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Swartzia hilaireana (Leguminosae), an "old" new species from the state of Minas Gerais, Brazil

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Swartzia hilaireana, a new species of *Swartzia* sect. *Swartzia* from seasonal forests of the transition zone between cerrado and Altantic forest in Minas Gerais, Brazil, is described and illustrated. Although it was first collected nearly two centuries ago, only in recent decades has sufficient material of the species become available to make a confident taxonomic assessment. The species is closely related to *S. pilulifera* with which it may occur sympatrically, but it differs from that species in multiple aspects of its morphology.

Key words: new taxon, swartzioid clade, Fabaceae, Papilionoideae, apetalous, Southeastern Brazil.

While gathering data for a taxonomic revision of *Swartzia* sect. *Swartzia* (Leguminosae; see Torke & Mansano 2009), we came across an unidentified specimen of *Swartzia* in the Herbarium of the Muséum National d'Histoire Naturelle that was collected by Auguste Saint-Hilaire in 1817 (S. Romaniuc Neto, pers. comm.; see also Pignal *et al.* 2013). Consisting of two inflorescences unaccompanied by vegetative material, the specimen was annotated in 1964 (subsequently confirmed in 1973) as "*Swartzia* sp., not recognized" by Richard Cowan, the foremost student of the genus in the twentieth century. While no specific locality was given on the specimen label, from Saint Hilaire's field notes see (http://hvsh.cria.org.br) and his publication about his voyage (Saint Hilaire 1830), we can infer that this specimen was gathered in southeastern Brazil, in the municipality of Itabira, near Ouro Preto in Minas Gerais. Re-examination of additional unidentified material at RB brought to our attention a number of specimens more recently collected from Minas Gerais that appear to be conspecific with Saint Hilaire's specimen. Duplicates of these collections plus some additional material were subsequently found at other Brazilian herbaria (principally BHCB, SPF), making it possible to ascertain some degree of populational variation.

Here, we provide a description and illustration of the entity in question, which we consider to be a new species of *Swartzia* sect. *Swartzia*, and it brings to 111 the number of species of Swartzia known from Brazil (see BFG 2015). Its publication marks just the latest in a series of discoveries of new taxa of *Swartzia* from extra-Amazonian Brazil (e.g., Cowan, 1968, 1973; 1981; 1985; Mansano & Tozzi 1999, 2001; Pinto *et al*. 2012; Torke & Mansano 2013).

Taxonomic treatment

Swartzia hilaireana Mansano & Torke, sp. nov.

Differs from S. pilulifera by having 3–6 pairs of lateral leaflets, the terminal leaflet blade 5.2–17 mm long, the pedicels 7–9 mm long, and the gynoecium rufo-sericeous, with the stipe 2.5–4 mm long and the ovary 3.5–6 × 2.4–3.2 mm.

Type:—BRAZIL. Minas Gerais: Mun. Ouro Preto, estrada em direção a Torre, cerca de 30 m da Trilha da Mata do Baú, Parque Estadual do Itacolomi, 18 September 2004, fl. & fr., *L.C P. Lima, F.C.P. Garcia, A. Fiorini & V.F. Dutra 209* (holotype: RB; isotypes: OUPR, VIC, NY). (Fig. 1).

Tree 1.2–10 m tall; pubescence consisting of appressed to suberect, simple hairs, these mostly 0.3–0.4 mm long; leaf-bearing portion of branchlets more or less terete, longitudinally striate, 5–7.5 mm thick at middle of internodes, sericeous or glabrescent. Stipules linear-lanceolate, 1.2–1.5 × 0.3–0.4 mm, sericeous abaxially, glabrescent adaxially, persistent. Leaves imparipinnate, with 3–6 pairs of lateral leaflets; petioles terete, narrowly winged, pulvinus 2.5–6.6 cm × 2–2.7 mm, sericeous to glabrescent; rachis 10–28 cm × 2.5–3.5 mm, marginate along segments, more evidently so toward distal ends

