *Epidendrum ramosum* Jacq.  
Sec. for., 1200-1500 m; ep.: 28968\*, 32916; AR alcohol voucher, photo voucher; Dodson 16509.
110. *Epidendrum renilabium* Schltr.  
Sec. for., 1700-2000 m; ep./terr., fls. yellowish: 27951\*, 31924; AR photo voucher.  
  
[*Epidendrum repens* Cogn., Nono-Tandayapa, km 16, 2210 m; ep./terr.: Dodson 10768.]
111. *Epidendrum rostratum* Garay & Dunst.  
Sec. for., 1000-2000 m; ep., plant pendent, branched, fls. greenish: AR alcohol voucher, photo voucher.
112. *Epidendrum scharfii* Hágsater & Dodson  
Guava trees in pastures, El Carmen-Santa Lucia, 1300 m; terr., fls. translucent white: AR photo voucher (det. E. Hágsater).
113. *Epidendrum* cf. *secundum* Jacq.  
Sec. for. & banks, 1200-2000 m; ep. or terr., fls. orange: 27502\*, 28051\*, 31631, 33610; Holm-Nielsen 24462\*. [Needs to be revised, does not occur in Ecuador.]  
  
[*Epidendrum sodiroi* Schltr., described from near Gualea: Sodiro 65 (type), may occur within the western boundary of our area.]
114. *Epidendrum tandapianum* Dodson & Hágsater  
Prim. for., 2200-2580 m; ep./terr., fls. green: 28931\*; Dodson 16500 (type).
115. *Epidendrum trachysepalum* Hágsater  
Nono-Nanegal, 1200 m: Luer 774.
116. *Epidendrum* sp. 1  
Sec. for., 1200 m; ep.: 28843\*.

117. *Epidendrum* sp. 2  
Sec. for., 1300 m; ep., fls. pale green: 31111.
118. *Epidendrum* sp. 3  
Nanegalito, 1800 m; ep.: C 13064.
119. *Epidendrum* sp. 4 (*diothonea* group)  
Nanegal: Sodiro 4/1907.
120. *Eriopsis rutidobulbon* Hook.  
Sec. for., 1500-2000 m & orchid garden, 1250 m; ep., fls. yellow with red margins and yellow column: AR alcohol voucher, photo voucher.
121. *Erythrodes clavigera* (Rchb. f.) Ames (= *Erythrodes boliviensis* Cogn.)  
Prim. & sec. for., 1650-2000 m; terr., fls. pinkish: 28223\*, 28858\*, 30066\*; AR photo voucher.
122. *Erythrodes erythrodoides* (Schltr.) Ames  
Sec. for., 1450 m; terr., fls. greenish: 28849.
123. *Erythrodes jamesonii* (Garay) Dodson  
Nanegal, 1300 m; terr.: AR photo voucher; Jameson s.n.
124. *Erythrodes* sp. 1  
Sec. for., 1400 m; terr: AR alcohol voucher, photo voucher.
- [A number of additional collections of *Erythrodes* remain unidentified to species.]
125. *Eulophia alta* (L.) Fawc. & Rendle  
Sec. for., 1300-1400 m; terr., fls. whitish: 29275.
126. *Eurystyles cotyledon* Wawra  
Sec. for., 1450-1500 m; ep./terr.: 31905; AR photo voucher.
127. *Gomphichis adnata* (Ridl.) Schltr. (= *Gomphichis hetaerioides* Schltr., so listed in CVPE)  
Sec. for., Nanegal to Gualea, 1300-1400 m; ep./terr.: 30336; Rio Umachaca: Sodiro s.n.; [Nono-Tandayapa, km 17, 2160 m; ep.: Dodson 10776].
128. *Govenia sodiroi* Schltr.  
Carretera between Utopia and Nanegalito, 1800 m: AR photo voucher; near Bellavista, 2000 m: AR (field det.); [between Nono & Tandayapa, 2100 m; terr.: Harling 19976.]
129. *Govenia tingens* Poepp. & Endl.  
Sec. for., 1300-1900 m; terr. fls. pale yellow with reddish-purple markings: AR photo voucher; Suin 503.

130. *Habenaria dentifera* C. Schweinf.  
Sec. for., 1300-1400 m; terr., fls. greenish: 27593\*, 29115, 32359; AR photo voucher.
131. *Habenaria floribunda* Lindl.  
Sec. for., Nanegal; terr.: Sodiro s.n.\*
132. *Habenaria monorrhiza* (Sw.) Rchb. f.  
Sec. for., 1200-1850 m; terr., fls. white or greenish: 27089\*, 27781\*, 27785\*, 28038, 28055\*, 28164\*, 28264\*; AR alcohol voucher, photo voucher; Dodson 10824; Harling & Andersson 11560; Todzia 2478.
- [*Habenaria* sp. 1 (cf. *repens* Nutt.), Yunguilla, 2600 m; fls. green with extended sepals: AR photo voucher.]
133. *Ida ciliata* (Ruiz & Pav.) A. Ryan & Oakeley  
1200-2000 m; ep., fls. white, lip fimbriate: AR alcohol voucher, photo voucher. [In CVPE as *Lycaste ciliata* (Ruiz & Pav.) Lindl. ex Rchb. f.]
134. *Ida gigantea* (Lindl.) A. Ryan & Oakeley  
1500-3000 m; ep./terr., fls. greenish-yellow with red lip: AR photo voucher; Dalström 1606. [In CVPE as *Lycaste longipetala* (Ruiz & Pav.) Garay.] [Ecuadorian plants are better placed in *Ida heynderycxii* (E. Morren) A. Ryan & Oakeley fide A. Ryan & Oakeley, 2003.]
135. *Ida* sp. 1  
Nanegalito, 1800 m; terr.: C 13048 (as *Lycaste*).
136. *Ionopsis satyrioides* (Sw.) Rchb. f.  
Nanegal, 1200 m; ep., fls. white with purple striations: AR photo voucher.
137. *Isochilus linearis* (Jacq.) R. Br.  
Sec. for., 1300-1350 m; ep.: 32360; AR photo voucher.
138. *Kefersteinia ocellata* Garay  
Sec. for., 1000-1500 m; ep., fls. greenish white, striped and spotted purple: AR alcohol voucher, photo voucher.
139. *Kefersteinia sanguinolenta* Rchb. f.  
Sec. for., Tandayapa, 1600 m; ep.: Dodson 18799A.
140. *Kefersteinia taurina* Rchb. f.  
El Pahuma, Sendero Principal, 1500-2500 m; ep., fls. whitish green with red markings: AR alcohol voucher, photo voucher.
141. *Kefersteinia* sp. 1  
Rip. for., 1900 m; ep.: 31592.

142. *Lepanthes acarina* Luer

1000-3000 m; ep., plant miniscule, fls. white with reddish violet petals: AR photo voucher (det. L. Jost); west of Calacalí and La Liberia: Luer 11046. [May be extralimital.]

143. *Lepanthes ballatrix* Luer

Prim. for., 2400 m; ep., fls. white with yellow and purple: AR photo voucher (det. L. Jost); west of Calacalí and La Liberia, 2550 m: Luer 11042 [may be extralimital]; [Calacalí-Nieblí, Pelagallo, 2700 m: Hirtz 2474].

144. *Lepanthes biloba* Lindl.

Sendero Principal, 2000-3500 m; ep., fls. yellow or brownish with red-purple petals: AR photo voucher (det. L. Jost); [Calacalí-Nieblí, La Liberia, 2800 m: Dodson 15775].

[*Lepanthes brachypogon* Luer, west of Tandayapa, 2320 m; ep.: Luer 7301 (type).]

145. *Lepanthes cassidea* Rchb. f.

Forests, Nanegal; ep.: Jameson, 1854.

146. *Lepanthes columbar* Luer

West of Calacalí, 1800 m; fls. yellow-green with bright pink lip: Luer 13322; [Calacalí-La Liberia, 2200 m: Luer 10000].

147. *Lepanthes effusa* Schltr. (incl. *L. millei* Schltr.)

1800-2400 m; ep., sepals light red-brown, petals purple with yellow edge; lip purple with yellow center: Dodson & Thien 1106; Luer 9994, 11038A, 13323.

