A REVISION OF CAPRARIA (SCROPHULARIACEAE)

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Abstract: Herbarium and field studies of the chiefly neotropical genus Capraria have led to the recognition of four species. Capraria frutescens and C. mexicana are essentially endemic to Mexico. Capraria biflora is a widespread species that occurs throughout Mexico, Central and South America, the West Indies, and southern Florida. Capraria peruviana grows in northwestern South America and the Galápagos Islands. A complete account of synonymy and typification is provided, along with a key to species, scanning electron micrographs of pollen, stigmas and seeds, photographs, illustrations, and distribution maps.

Keywords: Capraria, Caprarieae, Gratioleae, Leucophylleae, Myoporaceae, Scrophulariaceae, SEM.

Capraria L. (Latin = goat, in reference to observations that goats consume the leaves (Sprague (1921)) is a neotropical genus of suffruticose herbs and subshrubs distributed from southern Florida to central South America. Capraria is unique within the Scrophulariaceae in having alternate leaves with external punctate glands and oil-secreting cavities. The relationship of Capraria within the Scrophulariaceae has been under considerable dispute (see Generic Relations). The species, however, are easily delineated morphologically.

Linnaeus (1753) established the genus with the description of Capraria biflora L. Subsequently, 49 names were proposed in Capraria. Most of these were transferred or synonymized under other genera (e.g., Anticharis Endl., Freylinia Colla, Scoparia L., and Stemodia L.). Sprague (1921), in his treatment of Capraria, provided a list of excluded species that is included and expanded at the end of the present article.

A treatment of Capraria is pertinent at this time, considering the numerous mis-identifications of specimens in various herbaria observed by the present author and the discrepancy in the number of species recognized by various botanists: Lersten and Curtis (2001) considered Capraria to be monotypic, Mabberley (1987) recognized four species, Sprague (1921) five species, and Méndez Larios and Villaseñor Ríos (2001) six species. In this work four species of Capraria are recognized; full synonymy, illustrations and detailed exsiccate are presented for all species.

GENERIC RELATIONSHIPS

Throughout its history, the placement of Capraria has been under dispute (Table 1). Bentham (1846) placed it in subfamily (his suborder) Rhinantheoideae (with posterior corolla lobes interior in bud), tribe Sibthorpeae (with alternate leaves, and flowers solitary in the leaf axils), along with Sibthorpias L., Hornemannia Benth., Hemiphragma Wall., Camptoloma Benth. and Scoparia.

Bentham (1876) later reduced the tribe Sibthorpeae to subtribe Sibthorpieae of subfamily (his series) Rhinantheoideae, tribe Digitaleae with Hornemannia reduced to a synonym of Sibthorpias, and Camptoloma repositioned in his subtribe Digitalieae. Bentham’s Digitaleae was later viewed as a heterogenous group with no clear definition by Thieret (1967).

Wettstein (1891) essentially followed Bentham’s (1876) treatment, differing only in the non-recognition of subtribes for tribe Digitaleae.

Sprague (1921) retained Capraria in the tribe Digitaleae, emphasizing that Scoparia was its closest relative because both pos-
sessed leaves with punctate glands along the upper leaf surface. Sprague also noted that Hemiphragma “has relatively little in common with either Capraria or Scoparia, suggesting that its placement near them was artificial, based largely upon a shared possession of alternate leaves.

Thieret (1954) initially followed the treatments of Bentham (1876) and Wettstein (1891), but later transferred both Capraria and Scoparia into the subfamily Antirrhinoideae, tribe Gratioleae (Thieret, 1967). This was based, in part, on the observations of Pennell (1920, 1935), who noted that the posterior corolla lobes are external in bud in both taxa, and that they possess glandular hairs similar to other Gratioleae. Thieret also suggested that the scalariform-reticulate seeds (his “Bacopa” type) of Capraria and Scoparia are characteristic of many Gratioleae, and that their small 4-valved capsules are similar to those found in the genus Conobea Aubl., a native of tropical America with opposite leaves and punctate glands.

Arekal et al. (1971) related Capraria biflora to Scoparia dulcis L. on the basis of embryological data. This was later negated by Hakki (1975), who noted “no secondary haustoria developed in C. biflora as has been reported by Arekal et al. (1975) for Scoparia dulcis—the closest relative of our genus.”

Niezgoda and Tomb (1975) showed that the pollen of Capraria is spherical and 3-colpate, as opposed to 4-colpate pollen found in most Scrophulariaceae. They also found 3-colpate pollen in Leucophyllum Bonpl., Eremogeton Standl. & L. O. Williams (tribe Leucophylleae), and some Myoporaceae. Due to the similarity in pollen structure, Niezgoda and Tomb suggested the placement of Capraria close to the Leucophylleae, which they favored placing as a subfamily of the Myoporaceae. Argue (1980), however, observed 3-colpate pollen in Mimulus L. (sections Mimulus and Erythranthe), Penstemon Schmidel (tribe Cleomeae), Celsia L. (tribe Verbascaceae), and selected genera of tribe Gratioleae (Lancea Hook. f. & Thomson, Artanema D. Don, and Conobea). Indeed his work vitiates the dramatic placement of Capraria in the Myoporaceae, suggesting instead its retention in the Scrophulariaceae tribe Gratioleae near Conobea, as proposed by Thieret (1967).

Henrickson and Flyr (1985) discussed in detail the systematic position of Eremogeton and Leucophyllum, concluding that both genera were more closely related to members of the traditional Scrophulariaceae and not to the Myoporaceae. However, they did not study Capraria, nor suggest it as a possible relative.

Barringer (1993) did not recognize subfamilies for the Scrophulariaceae and placed Capraria in his newly described monotypic

### Table 1. Familial, subfamilial, and tribal placement of Capraria by various authors.

<table>
<thead>
<tr>
<th>Author</th>
<th>Family</th>
<th>Subfamily</th>
<th>Tribe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bentham (1846)</td>
<td>Scrophulariaceae</td>
<td>Rhinanthoideae</td>
<td>Sibthorpeae</td>
</tr>
<tr>
<td>Bentham (1876)</td>
<td>Scrophulariaceae</td>
<td>Rhinanthoideae</td>
<td>Digitaleae</td>
</tr>
<tr>
<td>Wettstein (1891)</td>
<td>Scrophulariaceae</td>
<td>Rhinanthoideae</td>
<td>Digitaleae</td>
</tr>
<tr>
<td>Sprague (1921)</td>
<td>Scrophulariaceae</td>
<td>Rhinanthoideae</td>
<td>Digitaleae</td>
</tr>
<tr>
<td>Thieret (1954)</td>
<td>Scrophulariaceae</td>
<td>Antirrhinoideae</td>
<td>Digitaleae</td>
</tr>
<tr>
<td>Thieret (1967)</td>
<td>Scrophulariaceae</td>
<td>Antirrhinoideae</td>
<td>Digitaleae</td>
</tr>
<tr>
<td>Niezgoda &amp; Tomb (1975)</td>
<td>Myoporaceae</td>
<td></td>
<td>Leucophylleae</td>
</tr>
<tr>
<td>Barringer (1993)</td>
<td>Scrophulariaceae</td>
<td></td>
<td>Caprarieae</td>
</tr>
<tr>
<td>Méndez Larios and Villaseñor Rios (2001)</td>
<td>Scrophulariaceae</td>
<td>Antirrhinoideae</td>
<td>Digitaleae</td>
</tr>
<tr>
<td>Olmstead (2004)</td>
<td>Scrophulariaceae</td>
<td></td>
<td>Leucophylleae</td>
</tr>
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</table>
Table 2. Morphological variation among the four species of Capraria.

