REVISION OF FEVILLEA (CUCURBITACEAE: ZANONIEAE)

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ABSTRACT
A revision of the neotropical genus Fevillea with keys, descriptions, and distribution is provided. Two subgenera are recognized: subgenus Fevillea with six species and subgenus Anisosperma with one species. Fevillea bahiensis G. Robinson & Wunderlin from Brazil is described as new and subgenus Anisosperma (Silva Manso) G. Robinson & Wunderlin is proposed.

RESUMEN
Se aporta una revisión del género neotropical Fevillea con claves, descripciones, y distribución. Se reconocen dos subgéneros: subgénero Fevillea con seis especies y subgénero Anisosperma con una especie. Se describe como nueva Fevillea bahiensis G. Robinson & Wunderlin de Brasil y se propone el subgénero Anisosperma (Silva Manso) G. Robinson & Wunderlin.

FEVILLEA (Cucurbitaceae: Zanoneae), a neotropical genus of seven species, is characterized by leaves with glands, calyx with glandular squamellae (except F. passiflora), petals with a medial adaxial flap-like appendage or ridge, staminate flowers with five bilocular anthers, and a globose, usually indehiscent, large-seeded fruit.

TAXONOMIC HISTORY
Fevillea was established by Linnaeus (1753) in honor of Louis Éconches Feuillée, (1660–1732), a French clergyman, explorer, astronomer, and botanist. Linnaeus recognized two species, F. trilobata and F. cordifolia.

Adanson (1763) published the pre-Linnaean name Nhandiroba, of Marcgrave (Piso & Marcgrave 1648), but placed Linnaeus’s name Fevillea in synonymy, thereby making Nhandiroba illegitimate. No species were listed. The name Nhandiroba remained unused until resurrected by Kuntze (1891–1898).

The first comprehensive treatment of Fevillea since Linnaeus (1753) was that of Seringe (1828) who recognized four species. In addition to F. cordifolia and F. trilobata, Seringe recognized F. punctata (L.) Poir. [=Trichosanthes sp.] and F. javilla Kunth [=F. cordifolia].

Silva Manso (1836) established the monotypic Hypanthera with H. guapeva [=Fevillea trilobata] and Anisosperma with A. passiflora (Vell.) Silva Manso [=Fevillea passiflora Vell.]. Both monotypic genera were accepted by most subsequent workers until recently.
Roemer (1846) recognized *Hypanthera* and *Fevillea*. He placed ten species in *Fevillea*, incorporating some taxa now placed in *Trichosanthes* L., *Pteropepon* Cogn., and *Sicydium* Schltdl. *Fevillea passiflora* was also recognized, but without reference to Silva Manso’s placement of the species in *Anisosperma*. Roemer erected two sections: section *Fevillea* with nine species and section *Javilla* with only *F. javilla* Kunth [= *F. cordifolia* L.].

Cogniaux (1878) recognized three species of *Fevillea* for Brazil: *F. trilobata*, *F. albiflora* Cogn., and *F. deltoidea* Cogn. (the latter now in *Pteropepon*). In addition, he recognized the monotypic genus *Anisosperma* and expanded the generic limits of the previously Old World genus *Alsomitra* (Blume) M. Roem. to include two new neotropical species: *A. brasiliensis* [= *Siolmatra brasiliensis* (Cogn.) Baill.] and *A. pedatifolia* [= *Fevillea pedatifolia* (Cogn.) C. Jeffrey]. In a more comprehensive treatment, Cogniaux (1881) expanded *Fevillea* to six species, maintaining *Anisosperma* and *Alsomitra*.

The genus *Siolmatra*, a segregate of *Alsomitra* created by Baillon (1885) to accommodate *Alsomitra brasiliensis* Cogn. [= *Siolmatra brasiliensis* (Cogn.) Baill.], was accepted by Cogniaux (1893) who described a second species (*S. paraguayensis*). Three additional species were later added by Cogniaux (1916), one new (*S. amazonica*) and two transferred from *Alsomitra* (*S. pedatifolia* (Cogn.) Cogn. and *S. peruviana* (Huber) Cogn.). Harms (1926) added a sixth species (*S. pentaphylla*), later (Harms 1933) a seventh (*S. simplicity*), and Standley (1937) an eighth (*S. mexiae*). Jeffrey (1962b), noting the incongruent mixture of taxa in *Siolmatra*, recircumscribed the genus and transferred four species to *Fevillea*. In reviewing the New World taxa of the Cucurbitaceae, Jeffrey (1978) listed nine species in *Fevillea*, including *F. passiflora*, considering *Anisosperma* congeneric with *Fevillea*.

**FLORAL AND FRUIT MORPHOLOGY**

The staminate inflorescence consists of numerous, small, pentameric flowers that are paniculate in subgenus *Fevillea* or fasciculate to subumbelliform in subgenus *Anisosperma*.

In subgenus *Fevillea*, the midrib of the adaxial surface of the sepals is fused with the lower margins of the petals. At or above this point of fusion extends a small glandular protuberance of uncertain ontogenic origin which is here referred to as a “glandular calycine squamella.” The exudate from the squamellae is clear and remains visible on most herbarium specimens. Each petal has a median, adaxial, uncinate appendage or slightly raised glandular midrib which is adnate with the base of the stamen filament. In subgenus *Anisosperma*, the sepals and petals are united at their base and lack squamellae. Instead, the petals have a median, adaxial, glandular ridge.

An articulation occurs between the filiform hypanthium and the pedicel. The indumentum on the staminate flowers is quite variable in most species and
is similar (when present) on both the hypanthium and pedicel. However, *F. trilobata* has a stipitate-glandular pubescence on the hypanthium above the articulation in rather sharp contrast to the non-glandular trichomes on the pedicel below.

The presence of five free, bilocular anthers in *Fevilla* is unique for the family and is considered plesiomorphic. The general trend within the Cucurbitaceae is the reduction of stamen number from five to three or to two and the reduction in locule number from two to one.

The pistillate flowers are rarely collected and are thus imperfectly known or unknown for some species. We have seen them in only four of the seven species. Those of *F. pergamentacea* and *F. passiflora* are known to us only through the literature while those of *F. moorei* are unknown.

The petals of the pistillate flowers have a slightly raised median appendage extending from the base to the center, reminiscent of those of the staminate flowers. Two small glands occur at the base of the petal on either side of this median appendage. A large, subrotund, flattened, glandular protuberance extends from the base of the calyx lobe between each petal. These protuberances may represent staminodes. Cogniaux (1878, 1881, 1916) reported these structures, counting 20 small “glands” at the base of the petals. This probably included the sum total of glands, ridges, and protuberances.

The fruits of subgenus *Fevilla* are large, subglobose, mottled green or brown, and gourd-like. The size ranges from 8 to 16 cm in length and from 7 to 13 cm in diameter. An individual plant may produce as many as 50 to 100 fruits at a time (Gentry & Wettach 1986). The fleshy rind of the fruit is zonate above the middle with the hypanthium lip scar (ovary partly inferior). The fruits are typically indehiscent, but reportedly sometimes dehiscent along the hypanthium lip scar in *F. pedatifolia* (A. Gentry, pers. comm.). In contrast, the fruits of subgenus *Anisosperma* are ovoid or oblong, subtrigonsous, short-apiculate at the apex, and not zonate above the middle (ovary fully inferior). The seeds (up to 15 per fruit) vary from 3 to 6 cm in diameter and weigh 3 to 9 g when dry. They are among the largest in the Cucurbitaceae and are comparable in size only to those of the paleotropical genera *Telfairia* (Cucurbitoideae: Jollifieae) and *Hodgsonia* (Cucurbitoideae: Trichosantheae). The seed coat consists of three layers. The innermost layer surrounding the cotyledon is spongy and aeriferous. This layer is enclosed in a thin, hard, woody layer. The outermost layer is thin, smooth, and of a corky texture which tends to obscure the margin of the woody layer below but usually does not persist.

