Two New Species of *Stigmaphyllon* (Malpighiaceae) from Peru

Christiane Anderson
University of Michigan Herbarium, North University Building, Ann Arbor, Michigan 48109-1057, U.S.A.

ABSTRACT. Two new species of the neotropical wing-fruited genus *Stigmaphyllon* (Malpighiaceae) are described from Peru, *S. argenteum* from the eastern lowlands and *S. cuzcanum* from the uplands of Cuzco.

Stigmaphyllon, one of the wing-fruited genera of the Malpighiaceae, comprises nearly 100 species, which occur from southern Mexico and the Caribbean to northern Argentina, except in Chile. Most species have large, cordate, long-petioled leaves and umbels or pseudoracemes of yellow flowers disposed in dichasially branched inflorescences. The androecium of 10 stamens is most often heterogeneous; the stamens opposite the lateral sepals usually bear modified anthers consisting of an enlarged connective bearing 0–2 reduced locules. Each of the three styles is commonly ornamented with an apical appendage, the foliole, for which the genus is named. Typically, the samara bears a large, flared dorsal wing, and the nut is often ornamented with lateral winglets and/or spurs and crests.

Two new species are here described so that the names will be available for inclusion in the forthcoming *Catalogue of the Flowering Plants and Gymnosperms of Peru* (Brako & Zarucchi, in prep.). With the addition of these novelties, 18 species of *Stigmaphyllon* are now reported from Peru.

Stigmaphyllon argenteum C. Anderson, sp. nov. TYPE: Peru. Huánuco: Prov. Pachitea, Dtto. Honoria, Bosque Nacional de Iparia, a lo largo del Río Pachitea cerca del campamento Miel de Abejas, 1 km arriba del pueblo Tournavista o unos 20 km arriba de la confluencia con el Río Ucayali, 300–400 m, 30 May 1967, *Schunke V. 2018* (holotype, NY; isotypes, COL, F, G, US). Figure 1.

Liana. Laminae 2.5–15.3 cm longae, 5.7–14 cm latae, triangulares, ovatae, ellipticae vel suborbiculares vel interdum 3–5-lobatae, supra glabrae vel interdum sparsim sericeae, subtus sericeae, margine sparsim glanduloso. Inflorescentia dichasialis constata ex umbellis, floribus in quaque umbella ca. 15–30. Pedunculi 3–7.5 mm longi; pedicelli 4–8.5 mm longi. Petala lateralia limbo orbiculari vel late obovato, margine eroso; petalum posticum limbo elliptico vel late obovato, margine eroso vel fimbriato-denticulato. Stamina heteromorpha, antheris glabris; antherae sepalis antico-lateralibus oppositae 1–2 loculis reductis instructae, antherae sepalis postico-lateralibus oppositae 1 loculo reducto instructae. Stylus anticus ca. 2.2 mm longus, glaber, utroque foliolo ca. 1.4 mm longo, ca. 1.2 mm lato, subquadrato; styli postici 2.6–3 mm longi, glabri, lyrati, foliolo ca. 1.4–2 mm longo latoque, subquadrato. Samara ala dorsali ca. 4.5 cm longa, 1.4–11.7 cm lata; alulae laterales absentes; nux 4–5.5 mm alta, 3.5–4.5 mm diametro.

Vine to 14 m. Laminas 2.5–15.3 cm long, 5.7–14 cm wide, triangular, ovate, or elliptical to suborbicular, or sometimes 3–5-lobed, apex acuminate, base truncate to cordate, sometimes sparsely sericeous but usually glabrous above, sericeous below (trabecula 0.2–0.5 mm long, straight, sessile), margin shallowly crenate to subentire and with irregularly spaced sessile glands (0.5–0.6 mm diam.) in the sinuses and with filiform glands (up to 1.5 mm long), with a pair of prominent but sessile glands at the apex of the petiole, each gland 1.5–3.5 mm diam.; petioles 2–10+ cm long, sericeous; stipules 0.7–1.2 mm long and wide, triangular, eglandular. Flowers ca. 15–30 per umbel, these borne in dichasia or compound dichasia. Peduncles 3–7.5 mm long, pedicels 4–8.5 mm long; peduncles 0.6–1.2 times as long as the pedicels. Bracts 0.9–1.3 mm long, 0.6–1 mm wide, narrowly triangular; bracteoles 0.7–1.2 mm long, 0.6–1 mm wide, triangular, eglandular. Sepals 1.8–2.3 mm long, 1.5–2 mm wide, glands 1.6–2.3 mm long, 0.6–1.2 mm wide. All petals glabrous, yellow; lateral petals with the limbs orbicular or broadly obovate, margin erose; anterior-lateral petals: claw 1.8–2.2 mm long, limb ca. 7 mm long and wide; posterior-lateral petals: claw 0.5–1 mm long, limb 6–6.7 mm long, 4.5–6 mm wide; posterior petal: claw 2.5–2.8 mm long, apex strongly indented, limb 5–5.6 mm long, 3.5–4.8 mm wide, elliptical or broadly obovate, margin erose to fimbriate-denticulate, teeth/fimbriae up to 0.5 mm long. Stamens unequal, those opposite the posterior styles the largest; anthers all loculate, glabrous, those of stamens opposite the anterior-lateral sepals with 1 or 2 locules, those of stamens opposite the posterior-lateral sepals with only 1 locule. Anterior style ca. 2.2 mm long, shorter than the posterior two, glabrous; each foliole ca. 1.4 mm long,