<table>
<thead>
<tr>
<th>Character</th>
<th>Capraria peruviana</th>
<th>Capraria mexicana</th>
<th>Capraria biflora</th>
<th>Capraria frutescens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vestiture</td>
<td>none</td>
<td>none</td>
<td>pilose with few glandular hairs (occasionally glabrous)</td>
<td>pilose and glandular</td>
</tr>
<tr>
<td>Stems</td>
<td>ramified</td>
<td>ramified</td>
<td>ramified</td>
<td>monopodial</td>
</tr>
<tr>
<td>Leaf blades</td>
<td>lanceolate</td>
<td>lanceolate</td>
<td>lanceolate</td>
<td>spatulate</td>
</tr>
<tr>
<td>Pedicel length</td>
<td>5–25 mm</td>
<td>5–25 mm</td>
<td>5–25 mm</td>
<td>1–4 mm</td>
</tr>
<tr>
<td>Sepal shape</td>
<td>lanceolate</td>
<td>lanceolate</td>
<td>lanceolate</td>
<td>oblong</td>
</tr>
<tr>
<td>Corolla symmetry</td>
<td>radial</td>
<td>radial</td>
<td>bilateral</td>
<td>bilateral</td>
</tr>
<tr>
<td>Corolla tube length</td>
<td>0.8–1.5 mm</td>
<td>2–3 mm</td>
<td>4–6 mm</td>
<td>4–7 mm</td>
</tr>
<tr>
<td>Corolla lobes pubescent</td>
<td>no</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Corolla color</td>
<td>white</td>
<td>light green-white</td>
<td>white with purple blots on lower surface</td>
<td>white with purple blots on lower surface</td>
</tr>
<tr>
<td>Stamen number</td>
<td>5</td>
<td>5</td>
<td>4–5</td>
<td>4</td>
</tr>
<tr>
<td>Stamen arrangement</td>
<td>radial</td>
<td>radial</td>
<td>bilateral</td>
<td>bilateral</td>
</tr>
<tr>
<td>Stamens exserted</td>
<td>yes</td>
<td>yes</td>
<td>±yes</td>
<td>no</td>
</tr>
<tr>
<td>Style length</td>
<td>0.75–1.5 mm</td>
<td>3–5 mm</td>
<td>3–5 mm</td>
<td>3–5 mm</td>
</tr>
<tr>
<td>Style exserted past corolla tube</td>
<td>no</td>
<td>yes</td>
<td>±yes</td>
<td>no</td>
</tr>
<tr>
<td>Style pubescent</td>
<td>no</td>
<td>no</td>
<td>no/yes</td>
<td>no</td>
</tr>
<tr>
<td>Stigma shape</td>
<td>linear</td>
<td>linear</td>
<td>linear</td>
<td>reniform</td>
</tr>
</tbody>
</table>

tribe Caprarieae, suggesting no close relatives for it.

Lersten and Curtis (2001) noted that Capraria and Leucophyllum are the only genera of Scrophulariaceae with true secretory oil cavities but noted that these two genera differ in the number and arrangement of these cavities (see Morphology section). They did not propose a systematic placement of Capraria; instead, they cited Raman (1991) who, based on a study of trichomes in the Scrophulariaceae, proposed no “taxonomic conclusion” for Capraria.


The systematic position of Capraria within the Scrophulariaceae appears unresolved. I am inclined to recognize Capraria in the monotypic Caprarieae as suggested by Barringer (1993). Nevertheless, I acknowledge that Capraria shares many characters with various members of the tribes Gratioleae and Leucophylleae.

**MORPHOLOGY**

METHODS: The morphological study is based on field observations by the author in Mexico and the examination of approximately 1600 herbarium specimens. Specimens were examined at or borrowed from the following institutions: BM (2 types), F (330 specimens), FLAS (40), K (3 types), MA (1 type), MO (274), NY (445), P (2 types), TEX-LL (96), US (354). There are at least 16 morphological characters (Table 2) that serve to distinguish Capraria from other genera and/or the four species from one another as noted below.

For Scanning Electron Microscopy (SEM) studies, the following procedures were followed. Pollen, stigma and seeds of the four species were collected from her-
barium specimens housed at TEX-LL and SHST and the sheets annotated to that effect. These were mounted onto SEM stubs with conductive graphite tape and placed in a silica dessicator for three days. After dehydration the specimens were coated with gold using a LADD sputter coater. Observations of the pollen and stigmas were made with a Vega Tescan 5130 (Department of Biological Sciences, Sam Houston State University) and photographed digitally. Observations of the seeds were made with a Phillips 515 scanning electron microscope (Cell Research Center, University of Texas) and photographed using Polaroid type 55 positive/negative film.

LEAVES: The leaves of Capraria are alternate, simple and dentate. They vary in shape from lanceolate to spatulate. Three leaf characters in combination distinguish Capraria from other genera of Scrophulariaceae: 1) alternate leaves; 2) punctate glands; 3) oil-secreting cavities. Alternate leaves occur throughout the Scrophulariaceae, as do punctate glands. The possession of oil cavities is the only one of these three characters that does not appear to occur randomly throughout the family. In the Scrophulariaceae, only Leucophyllum shares true secretory oil cavities with Capraria. Despite the fact that Capraria and Leucophyllum share alternate leaves and oil cavities, Leucophyllum lacks punctate glands along the upper leaf surface and has a different number and arrangement of the oil cavities. Capraria has numerous small oil cavities scattered throughout the leaves, while Leucophyllum has two large oil cavities paired at the apex of the leaves (Lersten and Curtis, 2001).

COROLLAS: There is a wide range of variation among the corollas of the species of Capraria (Fig. 1). Capraria frutescens has bilaterally symmetrical, tubular-campanulate corollas pubescent along the base of the throat, and four fertile included stamens as is typical of most Scrophulariaceae. Capraria mexicana and C. peruviana have glabrous, actinomorphic, rotate corollas with five distinct petals, five separate fertile stamens, no obvious corolla tube, and exserted stamens. The flowers of C. biflora are intermediate between those of C. frutescens and C. mexicana. The flowers are pubescent, and tubular, with five distinct petals lobes (two posterior and three anterior) that are bilaterally arranged, and exserted stamens. In addition, stamen number in C. biflora varies between four and five.

Corolla color ranges from white (Capraria mexicana and C. peruviana) to white (or pale lavender) with purple splotches running along the ventral internal surface of the tube (C. biflora and C. frutescens), these probably serving as nectar guides (Henrickson and Flyr, 1985).