148. *Lepanthes gargantua* Rchb. f.

Prim. for., 1550-1600 m; ep., lvs. purplish, fls. white: 31055; AR photo voucher; west of Calacalí and La Liberia, 2550 m: Luer 11041 [may be extralimital]; [Calacalí-Nieblí, La Liberia, 2600 m: Hirtz 1299].

149. *Lepanthes kuijtii* Luer & Hirtz

Prim. for., Santa Lucia, 1600 m; ep., fls. red with yellow-green margins, sepals with spreading tails: AR photo voucher (det. L. Jost).

150. *Lepanthes magnifica* Luer

1000-2500 m; ep., lvs. purplish, with pubescent ridges underneath, fls. white with red-violet margins on petals: AR alcohol voucher, photo vouchers.

151. *Lepanthes mucronata* Lindl. (incl. *L. andrenoglossa* Rchb. f.)

Forests, Nanegal; ep.: Jameson, 1854; Nono-Nanegal, 2000 m: AR photo voucher; Luer 2400; west of Calacalí and La Liberia, 2500 m: Luer 11047 [may be extralimital]; [Calacalí-La Liberia, 2200 m: Luer 10013].

152. *Lepanthes nanegalensis* Rchb. f.

Nanegal; ep.: Jameson, "1864" [1854?].

153. *Lepanthes pecunialis* Luer & Hirtz

Sec. for., 1250-1800 m; ep., fls. orange: 27613\*, 28130\*, 31564(?); AR alcohol voucher, photo voucher; C 13032; T 595; Dalström 1609; Luer 4753.

154. *Lepanthes pelyx* Luer & Hirtz

Prim. for., 1600-1800 m & orchid garden, 1250 m; ep., lvs. thinly coriaceous, fls. light brown, petals green with fuschia lip: AR alcohol voucher, photo voucher (det. L. Jost).

[*Lepanthes pilosella* Rchb. f., Nono-Tandayapa, km 17, 2160 m; ep.: AR photo voucher; Dodson 10788; Calacalí-La Liberia: 2100 m: Luer 10009.]

[*Lepanthes pteropogon* Rchb. f., Calacalí-La Liberia, 2400 m: Luer 9993; Yunguilla, 2000-3500 m; ep.: AR photo voucher.]

155. *Lepanthes rhodophylla* Schltr.

Nanegal Valley near Río Frio; ep.: Sodiro 1896, 1902.

[*Lepanthes stupenda* Luer, La Liberia, 2700 m: Hirtz 1414; Calacalí-Nieblí, Pelagallo, 2800 m: Hirtz 2163.]

156. *Lepanthes villosa* Lojtnant

Prim. for., Sendero Tranquilo, 1600 m; ep., fls. cream and purple, striped dark purple: AR photo voucher.

157. *Lepanthes zygon* Luer

Sec. for., Tandayapa, 2000 m: Hirtz s.n. (cited by Valencia et al., 2000: 311).

158. *Lepanthes* sp. 1

Sendero Tranquilo, 1600 m; ep., lvs. pubescent, fls. yellowish with red and purple markings: AR photo voucher.

[*Liparis ramosa* Poepp. & Endl., Calacalí-Nieblí, 2700-2800 m: Hirtz 1420, 2146.]

159. *Lockhartia chocoensis* Kraenzl.

Prim. for., 1550-2000 m; ep., fls. yellow with red markings: 30428; AR alcohol voucher, photo voucher; Dodson 17189a.

160. *Lockhartia longifolia* (Lindl.) Schltr.

Sec. for., 1250-1600 m; ep., fls. yellow: 27625\*, 28964\*, 29301 (det. E. A. Christenson), 30428\*; AR photo voucher.

161. *Lycomormium ecuadorensis* Sweet

Sec. for., Inca Trail, 1350 m; ep., buds whitish, fls. pink with purple spots: 31083; AR alcohol voucher, photo voucher.

162. *Macroclinium perryi* (Dodson) Dodson  
Sec. for., Nanegalito, 1400-1600 m; ep.?: Dodson 6995 (type); Hirtz 993.
163. *Malaxis* cf. *andicola* (Ridl.) Kuntze  
Sendero Humedal, 1300 m; ep., fls. greenish: AR photo voucher.
164. *Malaxis fastigiata* (Rchb. f.) Kuntze  
El Pahuma, 2500 m; terr.: Suin 490.
165. *Malaxis ventricosa* (Poepp. & Endl.) Kuntze  
Between Nono-Pacto, 5-10 km above Nanegalito, 00° 00' N 78° 40' W, 1700 m; terr.: Holm-Nielsen 24435\*.
166. *Masdevallia anachaeta* Rchb. f.  
Sendero Tranquilo, 1650 m; ep., fls. yellowish orange: AR photo voucher; Tandayapa, 2160-2300 m; ep.: Dodson 10787; Königer 216b.
167. *Masdevallia angulata* Rchb. f.  
Sec. for., 1500-2000 m; ep.: AR photo voucher; C 5938; Luer 4723\*; Suin 359, 403.
168. *Masdevallia cucullata* Lindl.  
Nanegalito, 2200 m: Königer 164d.
169. *Masdevallia nidifica* Rchb. f.  
Sec. for., 1900-2300 m; ep., fls. cream & purple: AR photo voucher; F 1020; Königer 155a; Luer 2371\*; Suin 422.
170. *Masdevallia ophioglossa* Rchb. f.  
Sec. for., 1700-2300 m; ep.: AR photo voucher; Dalström 1607; Königer 155b; Luer 5211\*.
171. *Masdevallia parvula* Schltr.  
Nono-Nanegal, 2000 m; ep.: Dodson 1096.
172. *Masdevallia ventricularia* Rchb. f.  
Prim. for., 1675-2250 m; ep., fls. maroon with orange tips: 31136; AR alcohol voucher, photo voucher; Luer 1695; El Pahuma, 2000 m; ep., fls. purple with yellow base: Suin 445? (det. as *Masdevallia* aff. *saltatrix* Rchb. f.).
173. *Masdevallia* sp. 1  
Sec. for., 2100-2200 m; ep., fls. yellow: 30088.
174. *Masdevallia* sp. 2  
Prim. for., 2000 m; ep., fls. greenish-white: 28860.
175. *Masdevallia* sp. 3  
Prim. for., 1200-1700 m; ep., fls. pinkish-purple: Tipaz & Quelal 163\*.

176. *Masdevallia* sp. 4  
Prim. for., 2125 m; ep.: 28948\*.
177. *Maxillaria acutifolia* Lindl.  
Sec. for., 1200-1250 m; ep., fls. orange with burgundy lip: 27512\*, 27536\*; AR alcohol voucher, photo voucher.
178. *Maxillaria aggregata* (Kunth) Lindl.  
Sec. for. & roadsides, Utopia; ep., fls. pink, thickly bunched at base of lvs.: AR 1, photo voucher.
179. *Maxillaria aurea* (Poepp. & Endl.) L. O. Williams  
El Pahuma ("Loma Pahuamba"), 1900-1950 m; ep./terr.: AR photo voucher; F 1146.
- 180.** *Maxillaria calantha* Schltr. (incl. *Maxillaria nigrescens* Lindl.)  
Nono-Nanegal, 2000 m; ep.: Dodson & Thien 1099; El Pahuma, 2400 m: Suin 422 (aff.); [La Liberia, 2200 m: Hirtz 1514].
- 181.** *Maxillaria cryptobulbon* Carnevali & J. T. Atwood  
Sec. for. & orchid garden, 1250-1500 m; ep., fls. white or yellowish: 30396\*, 31872, 32924; AR alcohol voucher, photo voucher.
182. *Maxillaria dichotoma* (Schltr.) L.O. Williams  
Orchid garden, 1200 m; ep., viny habit, fls. yellow-green: AR photo voucher; Nanegal: Sodiro 94.
183. *Maxillaria ecuadorensis* Schltr.  
Sec. for., 1200-2150 m; ep. or terr., fls. yellow with reddish-brown lobes: 30088; AR alcohol voucher, photo voucher; F 1249, 1495; N 8655\*; Hurtado 1420\*.
184. *Maxillaria graminifolia* Rchb. f.  
Sendero Tranquilo, 1500 m; ep. on fallen tree, viny in large clumps, fls. creamy white with purple markings: AR alcohol voucher, photo voucher; [Nono-Nanegal, Guayumo, 2000 m: Dodson & Thien 1092.]
185. *Maxillaria grandiflora* (Kunth) Lindl.  
Sec. & upper mont. for., 2000-3000 m; ep., fls. 6-8 cm across, perianth white, lip yellow within, purple-striped without: 32815; AR photo voucher.
- [*Maxillaria jamesonii* (Rchb. f.) Garay & C. Schweinf., Nono-Tandayapa, 2200 m: Harling & Andersson 11633.]
186. *Maxillaria lehmannii* Rchb. f.  
1100-2150 m; ep., fls. large, up to 13 cm across, white with yellow inside lip and red outside: AR photo voucher; Dodson 10823, 15749; [Nono-Nanegalito via Tandayapa, 2160 m: Dodson 16503].

