

## Novelties in *Bunchosia* (Malpighiaceae)

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**ABSTRACT.** *Bunchosia quaesitor* has inflorescences terminating main axes, a characteristic unique to this endemic to southwestern Haiti. *Bunchosia pauciflora* from northern Haiti was confused by Niedenzu with *B. haitiensis* Urban & Niedenzu, but *B. haitiensis* is two-carpellate with a glabrous ovary and connate styles, and *B. pauciflora* is three-carpellate with a pilose ovary and distinct styles. *Bunchosia articulata*, endemic to Cuba, is distinguished from its closest relative, *B. swartziana* Griseb., by its petals with glandular limb margins, basally articulated peduncles, and elliptic leaf blades. *Bunchosia macilenta*, from Bahia, Brazil, can be divorced from *Bunchosia acuminata*, another new species from the same region, by its smaller, more meagre inflorescences with fewer flowers and smaller leaves with 4–6 abaxial glands. *Bunchosia systyla* (Niedenzu) Dobson was originally described as a form of *B. fluminensis* (Griseb.) Griseb. but is given species status here.

### NEW ANTILLEAN TAXA

***Bunchosia quaesitor*** Dobson, sp. nov. (fig. 1).—

TYPE: Haiti, Massif de la Hotte, Western Group, Pestel on the road to Delcour, "hard limestone, ca. 400 m, rare shrub, puzzling, flowers not well developed, yellowish. I really ought to have stayed here and looked for more but we wanted to reach Delcour and it was late," 26 Aug 1927, E. L. Ekman H 8976 (holotype: S!).

Inter omnia species inflorescentiis terminalibus axibus principalibus insignis, inflorescentiis simpliciter racemosis paucifloris eglandulosis, ovario 3-carpellato glabro.

Shrubs. Branchlets green, with minute, scattered, T-shaped trichomes 0.2–0.25 mm long. Older branches soon glabrous and whitish with a corky surface, the lenticels neither prominent nor conspicuous. Leaf blades elliptic, 2.5–5 cm long, 1.5–3 cm broad, the base obtuse, with a minute shallow glandular sinus at the obtuse apex, the blades with 2 conspicuous circular abaxial glands on the lower third, dark green, glabrous and with 3–5 pairs of evident lateral veins above, paler and glabrous beneath, the margins barely revolute. Petioles 2–3 mm long, glabrous or with scattered trichomes. Inflorescences simple-racemose, eglandular, with scattered trichomes, terminal on the main axes, 2–4-flowered, 2 primary bracteoles at the base of the inflorescence axis, the axes 9–11 mm long, the secondary bracteoles to 1 mm long, the peduncles basally articulated, to 3.5 mm long, the tertiary bracteoles up to 1 mm long from the articulation. Sepals triangular, 2.5–3 mm long, ciliate, the glands 8, 1.5–2 mm long. Petals and stamens not seen. Ovary 3-carpellate, glabrous,

2 mm long, 1.7 mm diam., the styles connate in the bud. Fruits not seen.

This species is endemic to southwestern Haiti. The specific epithet *quaesitor*, "the searcher," is dedicated to Erik Leonard Ekman (1883–1931), whose field work is responsible for much of what we know of the flora of Haiti. The type is the only known collection. Unfortunately, the specimen had only one mature flower and that lacked petals and stamens; its style was broken off, but the three-carpellate ovary was preserved (fig. 1). Niedenzu examined this specimen in 1929 and placed it in *B. puniceifolia* (annotation label on specimen), another Haitian endemic. This species is easily distinguished from *B. puniceifolia*, however, by inflorescences terminating main axes and by bearing primary bracteoles, a glabrous ovary, broadly elliptic leaves with minute glandular apical sinuses, and two conspicuous abaxial glands on the lower third of the lamina (fig. 1). Inflorescences terminating the main axes is a characteristic unique to this species.