GYNOECIUM: The gynoecium in Capraria is a superior bi-loculate ovary with a solitary terminal style that varies in length from 3–5 mm (C. biflora, C. frutescens and C. mexicana) to 0.75–1.50 mm (C. peruviana). The ovary possesses numerous ovules that are arranged axially. In general, the pistil is glabrous, although the ovary is occasionally glandular in C. frutescens (Fig. 2a) and the style is occasionally pubescent in C. biflora. The styles are exserted in C. biflora and C. mexicana but included in C. frutescens and C. peruviana. Like Leucophyllum (Henrickson and Flyr, 1985), Capraria exhibits interspecific variation in stigmatic structure. Capraria biflora, C. mexicana and C. peruviana (Figs. 2b, c, d, respectively) all possess stigmas that are elongated and linear in shape, while C. frutescens has a stigma that is shortened, bi-lobed and reniform in shape (Fig. 2a). In the subtribe Maurandyinae, Elisens (1985) proposed that “divergent or lobed stigmas . . . suggest derived character states and evolutionary advancement” from the more primitive conical/linear-shaped stigmas.

POLLEN: Niezgoda and Tomb (1975) described the pollen of Capraria as spherical, 3-colpate, and dorate with a reticulate surface (Fig. 3); this contrasts with the 4-colpate pollen found in most Scrophulariaceae. No apparent variation in pollen grain
sculpturing exists among the four species of Capraria.

Fruits: The capsules (Fig. 4d) of Capraria are woody and ellipsoid to ovoid. They dehisce both septicidally and loculicidally to the base, releasing numerous seeds. The capsules are similar in form and structure to those of Leucophyllum and Gratiola. The structure of the fruits readily separates Capraria from the fleshy, 1–10-seeded, indehiscent fruits of the Myoporaceae.

Seeds: The seeds of Capraria are brown and have outer tangential walls forming a scalariform-reticulate surface of square cells (Fig. 5). Their surface structures are very similar to those found in the Gratioleae (Thieret, 1967; Pastor and Fernández, 2000) and the Leucophylleae (Henrickson and Flyr, 1985), thereby providing no specific insight into tribal placement. Hakki (1975) described the endosperm as "ab initio cellular."

Variation exists in seed size among the four species of Capraria. Both C. biflora and C. frutescens have seeds that \( \geq 0.5 \) mm long while those of C. mexicana and C. peruviana are \( \pm 0.35 \) mm.

**CHROMOSOME NUMBERS**

The first chromosome number report for Capraria was by Borgen (1980), as a mitotic count of \( 2n = ca. 60 \) for C. biflora. Zhao (1996) reported meiotic counts for C. biflora and C. frutescens as \( 2n = ca. 28 \) pairs. These two approximate counts suggest a base number of \( x = 14 \) or 15. The latter numbers do not support a relation-
ship of *Capraria* to the Myoporaceae (x = 27, Watson and Dallwitz, 1992 and onwards) nor to the genus *Leucophyllum* (x = 17; Read and Simpson 1989), as suggested by Olmstead (2004). The genus *Gratiola* has a reported base number of x = 14 (Kapoor et al., 1987), thus Zhao’s (1996) count of 2n = ca. 28 for *Capraria* supports a possible relationship to *Gratiola* as proposed by Thieret (1967).

**SYSTEMATIC TREATMENT**


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**Fig. 2.** Scanning electron micrographs of the pistil of *Capraria* (insets on the upper left are enlarged photos of the stigma). a. *C. frutescens* (Williams & Siedo 99, SHST). b. *C. biflora* (Contreras 87, TEX). c. *C. mexicana* (Williams, Plum & Goldman 96-3, SHST). d. *C. peruviana* (Leiva & Sagastegui 1991, TEX). Large photos taken at 32X and 20 kV; insets taken at 100X and 20 kV. Photos by W. Patrick Spencer.

**Fig. 3.** Scanning electron micrographs of pollen of *Capraria mexicana* (Williams, Plum & Goldman 96-3, SHST). Photo taken at 4.02 kx and 20 kV. Photos by W. Patrick Spencer.
PERENNIAL suffrutescent herbs to 2 m high, erect, with one to several stems developing from the basal stem, monopodial or ramified, glabrous to densely glandular-pubescent. LEAVES alternate, sessile; laminae spatulate or lanceolate; bases cuneate; margins serrate along the upper half with 8–10 teeth along each side at midstem; sur-
face with punctate glands and numerous scattered internal secretory oil cavities, with 3 principal nerves arising from or near the base, glabrous or villous. INFLORESCENCE consisting of 2–5 pedicellate flowers in a leaf axil, with 5–20 flowering nodes per stem. PEDICELS 1–22 mm long, glabrous or glandular-pubescent; bracts absent. FLOWERS 4–5-merous, perfect, actinomorphic or zygomorphic. CALYX regular, lobes five, free to the base or nearly so, 3–6 mm long, linear-oblanceolate to linear-lanceolate, glabrous, villous, or glandular-pubescent. COROLLA white, rotate or bilabiate, tubular-funnelform, glabrous externally. COROLLA TUBE wholly white or white above with purple spots along the ventral side within, glabrous internally or with trichomes along the ventral portion of throat. PETAL LOBES spreading, narrowly triangular or ovate and apically acute. STAMENS 4 or 5, didynamous or isomerous, included or exserted, alternate or opposite the corolla lobes; filaments glabrous. ANTHERS creamy white, introse, dorsifixed, bithecal, 3 locular with the basal portions of the thecae divaricate, inner locules shorter (0.4–0.7 mm long) with the outer locale longer (0.8–1.4 mm) and confluent across the anther tip. STILE straight, included or exserted, glabrous or pubescent. STIGMA ellipsoid or reniform. OVARY superior, bilocular, ovoid, glabrous or apically glandular-pubescent; ovules numerous, axially arranged, 4–6 mm long, 3–4 mm wide. FRUIT a glabrous capsule, elliptical, glandular-punctuate, loculicidally dehiscent, the placenta and calyx persisting. SEEDS numerous, minute, brown, with outer tangential walls forming a scalariform-reticulate surface of square cells.
The genus contains four species distributed throughout the neotropics, occurring mostly along beaches and moist seepage areas. Because of its medicinal use, *Capraria biflora* has been propagated in China and Africa.

**KEY TO SPECIES**

1. Plants hirsute, pilose or glabrous throughout; leaf blades mostly (2-)3-4(-6) times as long as wide; corollas zygomorphic, tubular-campanulate, the tubes 4–7 mm long, villous and with purple markings ventrally within; stamens 4(5), included to occasionally slightly exserted, didynamous.

2. Stems ramified; calyx lobes not glandular-pubescent, linear-lanceolate, widest well below the middle; pedicels mostly 5–25 mm long; stigmas linear.  

   1. *C. biflora*

   2. Stems monopodial; calyx lobes glandular-pubescent, linear-oblanceolate, widest at or above the middle; pedicels mostly 1–4 mm long; stigmas reniform.  

   2. *C. frutescens*

3. Plants glabrous throughout; leaf blades mostly 4-6 times as long as wide; corollas actinomorphic, rotate, the tubes 1-2 (-3) mm long, without hairs or colored markings within; stamens 5, exserted, isomerous.