187. *Maxillaria lepidota* Lindl.

Prim. & sec. for., 1600-2400 m; ep., fls. yellow with purple spots: 30457\*, 31080, 32839; AR photo voucher; C 13030; P 3579\*; Dalström 1605; Dodson & Thien 1089; Suin 339, 416, 450, 457.

188. *Maxillaria longibracteata* (Lindl.) Rchb. f. (incl. *Maxillaria luteo-rubra* (Lindl.) Rchb. f.)

Nanegal; ep.: Jameson s.n.; [Nono-Nanegal, 2200 m: Luer 4710; Nono-Tandayapa 2200 m: Plowman & Davis 4443; Calacali-Niebli, 2800 m: Dodson 15764; Hirtz 2139].

189. *Maxillaria nanegalensis* Rchb. f.

Nanegal: Jameson s.n. (type); above Tandayapa, 2000 m: Luer 2365, 4732; [Calacali-Neibli, 2000 m: Hirtz 1491].

190. *Maxillaria nasuta* Rchb. f.

Sendero del Río, 1250 m; ep., fls. yellow with red lip: AR photo voucher.

191. *Maxillaria pardalina* Garay

Nono-Nanegal & El Pahuama ("Loma Pahuamba"), 1850-2100 m; ep., fls. yellow with red spots: 30186\*; AR alcohol voucher, photo voucher; F 1493; Dodson 1091; Suin 266, 465.

192. *Maxillaria parviflora* (Poepp. & Endl.) Garay

Sec. for., 1100-1225 m; ep.: 31160; AR alcohol voucher, photo voucher; Dodson 17063.

193. *Maxillaria polyphylla* Rchb. f.

Utopia, 2000 m: AR photo voucher.

194. *Maxillaria porrecta* Lindl.

Sec. for., 1200-1300 m; ep., fls. yellowish: 27511\*, 27532\*, 27610\*; AR alcohol voucher, photo voucher.

195. *Maxillaria pseudoreichenheimiana* Dodson

Sec. for., 1000-1500 m; ep., lvs. spotted white, fls. orange with white lip: AR 17, AR alcohol voucher, photo voucher.

196. *Maxillaria ramosa* Ruiz & Pav.

Sec. for., 1250-1300 m; ep., viney, fls. green: 27615\*.

[*Maxillaria squarrosa* (Schltr.) Dodson, Nono-Nanegalito via Tandayapa, km 17, 2160 m: AR photo voucher; Dodson 16504; Calacali-Niebli, 2800 m: Hirtz 2140.]

197. *Maxillaria* sp. 1

Sec. for., 1200-1400 m; ep., fls. white, sepal tips pink: AR alcohol voucher, photo voucher.

198. *Maxillaria* sp. 2

Orchid garden, 1250 m; ep., cane-stem habit, aerial roots, fls. axillary, yellow-white: AR alcohol voucher, photo voucher.

199. *Maxillaria* sp. 3  
1800 m; ep., creeping, fls. yellow with purple: AR photo voucher.
200. *Maxillaria* sp. 4 (*rufescens* group)  
Orchid garden, 1250 m; ep., fls. pink: AR photo voucher.
201. *Maxillaria* sp. 5  
Orchid garden, 1250 m; ep., viny habit, fls. greenish white: AR alcohol voucher, photo voucher (both det. M. Blanco).
202. *Myoxanthus affinis* (Lindl.) Luer  
Sec. for., Utopia, 2000 m; fls. translucent white with purple lip: AR photo voucher.
203. *Myoxanthus* sp. 1  
Sec. for., 1600-1900 m & orchid garden, 1300 m; ep., fls. pale yellow: 27821, 27966, 28010; AR alcohol voucher, photo voucher.
204. *Myrosmodes* sp.  
Prim. for., 1900 m; ep.: 30458\*.
205. *Odontoglossum armatum* Rchb. f  
Prim. & sec. for., El Pahuma, 1800 m; ep., fls. yellow brown with red spots: AR photo voucher.
206. *Odontoglossum cirrhosum* Lindl.  
Sec. for. & scrub, 1200-2000 m; ep./terr., fls. white with red dots, lip yellow: 30589\*\*; AR alcohol voucher, photo voucher; T 167; Luer 2373; Suin 458; [Dodson 10777].
207. *Odontoglossum cristatum* Lindl.  
Sec. for., 1850 m; ep., fls. yellow & brown: 30382\*\*; AR photo voucher; Dodson 16507.
208. *Odontoglossum "denticulatum"* F. Lehm. ex Dalström ined.  
Prim. & upper mont. for., 2000-2750 m; ep., fls. yellow & brown: 30556\*\*; AR alcohol voucher, photo voucher; Andretta 216; Lehmann 8549. [Not in CVPE; unpublished name.]
209. *Odontoglossum hallii* Lindl.  
Prim. for., 1800-2000 m; ep., fls. yellow-green spotted with brown: 27333\*; [Yunguilla orchid garden: AR alcohol voucher, photo voucher].
210. *Odontoglossum* sp. 1  
Prim. for., Montecristi, 2725 m; ep.: 29513.
211. *Oerstedella medinae* (Dodson) Hágsater  
Sendero Tranquilo, 1300 m; ep., fls. green with pink lip: AR photo voucher.

212. *Oncidium hapalotyle* Schltr.

Sec. for.: AR alcohol voucher, photo voucher; Tandayapa, 1900 m; ep.: Harling & Andersson 11615\*.

[*Oncidium heteranthum* Poepp. & Endl.: AR alcohol voucher, photo voucher; Nono-Tandayapa, km 17, 2160 m; ep.: Dodson 10784.]

213. *Oncidium klotzschianum* Rchb. f. (incl. *O. obryzatum* Rchb. f.)

Sec. for., 1300 m; ep., fls. yellow with brown spots on lateral tepals: 27619\*, 32929; AR alcohol voucher, photo voucher.

214. *Oncidium pentadactylon* Lindl.

Prim. & upper mont. for. & scrub, 1600-2500 m; ep. or terr., fls. yellow: 28093\*, 30042?; AR photo voucher; K 1487; Dodson 6991. "Margarita".

215. *Otoglossum anixopterum* (Rchb. f) Garay & Dunst.

Prim. & sec. for., Sta. Lucia, 2000-3000 m; ep., fls. orange and yellow with purple lip: AR alcohol voucher, photo voucher.

216. *Pachyphyllum falcifolium* Rchb. f.

Calacalí-Nanegal; ep.: K 1523.

217. *Pelexia ecuadorensis* Schltr.

Nanegal, 1300 m; terr.: Jameson s.n.

**218.** *Peristeria* cf. *lindenii* Rolfe

Sec. for., 1350 m; ep., buds white: 31024.

219. *Phragmipedium lindenii* (Lindl.) Dressler & N. H. Williams

Sec. for., 1300-1850 m; terr., tepals yellow with greenish veins, lobes purplish: 27968\*; AR alcohol voucher, photo voucher; Dodson 10821; Sodiro s.n.

220. *Phragmipedium longifolium* (Rchb. f. & Warsz.) Rolfe

Sec. for., Nanegal; terr.: AR photo voucher; Hartweg s.n.\* [last collecton could be extralimital.].