**DISTRIBUTION AND HABITAT**

*Fevilla cordifolia* has the widest distribution, ranging from southern Mexico, east into the Caribbean to Puerto Rico, south through Central America and into South America to northern Argentina. Dieterle (1976) notes that it is cultivated
in some or all Central American countries and is found in most Central American markets, especially in Guatemala. Three species (*F. trilobata*, *F. bahiensis*, and *F. passiflora*) are endemic to eastern Brazil and *F. pedatifolia* and *F. pergamentacea* occur in Ecuador, Peru, and Bolivia, with *F. pedatifolia* extending into adjacent Amazonian Brazil. *Fevillea moorei* is known only from the type material cultivated in England and is probably from Guyana or Amazonian Brazil.

*Fevillea* typically occurs along river banks, along the edge of tropical primary or secondary forests, and along the edge of seasonally inundated riverine forests, occasionally climbing to heights of 35 m in forest canopy openings. It also is found in forest clearings and along roadsides. It occurs at elevations from near sea level to about 500 m, less commonly up to 1,700 meters.

Fruits and seeds of *Fevillea* are quite buoyant and thus apparently are well suited to dispersal in fresh water. Gentry and Wettach (1986) report that at least one species (*F. cordifolia* or *F. pedatifolia*) of Amazonian Peru occurs in seasonally inundated forests, a habitat in which water dispersal is prevalent. Seed drift materials of *Fevillea cordifolia* have been found within the Caribbean basin well outside the species natural range. Gunn and Dennis (1976), Morton (1981), and the senior author have identified seeds of *F. cordifolia* collected from beaches of southern Florida. Guppy (1917) reported materials found along beaches of the Turks Islands, Tobago, and Grenada. Guppy (1917) and Gunn and Dennis (1976) found that seeds of *F. cordifolia* germinated in fresh water while afloat after the disintegration of the fruit wall, but were generally rendered non-viable in salt water. Although *F. cordifolia* is sometimes listed as an estuarine plant, the seeds are probably not capable of over-sea transport for any distance. However, dispersal by seed drift via salt water can not be disregarded. Guppy (1917) estimated that 5% of the *Fevillea cordifolia* drift seeds reaching the Turks Islands were viable while Gunn and Dennis (1976) found 20% of the undamaged drift seeds on Florida beaches were viable. The high salinity of the beach is probably lethal, thus preventing colonization.

**ECONOMIC IMPORTANCE**

The high seed oil content of *Fevillea trilobata* was recognized centuries ago by indigenous Brazilians whose use of it was first documented by Marcgrave (Piso & Marcgrave 1648). *Fevillea cordifolia* is similarly well known in the ethnobotanical literature (cf. Gentry & Wettach 1986). It has been used as a purgative, reputed antidote for many kinds of poisoning, and as a treatment for numerous diseases. In Jamaica it is called “antidote caccoon” or “antidote vine” (Adams 1972; Gunn & Dennis 1976; Morton 1981). Lindley and Moore (1870) first reported the use of *Fevillea* seeds by Peruvians as candles. Gentry and Wettach (1986) report that “abiria” (*Fevillea pedatifolia*) is used as candles by the Campa Indians of the Pichis Valley of Peru.

*Fevillea* seeds may have potential as an edible or fuel oil source. Calculated
on a weight per fruit basis, the seed oil content of *Fevillea* is higher than that of any other dicotyledon (Gentry & Wettach 1986). Preliminary analysis of oils extracted from the seeds of two Peruvian species (*F. cordifolia* and *F. pedatifolia*) by Gentry and Wettach show the oil to be simple triglycerides, slightly heavier than those of refined cottonseed oil. All species were rich in the saturated low-weight fatty acids, palmitic (21–60%) and stearic (10–42%), and the unsaturated oleic (17–17%) and linoleic (6–7%). When compared with previous results from the Brazilian *F. trilobata* (Tulloch & Bergter 1979), Gentry and Wettach suggest that the Peruvian species with 60–70% low-weight, saturated fatty acids would be a good sources of fuel oil while the Brazilian species with 57% unsaturated fatty acids would be a good source of polyunsaturated edible oils. However, the relatively high concentration of high molecular weight fatty acids in *F. trilobata*, probably correlated with its purgative properties, may reduce its value as an edible oil. The high percent of stearic acid in *F. cordifolia* might also suggest its use in the candle industry where this chemical is used to harden waxes and in the rubber industry where used as an extender. Preliminary laboratory analysis of *F. cordifolia* at the University of South Florida gave highly variable results thought to be related to the different ages of the seeds tested, further complicating the use of *Fevillea* seeds as a potential commercial oil source (unpublished data). Although *Fevillea* as an oil source is documented in the literature, to date it remains a genus of little or no economic importance.

**INFRAGENERIC RELATIONSHIPS**

Jeffrey (1962a) recognized two genera within the subtribe Fevilleinae, *Fevillea* and *Anisosperma*. In our treatment, *Anisosperma* is reduced to a subgenus of *Fevillea*. Subgenus *Anisosperma* differs from subgenus *Fevillea* by the shape of the corolla lobes, the character of the median adaxial glandular ridge of the staminate petals, the congested staminate inflorescence, the lack of glandular calycine squamellae on the staminate flowers, and the fruit shape. However, with the presence of the foliar glands, the median adaxial glandular ridge on the petals, and overall similarity in fruit and seed morphology, the single species of subgenus *Anisosperma* is easily accommodated in *Fevillea*.

Within subgenus *Fevillea*, three species groups can be distinguished on the basis of foliar gland characters. The first group consists of *F. pergamentacea* and *F. pedatifolia* which have conspicuous petiolar glands and inconspicuous laminar glands. The others are characterized by having laminar glands only. Of these, *F. cordifolia* and *F. trilobata* have glands terminating the veins on the lamina and lack basal laminar glands while *F. moorei* and *F. bahiensis* both have basal laminar glands only.

**SYSTEMATIC TREATMENT**


Dioecious vines or lianas; stems sulcate; tendrils axillary, sulcate, distally 2-fid, coiling both above and below the bifurcation. Leaves alternate, petiolate, the blade unlobed, or palmately 3- to 7-lobed, or 3- to 5-foliolate, with glands on the leaf margins terminating the primary lateral veins and/or 2 glands at the blade base or on the petiole, the petiole canaliculate, sometimes bearing 2 glands at or above the middle. Staminate inflorescences paniculate or subumbelliform, many-flowered, bracteate; flowers short-pedicellate; hypanthium pedicelloid; calyx lobes 5, fused to the petals above, not completely enclosing the petals in bud, with a glandular calycine squamella on each calyx lobe at or near the point of fusion with the petals (except in *F. passiflora*); petals 5, fused to the sepals below, the lobes each with a median, adaxial, uncinate, flap-like appendage or a slightly raised ridge or (in *F. passiflora*) with a thick, glandular ridge; stamens 5, equal, free, inserted near the center of the flower, the anthers bilocular, extrorse, dehiscing longitudinally, the connective with an adaxial glandular protuberance or projection; pollen prolate, 18–22 µ in length, tricolporate, coarsely striate. Pistillate flowers solitary or in pairs, hypanthium deeply cupular; sepals and petals as in the staminate flowers or sometimes the petals differing in shape; ovary partly inferior, 3-locular, the styles 3, free, outwardly curved, the stigmas reniform, capitate, the ovules pendulous, usually 4 in each locule. Fruit globose, gourd-like with a thick, fleshy rind, zonate above the middle with the hypanthium lip scar or non-zonate, indehiscent or rarely circumscissile dehiscent along the hypanthium lip scar; seeds large, orbicular, somewhat compressed, the seed coat consisting of a thick, spongy, aeriferous inner layer surrounded by a thin woody layer, and an outer, usually non-persistent layer, the lateral surface smooth or striate-verrucose, the outer edges smooth or tuberculate, the inner kernel disk-like, oily.