3. Mature styles 3-5 mm long; corollas 8-10 mm long; Mexico and Belize.  

   3. *C. mexicana*

3. Mature styles 0.75-1.50 mm long; corollas 5-6 mm long; South America and the Galápagos Islands.  

   4. *C. peruviana*

**1. CAPRARIA BIFLORA** L., Sp. Pl. 875. 1753.  
TYPE: SWEDEN. Cultivated, Uppsala.  
(LECTOTYPE: LINN 785.1!; photo-LINN at Fl.; Howard (1989) reported the type of *C. biflora* as LINN 912348.50. That is actually a specimen of *C. frutescens* collected by Houston and is without location. The correct type of *C. biflora* is LINN 785.1 as selected by D’Arcy (1979)).


SUBSHRUBS or suffrutescent perennial herbs, stiffly erect to somewhat sprawling, 40–200 cm tall, with several ramified stems emerging from the root stock. STEMS mostly hirsute, occasionally nearly glabrous but always with a few hairs on the emergent part of young branches, 3–5 mm in diameter at midstem. LEAVES spatulate to lanceolate, mostly 3.5–8.0 cm long, 0.5–3.0 cm wide, glabrous to moderately hirsute. PEDICELS 5–22 mm long, glabrous or glandular-pubescent. FLOWERS 5-merous, perfect, zygomorphic to slightly regular, 10–13 mm long. CALYX lobes 4–6(-7) mm long, lanceolate, glabrous to pubescent. COROLLA white, bilabiate, tubular-funnelform. COROLLA TUBE white above with purple spots ventrally within, with villous trichomes along the ventral portion of throat, 4–8 mm long. PETAL LOBES spreading, ovate, apically acute, the tips rolling back after an-
thecis; anterior lobes 3, 3–5 mm long, 1.8–2.2 mm wide; posterior lobes 2, 3–5 mm long, 1.8–2.2 mm wide. STAMENS 4 or 5, didynamous, posterior pair exerted about 0.5–0.8 mm past the tube, opposite with the corolla lobes; filaments glabrous. STYLE included, glabrous to sparsely pilose, 3–5 mm long. STIGMA ellipsoid. OVARY glabrous. SEEDS ca. 0.50 mm long, 0.35 mm wide.

COMMON NAME: Claudiosa (Spanish, Balick 2304), Tan-chi (Mayan, Balick 2116), Pasmo-wa-xi-uil (Mayan, Balick 1768), sabadil (Huave, D. Zizumbo 63); Goatweed, Té del País, Hierba Té, Cola de Gallo (D’Arcy, 1979); and many others listed in Sprague (1921).

CHROMOSOME NUMBERS: 2n = ca. 28 (Zhao, 1996); 2n = ca. 60 (Borgen, 1980).

PHENOLOGY: Flowering August through February with a few specimens flowering in March. Producing mature fruits December through August.

DISTRIBUTION (Fig. 6): Southeastern U.S.A. (Florida), Caribbean Islands, Mexico, Central America, Galápagos Islands and South America east of the Andes; sea level to 1250 m. Sanders et al. (1996) reported C. biflora as for north as Sonora, Mexico (Van Devender 95–90, ARIZ, UCR). Sprague (1921) reported the species from Texas, but to date I have not found additional citations or specimens to verify this account.

ECONOMIC USES: Label data on Stergos 7773 reports that the plant is used to control hypertension; Fishlock 270, used as a tea; M. Balick 2116, used for constipation (leaves), kidney stones, and blocked urine flow, when used in conjunction with other species; M. Balick 2304, antipyretic (the whole plant, heated in fire and rubbed over body); M. Balick 1768, used for bath for feverish infants.

ILLUSTRATIONS: Photo of flower (Fig. 1c); illustration of flower and habit (Fig. 4).


BELIZE. Dist. Cayo, ca. 15 km SW of San Igu-
Fig. 6. Distribution of *Capraria biflora* (circles) and *C. peruviana* (diamonds). Note: *C. biflora* and *C. peruviana* are sympatric in the Galápagos Islands.
nacio, near San Antonio (17° 05'N, 89° 00'W), 11 Nov 1987, Balick 1768 (US); Toll bridge area at New River, 3 mi S of Orange Walk, 25 Jan 1974, Dywer 12177 (NY, US); Branch Mouth N of Cayo, 19 Feb 1931, Bartlett 11944 (NY).

COSTA RICA. Rio Higuero near Taboga (10° 20'N, 85° 12'W), 30 Jun 1977, Lienzer 2764 (NY).

EL SALVADOR. Dept. San Miguel, S side of Lake Olomega (15° 17'N, 88° 04'W), 27 Jan 1942, Tucker 840 (US); Dept. Sonsonate, Acajutla, 20 Mar 1922, Standley 21922 (NY, US); Comasagua, Dec 1922, Calderón 1377 (NY);


HONDURAS. Dept. Copán, matorrales húmedos de Río Copan, cerca de Copan Ruinas, 650 m, 17 Apr 1956, Molina 6597 (LL); San Pedro Sula, 16 Apr 1984, Cristoff 190 (NY).

NICARAGUA. Dept. Carazo, S boarder of dept. near boarder of Dept. Rivas (11° 30'N, 86° 10'W), 10 Sep 1982, Grijalva 1027 (NY, US); Dept. Chinandega, Ameya, 19 Jun 1923, Maxson 7118 (US), Calazas, Rte 1, 5 of Dario, 25 Dec 1969, Seymour 2598 (NY); Prov. León, near León, 20 Dec 1975, D'Arcy 10431 (NY); along shore of Lake Managua, 24 Jun 1923, Maxson 7255 (US).

PANAMA. Fort Sherman, Torro Point, 28 Feb 1976, Fosberg 56088 (NY, US); Panamá City, 12 Jun 1923, Maxson 6951 (NY, US); Bocas del Toro, 6 Feb 1921, Carleton 150 (NY, US); Isla Taboga, 23 Jul 1938, Woodson 1492 (NY); Galeta Island, 10 Jun 1954, Ritchie s.n. (NY); Isla Colón, 19 Nov 1941, We- del 2977 (NY); San José Island (8° 15'N, 79° 08'W), 16 Sep 1945, Harlow 60 (US).


ARUBA. near Noord, 17 Jan 1953, Staffers 1572 (NY). BAHAMAS. San Salvador, Dec 1973, Catino 14 (FLAS); Farmer's Hill, Great Exuma, 14 Aug 1975, Eldridge s.n. (FLAS, US); Caicos Island, 29 Aug 1974, Correll 43274 (NY); Icacos Island, 7 Aug 1968, Woodbury I 67 (NY); Nassau, 8 Jan 1890, Northop 27 (NY); Andros Island, Nichols Town, 26 Mar 1980, Northop 381 (NY); Grand Bahamas, Pine Ridge, NE of Freeport, 5 Nov 1973, Correll 40537 (NY); Berry Islands, Great Harbour Cay, 16 Oct 1974, Correll 43683 (NY); Watling's Island, 27 Nov 1907, Wilson 7290 (NY); Eleuthera, 21 Feb 1907, Britton 5581 (NY); Acklin's Island, 21 Dec 1905, Brace 4318 (NY); Cat Island, near Port Howe, 22 Nov 1975, Correll 46206 (NY); Long Island, Clarence, 19 Jun 1974, Hill 2216 (NY); Providence, N side of Island, 3 Sep 1952, von Reis 249 (NY); Andros Island, 13 Mar 1966, Dawson 26850 (US).