221. *Platystele* sp. 1

Prim. for., 1650-1700 m; ep., fls. greenish: 31143.

[*Platystele alucitae* Luer: Dodson 7315; and *Platystele microscopica* Luer: Dodson 7311; both from Tandayapa-Mindo, 2100 m; ep.]

222. *Pleurothallis anceps* Luer

Sec. for., Nanegalito, 1300-1600 m; ep.: AR alcohol voucher, photo voucher; Dodson 6993; El Pahuma, 2000 m: Suin 468.

[*Pleurothallis antennifera* Lindl., Guantopungo, prim. for., 2400 m; ep., fls. greenish yellow: AR photo voucher.]

223. *Pleurothallis bicruris* Lindl.

Prim. for., Montecristi, 2400-2500 m; ep., fls. white mottled with red: AR photo voucher; west of Calacalí and La Liberia, 2500 m: Luer 11053 [may be extralimital]; [La Liberia, 2700 m: Hirtz 1409].

224. *Pleurothallis bivalvis* Lindl.

Prim. & sec. for., Sendero los Gallos, 1300 m; ep., lvs. cordate, fls. green and red: AR photo voucher.

[*Pleurothallis cardiophylla* Schltr., Nono-Nanegal, km 18, 2000 m: Dodson 3733; Quito-Mindo via Tandayapa, 2000 m: Luer 2389 (possibly within the area).]

[*Pleurothallis cassidis* Lindl., Hacienda Yunguilla, 2800 m; ep.: Haught 3181.]

225. *Pleurothallis chloroleuca* Lindl.

Sec. for., 1500-1700 m; ep., fls. yellow: AR photo voucher; Q 121 (det. G. Carnevali).

226. *Pleurothallis cordata* (Ruiz & Pav.) Lindl.

Prim. & upper mont. for., 1700-2725 m & orchid garden, 1250 m; ep./terr., plants greenish or purplish: 27443, 28206\*, 28253\*, 29233, 29502, 30560, 30567, 31227; AR alcohol voucher\*\*\*, photo vouchers\*\*\*; L 13678, 13685, 13688, 14050; Harling & Andersson 11610\*\*\*, 11637; Suin 358, 390 (both aff.).

227. *Pleurothallis crossota* Luer & Dalström

1500-2000 m; ep./terr., lvs. cordate, fls. brown or purple, dorsal sepal five-veined: AR photo vouchers\*\*\*.

228. *Pleurothallis crucifera* Luer & Hirtz

Sendero Tranquilo, 1250 m; ep., fls. yellowish-brown: AR photo voucher\*\*\*.

229. *Pleurothallis deflexa* Luer

El Pahuma, 1800 m; ep., fls. deep purple with brown lip: AR photo voucher\*\*\*; [Tandayapa-Mindo, 2000 m: Luer 2367, 2403].

230. *Pleurothallis dibolia* Luer

Senderos Tranquilo & Principal, 1000-1500 m; ep., fls. dull yellow with brown lip: AR photo voucher.

231. *Pleurothallis dodsonii* Luer

Sec. for., Marianitas, 1250 m; ep., lvs. spotted, fls. hidden within bract: AR photo voucher.

232. *Pleurothallis dunstervillei* Foldats

El Pahuma, 2400 m; ep., fls. purple: Suin 433.

233. *Pleurothallis ensata* Luer

Sendero Tranquilo, 1300 m; ep., lvs. narrowly cordate, fls. pink with yellow lip: AR photo voucher.

234. *Pleurothallis epiglottis* Luer

El Pahuma, 1800 m; ep., fls. non-resupinate, white with blue: AR photo voucher\*\*\*.

235. *Pleurothallis erythrium* Luer

1000-2500 m; ep., fls. reddish-purple: AR photo voucher\*\*\*.

[*Pleurothallis expansa* Lindl., La Liberia, 2700 m: Hirtz 1415 (det. C. Luer).]

236. *Pleurothallis gelida* Lindl.

Orchid garden, 1250 m; ep., long, congested raceme with translucent white fls: AR photo voucher; [Tandayapa-Mindo, 2000 m: Luer 2401].

237. *Pleurothallis gongylodes* Luer

West of Calacalí and La Liberia, 2100 m: Luer 11035. [May be extralimital.]

[*Pleurothallis grandiflora* Lindl., at Yunguilla, 2600 m; ep., lvs. cordate, fls. large, yellow brown: AR photo voucher.]

238. *Pleurothallis imperialis* Luer

Banks between El Carmen & Marianitas, 1200-1250 m; ep.: 28159\*; AR photo voucher.

239. *Pleurothallis lacera* Luer

Montecristi, 2400 m; ep., fls. dark wine red, lip lacerate: AR photo voucher; [La Liberia, 2700 m: Hirtz 1409].

240. *Pleurothallis linguifera* Lindl.

Nono-Nanegal, 1200 m; ep., fls. yellow-brown to reddish-brown: Luer 798.

241. *Pleurothallis macra* Lindl.

Upper mont. for., 2500-2750 m; ep./terr., fls. yellow: AR alcohol voucher, photo vouchers; K 31979; L 13675, 13682, 13683; Suin 500\*\*\*.

[*Pleurothallis oblonga* Luer & Hirtz, La Liberia, 2800 m: Hirtz 1416.]

[*Pleurothallis pulchella* (Kunth) Lindl., La Liberia, 2700 m: Hirtz 1412; Luer 14936.]

242. *Pleurothallis ramulosa* Lindl.

Nono-Nanegal, 2000 m; ep.: Dodson & Thien 1103.

243. *Pleurothallis restrepioides* Lindl.

El Pahuma, 1800-2500 m; ep., fls. white or yellow, heavily suffused with red, lip purplish: AR photo voucher; Suin 492; [La Liberia, 2700 m: Hirtz 1407].

244. *Pleurothallis ruberrima* Lindl.  
Prim. & sec. for., 1000-2500 m; ep., fls. red with yellow: AR alcohol voucher, photo voucher.
245. *Pleurothallis ruscifolia* (Jacq.) R. Br.  
Prim. & sec. for., 1250-1800 m; ep. or terr., common, fls. yellow to greenish: 27811\*, 28061\*, 28062, 28069\*, 28194\*, 31031, 31088 (these two det. E. A. Christenson); AR alcohol voucher, photo voucher; Nanegal: Sodiro s.n., 3/1906.
246. *Pleurothallis scabrilinguis* Lindl.  
Sec. for., 1800 m; ep.: AR photo voucher; Luer 13321.
247. *Pleurothallis sclerophylla* Lindl.  
El Pahuma ("Loma Pahuamba"), 1900-2000 m & orchid garden, 1250 m; ep.: AR alcohol voucher, photo voucher; F 1141; Suin 448.
248. *Pleurothallis sicaria* Lindl.  
Sec. for., 1350-1400 m; ep., fls. & frs. dark green: 32918 (det. D. Kelch); AR photo voucher.  
  
[*Pleurothallis sodiroi* Schltr., Alaspungo-Gualea: Holmgren 639.]
249. *Pleurothallis stevensonii* Luer  
Prim. for., 1750 m; ep., fls. white with red spots: 28846\*.
250. *Pleurothallis trachysepala* Kraenzl. (incl. *Pleurothallis brachyblephara* Schltr.)  
El Pahuma, 2000 m; ep., fls. purple: Suin 389.
251. *Pleurothallis tripterantha* Rchb. f.  
Sendero Humedal, 1300 m; ep., fls. cleistogamous: AR photo voucher.  
  
[*Pleurothallis truncata* Lindl., Yunguilla, 2600 m; fls. orange-red: AR photo voucher.]
252. *Pleurothallis undulata* Poepp. & Endl.  
Sec. for., Tandayapa, 1200-1300 m; ep.: Hirtz 1892, 1893.
253. *Pleurothallis zephyrina* Rchb. f.  
Sec. for., 2150 m; ep.: AR alcohol voucher, photo voucher; Dodson 15750.
254. *Pleurothallis* sp. 1  
Sec. for.; El Pahuma, 1800 m; long raceme, yellow frs. with red: AR photo voucher.
255. *Pleurothallis* sp. 2  
Sec. for., Sendero Tranquilo, 1250 m; lvs. cordate, red fls., cross shaped: AR alcohol voucher, photo voucher.
256. *Pleurothallis* sp. 3  
Sec. for., orchid garden, 1250 m; long raceme, small white fls.: AR photo voucher.