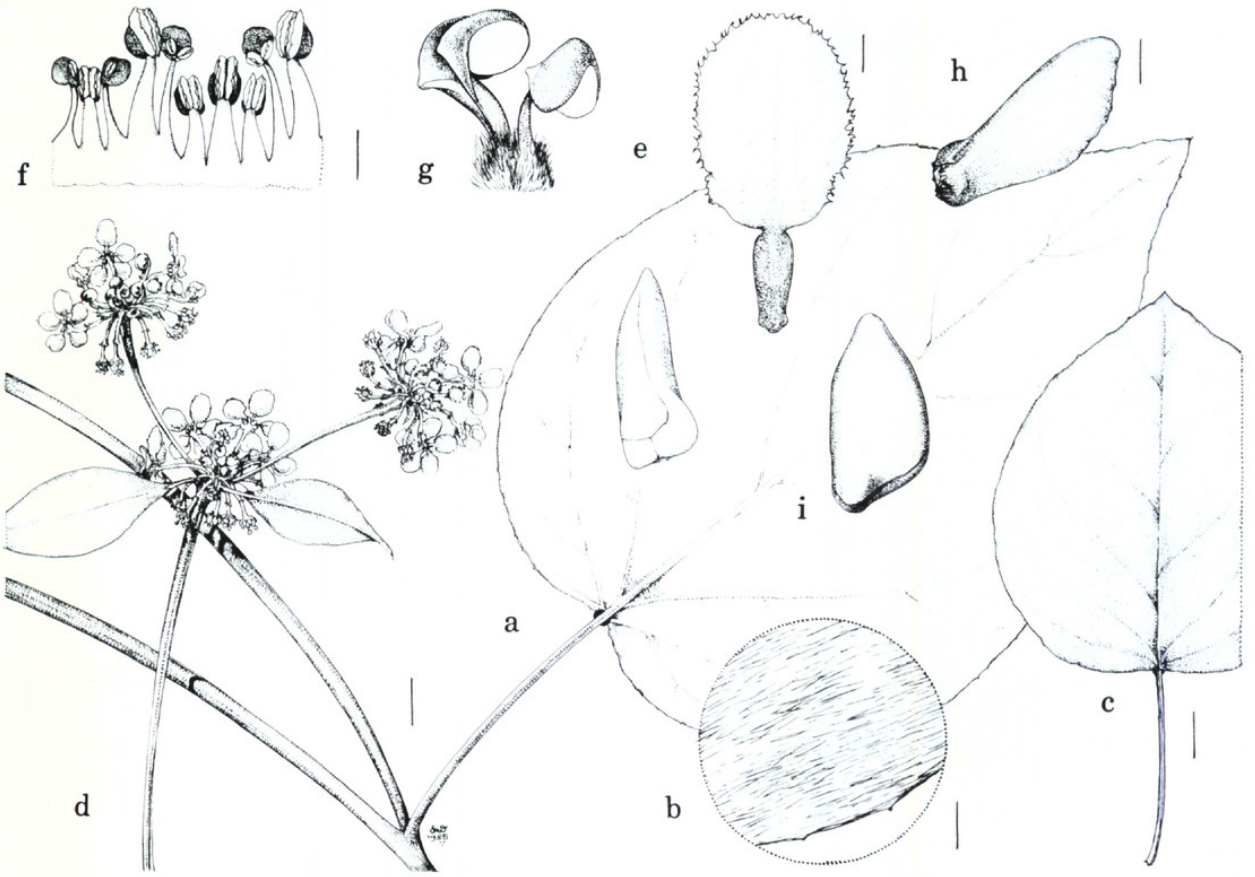

Figure 1. *Stigmaphyllon argenteum* C. Anderson. —a. Portion of branch with large leaf. —b. Detail of abaxial surface of lamina. —c. Small leaf. —d. Flowering branch. —e. Posterior petal. —f. Androecium; second stamen from left opposes posterior petal. —g. Gynoecium, anterior style to the right. —h. Samara. —i. Two views of an embryo. Scale for a, c, d, h, bar = 1 cm; for b, bar = 0.5 mm; for e–g, bar = 1 mm. Based on: a, b, d–g, *Schunke V. 2018;* c, h, i, *Croat 19640.*

ca. 1.2 mm wide, subsquare. Posterior styles 2.6–3 mm long, glabrous, lyrate; foliole ca. 1.4–2 mm long and wide, subsquare. Dorsal wing of samara ca. 4.5 cm long, 1.4–1.7 cm wide, lateral winglets absent, nut only prominently ribbed; nut 4–5.5 mm high, 3.5–4.5 mm diam., areole 3–3.5 mm long, 2.5–2.8 mm wide, concave, carpophore up to 1.8 mm long. Embryo 5.8–7.3 mm long, ca. 2 times as long as wide, ovoid, outer cotyledon 6.1–8.3 mm long, 2.6–3.9 mm wide, the distal ⅓ folded over the inner cotyledon, inner cotyledon 4–6.6 mm long, 2–3.6 mm wide, straight or the tip folded back on itself.

Phenology. Collected in flower from April through July, in fruit in May and from July through September.

Distribution. Lowlands of eastern Peru; in forests and thickets and at roadsides; 135–670 m.