Two subgenera are distinguished as follows:

1. Corolla lobes of the staminate flowers suborbicular, the base cuneate, with a median adaxial uncinate appendage or sharply defined ridge; glandular calycine squamellae present between the petals and the calyx lobes; staminate flowers in spreading panicles; fruit subglobose, zonate above the middle, the apex rounded

__________________________ subg. *Fevillea*

1. Corolla lobes of staminate flowers oblong-hastate, the base with a median adaxial glandular ridge broadening downward; glandular calycine squamellae absent; staminate flowers in congested panicles or subumbelliform; fruit ovoid to oblong, not zonate, the apex short-apatulate

__________________________ subg. *Anisosperma*
Fevillea subgenus Fevillea


Staminate inflorescences paniculate; glandular calycine squamellae present; corolla lobes suborbicular with a median adaxial uncinate appendage or slightly raised ridge. Fruit subglobose, zonate above the middle, the apex rounded.

1. Leaves pedately 3- to 5-foliolate ________________________________ F. pedatifolia
2. Leaves lobed or unlobed, but not pedately foliolate.

1. Leaves pedately 3- to 5-foliolate ________________________________ F. pedatifolia
2. Leaf blade without glands at the base or on the petiole, with marginal glands terminating the veins.
   3. Leaf blade with angled or rarely with rounded lobes, the marginal glands inconspicuous; staminate flowers with the hypanthium densely stipitate-glandular pubescent, the pedicel with non-glandular trichomes __________ F. trilobata
   3. Leaf blade unlobed or occasionally with rounded lobes, the marginal glands conspicuous; staminate flowers with the hypanthium and pedicel variously pubescent but not as above ________________________________ F. cordifolia

2. Leaf blade with glands at the base or on the petiole, with or without marginal glands terminating the leaf veins.

3. Leaves with glands only at the blade base, without marginal glands terminating the leaf veins of the blade.
   4. Staminate flowers 3–5 mm wide; leaves drying reddish-brown, the blade with a conspicuous uncinate-ciliate margin __________ F. bahiensis
   5. Staminate flowers 15–20 mm wide; leaves drying green, the blade with a smooth margin __________ F. moorei

4. Leaves with glands either at the blade base or on the petiole, also with marginal glands terminating the veins of the blade.

5. Leaves with glands at the blade base ____________________________ F. pergamentacea
6. Leaves with glands on the petiole ______________________________ F. pedatifolia

Fevillea bahiensis G. Robinson & Wunderlin, sp. nov. (Fig. 1). Type: BRAZIL. BAHIA: 8 km to the N of Ubaitaba on BR 101, 16 Jun 1972, dos Santos 2307 (HOLOTYPE: CEPEC; ISOTYPE: K).

Species haec a Fevillea moorei Hook. f. differt floribus staminatis minoribus, foliis in siccitate badiis usque atrobrunneis marginibus uncinoate-ciliatis.

Vine or liana; stem glabrous to lightly appressed golden brown-pubescent; tendrils glabrous to lightly pubescent. Leaves unlobed, the blade ovate, (2.5–)6.5–10.5(12) cm long, (3.5–)5.5–9 cm wide, membranaceous, drying dark brown to reddish brown, 5-nerved, the apex acuminate, the base cordate to truncate, the margin entire, with two irregularly shaped glands at the base near the petiole, the upper and lower surfaces glabrous or with scattered, appressed, golden brown trichomes, these usually denser along the leaf veins, the margin uncinate-ciliate, the petiole (1.5–)3.5–5 cm long, glabrous to lightly pubescent. Staminate flowers in a paniculate inflorescence on reduced subterminal, lateral branches, the branches subtended by a reduced leaf; pedicel 1.5–2 mm long, glabrous or sparsely pubescent; bracts linear, ca. 1 mm long; hypanthium 1.5–2 mm long, lightly golden brown-pubescent; calyx shallowly cupular, the lobes
up to 1.5 mm long, 1 mm wide, glabrous to sparsely pubescent abaxially, the margin entire, the apex rounded, with scattered stipitate glands, with a glan-dular calycine squamella at or near the point of fusion with the petals; petals suborbicular, 2.5–3 mm long, ca. 1.5 mm wide, cream-colored, the margin en-tire, the median adaxial ridge slightly raised; stamens 1–1.5 cm long, the an-thers ca. 0.25 mm long, slightly longer than wide, the filaments ca. 0.5 mm long. Pistillate flowers solitary; calyx deeply cupular, the lobes ca. 1.5 mm long, ca. 1 mm wide, dark brown, fleshy; petals strap-shaped, ca. 2 mm long, ca. 1.5 mm wide, cream-colored. Immature fruit subglobose, 2–4 cm long and wide, the surface smooth; mature fruit not seen.

*Distribution and ecology.*—Endemic to Brazil in southern Bahia.
Additional specimens examined. **BRAZIL. Bahia:** Nova Esperança, São Lourenço, 32 km W of Wenceslau Guimarães, 26 Jul 2001, Mattos-Silva et al. 4479 (NY); Ramal da Torre da Embratel, entrance 15 km from the Ubaitabe/Itacaré Road (BR 654), 5.8 km from the entrance, 6 Jun 1978, Mori & dos Santos 10135 (CEPEC, K, NY); km 3, Uruçuca-Taboquinha highway, 19 Jun 1972, dos Santos 2316 (CEPEC); access road to Torre da Embratel, entrance to the right of road to Ubaitabe/Itacaré (BR 654), 24 Sep 1977, dos Santos 3130 (CEPEC, K); Almadina Mata da Serra Pancadinho, 10 Mar 1971, Pinheiro 1076 (CEPEC, K).

*Fevillea bahiensis* is most similar and probably most closely related to *Fevillea moorei* of Guyana Amazonian Brazil. Both species have glands only at the base of the leaf blade. *Fevillea bahiensis* differs by having smaller staminate flowers (petals 2.5–3 mm long vs. ca. 1 cm long in *F. moorei*) and the leaves drying a dark reddish brown and with conspicuous uncinate-ciliate margins.


*Fevillea triloba* Sessé & Mociño, Fl. Mexic. ed. 2. 231. 1894. TYPE: MEXICO. n.v.


Vine or liana; stem glabrous or lightly to densely pubescent or tomentose; tendrils glabrous to lightly glandular-pubescent. Leaves with the blade unlobed or occasionally 3- to 5-lobed, suborbicular to cordate, (4–)7.5–13(–18) cm long, (2.5–)5–12(–19) cm wide, membranaceous or coriaceous, 5-nerved, the apex acute, the base cordate to truncate or rarely rounded, the main lateral veins terminating in small irregularly shaped glands, the upper and lower surfaces glabrous to densely pubescent, the petiole (2–)3–7 cm long, glabrous or pubescent. Staminate flowers in a paniculate inflorescence on reduced subterminal, lateral branches, the branches subtended by a glandular bract 0.5–4 mm long;
1980 BRIT.ORG/SIDA 21(4)

pedicel 2–4 mm long, glabrous to densely pubescent; bracts linear, glandular, ca. 0.5 mm long; hypanthium 3–4 mm long, glabrous to densely pubescent; calyx shallowly cupular, the lobes 1–2.5 mm long, 1–1.5 mm wide, obtuse or rounded, densely to sparsely glandular-pubescent, the margin entire, the apex rounded, with a small glandular calycine squamella protruding from each sepal at or near the point of fusion with the petal; petals suborbicular, 3.5–5 mm long, 2.5–4 mm wide, white, whitish green, cream-colored, light brown, pink or pinkish orange, dark red, or reddish purple, the margin undulate, the median, adaxial ridge with an uncinate appendage; stamens ca. 1 mm long, the anthers ca. 0.5 mm wide, slightly longer than wide, the filaments ca. 0.5 mm long. Pistillate flowers solitary or in pairs; calyx deeply cupular, the lobes suborbicular,
ca. 3 mm long and wide, pustulate, fleshy; petals oblong, ca. 5 mm long, ca. 3.5 mm wide, cream-colored, the median adaxial appendage slightly raised, with 2 small suborbicular glands on each side of the ridge at the base. Fruit subglobose, gourd-like, 10–12 cm in diameter, 10–16 cm long, the surface pustulate, mottled green, zonate above the middle with the hypanthium lip scar and marked at the apex by a raised triradiate line; seeds orbicular, compressed, 1–2.5 cm thick, 4–6 (–7.5) cm wide, the lateral surface of the woody layer striate-verrucose or pustulate, with the outer edges smooth or occasionally tuberculate, the tubercles 2–3 mm long.