257. *Pleurothallis* sp. 4  
Prim. for., Montecristi, 2500 m; pink fls., pendent with 'cap' dorsal sepal: AR photo voucher.
258. *Pleurothallis* sp. 5  
Prim. for.; Montecristi, 2400 m; like sp. 8 (?), but smaller, with yellow lines: AR photo voucher.
259. *Pleurothallis* sp. 6  
Sec. for., El Pahuma, 1800 m; ep., lvs. cordate, fls. red-brown: AR photo voucher.
- [*Pleurothallis* sp. 7, Yunguilla, 2600 m; ep., fls. red and yellow, pubescent: AR photo voucher.]
260. *Pleurothallis* sp. 8  
Orchid garden, 1250 m; lvs. cordate, fls. yellowish-green with yellow lip: AR photo voucher.
261. *Pleurothallis* sp. 9  
Orchid garden, 1250 m; ep., fls. greenish with red lip: AR alcohol voucher\*\*\*, photo voucher\*\*\*.
- [A considerable number of collections of *Pleurothallis* remain unidentified to species.]
262. *Polystachya concreta* (Jacq.) Garay & H. R. Sweet  
Sec. for. & clearings, 1000-1600 m; ep., fls. translucent yellow-white: 30423, 31567; AR alcohol voucher, photo voucher.
263. *Ponthieva disema* Schltr.  
Sec. & upper mont. for., 2000-2600 m; ep./terr., fls. white: 32402; [Yunguilla, 2700 m: Haught 3162].
264. *Ponthieva pseudoracemosa* Garay  
Sec. for., 1600-2500 m; terr.: Smith 1946; Sparre 16795.
265. *Porphyrostachys* sp.  
Sec. for., 1300-1400 m; terr., fls. green: 32358. [Our plants differ from *Porphyrostachys pilifera* (Kunth) Rchb. f. in the distinctly green, rather than red, flowers.]
266. *Porroglossum amethystinum* (Rchb. f.) Garay  
Prim. & sec. for., 1200-2100 m; ep., fls. pink to purplish: 27963\*, 29201\*; AR alcohol voucher, photo voucher; T 163\*.
267. *Porroglossum muscosum* (Rchb. f.) Schltr.  
Sec. for., 2000 m; ep.: AR photo vouchers; C 5952.
268. *Porroglossum* sp. 1  
Sec. for., 1475 m; ep. on mossy log, fls. pale maroon: 31898.

269. *Prescottia stachyodes* (Sw.) Lindl.  
Sec. for., 1300-2000 m; terr., fls. greenish-white: 32384, 32455; Hirtz 1890.
270. *Prosthechea crassilabia* (Poepp. & Endl.) Carnevali & I. Ramírez  
Sec. for., 1700-2000 m; ep., fls. green and black or reddish-brown: 28037 (det. E. A. Christenson), 31643; AR photo vouchers. [These specimens were previously determined as *Prosthechea vespa* (Vell.) W. E. Higgins.] [Not in CVPE.]
271. *Prosthechea fragrans* (Sw.) W. E. Higgins  
Sec. for., 1200-1250 m; ep., fls. white with red spots: 27535\*; AR alcohol voucher, photo voucher.
272. *Prosthechea hartwegii* (Lindl.) W. E. Higgins  
Sec. for., 1300-2000 m; ep., fls. greenish-yellow with red: AR photo voucher; V 12309; Hirtz 1891\*.
273. *Prosthechea pamplonensis* (Rchb. f.) W. E. Higgins  
Tandayapa, 1800 m; ep., fls. green with black markings, fragrant: AR photo voucher; Dodson 6989.
274. *Pseudocentrum macrostachyum* Lindl.  
Sec. for., 2000-2650 m; terr., fls. green: Dodson 15774; Hirtz 2157; Molau 3037; Sparre 16760.
275. *Psymorchis pumilio* (Rchb. f.) Dodson & Dressler  
Sec. for., 1250 m; ep., fls. yellow: 28129\*; AR photo voucher.
- [*Pterichis triloba* (Lindl.) Schltr., Yunguilla, 2600 m; ep., entire plant pubescent, fls. yellow-orange, non-resupinate: AR photo voucher.]
- [*Restrepiopsis tubulosa* (Lindl.) Luer (as *Restrepiopsis viridula* (Lindl.) Luer), Nono-Tandayapa, km 17, 2160 m; ep.: Dodson 10786.]
276. *Rodriguezia lehmannii* Rchb. f.  
Sec. for., 1250-1700 m; ep., fls. white with purplish or reddish lines: 27447 ex p.\*, 27845\*, 27977\*, 31109; AR alcohol vouchers, photo vouchers; T 597\*. [29078, with yellowish-green fls., may represent another species.]
277. *Scaphosepalum ophidion* Luer  
Prim. for., Sta. Lucia, 1500-2500 m; ep., fls. yellow-brown or purple with purple markings throughout: AR alcohol vouchers, photo vouchers.
278. *Scaphosepalum swertiifolium* (Rchb. f.) Rolfe  
Prim. for., Sta. Lucia, 1500-2500 m; ep., fls. white or yellow with brown or purple, extended sepaline tails: AR alcohol voucher, photo voucher.

279. *Scaphosepalum* sp. 1  
Prim. & upper mont. for., 2250-2700 m; ep., fls. purple: 28940\*; K 31983.
280. *Scaphyglottis prolifera* Cogn.  
Sec. for. & clearings, 1000-1500 m; ep., fls. white with violet colorations: AR alcohol voucher, photo voucher.
281. *Scaphyglottis punctulata* (Rchb. f.) Schweinf.  
Valle de Nanegal: Sodiro 73 (8/1874).
282. *Scelochilus chiribogae* Dodson  
Sec. for., Nanegalito, 1400 m; ep.: Hirtz 989\*.
283. *Scelochilus heterophyllus* Rchb. f.  
Sec. for., Tandayapa, 1800 m; ep.: AR alcohol voucher, photo voucher; Hirtz 2179\*.
284. *Scelochilus jamiesonii* Lindl.  
Sec. for., Sendero Tranquilo, 1400 m; ep., fls. greenish white: AR alcohol voucher, photo voucher; [Nono-Nanegalito via Tandayapa, 2000-2160 m: Dodson 16502A, 16653].
285. *Schlimmia stevensonii* Dodson  
Prim. & sec. for., 1200 m; ep., fls. pink with red spots: AR alcohol voucher, photo voucher.
286. *Sertifera purpurea* Lindl. & Rchb. f.  
Prim. for., 21 km west of Calacalí, 2500 m; terr., fls. purple with white lip: AR photo voucher; L 13677; [La Liberia, 2700 m: Hirtz 1418].
287. *Sertifera* sp. 1  
Prim. for., 2250-2300 m; ep.: 28919\*.  
  
[*Sigmatostalix adamsii* Dodson, Quito-Tandayapa, 2300 m; ep.: Dodson 13093.]
288. *Sigmatostalix picta* Rchb. f.  
Sec. for. & clearings, Sendero Tranquilo, 1500-2000 m; ep., fls. yellow and brown: AR alcohol voucher, photo voucher; Nanegal: Sodiro 127 (8/1874).
289. *Sigmatostalix* sp. 1  
Sec. for., 1300 m; ep., fls. dull yellow with brown spots: 27684.
290. *Sobralia atropubescens* Ames & C. Schweinf.  
1000-2500 m; terr., stems 1 m, fls. orange-brown, lip pinkish suffused white and yellow: AR alcohol voucher, photo voucher.
291. *Sobralia crocea* (Poepp. & Endl.) Rchb. f.  
Sec. for., 1600-2000 m; ep./terr.: AR photo voucher; Dodson 6992; Molau & Eriksen 2230; Sodiro 132, 8/1876.

292. *Sobralia ecuadorana* Dodson

Sec. for., 1450-1850 m & orchid garden, 1250 m; ep./terr., fls. pink, lip white with yellow, strongly fragrant of vanilla: 32969; AR alcohol vouchers, photo voucher; Dodson 10820.