Paratypes. PERU. HUANUCO: Prov. Pachitea, region of Pucallpa, ca. 26 km S to 24 km SSE of Puerto Inca, N of Río Yuyapichis, 09°34–37′S, 74°53–56′W, *Wallnöfer 11-31588* (MICH); vicinity of Tingo María, 3–5 km from Huánuco–Tingo María rd. on Monzón rd., *Mathias & Taylor 3647* (F, UCLA). JUNIN: Puerto Bermudez, *Killip & Smith 26630* (F, NY, US); Prov. Satipo, E bank of Río Ene at mouth of Río Quipachiari, *Madison 10427-70* (F). LORETO: Quebrada Shanuce above Yurimaguas, *Croat 17999* (MICH); Isla de Ushpa-cano near mouth of Río Itaya, *Croat 19640* (MICH); Ucayali, Bosque Nacional Alexander von Humboldt, between Km 90–130 of Pucallpa–Tingo María rd., 08°48′S, 75°20′W, *Gentry et al. 41413* (MO); wooded banks on lower Río Huallaga, *Killip & Smith 29004* (F, GH, NY); Prov. Maynas, vicinity of Iquitos, Río Momón, quebrada Momoncillo, *McKenna et al. DMK-91* (AMAZ, F, MICH, MO). PASCO: Oxapampa, ca. 5 km up Río Iscozacín from village of Iscozacín, 10°12′S, 75°13′W, *Knapp & Staver 7802A* (MICH); Palcazu Valley, Río San José in the Río Chuchurras drainage, 10°09′S, 75°20′W, *D. Smith 4002* (MICH). SAN MARTIN: between Tocache Nuevo and Juanjui, 18.7 km S of Río Pulcache, 07°55′S, 76°40′W, *Croat 58052* (MICH); vicinity of Aguaytía, Boquerón de Padre Abad, *Mathias & Taylor 3591, 6092* (F, UCLA); Prov. Mariscal Cáceres, Dtto. Tocache Nuevo, quebrada de Santiago, al E de Puerto Pizana, *Schunke V. 6530* (GH, MO); Prov. Mariscal Cáceres, Dtto. Tocache Nuevo, quebrada de Cachiyaca, afluente de la quebrada de Huaquista, al E de Puerto Pizana, *Schunke V. 8528* (F, MICH, MO).