***Bunchosia pauciflora*** Dobson, sp. nov. (fig.

2).—TYPE: Haiti, Massif du Nord, Anse-à-foleur, Morne Cheneau, steep mountainside, ca. 600 m, "Same as m. Brigand plant. Obs. All *Bunchosia* blacken the paper in which they lie," 25 Jun 1925, E. L. Ekman H 4396 (holotype: S!; isotypes: IJ!, NY!, TEX!, US!).

Inflorescentiis axillaribus simpliciter racemosis paucifloris eglandulosis, habitu simili *B. haitiensis* sed ab eo ovario 3-carpellato piloso stylis distinctis facile distinguendo.

Shrubs 1.5–2 m high. Branchlets appressed-

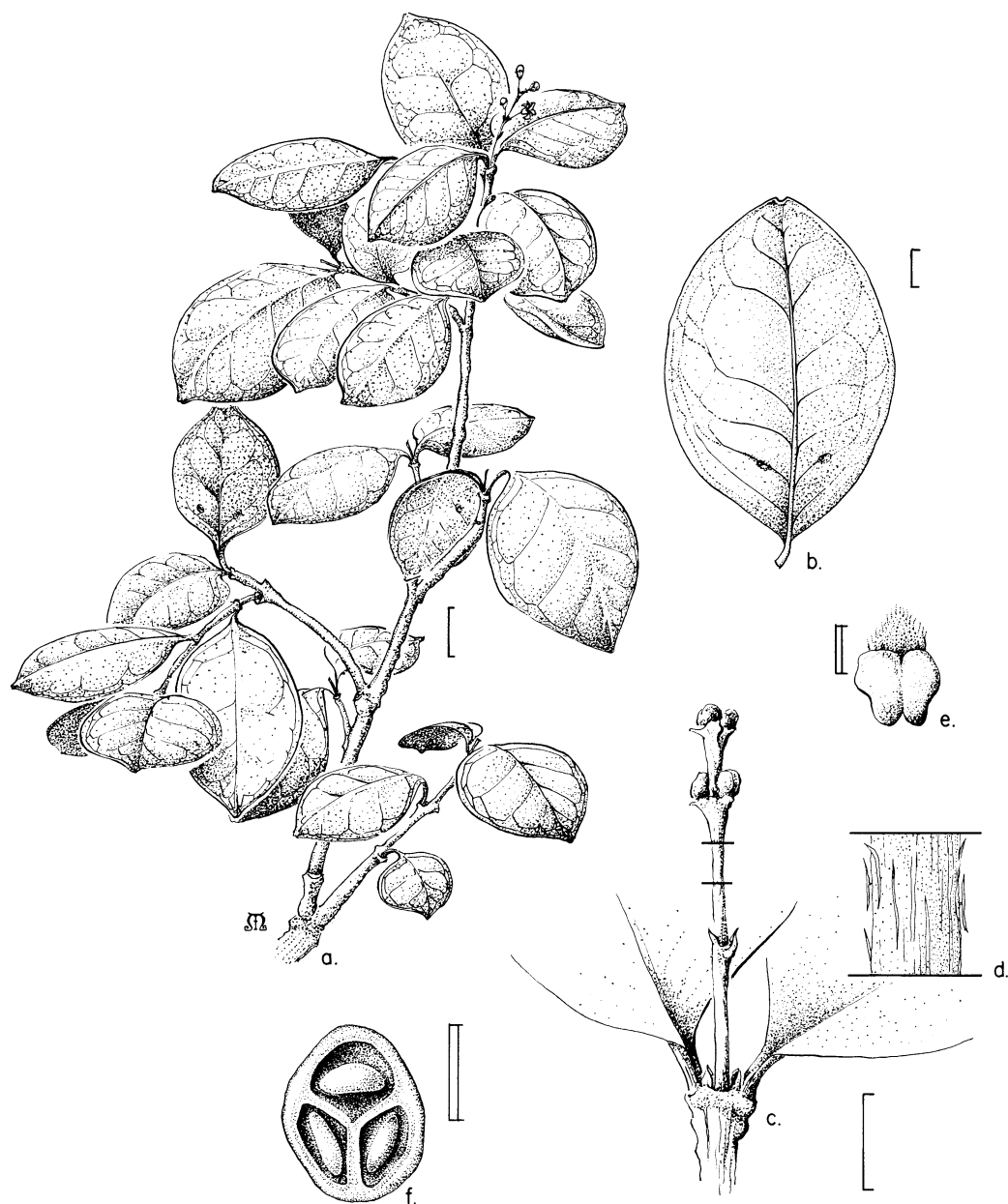


FIG. 1. *Bunchosia quaesitor*. a. Habit (scale = 1 cm). b. Abaxial leaf surface showing glands on the lower  $\frac{1}{3}$  of the lamina and the glandular sinus at the apex. c. Inflorescence terminal on the main axis, note the primary bracteoles at the base of the inflorescence axis. d. Detail of indument on inflorescence axis. Relative size of cut-out is indicated by two parallel lines on the whole structure in c. e. Sepal with glands (abaxial view). f. Transverse section near base of 3-carpellate ovary. Scales for b and c = 5 mm; e and f = 1 mm. Drawn from the holotype, Ekman H 8976. There has been some restoration of flowers to the naked axis on the specimen.



FIG. 2. *Bunchosia pauciflora*. a. Habit (scale = 1 cm). b. A portion of inflorescence axis showing two flowering peduncles (in bud). c. Indument on the inflorescence axis. Relative size of cut-out c is indicated by two parallel lines on the whole structure in b. d. Sepal with glands (abaxial view). e. Petal with erose limb margin (drawn from bud). f. Pistil, note appressed-pilose ovary and connivent styles (drawn from bud). g. Fruiting peduncle, note persistent style bases. Scales for b, e, and g = 5 mm; for d and f, 1 mm. a-f from the holotype; g from *Ekman H 2865*.