293. *Sobralia gentryi* Dodson

El Pahuma, 1800 m; fls. flushed wine color with yellow lip: AR photo voucher.

294. *Sobralia gloriosa* Rchb. f.

Sec. for., 1200-1500 m; terr., stems 1 m, fls. white with maroon lip: 31941\*; V 12264\*.

295. *Sobralia klotzscheana* Rchb. f.

Sec. for., 1450-2100 m & orchid garden, 1250 m; terr., to 1.5 m, fls. pink or white with pink lip: 27967\*, 30451, 30481(?), 30502, 32969; AR alcohol voucher, photo voucher. "Maygua"

296. *Sobralia lancea* Garay

Orchid garden, 1200 m; terr., stems to 50 cm, fls. creamy white with a purple spot: AR alcohol voucher, photo voucher.

297. *Sobralia pulcherrima* Garay

Banks, 1200-1800 m; terr., to 4 m, fls. pink, lip with purplish lines: 28302, 29979\*, 31941; AR alcohol voucher, photo voucher; Harling & Andersson 11751 (type); Sodiro 134.

298. *Sobralia rosea* Poepp. & Endl.

Steep banks in sec. for., 1200-1300 m; terr., canes to 3 m, fls. white, lip with purplish lines: 27079\*; AR photo voucher; Asplund 1571.

299. *Sobralia setigera* Poepp. & Endl.

El Pahuma, 1900 m: Suin 502.

300. *Sobralia valida* Rolfe

Sec. for., 1300 m; terr., canes to 1 m; fls. fragrant, white with yellow throat, lip violet-edged: 31342\*\*; AR photo voucher.

301. *Stanhopea impressa* Rolfe

Sec. for., Tandayapa, 1600 m & orchid garden, 1250 m; ep.: AR alcohol voucher, photo voucher; Dodson 18799.

302. *Stanhopea* sp. 1

Sec. for., Hacienda El Carmen, 1250 m; ep.: Osbourn s.n.

303. *Stelis adrianae* Luer

Nanegalito, 1300 m: Hirtz 4726\*\*\*. [Not in CVPE.]

[*Stelis alba* Kunth, Hacienda Yunguilla, 2800 m; ep.: Haught 3187.]

304. *Stelis allenii* L. O. Williams  
Orchid garden, 1250 m; ep., fls. reddish-purple: AR photo voucher\*\*\*. [Not in CVPE.]
305. *Stelis amoena* Luer & Hirtz  
Calacalí to Nanegalito, 2000 m: Luer 19871. [Not in CVPE.]
306. *Stelis argentata* Lindl.  
Prim. & sec. for. & clearings, 1500-2000 m; ep., pink or purple fls.: AR photo vouchers; F 37130.
307. *Stelis bicornis* Lindl.  
El Pahuma, 2500 m; ep.; fls. yellow-green: Suin 499\*\*\*.
308. *Stelis biserrula* Lindl.  
Sec. for. & roadsides, 1800-2250 m; ep., fls. purple & green: AR photo voucher\*\*\*; M 1384\*\*\*; Luer & Hirtz 19872.
- 309.** *Stelis calotricha* Schltr.  
Prim. & sec. for., 1250 m; ep., plant to 2 cm, fls. purple: AR photo voucher\*\*\*.
310. *Stelis columnaris* Lindl.  
Sec. for. & roadsides, 1800-2250 m; ep., fls. purple, column extended past sepals: Luer 19875\*\*\*; Molau & Ohman 1388\*\*\*, 1390\*\*\*.
311. *Stelis concinna* Lindl.  
Sec. for. & roadsides, 2000-2150 m; ep., fls. purple, pubescent, on long, flexuous infl: AR photo voucher; M 3046\*\*\*.
312. *Stelis eublepharis* Rchb.  
Prim. & sec. for., 1200-1800 m; ep., fls. pink, sepals pubescent: AR photo voucher; Hirtz 1894\*\*\*.
313. *Stelis flacca* Rchb. f.  
Prim. for., 1600-2000 m; ep., fls. purple: AR 18, photo vouchers; Luer 19873\*\*\*; Suin 467\*\*\*.
314. *Stelis hirtzii* Luer  
Prim. & sec. for., 1200-1800 m; ep., fls. greenish-purple: AR 6\*\*\*, photo voucher. [Not in CVPE.]
315. *Stelis jamesonii* Lindl.  
Prim. for., Sendero Tranquilo, 1600 m; ep., fls. pink with yellow: AR 22\*\*\*, photo voucher.
316. *Stelis langlassei* Schltr.  
1550-1600 m; ep., fls. cream with purplish lobes: T 604\*\*\*; G 73250\*\*\*. [Not in CVPE.]

317. *Stelis* cf. *lindenii* Lindl.

Prim. for., Sendero Tranquilo, 1600 m; ep., fls. yellow-green with purple: AR 19\*\*\*, photo voucher.

318. *Stelis morganii* Dodson & Garay

Sec. for., 1550-2000 m; ep., fls. cream, pubescent: 31784; AR photo voucher; C 13022; T 596\*; Suin 449 (aff.).

319. *Stelis nanegalensis* Lindl. (incl. *Stelis vulcanica* Rchb. f.)

Nono-Nanegal, 2000 m; fls. pink or yellow: Luer 6325A; AR 16, alcohol voucher, photo voucher.

**320.** *Stelis pardipes* Rchb. f.

West of Calacalí and La Liberia, 2100 m: Luer 11037. [May be extralimital.]

[*Stelis piperina* Lindl., Cerro Guantopungo, 2720 m: K 31986.]

321. *Stelis pusilla* Kunth

Prim. & sec. for., 1650-2500 m; ep./terr., fls. pale yellow: 27964\*; AR photo voucher; L 11341, 13674, 14045; Luer 19876; Molau & Ohman 1389; Suin 491.

322. *Stelis striolata* Lindl.

Prim. & sec. for. & roadsides, 1200-2000 m; ep., fls. yellow with purple: AR photo voucher.

[A number of additional collections of *Stelis* remain unidentified to species.]

323. *Stellilabium andinum* (L. O. Williams) Garay & Dunst.

Sec. for., Nanegalito, 1400 m; ep.: AR photo voucher; Hirtz 991\*.

324. *Stellilabium astroglossum* (Rchb. f.) Schltr. (incl. *S. tanii* Dodson)

Sec. for., 1400-1600 m; ep.: AR alcohol voucher, photo voucher; Dodson 6994, 6995, 16511; Hirtz 990; Palacios 12843.

325. *Stellilabium hirtzii* Dodson

Sec. for., Nanegalito, 1400 m; ep.: Hirtz 992\* (type).

[*Stenorrhynchos cernuus* Lindl., west of Nanegal, 1200 m; ep.: Hartweg s.n. (type), is probably extralimital.]

326. *Stenorrhynchos speciosum* (Jacq.) Rich. ex. Spreng.

Prim. for., Cerro Sosa, 2225 m; ep.: 29428\*.

327. *Symphyglossum sanguineum* (Rchb. f.) Schltr.

Sec. for. & scrub, 1700-2000 m; ep., fls. red: 30155 (det. S. Dalstrom), 30588\*; AR photo voucher; C 7175\*; F 1185; Dodson 6984.

[*Telipogon hagsateri* Dodson & R. Escobar, Yunguilla, 2600 m: AR photo voucher.]

328. *Telipogon steinii* Dodson & R. Escobar

Prim. for., El Pahuma, 1800-1850 m; ep., fls. yellow with red-brown veins, lip red with spines: AR photo voucher\*; Stein 2863 (type).

329. *Trichopilia fragrans* (Lindl.) Rchb. f.

Prim. for., 1300-2000 m; ep. or terr., fls. white, fragrant: 29214, 32920; C 5926\*; AR photo voucher.

330. *Trichopilia rostrata* Rchb. f.

Prim. for., 1750 m & orchid garden, 1250 m; ep., fls. white, throat pink within: 28848\*; AR alcohol voucher, photo voucher.

331. *Trichopilia steinii* Dodson ?

Orchid garden, 1250 m; ep., fls. white with yellow throat, fleshy: AR alcohol voucher. [Not in CVPE.]