Stigmaphyllon argenteum is named for the silvery, sericeous pubescence on the abaxial leaf sur-

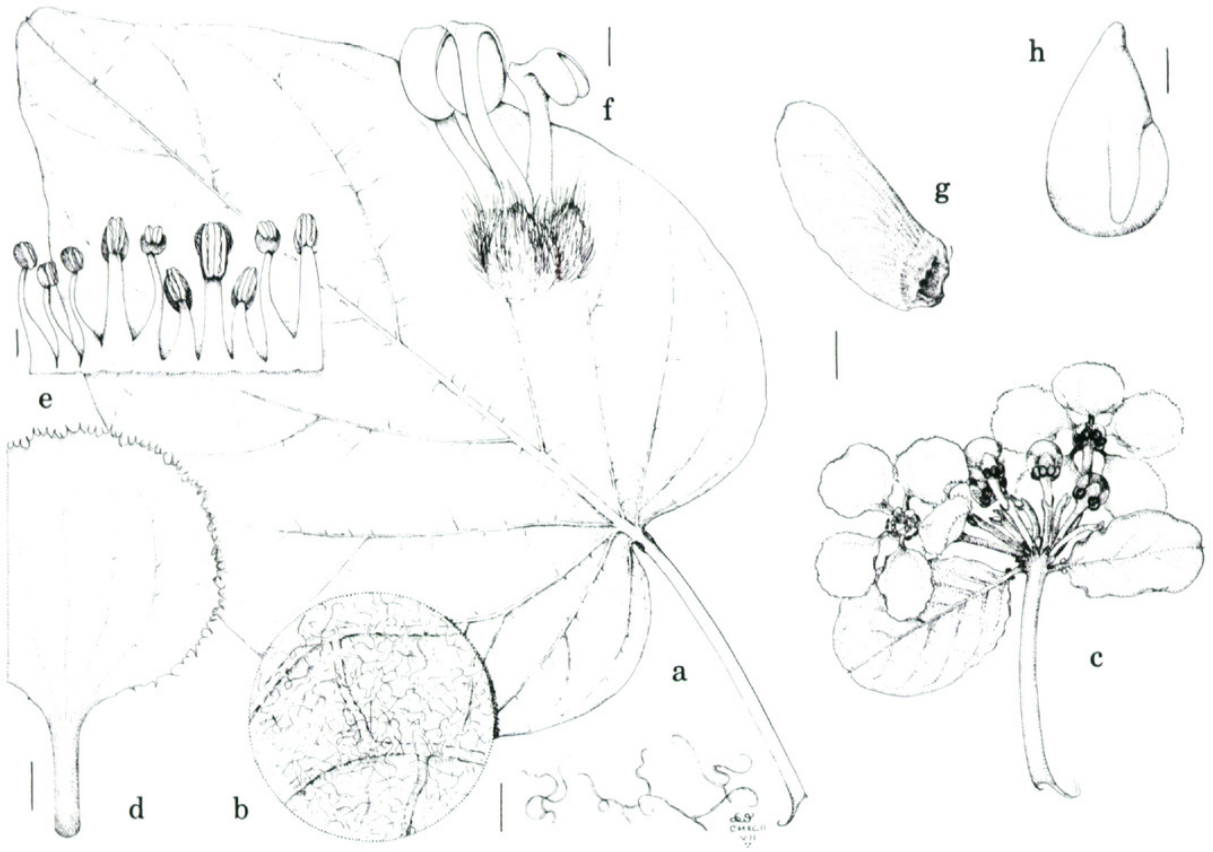

Figure 2. *Stigmaphyllon cuzcanum* C. Anderson. —a. Large leaf. —b. Detail of abaxial surface of lamina and individual hairs. —c. Umbel. —d. Posterior petal. —e. Androecium; second stamen from left opposes posterior petal. —f. Gynoecium, anterior style to the right. —g. Samara. —h. Embryo. Scale for a, c, g, bar = 1 cm; for b (detail) bar = 0.5 mm, b (hairs) bar = 0.3 mm; for d, h, bar = 2 mm; for e, f, bar = 1 mm. Based on: a, b, d, *West 6466;* c, e, f, *Stafford 9;* g, *Tutin 1310;* h, *Núñez V. & Motocanchi 8751.*