pilose (T-shaped, rust-colored trichomes 0.28–0.55 mm long). Older branches glabrous and lenticellate. Leaf blades elliptic to obovate, 2–8.5 cm long, 1–3.5 cm broad, the base acute to shortly attenuate, apex acute, the blades with 2 minute abaxial glands near the margin on the lower third, green glabrous and with 3–4 pairs of evident lateral veins above, paler green, glabrous but the midvein with scattered trichomes beneath, the margins barely revolute. Petioles glabrescent, 2–5 mm long, the stipules to 1 mm long inconspicuous. Inflorescences axillary, simple-racemose, leafless, eglandular, appressed-pilose or with scattered trichomes, the primary bracteoles absent, axes 1.3–3.5 cm long, 2–4-flowered, the secondary bracteoles 1–1.5 mm long, the peduncles basally articulated 2.5–4.5 mm long, the tertiary bracteoles paired 1–1.5 mm long from the articulation. Mature flowers not seen. Flower buds 3–4 mm diam. Sepals triangular, 3–3.8 mm long, ciliate, the glands 8, 2–2.5 mm long. Petals, all 5 with erose limb margins, 3.5–4 mm long, the claws 1.5–2 mm long, the limbs 2–3 mm long, 2–3 mm diam. Stamens 2.5 mm long, connate for  $\frac{1}{3}$  their length, anthers 1 mm long, the connective yellow. Pistil up to 3 mm long, the ovary 3-carpellate, appressed-pilose, 1–1.5 mm long, 1–1.5 mm diam., the styles connivent with persistent bases. Fruits, 9–13 mm long, 8–11 mm diam., with widely scattered, minute trichomes or glabrous. Seeds 3, or 2 by abortion.

Other specimens examined. Haiti, Massif du Nord, Bayeux, Morne Brigand, *E. L. Ekman* H 2865 (A, IJ, NY 2, TEX, US).