**Distribution and ecology.**—Southern Mexico east to Puerto Rico, south through Central America, and into South America to Bolivia. A canopy plant of wet forests from sea level to 1,700 meters.

Selected specimens examined. **MEXICO. Guerrero:** Acapulco, 1894–1895, Palmer 335 (MO). **GUATEMALA. Sacatepéquez:** near Antigua, 1500–1600 m (cultivated, found in market), Nov 1938–Feb 1939, Standley 63809 (F). **NICARAGUA. Rio San Juan:** 1 km E of the village of Sábalos, 11°02′N, 84°29′W, 50 m, 6 Sep 1985, Moreno 26249 (MO); between Pueblo de San Juan del Norte Nuevo and La Casa de Ramón Castillo Viajando by San Juanillo, 10°55′N, 83°49′W, 100 m, 7 Jul 1994, Rueda et al. 1839 (MO); Rio Pigibaye, 18 Feb 1995, Rueda et al. 3199 (MO); Reserva Indio-Maiz, along Rio Indio, 11°06′N, 83°58′W, 5–20 m, 19 Sep 1998, Rueda et al. 8822 (MO). **Rivas:** Isla Ometepe, Volcán Maderas, Hacienda "La Argentina," 11°27′–28′N, 85°31′W, 700–900 m, 15 Jun 1984, Robleto 864 (MO); "Las Cuchillas," Isla Ometepe-Volcán Maderas, 11°27′N, 85°28′W, 400–800 m, 2 Jun 1985, Robleto 1972 (MO). **Zelaya:** Caño Monte Cristo, "La Grupera," 11°33′N, 87°48′W, ca. 10 m, 4 Feb 1982, Moreno & Sandino 17473 (MO, NY). **COSTA RICA. Heredia:** Finca La Selva, OTS field station on the Rio Puerto Viejo just E of its junction with the Rio Sarapiqui, 24 Mar 1980, Hammel 8251 (MO). **Limón:** Tortuguero-Sierpe basin, near Rio Sierpe and Rio Penentencia, 10°32′40″N, 83°32′50″W, 20 m, 21 Jan 1997, Hammel & Grayum 20720 (MO); Rio Jiménez, 18 Mar 1973, Lent 3288 (F, MO); Cordillera de Talamanca, Reserva Biológica Hitoy Cerere, road between Estación de la Reserva and Cerere, 9°40′20″N, 83°01′35″W, 100 m, 23 Feb 1989, Herrera & Chacón 2434 (MO). **Puntarenas:** Peninsula de Osa, Estación de Oro, along the Aquaduct, 08°42′00″N, 83°29′10″W, 150 m, 10 Feb 1996, Angulo 517 (MO, NY); Peninsula de Osa, La Palma, Guadalupe, Finca de Elfrain Gonzalez, 08°38′30″N, 83°28′00″W, 50 m, 17 Aug 1993, Aguilar 2119 (MO); Peninsula de Osa, Rancho Quemado, road to Draque, 08°42′00″N, 83°33′00″W, 100 m, 30 Jan 1991, Nielsen 895 (MO); Valle de Coto Colorado, 08°46′00″N, 83°15′00″W, 100 m, 25 Jun 1993, Quesada & Segura 705 (MO); Playa San Josecito, Peninsula de Osa, 08°37′00″N, 83°44′00″W, 10–100 m, 10 Dec 1993, Quesada et al. 848 (MO); Valle de Coto Colorado, shore of Rio Esquinas, mouth of Rio Esquinas, 08°44′00″N, 83°20′00″W, 30 m, 17 Dec 1993, Segura et al. 255 (NY); Forest of Santo Domingo de Golfo Dulce, Mar 1896, Tonduz 10078 (BR). **San José:** Cordillera de Talamanca, Las Nubes, Estación Santa Elena, 09°23′30″N, 83°36′30″W, 1150 m, 14 Feb 1996, Alfaro 477 (MO). **PANAMA. Chiriquí:** Burica Peninsula, Rabo de Puerco, 8 km along road W from Puerto Armuelles, 150 m, 19 Feb 1973, Busey 440 (F, MO, NY, USF). **Colon:** Barro Colorado Island, 100 m S of Zetek Trail, 600 m, 26 Aug 1970, Croat 11918 (F, MO, NY, USF). **Darien:** Rio Sabana, above Sante Fe, 14 Sep 1967, Duke 14107 (MO). **Los Santos:** 17.8 mi S of Macaracas, ca. 300 m, 25 May 1967, Burch 1605 (MO). **Panama:** 12.4 km E of Canita, 10 Oct 1975, Witherspoon 8704 (MO). **CUBA. Oriente:** Bayate near Rio Jagua, 4 May 1919, Ekman 9613 (G, K, NY, US). **DOMINICAN REPUBLIC.**
El Seibo: Cordillera Oriental, ca. 6–8 km S of Miches-Las Lgunas de Nisibon Highway, on road to Batey Arroyo Santiago, basin of Río Yeguada (S of Miches), 18°55'N, 69°04'W, 80–100 m, 28 Jun 1990, Zanoni & Jiménez 4609 (MO). La Vega: Jarabocoa, Monobao, Los Calabazos, Arroyo Frio entrance, 19°43'N, 70°43'34.6"W, ca. 774 m, 19 Mar 2001, Ososki & Saborio 299 (NY). PUERTO RICO. Along road between Utuado and Adjuntas, km 0, 40, 2 Feb 1997, Acvedo & Angell 9419 (NY), Bayamón, 31 Mar 1885, Sintenis 986 (BM, BR, G, K, M, NY, US). COLOMBIA. Amazonas: Loreto-Yacu River, ca. 100 m, Sep 1946, Schultes & Blach 83351 (K). Antioquia: near Río León ca. 20–30 km upstream and S of the river mouth ca. 15 km W of Chigorodó, ca. 7°45'N, 76°50'W, ca. 100 m, 14 Mar 1962, Feddema 1907 (NY); Murri la Blanquita, Río Murri, 06°35'N, 76°50'W, 960 m, 28 Feb 1992, Gentry et al. 75799 (MO), km 28,8, Nutibara-La Blanquita road, 06°40'N, 76°27'W, 1020 m, 5 Nov 1988, Zarucchi et al. 7172 (MO).