332. *Trichosalpinx cedralensis* (Ames) Luer (= *Trichosalpinx ramulosa* Luer & Hirtz)

West of Calacalí and La Liberia, 2100 m: Luer 11034. [May be extralimital.]

333. *Trichosalpinx dirhamphis* (Luer) Luer

Nanegalito, 1400 m; Hirtz 6194; [Nono-Tandayapa, 2200 m: Harling & Andersson 11634].

334. *Trichosalpinx dura* (Lindl.) Luer

Prim. for., 1900-2000 m; ep., buds yellowish: 27751; Dodson & Thien 1105.

**335.** *Trichosalpinx memor* (Rchb. f.) Luer

Prim. & sec. for., 1250 m; ep., lvs. purple, fleshy, fls. red-purple with yellow: AR photo voucher.

336. *Trichosalpinx* aff. *microcharis* (Schltr.) Luer

El Pahuma, 2000 m; ep., fls. cream: Suin 470.

337. *Trichosalpinx* sp. 1

Sec. for., 1600 m; ep.: 31124.

338. *Trisetella vittata* (Luer) Luer

Sec. for., Tandayapa; ep.: Luer 5209\*.

339. *Xylobium elongatum* (Lindl. & Paxton) Hemsl.

Prim. & sec. for., 1250-1625 m; ep., fls. whitish, lip yellow: 28390, 31074; AR photo voucher.

340. *Xylobium foveatum* (Lindl.) G. Nicholson ?

Orchid garden, 1250 m; ep., fls. white: AR alcohol voucher, photo voucher.

341. *Xylobium leontoglossum* (Rchb. f.) Rolfe

Sec. for., 1200-2150 m; ep., fls. dull creamy white: 30368\*, 31009, 31152(?); AR photo voucher; C 5927\*; T 156\*; Hurtado 1436\*; Molau & Eriksen 3041; Suin 360, 440, 464.

342. *Xylobium pallidiflorum* (Hook.) G. Nicholson

Sec. for., 1250-1600 m; ep., fls. yellow and white: 27933\*, 28175\*; AR alcohol voucher, photo voucher; T 594\*; Nanegal: Sodiro 139.

343. *Xylobium* sp. 1

Orchid garden, 1250 m; ep., pseudobulbs with 2-3 lvs, fls. pink, lip reddish-yellow: AR alcohol voucher, photo voucher.

344. *Zootrophion dayanum* (Rchb. f.) Luer

Prim. & sec. for., 1500-2500 m; ep., fls. red with yellow throughout: AR photo voucher.

345. *Zootrophion hypodiscus* (Rchb. f.) Luer

Sec. for., Sendero del Río, 1000-2000 m; ep., fls. reddish-brown with yellow: AR alcohol voucher, photo voucher.

346. *Zootrophion* sp. 1

Sec. for., Sendero del Río, 1350 m; fls. pinkish red: AR alcohol voucher, photo voucher.

**POACEAE** (37) (\* det. G. Davidse; \*\* det. S. Laegaard; \*\*\* det. S. Renvoize)

Refs.: Hitchcock, A. S. 1927. Contr. U. S. Nat. Herb. 24: 291-556; Judziewicz, E. J. 1990. Fl. Guianas A8: 1-727.

1. *Aegopogon cenchroides* Humb. & Bonpl. ex Willd.

Open scrub and rocky areas, 1600-2000 m: 32845; Holm-Nielsen 16153\*\*; Laegaard 52498.

2. *Agrostis* sp.

Rocky slope in sec. for., 1850-1900 m; herb with sprawling stems: 31575.

3. *Andropogon bicornis* L.

Sec. for. & cleared areas, 1200-1650 m; common: 27159, 28354, 29353; Z 63. "Puntero"

4. *Andropogon leucostachyus* Kunth

Disturbed roadsides, 1850-1900 m: 31635.

5. *Anthoxanthum odoratum* L.

Bed of Río Pichán, 1900 m: 32396.

6. *Arundinella berteroniana* (Schult.) Hitchc. & Chase

At side of Río Alambi, along road, 10 km north of Nanegalito, 00° 07' N 78° 39' W, 1400 m: Laegaard 53104\*\*\*.

7. *Axonopus compressus* (Sw.) P. Beauv. (upland form)  
Sec. for. & roadsides, 1300-1700 m: 27157\*, 27869\*; Laegaard 52499\*\*\*.
8. *Axonopus scoparius* (Flüggé) Kuhlm.  
Pastures & sec. scrub, 1300-1400 m; robust grass 1-1.5 m high: 31703; Filskov 37049\*\*, 37050\*\*; Z 60, 199. "Gamalote" "Micay" [An important forage grass.]
9. *Briza minor* L.  
Mossy banks, 2000 m: 31859.
10. *Chusquea scandens* Kunth  
Sec. for., 1800-2200 m; climber: C 13055; F 1471.  
  
[*Chusquea subulata* L. G. Clark, road from Calacali to San José de Niebli, 2750 m: Young 124 (type).]
11. *Chusquea uniflora* Steud.  
El Pahuma ("Loma Pahuamba"), 2300 m; climber: F 1422.  
  
[Additional collections of *Chusquea* from primary forest, Cerro Sosa, 2050-2650 m; climbing to 8 m: 29138, 29179, 29434, 29487, all barren, remain to be identified.]
12. *Coix lacryma-jobi* L.  
Sec. for. & scrub, 1250 m: 28303.
13. *Cortaderia jubata* (Lemoine) Stapf  
Scrub on banks, west of Quebrada Chiquilpe, 1950-2200 m; lvs. 1-1.5 m, infls. 2-2.5 m: 32844 (det. M. Lyle).
14. *Cymbopogon citratus* (DC.) Stapf  
Sec. for., 1200-1400 m: Filskov 37072\*\*\*. "Yerba Louice"
15. *Dichantherium hebotos* (Trin.) Zuloaga (= *Panicum hebotos* Trin.)  
Sec. for., 1250-1400 m; weed: 27838\*, 27913\*.
16. *Digitaria abyssinica* (Hochst. ex A. Rich.) Stapf  
Sec. for., 1500-2000 m: Z 66\*; Delgado 16\*\*; Laegaard 71455.
17. *Eleusine indica* (L.) Gaertn.  
Pastures, 1300-1500 m: Z 156, 223.
18. *Guadua angustifolia* Kunth  
Common along Río Alambi, 1200-1300 m; canes to 10 m: 32863; Nanegalito: Acosta-Solís 17157 (det. S. M. Young & W. S. Judd).

19. *Gynerium sagittatum* (Aubl.) P. Beauv.  
Banks of Río Alambi, 1125 m; culms 3-4 m high, spikes pendent, purplish: 31279.
20. *Holcus lanatus* L.  
Openings in upper mont. for., 2700-2790 m: 30542; El Pahuma, 2000 m: Cedeño 31.
21. *Homolepis glutinosa* (Sw.) Zuloaga & Soderstrom  
Sec. for., 1175 m: 28809\*.
22. *Ichnanthus nemorosus* (Sw.) Döll  
Nanegalito: Acosta-Solís 17164 (det. M. T. Stieber); [31878, from clearings (potreros) in sec. for., 1250-1300 m, may belong here].
23. *Ichnanthus tenuis* (J. Presl & C. Presl) Hitchc. & Chase  
At side of Río Alambi, along road, 10 km north of Nanegalito, 00° 07' N 78° 39' W, 1400 m: Laegaard 53105\*\*\*, 53107B\*\*\*.
24. *Isachne arundinacea* (Sw.) Griseb.  
Sec. for., 1225 m; vine with pendent branches: 31093.
25. *Isachne rigens* (Sw.) Trin.  
Sec. for. & edge of prim. for., 2000-2500 m: L 13665\*\*\*, 14044\*\*\*.
26. *Lasiacis nigra* Davidse  
Sec. for., 1300-2000 m; common scrambler: 27394, 27440, 27563, 27971, 29304\*, 31039\*, 31657; M 5254\*; Delgado 32; Holm-Nielsen 24430\*\*\*.
27. *Lasiacis sorghoidea* (Desv. ex Ham.) Hitchc. & Chase  
Along road, 10 km north of Nanegalito, 00° 07' N 78° 39' W, 1400 m; 5 m tall, stems very slender 3-4 mm: Laegaard 53102.
28. *Melinis minutiflora* P. Beauv.  
Dry slope at roadside above Nanegalito, 00° 01' N 78° 40' W, 1600-1700 m: Laegaard 52502\*\*\*.
29. *Muhlenbergia diversiglumis* Trin.  
Rocky slopes in sec. for., 1850-1900 m: 31625 (? cf. *tenuifolia* (Kunth) Kunth); Laegaard 71457.
30. *Oplismenus burmannii* (Retz.) P. Beauv.  
Clearings in sec. for. & roadsides, 1600-2000 m: 31620; L 11345\*\*\*; Laegaard 52501\*\*\*, 53110\*\*\*; Mantuano 5.
31. *Oplismenus hirtellus* (L.) P. Beauv.  
Weed in fields & roadside scrub, sec. for., clearings in prim. for., 1150-1700 m: 27190, 27842, 28835; Z 86; Laegaard 53106\*\*\*.