*Bunchosia pauciflora* is presumably endemic to northern Haiti. Niedenzu examined the holotype in 1926 (annotation label on specimen) and placed it in *B. haitiensis*, which is two-carpellate with a glabrous ovary and connate styles; whereas *B. pauciflora* is three-carpellate with an ovary that is appressed-pilose and has connivent styles. Niedenzu and Urban indicated two connate styles in *B. haitiensis* (1921) in the original description, but in 1928 Niedenzu emended and described the ovary as three-locular and glabrous and cited the following specimens: *E. L. Ekman* H 488 (type of *B. haitiensis*); H 4396 (type of *B. pauciflora*); and H 2865 (also *B. pauciflora*). This suggests that Niedenzu either overlooked or chose to disregard carpel number and indument of the ovary as important specific characters. Other characters that

distinguish *B. pauciflora* are its two- to four-flowered inflorescences, fruits with three distinct persistent style bases, and northern distribution.

***Bunchosia articulata* Dobson, sp. nov. (fig. 3).—**

TYPE: Cuba, Havana, hill near Mariano, about 8–10 ft high, 25 Jun 1908, *Leon* 527 (holotype: NY!).

Inflorescentiis axillaribus simpliciter racemosis, pedunculis florum 5–9 mm longis basi articulatis, petalis tertius vel quartus interioribus glandulosis prope unguem et margine petali intimi basaliter vel omnino glandulosis.

Shrubs or trees 2–4 m high. Branchlets with scattered T-shaped trichomes 0.26–0.7 mm long to glabrescent. Older branches glabrous and lenticellate. Leaf blades elliptic to obovate, 3.5–12 cm long, 1.5–5 cm broad, the base acute to shortly attenuate, the apex obtuse to shortly acuminate, sometimes retuse-tipped, the blades with 2(–4) abaxial glands abutting the midvein from the base up to the lower  $\frac{1}{3}$  of the lamina, glabrous and with 3–5 pairs of evident lateral veins above, glabrescent beneath, the margins barely revolute. Petioles glabrous, 5–9 mm long, the stipules to 1 mm long, inconspicuous. Inflorescences axillary, simple-racemose, leafless, with scattered trichomes, the primary bracteoles absent, the axes 2.5–8 cm long, 4–10-flowered, the secondary bracteoles 0.7–2.5 mm long, the peduncles basally articulated 5–9 mm long, the tertiary bracteoles paired, 1–1.5 mm long from the articulation, one or neither of the pair glandular. Mature flowers 13–22 mm diam. Sepals ovate, 2.5–4 mm long, ciliate, the glands 8, 1.5–2 mm long. The 4 outermost petals with erose limb margins, or the 3rd and 4th inner, glandular near the claw, 7–10 mm long, the claws 2.5–4 mm long, the limbs 5–7 mm long, 5–8 mm diam., the innermost 7–10 mm long, the claw 3–4 mm long, the limb basally to completely glandular, the limb 4–6 mm long, 4–6 mm diam. Stamens 3–4.5 mm long, connate for  $\frac{1}{4}$  to  $\frac{1}{2}$  their length, the anthers 1.2–1.6 mm long, the connective yellow. Pistil 4–5 mm long, the ovary 3-carpellate, glabrous, 1.5–2 mm long, 1–2 mm diam., the styles connate with persistent bases. Fruits red 6–10 mm long, 6–10 mm diam. Seeds 3, or 2 by abortion.

Other specimens examined. CUBA. **Havana:** Bejucal (Cacahual), *Alain* 4014 (GH, IJ); Caimito, *Webster* 3691 (GH); Cojimar, *Ekman*