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of segments, sericeous abaxially, glabrescente adaxially, stipellate, the wings narrowly obtriangular, 2.5–4.5 mm wide at broadest point measured across the rachis, sericeous abaxially, glabrescent adaxially, the stipels linear-lanceolate, 2–8.5 × 1.5–3 mm, sericeous abaxially, glabrescent adaxially, persistent; petilolules canaliculate, 2.5–5 × 2–3 mm, sericeous abaxially, glabrescent adaxially; leaflet blades chartaceous, oblong to oblong-lanceolate, the terminal blades 5.2–17 × 2.6–8.9 cm, the lateral ones ca. 3.7–16.8 × 2.5–9.1 cm, the basal most pair smaller and less elongate than the others, the abaxial surface rufo-sericeous to glabrescent, the adaxial surface sparsely sericeous to glabrescent, the base cuneate to rounded, the apex acuminate and mucronate, the midrib and secondary veins impressed adaxially, raised abaxially. Inflorescences simple or compound racemes, with a single order of branching, axillary or borne from fairly recently defoliate nodes on branchlets just below leaves, ca. 30–100-flowered, flowers spirally arranged, the axis lanose, terete, 8.5–11.5 cm, ca. 3 mm in diameter near base; bracts triangular, 5–7 × 2–3 mm, lanose abaxially, glabrous adaxially, persistent, estipulate; pedicels ebracteolate, compressed longitudinally, 7–9 × 2 mm, lanose; flower buds ellipsoid, 6–7 × 5–6 mm, lanose. Calyx actinomorphic, splitting irregularly, lanose abaxially, glabrous adaxially, the segments 3–4, subequal, the lobes reflexed, 5–7 × 3–4 mm. Corolla lacking. Androecium zygomorphic, the stamens dimorphic; larger stamens 2, abaxial, glabrous, the filaments longitudinally compressed, tapering apically, 4–5 × 0.3–0.5 mm, glabrous, the anthers oblong, 1.4–2.6 × 0.8–1.5 mm, glabrous; smaller stamens, central on the floral axis to adaxial, glabrous, the filaments longitudinally compressed, 3–4.5 × 0.1–0.2 mm, glabrous, the anthers oblate, 0.7–1.4 × 1–1.3 mm, glabrous. Gynoecium monopistillate, rufo-sericeous except in the glabrous style; stipe terete, 2.5–4 × 1–2 mm; ovary elliptic, 3.5–6 × 2.4–3.2 mm; ovules 6–10; style lateral but arising at ovary apex, perpendicular to ovary axis, slightly down-curved, terete, 1–1.3 × 0.3 mm, glabrous; stigma punctiform. Fruit single-seeded, orange when mature, sparsely pubescent; stipe c. 3–6 × 2–4 mm, terete; body 1.8–2.5 × 1.4–1.8 cm, ellipsoid. Seeds black, ellipsoid, 1.6–1.8 × 1.1–1.4 cm; aril white, fleshy, fimbriate, ca. 0.6–0.8 × 0.5–0.7 cm, covering about half of the seed on the hilar side.

TABLE 1. Comparison of the Brazilian extra-Amazonian apetalous species of *Swartzia*.

Species	Number of leaflets	Length of leaflets (cm)	Pedicel length (mm)	Gynoecium indument	Stipe length (mm)	Ovary size (mm)
S. apetala	3–11	4–11(–14)	2–20	Glabrous or nearly so	2.6–7.5	2–5.5 × 0.9–2.3
S. pilulifera	5–9	2.4–5.7(–9)	3.4–6.3	Golden-villous	1.7–2.2	2.3–3 × 1.5–1.9
S. capixabensis	5	9–14.8	c. 5.5	Sericeous	2.4	c. 3.1 × 1.7
S. hilaireana	7–13	3.7–17	7–9	Rufo-sericeous	2.4–4	3.5–6 × 2.5–3.2
S. riedelii	5–7	7–14	6–10	Glabrous, rarely sparse-villose	3,8–4.5	c. 4.5 × 2.5