faces. It is characterized by its small petals, the limbs only up to 7 mm in diameter, the uniloculate anthers of stamens opposite the posterior-lateral sepals, and its samaras, which lack lateral wings. Collections of this species have been assigned most commonly to the widespread and variable *S. sinuatum* (DC.) Adr. Juss., though labeled with one of its many synonyms (*S. fulgens, S. hypoleucum, S. martianum, S. splendens;* see Anderson, in press). In *S. sinuatum*, the flowers are aggregated into pseudoracemes instead of umbels, the petals are up to 14 mm in diameter, the stamens opposite the posterior-lateral sepals have unmodified biloculate anthers, the styles are commonly pubescent (glabrous in *S. argenteum*), and the nut of the samara usually bears lateral winglets. *Stigmaphyllon argenteum* is rarely mistaken for one of the three other sympatric species with abaxially sericeous leaves, *S. maynense* Huber, *S. puberum* (Rich.) Adr. Juss., and *S. cardiophyllum* Adr. Juss. *Stigmaphyllon maynense* and *S. puberum* differ from most species of the genus in that the anterior style and its opposing stamen are much larger than the posterior styles and their opposing stamens. The nut of the samara of *S. maynense* bears 3–4 lateral winglets per side, whereas the unique samara of *S. puberum* is distinguished by an erect dorsal wing, tapered from the base, and lacks a carpophore. *Stigmaphyllon cardiophyllum* is easily separated by its usually glabrate to glabrous leaves, though sometimes very sparsely sericeous below, and its abundantly pubescent anthers. The remaining sympatric species differ in that the leaves are beset with T-shaped hairs below.

Stigmaphyllon cuzcanum C. Anderson, sp. nov. TYPE: Peru. Cuzco: below Machu Picchu, 2,100 m, *West 6466* (holotype, MO). Figure 2.

Liana. Laminae 7–19 cm longae, 5.5–12.7 cm latae, ovatae, supra glabrae, subtus tomentosae, margine eglanduloso vel sparsim glanduloso. Inflorescentia solitaria vel dichasialis constata ex umbellis, floribus in quaque umbella ca. 10–35. Pedunculi 3.5–15.5 mm longi; pedicelli 7–13.5 mm longi. Petala limbo orbiculari, margine fimbriato vel fimbriato-denticulato. Stamina heteromorpha, antheris glabris vel raro pubescentibus; antherae sepalis lateralibus oppositae 2 loculis reductis instructae. Stylus anticus 4.2–5.1 mm longus, glaber, utroque foliolo ca. 1.4–1.8 mm longo, 1–1.5 mm lato, elliptico; styli postici 5–6 mm

longi, glabri vel basi sparsim pubescentes, lyrati, foliolo 2–2.5 mm longo, ca. 1.8 mm lato, subrectangulari. Samara ala dorsali 3.8–4.5 cm longa, ca. 2 cm lata; nux ca. 10 mm alta, ca. 5.5 mm diametro, alulis lateralibus instructa.

Vine. Laminas 7–19 cm long, 5.5–12.7 cm wide, ovate, apex emarginate-mucronate, base cordate to deeply so in larger leaves and to truncate in smaller ones, glabrous above, tomentose below (trabecula 0.9–1.5 mm long, crisped and curled, stalk 0.1–0.3 mm long), margin eglandular or with irregularly spaced sessile glands (0.3–0.4 mm diam.), with a pair of prominent but sessile glands at the apex of the petiole, each gland 1.8–2.5 mm diam.; petioles 3–7.3 cm long, densely sericeous to glabrous in older leaves; stipules 1–1.5 mm long, 0.8–1.3 mm wide, triangular, eglandular. Flowers ca. 10–35 per umbel, these borne solitary or in dichasia or in small thyrses. Peduncles 3.5–15.5 mm long, pedicels 7–13.5 mm long; peduncles 0.6–1.4 times as long as the pedicels. Bracts 1.2–2.5 mm long, 0.8–1.3 mm wide, triangular; bracteoles 1.1–2.3 mm long, 0.7–1.4 mm wide, narrowly triangular, eglandular or each bracteole with a pair of glands (each 0.4–0.5 mm diam.). Sepals 2.5–3.5 mm long, 2.5–3.2 mm wide, glands 2–2.5 mm long, 1–1.3 mm wide. All petals glabrous, yellow, with the limbs orbicular, margin fimbriate or denticulate-fimbriate, fimbriae/teeth up to 0.5 mm long; anterior-lateral petals: claw ca. 3–4 mm long, limb ca. 16–18 mm long and wide; posterior-lateral petals: claw ca. 2.5–3 mm long, limb ca. 15 mm long and wide; posterior petal: claw 3.5–4.5 mm long, apex not or only very slightly indented, limb ca. 14 mm long and wide, margin at the base sometimes with a stalked gland (ca. 0.4 mm long). Stamens unequal, those opposite the posterior styles with the longest filaments, anthers of those opposite the anterior-lateral sepals with the connective enlarged and the locules reduced; anthers all loculate, glabrous or rarely sparsely pubescent. Anterior style 4.2–5.1 mm long, shorter than the posterior two, glabrous; each foliole 1.4–1.8 mm long, 1–1.5 mm wide, elliptical. Posterior styles 5–6 mm long, glabrous or with a few scattered hairs in the basal ⅓, lyrate; foliole 2–2.5 mm long, ca. 1.8 mm wide, subrectangular. Dorsal wing of samara 3.8–4.5 cm long, ca. 2 cm wide, nut bearing 1–2 grossly dentate rectangular lateral winglets per side, these 3.5–8 mm long, up to 2.5 mm wide, and also spurs; nut ca. 10 mm high, ca. 5.5 mm diam., areole ca. 4 mm long, ca. 3.5 mm wide, concave, carpophore up to 5 mm long. Embryo 8.5 mm long, ca. 2 times as long as wide, ovoid, outer cotyledon ca. 13 mm long, ca. 4.2 mm wide, the distal ⅓ folded over the inner cotyledon, inner cotyledon ca. 7.3 mm long, ca. 3.3 mm wide, straight.