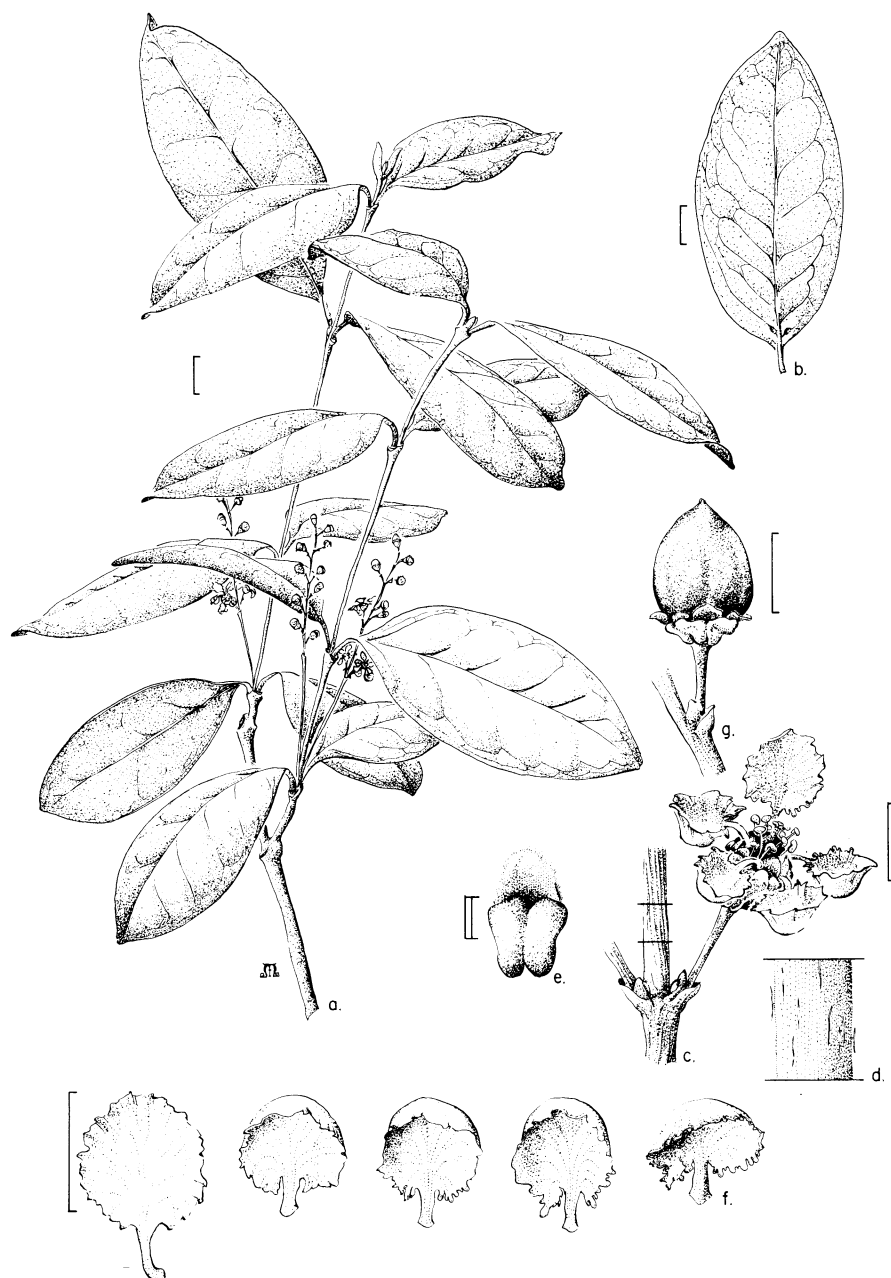


FIG. 3. *Bunchosia articulata*. a. Habit (scale = 1 cm). b. Abaxial leaf surface showing glands on the lower  $\frac{1}{3}$  of lamina. c. Flowering peduncle. d. Indument on the inflorescence axis. Relative size of cut-out d is indicated by two parallel lines on the whole structure in c. e. Sepal with glands (abaxial view). f. Petals—limb margins of 3rd and 4th outermost basally glandular (near the claw); the innermost with completely glandular limb margin. g. Fruiting peduncle. Scales for b, c, f, and g = 5 mm; for e, 1 mm. a-f from the holotype; g from N. L. Britton 410.