GRAND CAYMAN. Center of Island, 14 Feb 1899, Armour 1364 (NY). GRENADA. Parish Saint Patrick, Levera Beach, 20 Jan 1951, Humnewell 19499 (NY).


ARGENTINA. Prov. Buenos Aires, Bolívar, 31 Jan 1945, Peredo 119 (NY); Prov. Cordillera, Santa Cruz, Cabeza, 22 Jan 1945, Peredo 44 (NY); Prov. Jujuy, Dept. Santa Bárbara, Jinalito, 10 Apr 1945, Meyer 8512 (NY); Prov. Salta, Dept. Ñorco, Río Bermejo, 16 May 1945, Pierotti 1383 (NY).

BOLIVIA. Dept. Santa Cruz, Prov. Andrés Ibáñez, Puerto Pailas (17° 40' S, 62° 47' W), 11 Jul 1991, Neé 41641 (NY); Dept. Santa Cruz, Prov. Cordillera, Ovai, 6 km NW of Charagua (19° 49.5' S, 63° 14' W), Quevedo 70 (NY).

BRAZIL. Estado Bahiá, by the Rio Caraçaí, SW of Monte Santo, 21 Feb 1974, Harley 16445 (NY, US); Estado Ceará, Fortalezaan 11 Dec 1955, Duke 2302 (NY); Estado Maranhão, Alentara, 10 Apr 1954, Fries 50720 (NY); Estado Pará, in regions secas, Aug 1959, Smith 2112 (NY); Estado Portuguesa, Guarare, 31 Dec 1984, Stergios 7773 (NY); Estado Zulia, km 440 road from Machiques to La Fría, 24 Jul 1976, Stergios 574 (NY); Mpio. Ituaba, Bahiá (10° 43' S, 39° 50' W), 26 May 1983, Baustita 765 (NY); Maranhão, Dec 1959, Carvalho 2 (NY); Saint Paul, Sep 1892, Glaziou 19734 (NY).

COLOMBIA. Dept. Antioquia, Vueltas de Acuña, Rio Magdalena, 14 Jan 1918, Pennell 3789 (NY, US); Dept. Atlántico, bear Barranquilla, 18 Mar 1961, Dugand 5625 (NY); Dept. Bolívar, Siné, 20 Apr 1963, Romero-Castañeda 9680 (NY); Dept. Bolívar, Mpio. Cartagena, 18 km SW of crossing of Canal Dique at Pasacaballlos, Isla Barú (10° 08' N, 75° 42' W), 6 Aug 1985, Zarucchi 3963 (NY, US); Dept. Cundinamarca, Quebrada Cabaña, Hacienda El Cucharro, between Tocaima and Pubenca, 8 May 1944, Killip 38366 (US); Dept. Huila, Río Cabera, 2 km below confluence of Río Ambichi, 3 km WSW of Colombia (3° 22' N, 74° 50' W), 15 Dec 1942, Fosberg 19316 (NY, US); Dept. La Guajira, 1 km W of Puerto Esperanza, 4 Apr 1982, Saravia 431 (US); Dept. Magdalena, Isla de Salomunco, 20 km along the road from Ciénaga to Boquilla, 10 Dec 1966, Romero-Castañeda 10500 (NY); Dept. Magdalena, Isla de Santa Marta, 1 Apr 1918, Pennell 4771 (NY, US).

ECUADOR. Prov. Galápagos, Indefatigable Island, 16 Feb 1939, Taylor 32 (NY); Prov. Galápagos, Santa Cruz Island, old trail to Bella Vista, 8 Feb 1964, Fournier 161 (US); Chatham Island, Wreck Bay, Jan 1925, Stewart 3424 (US).

FRENCH GUIANA. Cayenne, 21 Jul 1985, de Granville 7282 (NY); Mariposas, 8 Apr 1990, Fleury 860 (NY).

GUYANA. Dept. Demerara-Mahaica Region, Atlantic coastline facing leper colony at mouth of Mahaica river (6° 38' N, 57° 55' W), 2 Dec 1986, Pipoly 9044 (NY, TEX, US); Queen's College, Georgetown, in grasses at edge of drainage trench, 10 May 1956, Irwin R-97 (TEX); Mahaica-Berbice Region, Abary River mouth and along canals leading into river, between coastal hwy and ocean (6° 35' N, 57° 47' W), 28 Mar 1987, Pipoly 11248 (NY, US); Pomeroon District, Moruka river, Jul 1927, De La Cruz 4575 (NY, US); Waini river (8° 20' N, 59° 40' W), 3 Apr 1923, De La Cruz 3810 (NY).

PERU. Dept. Loreto, San Salvador along the Amazon River, Jul 1929, Williams 1564 (US); Dept. San Martin, Fundo San Isidro, 13 Feb 1976, Sagastegui 8312 (NY).

SURINAM. Coronie, 22 Oct 1933, Lanjouw 1090 (NY); 10 km SW of Paramaribo, 25 May 1961, Hekking 823 (NY); Nickerie swamp, Schelpenrits Podobong, 2 Feb 1943, Geijsskes s.n. (NY); Zandery, 31 May 1916, Samuels 263 (NY).

VENEZUELA. Estado Aragua, La Trinidad de Maracay, Jan 1913, Pittier 5823 (NY, US); Estado Bolívar, Río Suapure, 5 Jun 1984, López-Palacios 4369 (NY); Estado Falcón, Distrito Silva, Cayo Sal, NE of Chichiriviche (10° 58' N, 68° 15' W), 28 Aug 1974, Steyermark 110325 (NY); Estado Sucre, Peninsula de Araya, 20 km NW of Cariaco (10° 38' N, 63° 40' W), 17 May 1981, Linser 11933 (NY); Estado Zulia, near Perijá, 1918, Tejera 114 (US); Prov., Trujillo, La Concepción, 23 Mar 1931, Reed 1049 (US); road between Playa El Fulacho and Playa El Americano, 5 km de el apostadero naval (11° 50' N, 65° 00' W), 30 May 1986, Rivero 1052 (FLAS); Maracay, 1928, Corvelius 286 (FLAS); Guarico, 14 km N of San Fernando de Apure along main hwy to Calabo, 10 Nov 1973, Davidsie 3952 (NY); road between San Felipe and Barquisimeto km 102, 26 Nov 1952, Arísteguieta 1100 (NY); Dist. Federal, Mpio. Vargas, Parraquía Catia (10° 36' N, 67° 02' W), 12 Jun 1990, Ramírez 2715 (NY); Peninsula Paraguaña, ca. 1.5 km from Pueblo Nuevo along road to Santa Ana, 19 Dec 1964, Brettelet 4353 (NY, US); Miranda, between Las Canales and El Encanto, Nov 1942, Lasser 688 (US).