Additional specimens examined **(paratypes):—**BRAZIL. Minas Gerais: Mun. Carandaí, Pedra do Sino Hotel Fazenda, BR 040, km 6, Mata do Bugiu, 01 October 2005, fl., *N.F.O. Mota & J.R. Stehmann 377* (BHCB, RB); idem, Trilha da Matinha, 04 June 2005, fl., *N.F. Mota & J.R. Stehmann 240* (BHCB, RB); Mun. Caratinga, Faz. Macedônia / Genibra, trilha do triângulo, 04 November 1991, fl., *P.I.S. Braga et al. s.n.* (BHCB 22.478, SPF 117.867); idem, 21 December 1991, fl., *P.I.S. Braga et al. s.n.* (BHCB 22.479); Mun. Catas Altas, Serra do Caraça, 19 February 2001, fr., *R.C. Mota 1227* (RB); Mun. Itabira, Estrada Itabira a Ipoema, km 0.3, 05 May 2003, fr., *A.A. de Luz 116* (RB); idem, 21–28 February 1817, fl, *A. Saint-Hilaire 2205* (P); Mun. Mariana, Samitri, 17 May 2001, fr., *R.C. Mota & L. Viana 471* (BHCB); idem, Distrito de Alegria, Mina de Fábrica Nova (CVRD) a 1.200 m de altitude, January 2003, fl., *A. Salino & N.F. O. Moys 8242* (BHCB); idem, Estrada da Torre 21, Alegria do Sul, 25 August 1999, st., *S. M. Faria et al. 1742* (RB); Mun. Ouro Preto, estrada em direção a Torre, cerca de 30 m da Trilha da Mata do Baú, Parque Estadual do Itacolomi, 18 September 2004, fl. & fr., *L. C.P. Lima et al. 209* (RB, VIC); idem, Trilha do Parque Estadual do Itacolomi, 16 February 2005, fr., *L.C.P. Lima & S.C. Ferreira 291* (RB, VIC); idem, 24 October 2004, fl., *L.C.P. Lima & F.C.P. Garcia 216* (OUPR, VIC); idem, 24 October 2004, fr., *L.C.P. Lima & F.C.P. Garcia 2*24 (OUPR, VIC); idem, Trilha do Alcan, 08 December 2004, fr., *L.C.P. de Lima & M.E.F. de Araújo 258* (OUPR, VIC).

Distribution:—*Swartzia hilaireana* is found in seasonal forests of the transition zone between cerrado and Atlantic forest in the state of Minas Gerais, Brazil (Figure 2).

Epithet:—This species is named after Augustin Saint-Hilaire, a French botanist and traveler, who made the first collection of the species during his first voyage to Brazil in February 1817.

Flowering and fruit periods:—Collected in flower from June to January, and in fruit from February to August.