13315 (A, S, US); Jamaica, *Leon and Roig* 11458 (GH, NY, US); Lomas de Comoa, *Ekman* 13447 (S); 14124 (BM, F, G, S); Santiago de las Vegas, *Leon* 14902 (GH, US); Sierra de Camoa, *Leon and Albear* 7319 (NY); between Vedado and Mariano, *Ekman* 831 (NY, S). **Mantazas:** Mantazas, *Britton and Wilson* 410 (NY 2); Pinar del Rio, Sierra de Anate, *Ekman* 13028 (G, S); Sierra de los Organos, *Ekman* 12946 (S). **Santa Clara:** Cienfuegos, *Combs* 362 (F, GH, MO, NY, US); Trinidad Hills, Buenos Aires, Glen Ames (Mt. Harvard), *Jack* 8079 (A, NY, US). **No locality:** *Firtun s.n.* (NY); *C. Wright* 2149 (G 2, GH, MO).

*Bunchosia articulata* is endemic to Cuba. It is characterized by its three-carpellate ovary, petals with basally to completely glandular limb margins, basally articulated peduncles, few-flowered inflorescences, and usually elliptic leaf blades with two abaxial glands abutting the midvein from the base to the lower third of the lamina. This combination of characters easily divorces it from *B. swartziana* Griseb. to which it is morphologically similar.

Nieden zu confused this species with *B. emarginata* Regel and *B. media* (Dryander in Aiton) DC. In 1898 and later (1914, 1928), he described *B. emarginata* and *B. media* as three-carpellate and cited *Wright* 2149 under both species. He also published (1898) *B. emarginata* var. *martinicensis* Urban & Niedenzu and described it as two-carpellate. From this treatment it is difficult to assess Niedenzu's concept of *B. emarginata* Regel. It is doubtful that Niedenzu saw material of this species described by Regel from material cultivated at St. Petersburg. I have seen Leningrad material that fits Regel's original description (1856) as two-carpellate, "stigma vix bilobo." This is the only specimen known to me, and I am designating it here as the lectotype of *B. emarginata* Regel. The specimen bears no locality data and has only a single flower, which lacks petals and stamens.

Thus I have characterized *B. emarginata* as two-carpellate, endemic to Cuba and known only from the lectotype (LE). *Wright* 2149 is three-carpellate and belongs to *B. articulata*. *Bunchosia media* (Dryander in Aiton) DC. is two-carpellate and is probably a synonym of *B. nitida* (Jacq.) DC.

Small (1910) also treated *B. emarginata* as three-carpellate, presumably following Niedenzu, but he cited no specimen(s) and his treatment is doubtful.

#### NEW BRAZILIAN TAXA

***Bunchosia macilenta*** Dobson, sp. nov.—TYPE: Brazil, Bahia, *Blanchet* 1512 (holotype: G!; isotypes: F!, P!).

Inflorescentiis axillaribus simpliciter racemosis 6–8 floribus, marginibus limborum petalorum omnino glandulosis, foliis ellipticis vel obovatis 4–6 glandibus abaxialibus dimidio inferiore laminae, ovario 3-carpellato glabro, stylis distinctis.

Habit unknown. Branchlets appressed-pilose (T-shaped trichomes 0.7–1.25 mm long). Older branches glabrescent to scattered trichomes, lenticellate. Leaf blades elliptic to obovate, 7–13 cm long, 3–5 cm broad, the base acute to shortly attenuate, the apex briefly acuminate, the blades with (2–)4–6 abaxial glands on the lower half, with widely scattered trichomes and 4–6 pairs of evident lateral veins above, and scattered trichomes beneath. Petioles appressed-pilose, 3–7 mm long, the stipules to 1 mm long, inconspicuous. Inflorescences, axillary, simple-racemose, leafless, appressed-pilose, the primary bracteoles absent, the axes 2–3 cm long, 6–8-flowered, the secondary bracteoles 1–2 mm long, the tertiary bracteoles paired, 0.7–1.5 mm long, one or neither of the pair glandular. Mature flowers not seen. Sepals ovate, 3–3.5 mm long, with scattered trichomes, ciliate, the glands 8, 1.5–2 mm long. Petals, all 5 with completely glandular limb margins, the outermost 4 petals 4–6 mm long, the claws 1 mm long, the limbs 3–5 mm long, 3–5 mm diam., the innermost 5 mm long, the claw 2 mm long, the limb 4 mm long, 4 mm diam. Stamens 3–3.5 mm long, connate for 1/3 to 1/2 their length, the anthers 1 mm long, the connective yellow. Pistil 3.5–4 mm long, the ovary 3-carpellate, glabrous, 1.5 mm long, 1.2 mm diam., the styles distinct. Fruits not seen.