**Capraria biflora** is the most widespread species of *Capraria* and the only species distributed on both sides of the equator (Fig. 6). The species is readily distinguished by its ramified stems, spatulate leaves, pubescent hairs, lanceolate sepals, bilaterally symmetrical corollas with 4–5 stamens, and linear stigma.

One specimen from Oaxaca, Mexico
(Orcutt 5009) and several in Panama (Hayes 322, 745, and 876) are glabrous and have linear-lanceolate leaves that are only 4–6 mm wide, superficially resembling Capraria mexicana and C. peruviana, while the flowers are zygomorphic as in C. biflora. In addition, occasional specimens from Florida, the Caribbean islands and the Atlantic coast of both hemispheres have lanceolate leaves; these appear to be largely confined to areas that are at or near sea level. However, sporadic plants of a similar nature occur throughout the range of C. biflora, and consequently such plants do not appear to merit varietal status.

I follow Wiggins and Porter (1971) who noted that because plants that are subgla­brate and densely pubescent intergrade, “it seems futile to recognize var. pilosa Griseb.”

2. CAPRARIA FRUTESCENS (Mill.) Britton, J. Bot. 45: 315. 1907.


PERENNIAL herbs, stiffly erect to somewhat sprawling, 40–200 cm tall, with several monopodial stems emerging from the root stock. STEMS pilose, 2–4 mm in diameter at midstem, the vestiture 1–2 mm long. LEAVES ob lanceolate, mostly 4–8 mm long, 1.5–4.0 cm wide, moderately hirsute. PED- ICELS 1–4 mm long, glandular-pubescent. FLOWERS zygomorphic, 6.5–8.5 mm long. CALYX lobes 3.0–4.5 mm long, linear-oblong, variously pubescent with glandular or eglandular hairs (these often intermixed), the apices acute. COROLLA white to pale lavender, bilabiate, tubular-funnelform. COROLLA TUBE white with purple spots ventrally within, with villous trichomes along the ventral portion of the throat, 4–7 mm long. PETAL LOBES spreading, ovate, apically acute, tips rolling back after anthesis; anterior lobes 3, 3.5–5.0 mm long, 1.8–2.2 mm wide; posterior lobes 2, 2.5–4.0 mm long, 1.8–2.2 mm wide. STAMENS 4, didyn­amous, included, opposite the corolla lobes; filaments 2.5–3.0 mm long, glabrous. STYLE included, glabrous to sparsely pilose, 3–5 mm long. STIGMA reniform. OVARY pubescent apically, the hairs extending up the style shaft near its base but not much be­yond. SEEDS ca. 0.5 mm long, 0.35 mm wide,

COMMON NAME: Claudiosa (Yucatán; Sprague, 1921).

CHROMOSOME NUMBERS: 2n = ca. 28 (Zhao, 1996).

PHENOLOGY: Flowering August through December with a few specimens flowering in January. Producing mature fruits December through September.

DISTRIBUTION (Fig. 7): Central Mexico southwards to Honduras, 0–1000 m.

ILLUSTRATION: Photo of flower (Fig. 1 a & b); illustration of flower and habit (Fig. 8).

REPRESENTATIVE SPECIMENS: MEXICO. CAMPECHE. near the caves of Xtacumbiikanum, 3 km W of Bolonchen de Rejon, 29 Sep 1985; Cabrera 9525 (MO). CHIAPAS. Mpio. Chiapa de Corzo, steeped walled canyon with tropical deciduous forest, above El Chorreradeo, 800 m, 9 Jul, 1972, Breedlove 26004 (LL); Ocozocuautla, 16 km W of Ocozocuautla and 3.2 km from El Aguacero, 24 Dec
Fig. 7. Distribution of *Capraria frutescens* (open circles) and *C. mexicana* (diamonds).

1984, Cowan 5020 (TEX); Mpio. Tuxtla Gutiérrez, S of Tuxtla Gutiérrez on Hwy. 195 (to Villaflorres), 4.7 mi from jct. with bypass, on top of escarpment in roadside brush in rocky limestone soil, 860 m, 1 Nov 1980, Fryxell & Lott 3265 (F, NY, TEX); Colima, Manzanillo, 1 Dec 1890, Palmer 917 (NY, US); Colima, 20 Oct 1910, Orcutt 4522 (F).


JALISCO. Tuxpan, 4 Nov 1926, Mexia 1041 (US); Chamela Biological Station, along main road about 50 m from the entrance to preserve headquarters (19° 30'N, 104° 50'W), 31 Dec 1996, Williams, Stiedo & Wood 99 (SHST).

JALISCO. Tuxpan, 4 Nov 1926, Mexia 1041 (US); Chamela Biological Station, along main road about 50 m from the entrance to preserve headquarters (19° 30'N, 104° 50'W), 31 Dec 1996, Williams, Stiedo & Wood 99 (SHST).

COLOMBIA. Manzanillo, 1 Dec 1890, Palmer 917 (NY, US); Colima, 20 Oct 1910, Orcutt 4522 (F).

MEXICO. Dist. Temascaltepec, Bejucos, 13 Feb 1933, Hinton 3383 (F, NY).


YUCATÁN. Chichen Itzá, 27 Feb 1899, Mills-paugh 1625 (F); in wet places near Sayil, 35 km SE of Oxtutzcab, 19 Jul 1985, Cabrera 9006 (TEX); Mpio. Santa Elena, 0.55 km SW of entrance road to Kabah archeological site on Hwy. 261, between Holpche and Mérida (89° 40'W; 20° 15'N), 100 m, 11 Mar 1990, Sanders 9628 (TEX); Chankon, 22 Jun 1929, Bequaert 78 (F); near the caves of Balancanché, 32 km W of Valladolid, 29 Jun 1985, Cabrera 8778 (MO).

HONDURUS. Dept. Comayagua, near Comayagua, 600 m, 12-23 Mar 11947, Standley 5312 (F); Dept. El Paraiso, vicinity of Danlí, 700-800 m, 11-23 Feb 1949, Standley 17042 (F); Dept. Olancho, near Jutilapa, 380-480 m, 5-16 Mar 1949, Standley 17953 (F).
*Capraria frutescens* is a very distinct species. It is readily distinguished by its monopodial stems, glandular-pilose vestiture, oblong sepals, bilateral corolla and reflexed stigma (Fig. 2a). Due to its distinctiveness, the species has been recognized as the monotypic genus *Pogostoma*. However, because of the suite of characters it shares with *C. biflora* (Table 2) and because it has alternate leaves with punctate glands (like the other species of *Capraria*) I retain it in *Capraria*.

3. **CAPRARIA MEXICANA** Moric. ex. Benth. in DC., Prodr 10: 429. 1846. TYPE: MEXICO. TAMAULIPAS: Tampico, s.d., *Berlandier s.n* (LECTOTYPE: K; designated by Sprague (1921)).