Phenology. Collected in flower in February, May, June, and August, in fruit in January, February, June, and August.

Distribution. Peru, Depto. Cuzco, Prov. La Convención; in brush forests and clearings; 1,800–2,700 m.

Paratypes. PERU. CUZCO: San Miguel, Urubamba Valley, *Cook & Gilbert 939* (NY, US); Prov. La Convención, 139 km de Cuzco en Quillomayo, entre Santa Teresa y Chaullay, 13°08′S, 72°36′W, *Núñez V. & Motocanchi 8751* (MICH); Machu Picchu, *Stafford 9* (K); Machu Picchu, Urubamba Valley, *Tutin 1310, 1328* (BM); Prov. La Convención, Machu Picchu, *Vargas C. 814* (F); Prov. La Convención, *Weberbauer 4989* (G).

Stigmaphyllon cuzcanum is notable for its large, abaxially tomentose leaves and its large flowers, borne in umbels that are aggregated into thyrses. The petals are among the largest in the genus; the limb of the anterior-lateral petal is 16–18 mm in diameter. The stamens opposing the posterior-lateral sepals are not modified, as in most other species. The nut of the samara bears 1–2 grossly dentate rectangular lateral winglets per side. This species is readily separated from the two other species of *Stigmaphyllon* reported from Cuzco. In *S. cardiophyllum*, the leaves are abaxially glabrate to glabrous or sometimes sparsely sericeous, the flowers are very small (the limbs of the petals only up to 6.5 mm in diameter), and the samaras lack lateral winglets. *Stigmaphyllon strigosum* Adr. Juss. differs in its smaller long-fimbriate petals streaked with red (limbs up to 14 mm in diameter, fimbriae up to 0.9 mm long), modified anthers of stamens opposing the posterior-lateral sepals (the connective enlarged and the locules reduced), and samaras with 3 to 4 lateral winglets per side.

Acknowledgments. I thank William R. Anderson for his comments. Karin Douthit drew the illustrations. I am grateful to the curators of the following herbaria for making their collections of *Stigmaphyllon* available to me: AMAZ, BM, COL, F, G, GH, K, MICH, MO, NY, UCLA, US.

Literature Cited

Anderson, C. The identities of the sericeous-leaved species of Stigmaphyllon (Malpighiaceae) in the Amazonian region. Contr. Univ. Michigan Herb. 19 (in press).

Anderson, Christiane. 1992. "Two new species of Stigmaphyllon (Malpighiaceae) from Peru." *Novon a journal of botanical nomenclature from the Missouri Botanical Garden* 2, 302–305. https://doi.org/10.2307/3391482.

View This Item Online: https://www.biodiversitylibrary.org/item/14662
DOI: https://doi.org/10.2307/3391482
Permalink: https://www.biodiversitylibrary.org/partpdf/2534

Holding Institution
Missouri Botanical Garden, Peter H. Raven Library

Sponsored by
Missouri Botanical Garden

Copyright & Reuse
Copyright Status: In copyright. Digitized with the permission of the rights holder.
License: http://creativecommons.org/licenses/by-nc-sa/3.0/
Rights: https://biodiversitylibrary.org/permissions

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at https://www.biodiversitylibrary.org.

This file was generated 16 April 2022 at 20:14 UTC