Other specimen examined. Brazil, Bahia, *Blanchet* 1542 (G).

*Bunchosia macilenta* is known only from Bahia, Brazil. The exact locality is not known because Blanchet's labels do not provide this information and his itinerary is not known. Niedenzu (1928) was not sure of the affinities of this species; he placed the holotype (*Blanchet* 1512) under both *B. nitida* and *B. tuberculata*. However, *B. nitida* is two-carpellate and occurs in northern South America and the Lesser Antilles while *B. tuberculata* is three-carpellate from

the region of Caracas. This was discussed more fully in my dissertation under *species incertae sedis* (Dobson 1976).

*Bunchosia macilenta* can be distinguished from *B. maritima* by its smaller, thinner or more meagre inflorescences (hence its epithet: *macilenta*) with fewer flowers and smaller leaves with shorter petioles. These same characters divorce it from *B. acuminata*, which, in addition, has glabrescent leaves with two abaxial glands while those of *B. macilenta* usually have four to six abaxial glands and scattered trichomes. The measurements and dimensions of this species are from buds; no mature flowers were available.

***Bunchosia acuminata*** Dobson, sp. nov.—TYPE: Brazil, Bahia, Munic. Itambe, Sapucaia, basin of the Rio Pardo, shrub 3 m high on high land in hilly country, 8 Nov 1942, Froes 12660/26 (holotype: NY!).

Inflorescentiis axillaribus simpliciter racemosis 12–16 floribus, marginibus petalorum limborum omnino glandulosis, foliis ellipticis 2 glandibus abaxialibus prope basim tertio inferiore laminae, ovario 3-carpellato glabro stylis distinctis.

Shrubs 3 m high. Branchlets appressed-pilose (T-shaped trichomes 0.5–0.7 mm long). Older branches glabrous, lenticels inconspicuous. Leaf blades elliptic, 10.5–17.5 cm long, 3–4.5 cm broad, the base acute to narrowly attenuate, the apex acuminate, the blades with 2 abaxial glands near the base, glabrous with 6–10 pairs of evident lateral veins above, glabrescent beneath, except for scattered trichomes along the midvein. Petioles with scattered trichomes, 10–12 mm long, the stipules 2–2.5 mm long. Inflorescences, axillary, simple-racemose, leafless, appressed-pilose, the primary bracteoles absent, the axes 7–9.5 cm long, 12–16-flowered, the secondary bracteoles 2–3 mm long, the peduncles basally articulated to 1.5 mm above the base, 5–7.5 mm long, the tertiary bracteoles paired, narrowly triangular to acuminate, 1.5–2 mm long from the articulation, 1 or none of the pair glandular. Mature flowers 14–16 mm diam. Sepals triangular, 3.5–4.5 mm long, ciliate, the glands 8, 2.5–3.5 mm long. Petals, all 5 with completely glandular limb margins, the outermost 4 petals 6.5–8 mm long, the claws 2–2.5 mm long, the limbs 4–5.5 mm long, 4–5.5 mm diam., the innermost 7–7.5 mm

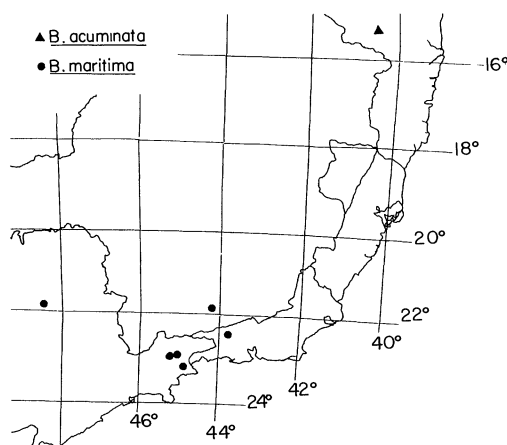


FIG. 4. Distribution of *Bunchosia acuminata* and *B. maritima*.