SUBSHRUBS or suffruticose perennial herbs, stiffly erect to somewhat sprawling, 50–200 cm tall, with several ramified stems emerging from the root stock. STEMs glabrous, 2–4 mm in diameter at midstem. LEAVES lanceolate, mostly (3–) 4–10 (11) cm long, 0.6–2.2 cm wide, glabrous. PEDICELs 5–12 mm long, glabrous. FLOWERS 5-merous, perfect, actinomorphic, 8–10 mm long, 8–10 mm broad when open. CALYX lobes 3–5 mm long, 0.8–1.2 mm wide, lanceolate, glabrous. COROLLA white, rotate. COROLLA TUBE light green to white, glabrous internally, 2–4 mm in diameter at midstem. STAMENS 5, isomerous, actinomorphic, perfect, actinomorphic, oblong sepals, bilateral corolla and regular corollas with five lobed ovary. OVARY glabrous. SEEDS ca. 0.35 mm long, 0.2 mm wide.

**COMMON NAME:** Tamaulipan Tea (Ideker, 1996).

**CHROMOSOME NUMBERS:** None reported.

**PHENOLOGY:** Flowering November through April. Producing mature fruits February through August.

**DISTRIBUTION** (Fig. 7): Northern Mexico with disjunct populations south into Belize, mainly eastern Mexico with one population in south Texas (Ideker, 1996). Sea level to 650 m elevation.

**ILLUSTRATION:** Photo of flower (Fig. 1 d & e); illustration of flower and habit (Fig. 9).


**BELIZE.** Dist. Corozal, between Sarteneja and Chunox (18° 17'N, 88° 15'W), 18 Mar 1987, *Davidse 32632* (MO); Stann Creek, 10 Jun 1932, *Schipp 945* (F, NY); El Cayo, Mar 1933, *Chanek 138* (F).

**Capraria mexicana** is readily distinguished by its glabrous condition, branching stems, and regular corollas with five isomerous stamens (Fig. 1d.).

One population of *Capraria mexicana* has been reported in Texas and the species has been listed as endangered by the Texas Organization for Endangered Species (Ideker-
Fig. 9. *Capraria mexicana* (Williams, Plum & Goldman 96-3, SHST). a. Habit. b. Leaf. c. Corolla, front view. d. Corolla, side view. Figure by Maria Thompson.
er, 1996). Although Ideker reported the location of the population (Falcon Reservoir, Zapata Co., Texas), he did not cite a specimen.

4. **CAPRARIA PERUVIANA** Benth. in DC., Prodr. 10: 430. 1846. **TYPE:** ECUADOR. Guayaquil, s.d., *Hinds s.n.* (LECTOTYPE: K!, designated here. Of the paratypes listed by Bentham I could only locate *Hinds s.n.*, hence its selection as the lectotype.).

*Xuaresia biflora* Ruiz & Pav., Fl. Peruv. 2: 13. 1794. pl. 123. **TYPE:** ECUADOR. Prov. of Bolivar, Guarama, 72 mi NE of Guayaquil, s.d., Née *s.n.* (LECTOTYPE: MA! spec. # 488144, designated here. Although the name *Xuaresia biflora* Ruiz & Pav. pre-dates *Capraria peruviana* by 52 years, its placement within *Capraria* would create an illegitimate homonym of the earliest name, *C. biflora* L.).

*Witheringia salicifolia* Hook. [non Salisb.], Bot. Misc. 2: 231. 1831. **TYPE:** PERU. Prov. Lurin, near Lima, s.d., *Cruckshanks s.n.* (HOLOTYPE: K! Although the name *Witheringia salicifolia* Hook. pre-dates *C. peruviana* by fifteen years, its placement within *Capraria* would be illegitimate as it would be a later homonym of *Capraria salicifolia* Salisb. [= Freylinia lanceolata G. Don].)

**SUBSHRUBS** or suffruticose perennial herbs, stiffly erect to somewhat sprawling, 50–200 cm tall, with several ramified stems emerging from the root stock. **STEMS** glabrous, 2–4 mm in diameter at midstem. **LEAVES** lanceolate, mostly (3–) 4–10 (–11) cm long, 0.6–2.2 cm wide, glabrous. **PEDICELS** 5–22 mm long, glabrous. **FLOWERS** 5–merous, perfect, actinomorphic, 5.0–6.0 mm long, 6–8 mm broad when open. **CALYX** lobes 3.0–4.0 mm long, 0.8–1.2 mm wide, lanceolate, glabrous. **COROLLA** white, rotate. **COROLLA TUBE** light green to white, glabrous internally, 0.8–1.5 mm long. **PETAL LOBES** spreading, lanceolate, 3–4.5 mm long. **STAMENS** 5, isomerous, exserted about 0.8–1.0 mm past the corolla tube, alternate with the corolla lobes; filaments glabrous. **STYLE** included, glabrous, 0.75–1.50 mm long. **STIGMA** ellipsoid. **OVARY** glabrous. **SEEDS** ca. 0.35 mm long, 0.2 mm wide.

**COMMON NAME:** Té del Perú, Té de Lima (Sprague, 1921). Smooth capraria (McMullen, 1999).

**CHROMOSOME NUMBERS:** None reported.

**PHENOLOGY:** Flowering August through January. Producing mature fruits January through August.

**DISTRIBUTION** (Fig. 6): South America on the western side of the Andes (Peru and Ecuador) and the Galápagos Islands. Sprague (1921) and D'Arcy (1979) identified specimen Hayes 375 as *C. peruviana* and consequently reported the taxon as growing in Panamá. Unfortunately, I was unable to locate Hayes 375. I have examined other *Capraria* collections by Hayes (322, 745, 876) from the same region of Panama and I note that these specimens are rather narrowed leafed, glabrous individuals of *C. biflora*, which superficially resemble *C. peruviana*.

**ECONOMIC USES:** Sprague (1921) reported that the leaves of this species are brewed as a tea in Peru.

**ILLUSTRATIONS:** A detailed line drawing is provided in Wiggins and Porter (1971) and McMullen (1999) has a beautiful color photo of the species.

Holm-Nielsen et al. 2459 (F, MO, NY); Prov. Manabí, 1.5–3 km W of Leonidas Plaza (00° 36' S, 80 27' W), 25–75 m, 16 Sep 1993, Webber 30652 (TEX).

PERU. Dept. Cajamarca, 30 km E of bridge over Rio Maichil (79° 10' W, 06° 30' S), 1450 m, 9 Feb 1988, Gentry 61402 (F, MO); Prov. Casma, ca. 48 km N of Paitiwica on Pan Am Hwy., coastal desert dunes, 10 m, 13 Oct 1984, Dillon 4011 (NY, TEX); Prov. Lambayeque, 12 km (via Pan Am Hwy) N of Olmos, 29 May 1978, Barbour 2117 (MO, NY); Prov. Santa Cruz, Lurin, 4 Jan 1925, Pennell 12209 (NY); Prov. Trujillo, Ladera, 26 Jun 1986, Mostacero 1105 (F, NY); Prov. Turnes, Dept. Turnes, La Cruz, 28 May 1992, Sagástegui 14611 (F, NY).

Except for the consistently smaller styles (1–2 mm long; Fig. 2d) and somewhat smaller greenish white corollas, this species is almost identical to C. mexicana (Table 2).