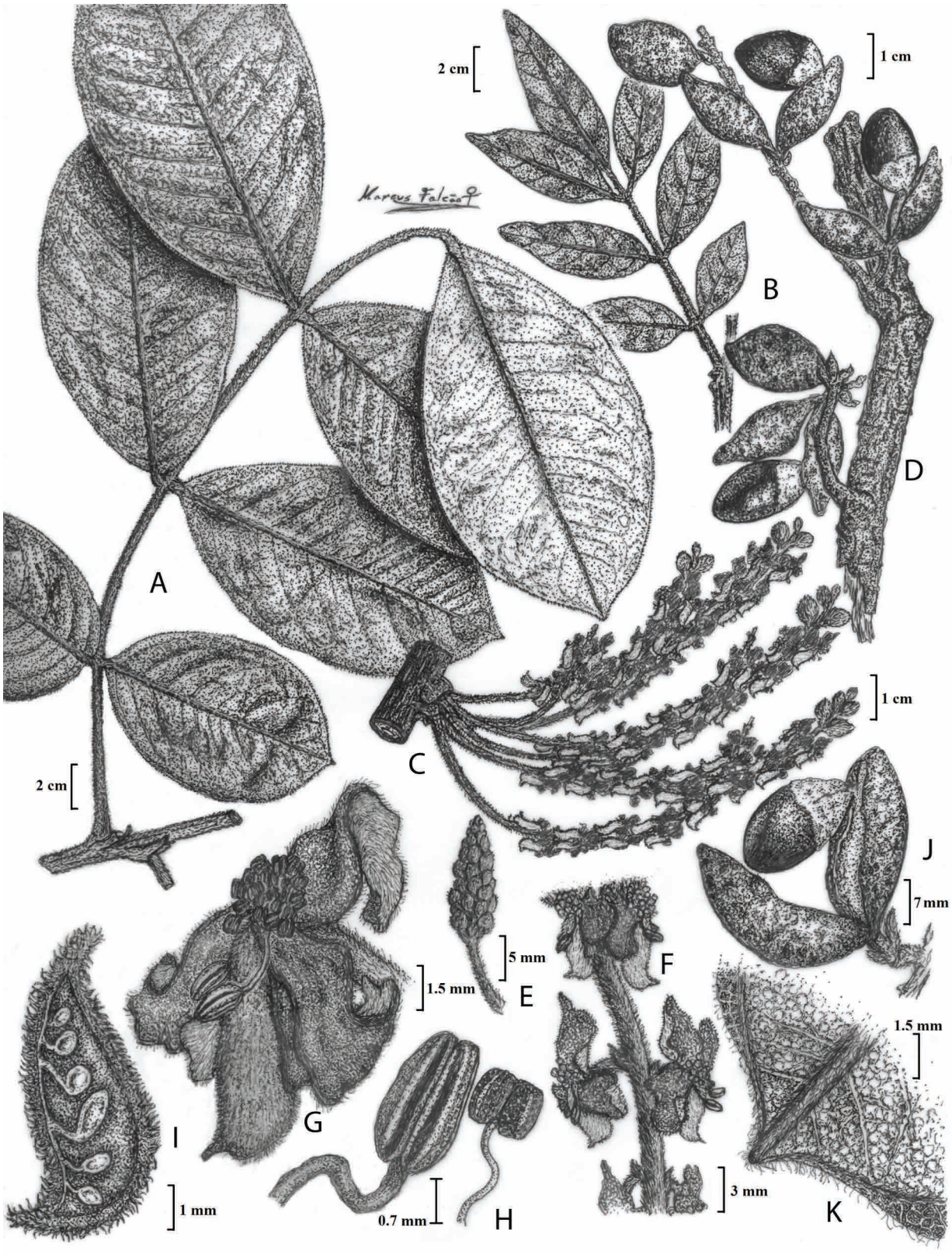

FIGURE 1. *Swartzia hilaireana.* A: branch with a large leaf; B: branch with a small leaf; C: branch with a fasciculate inflorescence; D: branch bearing fruits; E: immature inflorescence; F: detail of the mature inflorescence; G: mature flower; H: adaxial view of larger (left) and smaller (right) stamens with part of their filaments; I: longitudinal section of the gynoecium showing six ovules; J: dehisced fruit and seed; K: detail of the abaxial surface of the leaflet. [A, C, F, G, H, I and K drawn from *Braga s.n.* (SPF 117867); B from *Mota 240*; D and J from *Mota 471*; E from *Mota 377*). Drawn by Marcus José Falcão.