long, the claw 3–3.5 mm long, the limb 4–4.5 mm long, 3–4 mm diam. Stamens 3–3.5 mm long, connate for  $\frac{1}{3}$  to  $\frac{1}{2}$  their length, the anthers 1 mm long, the connective yellow. Pistil 3.5–3.7 mm long, the ovary 3-carpellate with scattered trichomes, 1.5 mm long, 1–1.3 mm diam., the styles distinct. Fruits not seen.

*Bunchosia acuminata* is a distinctive species from the basin of the Rio Pardo in eastern Brazil (fig. 4). It is separated from *B. maritima* (fig. 4) by generally fewer-flowered inflorescences, narrowly triangular to acuminate tertiary bracteoles, ovary with scattered trichomes and leaves with two abaxial glands on the lower third. It is also readily distinguished from *B. macilenta* by longer, robust inflorescences with more flowers, longer petioles, larger leaves, glabrescent, with two abaxial glands on the lower third of the lamina and ovary with scattered trichomes.

***Bunchosia systyla*** (Niedenzu) Dobson, stat. nov.—*Bunchosia fluminensis* f. 2 *systyla* Niedenzu, Arbeiten Bot. Inst. Königl. Lyceums Hosianum Braunsberg 5:41. 1914.—TYPE: Brazil, Amazonas, Rio Jurua, Ule 5042 (G!).

Shrubs 3–7 m high. Branchlets with scattered T-shaped trichomes 0.35–0.6 mm long. Older branches glabrescent and lenticellate. Leaf blades ovate, 10.5–17 cm long, 3.5–7.5 cm broad, the base broadly cuneate to obtuse, the apex obtuse to acuminate, the blades (2–)4–6 abaxial

glands (barely visible to the naked eye) abutting the midvein or removed toward the margin on the lower  $\frac{1}{2}$  of the lamina, glabrous with 4–6 pairs of evident lateral veins above, glabrescent beneath, the margins barely revolute. Petioles glabrous, 5–10 mm long, the stipules 1.5–2 mm long. Inflorescences, axillary, simple-racemose, leafless, appressed-pilose, the primary bracteoles absent, axes 3–4 cm long, 14–24-flowered, the secondary bracteoles 1–2.5 mm long, the peduncles articulated 1.5–3.5 mm above the base, 6–11 mm long, the tertiary bracteoles paired, one of the pair glandular, to 1 mm long from the articulation. Sepals ovate, 3–4.5 mm long, appressed-pilose, the glands 9, 3–4 mm long. Petals, all 5 with completely glandular limb margins, the outermost 4 petals 5–7.5 mm long, the claws 2–3 mm long, the limbs 4–5.5 mm long, 3.5–6 mm diam., the innermost 6–6.5 mm long, the claw 3 mm long, the limb 3–4 mm long, 3–4 mm diam. Stamens 3–4 mm long, connate for  $\frac{1}{3}$  to  $\frac{1}{2}$  their length, anthers 1 mm long, the connective yellow. Pistil 3.5–4.5 mm long, the ovary 3-carpellate, glabrous, 1.5–2 mm long, 1–1.5 mm diam., the styles connate. Fruits not seen.

Nieden zu treated this species as a form of *B. fluminensis*, which, according to Macbride (1950), is now more properly called *B. maritima*. *Bunchosia systyla* occurs along the drainage of the Rio Jurua in the state of Amazonas in west central Brazil, which is quite distant from the range of *B. maritima* in eastern Brazil (fig. 4). Other features that separate *B. systyla* from *B. maritima* are the shorter more congested inflorescences,

peduncles articulated further from the base, smaller tertiary bracteoles, leaf blades glabrescent beneath, and an ovary with connate styles, which are found in *B. systyla*.

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