EXCLUDED NAMES

Below is a list of names in Capraria that are presently referable to other genera. The six Capraria names highlighted in bold are those not accounted for in Sprague's (1921) study.


Capraria crustacea L., Mant. Pl. 87. 1767. = Lindernia crustacea (L.) F. Muell. (fide Howard, 1989)

Capraria difficua Roxb., Hort. Bengal. 47. 1814. = Ebermaiera thysoidea Wall. (fide Sprague, 1921)

Capraria dissecta Delle, Descr. Egypte, Hist. Nat., 95. t. 32. fig. 3. 1812. = Sutera glandulosa Roth. (fide Sprague, 1921)


Capraria elliptica (Cham.) Kuntze, Rev. Gen. Pl. 2: 459. 1891. = Scoparia elliptica Cham. (fide Sprague, 1921)


Capraria gratioloides L., Syst. Nat., ed. 10. 1117. 1759. = Ilysanthes gratioloides (L.) Benth. (fide Sprague, 1921)

Capraria gratissima Roxb., Hort. Bengal. 47. 1814. = Limnophila roxburghii G. Don. (fide Sprague, 1921)

Capraria humifusa Buch.-Ham. ex Wall., Cat. n. 3883. 1831. = Centranthera humifusa Wall. (fide Sprague, 1921)


Capraria integrifolia Martens & Galeotti, Bull. Acad. Roy. Sci. Bruxelles, 12: 20. 1845. Type: MEXICO. OAXACA. Oaxaca, 1840, Galeotti 653 (HOLOTYPE: BR!). = Nama jamacense L. (In his treatment of Capraria, Sprague (1921) recognized this as a valid species of Capraria. Examination of the type material, however, reveals that this is, in fact, a species of Nama.)

Capraria lanceolata L. f., Suppl. Pl. 284. 1781. = Freylinia lanceolata (L. f.) G. Don. (fide Sprague, 1921)


Capraria monnieria Roxb., Hort. Bengal. 47. 1814. = Herpestis monnieria (Roxb.) H.B.K. (fide Sprague, 1921)


Capraria multifida Michx., Fl. Bor.-Amer. 2: 22. t. 35. 1803. = Conobea multifida (Michx.) Benth. (fide Sprague, 1921)

Capraria multiflora Steud., Nom. ed I. 149. 1820. = Conobea multiflora (Michx.) Benth. (fide Sprague, 1921)


Capraria rigida Thunb., Prodr. Pl. Cap. 103. 1800. = Ehetria rigida (Thunb.) Druce (fide Sprague, 1921)
Capraria salicifolia Link & Otto, Icon. Pl. Rar. Hort. Berol. 11. t. 4. = Freylinia cestroides Colla (fide Index Kewensis)
Capraria undulata L. f., Suppl. Pl. 284. 1781. = Freylinia undulata (L.f.) Benth. (fide Index Kewensis)
Capraria uniflora Burm. f., Fl. Indica 133. fig. 3. 1768. = Lysmachia sp. (fide Sprague, 1921)

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Appreciation is given to Billie Turner for suggesting this project. W. Patrick Spencer provided valuable assistance and superb technique during the preparation and photography of the SEM samples. I am equally indebted to Kerry Barringer, James Henrickson, Sarah Jackson, Heidi Meudt, and Beryl Simpson for patiently reviewing and improving the manuscript. I also thank Maria Thompson (“La Mulata”) for the illustrations, and the curators of the following herbaria for loan of their material: F, FLAS, K, LL, MO, NY, TEX, US.

LITERATURE CITED

NUMERICAL LIST OF TAXA

1 = C. biflora  
2 = C. frutescens  
3 = C. mexicana  
4 = C. peruviana

INDEX TO THE NUMBERED COLLECTIONS EXAMINED

The exsiccate listed below is for all specimens examined during this study and includes those listed and those not listed in the representative specimens above. The numbers in parentheses refer to the corresponding taxa in the Numerical List of Taxa presented above.
Hill 2216, 13415, 24726 (1)
Hinton, G. B. 26492 (1); 1979, 3383, 5474 12824, 12876, 16112 (2)
Hitchcock, A. S. 258, 16645 (1)
Hodge, W. H. 3706 (1)
Hoffman, B. 758 (1)
Hohenacker, R. F. 628 (1)
Holm-Nielsen 2459, 7197 (4)
Holton, I. F. 582 (1)
Hood 22983 (1)
Howard, R. E. 4592, 5122, 5394, 5798, 6581 (1)
Howell, J. T. 8950 (4); 9105 (1)
Hudson, J. 738 (4)
Hunnewell, F. W. 11491, 19499 (1)
Irwin, H. S. R-97, 348 (1)
Jativa, C. & Eppling, C. 451 (4)
Jahn, A. 1214 (1)
Jenman, G. S. 4499, 5460, 5857 (1)
Jimenez, G. 9 (3)
Johnston, M. 265, 1075 (1) 4926, 5020 (3)
Jones, M. E. 23206 (1)
Karwinsky, B. W. F. 516 (3)
Kenoyer 765 (2)
Killip, E. P. 14029, 14057, 14451, 14636, 31414, 31605, 38366, 41703 (1)
King, R. M. 518, 1684 (1) 3801, 3879, 4039 (3)
Kirkbride, J. H. 2629 (1)
Klawe 1516 (1)
Kuntze, O. 193, 279 (1)
Lakela 28014, 30471 (1)
Lanjouw, J. 1090, 1524 (1)
Laverde, Bro. B. A. 1912 (1)
Leiva, S. 1991 (4)
Leonard, E. L. 4146, 5305, 11020, 11022, 11206, 11207, 12206, 15485, 11731 (1)
LeSueur, D. H. 378 (2) 585 (3)
Léveque 118 (4)
Lewis, W. H. 4580 7210, 7444 (1)
Liebmann, F. M. 9459 (1)
Liesner, R. 2764, 4277, 4462 11933 (1)
Liogier, A. H. 17500, 18207, 30173 (1)
Lira, E. M. 419 (1)
Llatas Quiroz, S. 853 (4)
López- Figuera, J. 199, 480 (1)
López-Palacios 4369 (1)
Lot, A. 1344 (1)
Lozano-C., G. 2718 (1)
Lundell, C. L. 898, 1904, 2212, 7854, 7976, 16474 (1); 7877 (2)
Maas, P. J. 547 (1)
MacDaniels, L. H. 456 (2)
Madrid, E. 497 (1)
Madsen, J. E. 64024 (4)
Maltby, T. S. 53, 135 (1)
Martínez, E. 27788, 28286, 28643, 28830, 28921, 28968, 29642, 31372 (1)
Martínez-Calderón, G. 1472 (2)
Matuda, E. 692, 3271, 4734, 16338, 16758 (1)
Maxon 6951, 7118, 7255 (1)
McGregor, R. L. 16299 (3)
Meja, M. A. 8951 13119 (1)
Mell, C. D. 249, 2154 (1)
Mexia, Y. E. J. 1041 (2)
Meyer, F. G. 8512 (1)
Mille, L. 1064 (4)
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