Atlántico: Barranquilla and vicinity, Jan 1934, Elias 1173 (F, US). Bolivar: vicinity of Turbaco, Nov 1920, Heriberto 469 (F, US). Choco: Río San Juan, Quebrada del Taparal, 5–20 m, 30 May 1946, Cuatrecasas 21504 (F); Río Chintado, 1–2 1/2 hrs. above La Nueva, 6 Feb 1967, Duke 9865 (NY); right bank of Río Baudó, ca. 18.5 km upstream of estuary, between estuary of Quebrada Porquera and the sawmill Porquera, ca. 5 m, 6 Feb 1967, Fuchs & Zanella 21791 (NY). Cundinamarca: Sierra de Subía, 6.6 km N of Cucuca along road to Viota, 1700 m, 22 Jun 1972, Barclay et al. 3521 (US). Magdalena: Santa Marta, 5 mi S of Ciénaga, near sea level, 12 Sep 1898–1899, Smith 1607 (BM, BR, F, G, MO, NY, US). Meta: Serranía de la Macarena, Plaza Bonita, bank of Río Guejar, 400 m, 14 Nov 1949, Jiménez 487 (MO, NY); Serranía de la Macarena, Plaza Bonita, bank of Río Güejar, 400 m, 14 Nov 1949, Jiménez 487 (MO, NY).
Comuna Pompeya, 00°30'S, 76°40'W, 220 m, 5 Dec 1992, Neill et al. 10192 (MO, NY); right bank of Río Napo. 8 km from Puerto Misahualli, 01°04'S, 77°37'W, 450 m, 7–16 Sep 1988, Palacios 3006 (MO, NY); Codo Sinclair, 00°08'S, 77°27'W, 650 m, 16–20 Sep 1990, Palacios 5719 (MO); Río Huataraco, towards Ishipano, 00°44'S, 77°23'W, 700 m, 30 Nov 1992, Palacios 10530 (MO, USF); 6 km N of Shushufindi, towards Dureno, 01°05'S, 77°40'W, 450 m, 23 Sep 1985, Palacios et al. 829 (MO); Dureno on Río Aguarico, 2 Jul 1966, Pinkley 103 (MO); Yusuni National Park, along Maxus road and pipeline construction project, km 21, 00°33'S, 76°31'W, 250 m, 24 Jul 1994, Pitman 646 (MO, USF); 20 km N of Coca, Palmoriense property, 00°20'S, 77°05'W, 250 m, 3–21 Nov 1989, Rubio 332 (MO, NY). Pastaza: ARCO oil well Villano 2, 01°25'S, 77°20'W, 400 m, 1–18 Dec 1991, Hurtado 2908 (MO); Petro-Cañada highway under construction, Via Auca, 115 km S of Coca, 01°15'S, 76°55'W, 320 m, 1–6 Mar 1989, Zak 4135 (MO). Pichincha: Santo Domingo de los Colorados, 800 m, 10 Aug 1945, Solis 10928 (F). Carchi: Reserva Indígena Awá, Parroquia Tobar Donoso, sector El Baboso, 78°20'W, 00°53'N, 1600 m, 3 Oct 1991, Rubio & Talcuz 295 (MO). PERU. Amazonas: S of Huampami across Río Cenepa, 700–900 m, 27 Dec 1972, Berlin 716 (MO); Río Santiago, Cantón de la Quebrada Caterpiza, 1 km from community of Caterpiza, 200 m, 11 Sep 1979, Huashicat 552 (MO, USF); Yamayakat Brosque, 04°55'S, 78°19'W, 320 m, 16 Jan 1996, Jaramillo et al. 881 (MO). Huancayo: vicinity of Tingoo María Insumpte, 670 m, 16 Aug 1961, Schunke 5645 (F, US). Loreto: Flor de Yarina-Río Samiria, 20 Oct 1982, Ayala et al. 3922 (NY); Explorer's Inn, Río Amazonas near Indiana, 03°30'S, 73°03'W, 20 Feb 1988, Gentry et al. 01736 (MO); Santa Rosa, lower Río Huallaga below Yurimaguas, ca. 135 m, 5–1 Sep 1929, Killip & Smith 28720 (NY); Balsapuerto, ca. 220 m, May 1933, Klug 3090 (BM, F, G, MO, NY, US); Quebrada de Tamishaco above Tamishaco, 7 Nov 1978, Rimachi 4046 (MO); Florida, 8 Feb 1980, Rimachi 4856 (NY), Río Itaya, highway to San Antonio, near Venezia, 90 m, 21 Sep 1994, Rimachi 11220 (NY); Bosque Nacional de Iparia, along the Río Ucayali near Iparia (80 km at the confluence with Río Pachitea). 250–300 m, 23 Aug 1968, Schunke 2670 (NY); San Antonio, Río Itaya, 04°10'S, 73°20'W, 150 m, 13 Dec 1982, Vásquez & Jaramillo 3397 (MO); Cocha Pastor, Isla Padre, 03°45'S, 76°10'W, 116 m, 21 Dec 1982, Vásquez et al. 3683 (NY); Indiana, Explorama Inn, 03°30'S, 73°05'W, 108 m, 12 Apr 1992, Vásquez et al. 18213 (MO). Madre de Dios: Parque Nacional del Manu, Cocha Cashu Biological Station, 21 Aug 1976, Foster & Augspurger 3394 (K, MO, NY, US); Cocha Cashu Camp, Parque Nacional de Manu, along Río Manu, 380 m, 22 Oct 1979, Gentry et al. 27161 (NY); Cuzco Amazónico Lodge, 15 km NE of Puerto Maldonado, 12°35'S, 69°03'W, 200 m, 18 Jun 1990, Núñez 12192 (MO); Las Piedras, Cusco Amazónico, Río Madre de Dios, 12°29'S, 69°03'W, 200 m, 13 Aug 1991, Timand 1997 (MO). San Martín: Valley of San Martín, E of Tarapoto, Funde de San Isidro near Codex Creek, 1000 m, 15 Aug 1937, Belshaw 3230 (NY); Pongo de Cainerarachi, Río Cainerarachi, tributary of Río Huallaga, ca. 230 m, Sep–Oct 1932, Klug 2749 (BM, F, G, MO, NY, US); Ríoja-Pomacochas road, below Venceros, ca. 20 km NW of Ríoja, 05°45'S, 77°38'W, 1600 m, 8 Feb 1984, Gentry & Smith 45128 (MO); above Chazuta, W of Quebrada Chazuta, 06°34'S, 76°12'W, 200–300 m, 28 Aug 1986, Knapp 8177 (NY); W of Nueva Aspunsana (2 hrs down Río Huallaga from La Roca), 8 Aug 1962, Mathias & Taylor 6116 (MO); Fundo La Campiña, 2 km below Tocache Nuevo, right bank of Río Huallaga, ca. 400 m, 23 Aug 1969, Schunke 3377 (NY); Tananta (left bank of Río Huallaga), 6 Oct 1970, Schunke 4479 (NY); Nueva Unión below Puerto Huicate (right bank of Río Huallaga), 450–500 m, 1 Aug 1974, Schunke 7965 (NY). Ucayali: Bosque Nacional de Iparia, along the Río Ucayali near the village of Iparia (ca. 80 km above the confluence with Río Pachitea), 200–300 m, 23 Aug 1968, Schunke 2670 (F, G); Río Novia, right bank at native community San José, 10°12'S, 70°57'W, 189 m, 26 Feb 2002, Schunke & Graham SI4909 (NY). BRAZIL. Acre: margin of Río Amazonas; margin of Río Azul, ca. 07°29'S, 73°39'W, 13 Oct 1986, Campbell et al. 8895 (NY); Sena Madureira, 28 Sep 1980, Cid & Nelson 2596 (NY); basin of Río Juruá. right bank of Río Taruacuá, 8°32'51'S, 71°28'39'W, 17 Nov 1995, Daly et al. 8562 (MO, NY); near mouth of Río Macauá (tributary of Río Iaco), 9°20'S, 69°W, 23 Aug 1933, Krukoff 5610 (BM, F, G, M, MO, US). Amazonas: near mouth of Río Embira (tributary of Río Taruacuá), 7°30'S, 70°15'W, 6 Jul 1933, Krukoff 5209 (BM, F, G, M, MO, NY, US). Para: Belém, 20 Dec 1950, Black 50-10925 (NY); Río Pacajá 2°50'S, 50°50'W, 15 Oct 1965, Prance et al. 1636 (NY); Río Mocoaés, 45 min. below Frances, 00°45'S, 49°41'W, 10 Nov 1987, Prance et al. 30399 (MO, NY); Altamira, left bank of lower
Rio Xingu, 19 Oct 1986, Souza et al. 385 (NY); Travessão do CNEC, between D13 and edge of Rio Xingu, 2 Dec 1986, Souza et al. 635 (NY); Ilha de Marajó, Cantã, above Anajás, Rio Anajás, 00°57’S, 49–48°W, 2 Nov 1987, Tavares 334 (NY). **Rondônia:** E bank of Rio Madeira at Misericórdia between Cachoeiras Misericórdia and Madeira, 30 Jul 1968, Prance et al. 6620 (NY). **BOLIVIA. Cochabamba:** Proyecto Valle del Sacta, km 240 on Santa Cruz-Villa Tunari highway, 17°00’S, 64°46’W, 290 m, 12–14 Jul 1989, Smith et al. 13711 (MO).

**Rio Beni:** Rio Beni, above confluence with Rio Quiquibey, 3.5 hrs. upstream from Rurrenabaque, 14°44’S, 67°25’W, 320 m, 23 May 1990, Daly et al. 6590 (MO, NY).