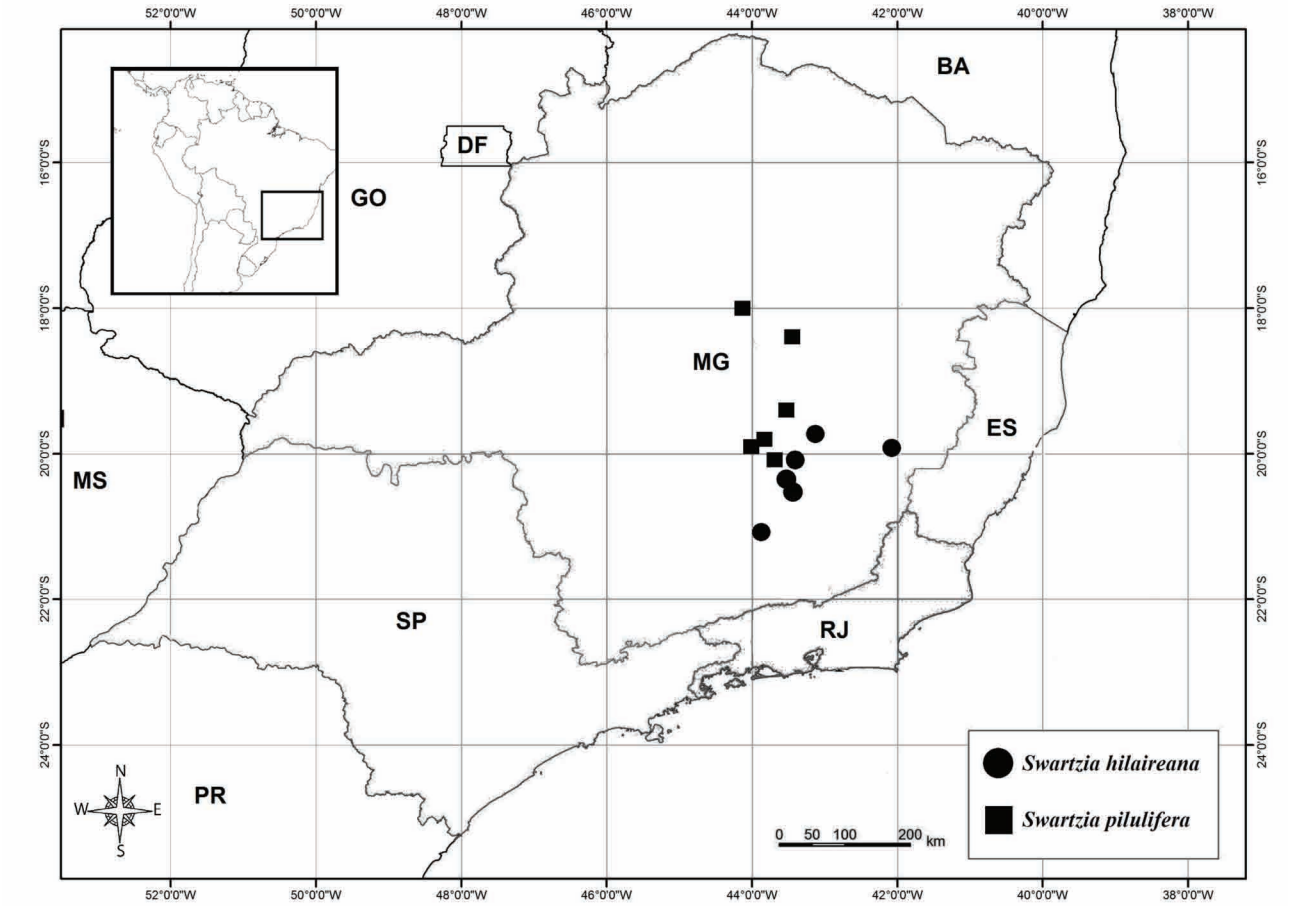

FIGURE 2. Geographic distributions of *Swartzia hilaireana* and *S. pilulifera*.

Comments:—We assign *Swartzia hilaireana* to *Swartzia* sect. *Swartzia* based on its possession of sectional characters such as ebracteolate pedicels, apetalous flowers, two larger stamens, a relatively compact gynoecium, with the ovary less than twice as long as wide, the style lateral and much shorter than the ovary, and the stigma punctiform, and single-seeded fruits. The geographical distribution in Minas Gerais and the densely pubescent gynoecium suggest a close relationship with *Swartzia pilulifera* Bentham (1840: 90), but the new species differs from the later by having more pairs of lateral leaflets, longer leaflets, longer pedicels, a longer ovary stipe, and larger ovary (see Table 1). In addition, *S. hilaireana* has a rufo-sericeous gynoecium, while *S. pilulifera* has a golden-villous one. Differences between the two species and other species of sect. *Swartzia* that occur in the state of Minas Gerais are enumerated in Table 1.

Conservation status:—Following the categories and criteria of the IUCN Red List (IUCN 2001, 2014), we assess the conservation status of *S. hilaireana* as Vulnerable (VU). The assessment is based on the following observations and criteria: the extent of occurrence (EOO) estimated by the software GeoCAT (Bachman *et al.* 2011) to be 8478 km2 (criterion B1), known from only six localities (B1a), continuing decline inferred in the extent and quality of habitat (B1b). Moreover, only one of the six known populations is in a protected area, and populations in Mariana and Caratinga municipalities may have been affected by the failure of the San Marcos dam, which released large quantities of toxic tailings and polluted water from a corporate mining operation.

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