32. *Panicum polygonatum* Schrad.  
Sec. for. & weed in banana fields, 1200-1500 m: 27200; Filskov 37081\*\*; Nanegalito: Acosta-Solís 17166 (det. F. O. Zuloaga).
33. *Panicum pulchellum* Raddi  
Along road & in sec. for., 1350-1400 m: 30288; Laegaard 53107A\*\*\*.
34. *Panicum* cf. *sellowii* Nees  
Sec. for., 1450 m: 29041.
35. *Paspalum conjugatum* P. J. Bergius  
Roadsides & fields, 1200-1350 m: 27158; Z 170.
36. *Paspalum* cf. *decumbens* Sw.  
Pastures, 1300-1500 m: Z 159.
37. *Paspalum paniculatum* L.  
Weed in fields & along road, 1400-2000 m: 27203; Z 59; Delgado 61; Laegaard 53103A.
38. *Paspalum penicillatum* Hook. f.  
Prim. for., 2400-2500 m: 32802; L 13650\*\*\*; roadbanks, 1600-1850 m: Laegaard 52500\*\*\*, 71456.
39. *Paspalum saccharoides* Nees ex Trin.  
Roadside banks, 1200-1250 m: 27163, 31102.
40. *Pennisetum bambusiforme* (E. Fourn.) Hemsl. ex B. D. Jacks.  
Common on slopes & rocks, 00° 00' N 78° 38'-40' W, 1700-1900 m: Holm-Nielsen 16152\*\*, 24425\*\*; Laegaard 71454.
41. *Pennisetum polystachion* (L.) Schult.  
Roadside banks & pastures, 1200-1400 m: 27293; Filskov 37048\*\*\*. [In CVPE as *Pennisetum setosum* (Sw.) Rich.]
42. *Pennisetum purpureum* Schumach.  
Grassy slopes along Río Alambi, 1135 m; stems 2 m: 31274. "Pasto elefante"
43. *Pennisetum tristachyum* (Kunth) Spreng.  
Streambeds & roadsides, above Río Pichán, 2000-2225 m: 30101, 32424; Delgado 21\*\*. "Tundillo"
44. *Poa annua* L.  
Rip. vegetation, 1600-1900 m: 32395, 32789; El Pahuma, 2000 m: Cedeño 30\*.
45. *Polypogon elongatus* Kunth  
El Pahuma, 2000 m: Cedeño 32\*.

46. *Pseudechinolaena polystachya* (Kunth) Stapf  
Sec. for. & pastures, 1200-1400 m; common: 27013, 27768, 27885, 28114\*\*, 29070; Z 16; Filskov 37120\*\*\*; El Pahuma, 2000 m: Delgado 6\*\*.

47. *Schizachyrium condensatum* (Kunth) Nees  
Rocky areas, 00° 00' N 78° 38' W, 1800-1900 m: Holm-Nielsen 16154\*\*\*.

48. *Setaria parviflora* (Poir.) Kerguelen  
Sec. for. & mossy banks in prim. for. 1200-2000 m: 31858; Delgado 35; Filskov 37082\*\*\*.

49. *Setaria sphacelata* (Schumach.) M. B. Moss ex Stapf & C. E. Hubb.  
Sec. rip. for., 1200-1400 m; culms to 1.5 m high: 27156\*, 28112\*; Z 61, 188; Filskov 37046\*\*\*; Laegaard 53109\*\*\*. "Miel"

50. *Sporobolus indicus* (L.) R. Br.  
Open areas, 1200-1400 m: 27160, 29553; Z 64; Laegaard 53100 (det. I. Grignon).

51. *Steinchisma laxa* (Sw.) Zuloaga (= *Panicum laxum* Sw.)  
Open areas, 1400 m: 27154.

52. *Urochloa maxima* (Jacq.) R. D. Webster (= *Panicum maximum* Jacq.)  
Pastures, 1400 m: Filskov 37051\*\*. "Sarvoya"

53. *Vulpia myuros* (L.) C. C. Gmel.  
Mossy banks, 2000 m: 31860.

54. *Zeugites americanus* Willd. var. *mexicanus* (Kunth) McVaugh  
Mature sec. for., 1400-1900 m; common herb with clumped stems, petiolate lvs.: 31052, 32374, 32392; Dodson 15236; Laegaard 53112, 54182, 71453.

#### **PONTERIACEAE (1)**

Ref.: Horn, C. N. 1987. Fl. Ecuador 29: 1-19.

1. *Heteranthera reniformis* Ruiz & Pav.  
Muddy flats, 1250-1700 m: 27383.

#### **SMILACACEAE (1)**

Ref.: Killip, E. P., & C. V. Morton. 1936. Publ. Carnegie Inst. Wash. 461: 257-290.

1. *Smilax* cf. *eucalyptifolia* Kunth  
Sec. for., 1500-1650 m; woody vine with yellowish-green fls.: 27122, 29351, 31128, 31910.  
"Zarzaparilla" [Not in CVPE.]

2. *Smilax kunthii* Killip & C. V. Morton  
Prim. for., 1800-2100 m; vine: 28933, 28953; C 5908, 7189 (last two det. J. Gaskin).

## TYPHACEAE (1)

Ref.: Crespo, S., & R. L. Pérez-Moreau. 1967. *Darwiniana* 14: 413-429.

1. *Typha domingensis* Pers.

Along Río Umachaca, 1200-1250 m: 28974.

## ZINGIBERACEAE (2) (\* det. C. Ulloa; \*\* det. P. J. M. Maas)

Ref.: Maas, P. J. M. 1976. *Fl. Ecuador* 6: 1-49.

1. *Hedychium coronarium* J. König

Roadsides, 1200-1300 m; fls. white: 27802.

2. *Renealmia aurantifera* Maas

Sec. for., Cerro Negro, 1500-2175 m; bracts greenish, fls. orange: 28009\*, 30116, 30487; Croat 72868\*\*; Mantuano 12; Plowman & Davis 4444\*\*.

3. *Renealmia dolichocalyx* Maas

Sec. for., 1250-2050 m; stems 2-2.5 m, infls. separate from base, fls. white, frs. red: 28747, 30506, 31251, 31339, 31389, 31737.

4. *Renealmia fragilis* Maas

El Pahuma ("Loma Pahuamba"), 2200 m; stems to 0.8 m, fls. white, imm. frs. red: F 1475\*\*.

5. *Renealmia sessilifolia* Gagnep.

Sec. for., 1250-2000 m; to 2 m, bracts red, fls. white: 27101, 27149, 27672, 27865, 29350, 30034, 31069, 31662; G 73197\*\*; V 12320\*\*; Delgado 72; Holm-Nielsen 24415 (det. H. Balslev).

6. *Renealmia thyrsoides* (Ruiz & Pav.) Poepp. & Endl.

Sec. for., 1200-1250 m; stems to 2 m, infls. separate from base, bracts red: 28544\*. "San Juanillo"

7. *Renealmia* sp. 1

Prim. for., 1975-2275 m; stems c. 1 m, infls. separate from base, fls. white with orange center, frs. dark red: 29150, 29227. [Possibly a form of *Renealmia oligosperma* K. Schum.]

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