**El Beni:** Río Beni, above confluence with Río Quiquibey, 3.5 hrs. upstream from Rurrenabaque, 14°44’S, 67°25’W, 320 m, 23 May 1990, Daly et al. 6590 (MO, NY).

**La Paz:** Parque Nacional Madidi, 10.2 km NW of turnoff in Tumupasa, 200–500 km from summit, 14°09’57”S, 67°55’02”W, 830 m, 9 Aug 2000, Croat et al. 84416 (MO); Santa Fe, NE of community 13°40’S, 68°12’W, 250 m, 10 Aug 1995, DeWalt et al. 823 (MO, NY); basin of Río Bopi, San Bartolomé near Calisaya, 750–900 m, 1–22 Jul 1939, Krukoff 10528 (F, G, K, MO, NY, US); Parque Nacional Madidi, near Arroyo Aguapolo and Río Tuichi, 270 m, 16 Mar 2002, Macià et al. 6850 (NY). **Santa Cruz:** Parque Nacional Amboró, along Río Pitasamá ("Río Pléyana"), 17°42–43’S, 63°37–38’W, 475 m, 11 Oct 1990, Nee 39252 (NY); Estancia San Rafael de Amboró, 15 km (by air) SSE of Buena Vista, 17°35’S, 63°37’W, 375 m, 28 Jul 1987, Nee et al. 35391 (NY); Rio Palometilla, 400 m, 16 Jun 1927, Steinbach 7904 (F, G, MO, NY, BM).

**Fevillea cordifolia** is a polymorphic species exhibiting considerable variation throughout its range. The species can be readily distinguished from other members of the genus by its conspicuous marginal laminar glands. It is most similar to *F. trilobata* of eastern Brazil and is distinguished from that species by the typically rounded leaf lobes (when lobes are present), rather than the angular lobes characteristic of *F. trilobata*. *Fevillea trilobata* also has a distinctive stipitate-glandular pubescence on the hypanthium of the staminate flowers, which is sharply differentiated from the uncinate pubescence of pedicel. This pattern of pubescence is lacking in *F. cordifolia*.


Vine or liana; stem glabrous; tendrils glabrous. Leaves with the blade unlobed, broadly ovate, 6–12 cm long, 3.5–7 cm wide, membranaceous, drying light green, 3-nerved, the apex acuminate, the base rounded, with 2 small, irregularly shaped glands near the petiole, the upper and lower surfaces glabrous, the petiole 1–2.5 cm long, glabrous. Staminate flowers in a racemose inflorescence ca. 6 cm long, (10–12 cm fide Hooker f.); pedicel 1–4 mm long, glabrous; hypanthium 5–6 mm long, glabrous; bracts linear, ca. 0.5 mm long; calyx shallowly cupular, the lobes oblong, ca. 6 mm long, 4 mm wide, the apex obtuse, the margin entire, with a glandular calycine squamella protruding at or near the point of fusion with the petals; petals suborbicular, somewhat broader at the apex, ca. 1 cm long, 1 cm wide, pale brick-red, the margin undulate; stamens ca. 4 mm long, the anthers ca. 1 mm long, slightly longer than wide, the filament ca. 3 mm long. Pistillate flowers and fruit not seen.

**Distribution and ecology.**—Known only from the type material received by J.D. Hooker from David Moore, curator of the Glasnevin Botanic Garden, Dublin, Ireland, who received it from Mr. Tyreman of the Liverpool Botanic Garden.
The material was labeled as “Strychnos curari” and said to have come from Gambia. As suggested by Hooker in the protologue, it is probable that the plant is from South America, possibly Guyana or the Amazon River basin of Brazil where *Strychnos toxifera*, the source of the drug curare is native and was known to occur at that time. Hooker named the plant in honor of his friend, Dr. Moore.

*Fevilla moorei* is most similar to *F. bahiensis* of southern Bahia, Brazil. It is easily distinguished by its larger staminate flowers, its leaf margins lacking uncinate trichomes, and its 3-nerved leaves which dry to a light green color.


Vine or liana; stem glabrous to densely glandular-pubescent; tendrils sparsely pubescent or glabrous. Leaves with the blade unlobed, or 3- to 5-lobed, or 3- to 5-foliolate, membranaceous to coriaceous, the unlobed or the lobed leaves ovate to ovate-oblong, (6–)8–15(–18) cm long, 9–14(–17.5) cm wide, 5- to 7-nerved, the divisions of the lobed leaves or the leaflets of the foliolate leaves (6–)8–15(–18) cm long, 4–8 cm wide, 1- to 2-nerved, with a petiolule up to 2 cm long, the apex of the blade or leaf divisions acuminate, the base of the blade or leaf divisions oblique or rounded, the margin entire or coarsely crenate-toothed, the primary lateral veins terminating in a small irregularly shaped marginal gland, the upper and lower surfaces glabrous or lightly pubescent, especially along the leaf veins, the petiole 3.5–5(–7) cm long, glabrous to sparsely pubescent, with 2 opposite, prominent, irregularly shaped median to subapical glands. Staminate flowers in a paniculate inflorescence on reduced lateral branches, each branch subtended by a thin scale-like glandular-pubescent bract 0.5–2 mm long; pedicel 0.5–1 mm long, sparsely glandular-pubescent to glabrate; hypanthium 0.5–1.5 mm long, sparsely glandular-pubescent to glabrate; calyx shallowly cupular, the lobes light green or greenish brown, suborbicular, 0.5–1 mm long and wide, the apex rounded or obtuse, glandular-pubescent or glabrous, the margin slightly erose and glandular-ciliate, with a glandular calycine squamella
protruding at or near the point of fusion with the petals; petals suborbicular, 1–2 mm long, 1–1.5 mm wide, white or greenish white, greenish yellow, or yellowish, the margin slightly erose, the median adaxial ridge slightly raised; stamens 0.25–0.5 mm long, the anthers ca. 0.25 mm long, slightly longer than wide, the filament ca. 0.5 mm long. Pistillate flowers in pairs; pedicel 1.2–2 mm long; calyx deeply cupular, the lobes ca. 3 mm long, ca. 2 mm wide, dark greenish brown, the surface pustulate; petals white. Fruit subglobose, ca. 14 cm long, 13 cm wide, gourd-like, indehiscent or rarely circumscissile dehiscent along the hypanarthium lip scar (A. Gentry, pers. comm.), the surface smooth or pustulate, usually a mottled green color; seeds orbicular, compressed, 4–5 cm long and
wide, 1.5–2.5 cm thick, silver-white upon drying, the woody layer smooth to slightly pubescent, the winged margin ca. 0.5 cm wide.

**Distribution and ecology.**—Amazonian Ecuador and Peru, south to Bolivia, and east to Acre and Amazonas, Brazil. A plant of moist to wet forests, occurring at 130–800 meters in elevation.

Selected specimens examined. **ECUADOR.** Napo: Estación Biológica Jatun Sacha, 8 km E of Misahualli, 01°04'S, 77°36'W, 400 m 23–31 Jan 1989, Cerón 6076 (MO); km 2, new road from Cototuco to Coca, 1130 m, 5 Aug 1984, Dodson et al. 15072 (NY). **PERU.** Amazonas: 1 km from La Poza, W of Rio Santiago, 180 m, 21 Aug 1979, Hualashikat III (MO); valley of Rio Santiago, Quebrada Caterpiza, 2–3 km behind the community of Caterpiza, 3°50'S, 77°40'W, 200 m, 8 Feb 1980, Tunqui 783 (MO). 

**Ayachucos:** between Santa Rosa and Hacienda Luisiana, 640 m, 9 Sep 1976, Wässhäuser & Encarnación 632 (NY).

**Huánuco:** Codo de Puzuzo, floodplain of Rio Puzuzo, 5 of settlement to main river, 9°40'S, 75°25'W, 450 m, 21 Oct 1982, Foster 9370 (USF). **Junín:** Rio Negro, 800 m, 14 Aug 1960, Woytkowski 5795 (G, MO, US). **Loreto:** Yanamono, Exploratoma Tourist Camp on Rio Amazonas between Peru and Bolivia, 3°28'S, 72°48'W, 120 m, 26 Jul 1980, Gentry et al. 29043 (MO); Yanamono, Exploratoma Tourist Camp, Rio Amazonas half-way between Peru and Bolivia, 03°28'S, 72°50'W, 130 m, 13 Jul 1983, Gentry et al. 42937A (MO); Balsapuerto, 220 m, Feb 1933, Klug 2886 (BM, F, G, MO, NY, US); Yanamono, Reserva Exploratoma (Yanamono), 03°30'S, 72°50'W, 90 m, 28 Sep 1990, Phipoly et al. 12592 (MO); Yanamono tour camp, 50 mi. NE of Iquitos, 3°30'S, 72°50'W, ca. 106 m, 19 Oct 1980, Vásquez & Jaramillo 586 (NY); Indiana, Iquique, 03°30'S, 72°58'W, 115 m, 16 Dec 1987, Vásquez & Jaramillo 10164 (MO); Indiana, Reserva Exploratoma, 03°28'S, 72°50'W, 106 m, 9 Nov 1989, Vásquez & Jaramillo 13140 (MO).


Plants with 3- to 7-foliolate leaves are easily distinguished from other species of **Fevillea.** They previously had been considered a species of *Siolmatra* because of this feature, but the presence of the foliar glands, the bilocular anthers, and the large globose fruit with large unwinged seeds clearly separates it. *Siolmatra*, in contrast, lacks foliar glands, has unilocular anthers, and has a cylindrical fruit with winged seeds.

**Fevillea peruviana** and *F. amazonica* were separated from *F. pedatifolia* on the basis of leaflet number (3 rather than 5). *Fevillea amazonica* was further
separated on the basis of the petiolar gland position (median rather than sub-apical). These characters are not constant and thus *F. peruviana* and *F. amazonica* are here reduced to synonymy as suggested by Jeffrey (1962b).

Plants with unlobed leaves have been called *F. simplicifolia*. Since specimens with leaves intermediate between simple and 3-foliolate are occasionally found (although rare) and there are otherwise no other floral or vegetative differences, *F. simplicifolia* is here reduced to synonymy. However that species is readily distinguished by the presence of a pair of glands at the base of the blade, while the glands in *F. pedatifolia* are on the petiole.

**Fevilla pergamentacea** (Kuntze) Cogn., in Engler, Pflanzenr. 4(Heft 66):8. 1916. (Fig. 4). *Nhandiroba pergamentacea* Kuntze, Revis. Gen. Pl. 3(2):104. 1898. **TYPE**: BOLIVIA. **SANTA CRUZ**: Río Yapacani, 400 m, Jun 1892, *Kuntze s.n.* (LECTOTYPE: here designated, NY; ISOLECTOTYPES: NY, B, destroyed; photo ex B; F, MO, NY, US).


Vine or liana; stem glabrous to lightly pubescent; tendrils glabrous. Leaves with the blade unlobed or occasionally 2- to 3- lobed, ovate, 10–11(–15) cm long, (4–) 6–8(–15) cm wide, subcoriaceous, drying very light brown or green, the apex or the lobe tips acuminate or acute to slightly rounded, the base cordate to truncate, the upper surface glabrous, the lower surface lightly pubescent along the veins, the margin entire, occasionally with scattered trichomes, the lateral veins occasionally terminating with a small gland, with 2 small, opposite, irregularly auriculate glands at the base of the blade, the petiole 2.5–4 cm long, glabrous to sparsely pubescent. Staminate flowers in a paniculate inflorescence on reduced lateral branches; pedicel 1–2 mm long, densely to sparsely pubescent; hypanthium 0.5–1 mm long, glabrous; calyx crateriform, the lobes lanceolate, 0.5–1 mm long, ca. 0.5 mm wide, obtuse, slightly erose-margined, sparsely to densely pubescent, with a prominent glandular calycine squamella protruding from each sepal at or near the point of fusion with the petals; petals narrowly obovate, 2–2.5 mm long, 1.5–2 mm wide, cream to yellowish brown, the margin entire, the median appendage slightly raised; stamens ca. 0.5 mm long, the anthers ca. 0.25 mm wide, slightly longer than wide. Pistillate flowers not seen. Fruit globose, 6–7 cm long and wide, green, the surface minutely pustulate; seeds orbicular, compressed, 1.5 cm thick, 3.5–4.5 cm long and wide, the lateral surface of the woody layer smooth to minutely pustulate, the marginal nerve ca. 0.5 cm wide, completely enclosing the seed.

**Distribution and ecology.**—Amazonian Colombia, Ecuador, eastern Peru, and central Bolivia. A plant of wet forests, occurring between 180 and 500 meters.
Additional specimens examined. **COLOMBIA. Guaviare:** Vereda Mirafloros, 02°19'N, 72°26'W, 300 m, 27 Jan 1990, Marulanda & Marquez 1766 (MO). **Putamayo:** Vereda “La Kofania,” 1º17’N, 77º17’W, 500–700 m, 2 Sept 1993, Cogollo et al. 6839 (MO). **ECUADOR. Napo:** Yasuni Forest Reserve, along road from PUCE Scientific Station to end of road towards Waoroni Territory, 00º40.901’S, 76º24.348’W, 240–310 m, 29 Jun 1995, Acevedo & Cedeno 7571 (NY); Río Eno NE of Shushufindi, ca. 00º10’S, 76º40’W, 300 m, 11 Apr 1982, Balslev 2321 (NY); Estación Biológica Jatun Sacha, 8 km E of Misahualli, 01º04’S, 77º36’W, 400 m, 23–31 Jan 1989, Cerón 6076 (MO, NY); Estación Biológica Jatun Sacha, Río Napo, 8 km E of Misahualli, 01º04’S, 77º36’W, 400 m, 10 Aug 1989, Cerón 7379 (MO, NY); Hollín-Loreto highway, between Avila and Loreto, Huiruno (Quichua community), 00º43’S, 77º19’W, 450 m, 29 Nov 1982, Cerón 7853 (MO); km 2, new Cotundo-Coca highway, 1130 m, 5 Aug 1984, Dodson et al. 15072 (MO, US); Pompeya, S of Río Napo, Río Jivino, Maxus highway, km 1–5, 00º25’S, 76º37’W, 220 m, 23–29 Nov 1992, Grijalva et al. 231B (MO); E of the mission in Ahuano on Río Napo, 550 m, 15 Feb 1973, Humbles 6214 (F, MO); Yasuni National Park, Río Indillama, small southern tributary of Río Napo, Comuna Pompeya, 00º30’S, 76º40’W, 220 m, 26 Aug 1992, Neill & Gudisto 10120 (MO, NY); S of Volcán Sumaco, Hollín-Loreto highway, km 31, Comuna Challhua Yacu, 00º43’S, 77º40’W, 1200 m, 20–25 Mar 1989, Palacios 4102 (MO); Río Aguarico, Shushufindi, 244 m, 14 Feb 1975, Vickers 116 (F). **PERU. Loreto:**

**Fevilla pergamnetacea** is most similar to simple-leaved forms of *F. pedatifolia*, but differs in the position and form of its foliar glands and in the shape of the staminate flowers. **Fevilla pergamnetacea** is characterized by flat, elongate-elliptic glands at the base of the leaf blade rather than petiolar glands well below the base of the leaf blade as in *F. pedatifolia*. **Fevilla pergamnetacea** also has a distinctive crateriform staminate flower as opposed to the shallow cup-shaped flowers of *F. pedatifolia*. The distinction between *F. pergamnetacea* and *F. harmsii* on the basis of the leaf shape cannot be maintained and *F. harmsii* is here reduced to synonymy as suggested by Jeffrey (1962b).


**Hypanthera guapeva** Silva Manso, Enum. Subst. Braz. 38. 1836. **TYPE: BRAZIL. SÃO PAULO. São Ignácio (n.v.).**


Fig. 5. Fevillea trilobata. A. Habit, staminate inflorescence (Saint-Hilaire s.n. [Glaziou 87201]). B. Staminate flower (Saint-Hilaire s.n. [Glaziou 8720]).
MINAS GERAIS: near Contendas, 1818, Martius 1581 (M); near Contendas, s.d., Saint-Hilaire s.n. (BR, F).
Fevillea trilobata var. subuniflora Cogn., in Martius, Fl. Bras. 6(4):118. 1878. TYPE: BRAZIL. RIO DE JANEIRO: Gávea, Glaziou 3986 (n.v.).

Vine or liana; stem densely pubescent, tomentose to lightly pubescent, or subglabrous; tendrils pubescent or glabrous. Leaves with the blade 3-lobed, or occasionally 5-lobed, 6–10 cm long, (2–)5–10(–15) cm wide, membranaceous, the apex acute or acuminate, the main lateral veins occasionally terminating in a small apical gland, the upper and lower surfaces densely to lightly pubescent. Staminate flowers in a paniculate inflorescence on reduced lateral branches; pedicel with uncinate trichomes, 1–3(5) mm long; hypanthium (2–) 3–5 mm long, densely to sparsely stipitate-glandular pubescent; bracts glandular, linear, 0.5–1 mm long, densely to sparsely pubescent, the ones subtending the panicle branches, larger, less glandular, more leaf-like, often with a distinct stipe; calyx shallowly cupular, the lobes slender, ca. 2.5 mm long, ca. 1 mm wide, obtuse, densely to sparsely glandular-pubescent with a glandular calycine squamella protruding from each sepal at or near the point of fusion with the petals; petals suborbicular, 3–6 mm long, 1–4 mm wide, pale yellow, cream-colored or pink, each with a median adaxial uncinate appendage; stamens ca. 1 mm long, the anthers ca. 0.5 mm long, slightly longer than wide. Pistillate flowers (fide Cogniaux 1878, 1881, 1916) 1–3; pedicel ca. 6 mm long, densely to sparsely pubescent; hypanthium ca. 2 mm long, densely to sparsely pubescent; calyx campanulate, the lobes with a glandular calycine squamella at the point of fusion between the sepals and the petals; petals strap-shaped, broadened at the base, cream-colored; styles 3; ovary 5–7 mm long. Fruit (fide Cogniaux 1878, 1881, 1916) subglobose, reddish brown, 7–9 cm wide, pubescent or lightly glandular-pubescent, the locules 4-seeded; seeds orbicular, compressed, ca. 4 cm long and wide, ca. 1 cm thick, the lateral surface of the woody layer striate-verrucose, the outer edge tuberculate.

Distribution and ecology.—Brazil from Ceará southwest to Minas Gerais and São Paulo.

ROBINSON AND WUNDERLIN, REVISION OF FEVILLEA 1993


*Fevillea* *trilobata* is most similar to *F. cordifolia* from which it can be distinguished by its usually angular (vs. rounded) leaf lobes and staminate flowers with stipitate-glandular trichomes on the hypanthium which are sharply differentiated from the uncinate ones on the pedicel.


Stamate inflorescences of congested panicles or subumbelliform; glandular calycine squamellae absent; corolla lobes oblong-hastate with a thick glandular adaxial ridge. Fruit ovate or oblong, subtrigonoous, not zonate, the apex apiculate.

**Fevillea passiflora** Vell., Fl. Flumin., Icon. 10:t. 104. 1831 (“1827”). (Fig. 6). *Anisosperma passiflora* (Vell.) Silva Manso, Enum. Subst. Braz. 38. 1836. Type: BRAZIL. RIO DE JANEIRO: (LECTOTYPE: here designated, Vellozo, Fl. Flumin., Icon. 10:t. 104. 1831 (“1827”).

Vine or liana; stem glabrous or sparsely glandular-pubescent; tendrils glabrous. Leaves with the blade unlobed, ovate to broadly lanceolate, 5–13 cm long, 4.5–7.5 cm wide, membranaceous, with a distinct marginal nerve, the apex acute to acuminate, the base rounded, with 2 small irregular, auriculate glands near the petiole, the upper and lower surfaces minutely pubescent, sometimes sparsely glandular-pubescent, the petiole 1–3 cm long. Staminate flowers in a congested panicle or subumbelliform inflorescence; pedicel (2–)4–5 mm long, sparsely glandular-pubescent; hypanthium 4–5(–13) mm long, sparsely glandular-pubescent; calyx shallowly cupular, glandular-pubescent, the lobes ca. 2.5 mm long, lanceolate, acute; petals oblong-hastate, 5–7 mm long, green or cream-colored, the median adaxial ridge glandular, slightly raised, broadest at the base, gradually tapering to about the center; stamens 1.5–2 mm long, the anthers ca. 1 mm long, slightly longer than wide. Pistillate flowers 2–4 on a short, thick peduncle; styles with the lower part somewhat thickened, the upper part dilated and broadly obcordate, curved inward longitudinally; ovary 6–9 mm long and 4–5 mm wide, glabrous. Fruit ovoid to oblong, 8–15 cm long, 5–11 cm wide, subtrigonoous, smooth or irregularly verrucose, fleshy with thickened outer
**Fig. 6. Fevillea passiflora.** A. Habit, staminate inflorescence (*Hatschbach 19205*). B. Staminate flower (*Hatschbach 9106*).
cortex, the apex short-apiculate; seeds suborbicular, compressed, 3.5–3.5 cm long, 3–4 cm wide, ca. 1.5 cm thick, pale brown, with a thin erose-margined cover.

**Distribution and ecology.**—Coastal Brazil in southeastern Bahia, Rio de Janeiro, eastern São Paulo, and eastern Paraná. In gallery forests near sea level.

Additional specimens examined. **BRAZIL. Bahia:** ca. 5 km W of Itamaraju, 20 Sep 1878, Mori et al. 10742 (CEPEC). **Parana:** Guaratuba, Rio Cubatão, 27 Dec 1911, Dusén 13640 (F, NY); highway between Rio Branco do Sul and Cerro Azul along Rio P. Grossa, 26 Apr 1962, Hatschbach 9106 (US); Ribeirinha, 7 May 1968, Hatschbach 19205 (K); Morro do Íngles, 18 Feb 1976, Hatschbach 38090 (K). **São Paulo:** Campinas, 1873, Corrêa de Mello s.n. (BR); Cabital, 26 Dec 1941, Pickel 5566 (US); 1816–1821, Saint-Hilaire D600 (F). **Rio de Janeiro:** 1894, Glaziou 20335 (BR); Nov 1987, Glaziou 10870 (K); Cantagalo, 1859, Peckolt 8 (BR); Cantagalo, 1861, Peckolt s.n. (BR); Teresópolis, Serra dos Orgãos, 27 Feb 1887, Schenck 2898 (BR). **Without precise locality:** 1859, Peckolt s.n. (BR); s.d., Martius s.n. (BR).

**EXCLUDED NAMES**

*Fevillea deltoidea* Cogn., in Martius, Fl. Bras. 6(4):119. 1878. [=*Pteropepon deltoideus* (Cogn.) Cogn.]

*Fevillea monosperma* Vell., Fl. Flumin., Icon. 10t. 103. 1831 (“1827”). [=*Pteropepon monospermus* (Vell.) Cogn.]

*Fevillea pedata* Smith ex Sims, Bot. Mag. t. 2681. 1826. [=*Telfairia pedata* (Smith ex Sims) Hooker].

*Fevillea punctata* (L.) Poir., in Lamarck, Encycl. 4:418. 1796. **BASIONYM:** *Bryonia punctata* L., Demonstr Pl. 26. 1753. TYPE: Herb. Linn. No. 1180.1 (two sheets); apparently a mixed collection, possibly a *Trichosanthes* and a *Momordica*.

*Fevillea tannifolia* Kunth, in Humboldt, Bonpland & Kunth, Nov. Gen. Sp. 7:175. 1825. [=*Sicydium tannifolium* (Kunth) Cogn.].

*Fevillea trilobata* Reichard, Syst. Pl. 4:253. 1780, nom. illegit.; non L., 1753. (BASIONYM: *Bryonia punctata* L., 1753.) [See *Fevillea punctata* above.]

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