Brongniartia guiengolensis (Fabaceae: Faboideae): A New Arboreal Species from the State of Oaxaca, Mexico

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ABSTRACT. A new arboreal species, *Brongniartia guiengolensis* (Fabaceae: Faboideae), endemic to Cerro Guiengola, a hill in the northwestern region of Tehuantepec, Oaxaca, Mexico, is described and illustrated. Its morphological affinities with *B. sousae* O. Dorado are discussed, and habitat data are given.

RESUMEN. Se describe una especie nueva arborea, *Brongniartia guiengolensis* (Fabaceae: Faboideae), endémica del Cerro Guiengola, localizado en la región noroeste de la ciudad de Tehuantepec, Oaxaca, México. Se discuten sus afinidades morfológicas con *B. sousae* O. Dorado y se proporcionan datos de su hábitat.

In the last decade, explorations in the state of Oaxaca by botanists from the National Herbarium of Mexico (MEXU) have added many new records for the state flora. One locality where recent and old discoveries have been made is Cerro Guiengola, a limestone hill near the city of Tehuantepec that supports tropical deciduous forest. During a a floristic inventory of this region by L. Torres-Colín (1989), seven new species and three new records for the state were found, among them *Brongniartia sousae* O. Dorado. The genus *Brongniartia* is nearly endemic to Mexico and has many species in the state of Oaxaca. Of the 60 species known hitherto (Dorado, 1992), only two are trees. *Brongniartia mollicula* T. S. Brandegee is commonly a shrub more than 1.5 m tall, but in more humid habitats, may be a tree up to 4.5 m tall. The second arboreal species is *B. montalvoana* Dorado & Arias (Dorado & Arias, 1992). The species described here, *B. guiengolensis,* is a dominant member of the forest of the Cerro Guiengola, where its trunk attains a diameter of 20 cm or more. This feature, combined with other morphological characters, is distinctive.

Brongniartia guiengolensis O. Dorado & L. Torres-Colín, sp. nov. TYPE: Mexico. Oaxaca: Distrito de Tehuantepec, Cerro Guiengola, "Las Palmitas," camino al Ocotal, 16°21′ lat. N y 95°19′ long. W, 26 aug. 1986, *M. L. Torres-Colín 461, R. Torres & C. Martínez* (holotype, MEXU; isotypes, ENCB, HUMO, MO, RSA-POM). Figure 1.

Arbor ad 7 m alta; caulis plus quam 20 cm diametro, aspectu lobatus, cavis ad 10 cm longis perforatus, profunde costatus, costis in sectione transversali rotundatis, cortex laevis, cinerascens; rami juniores hirsutuli, vetustiores glabrescentes. Stipulae 1–1.6 cm longae, 4–4.2 mm latae. Folia imparipinnata vel aliquando paripinnata; foliola opposita vel aliquando alterna, elliptica vel late elliptica, interdum ovata, (1.2–)1.7–3.8 cm longa, (0.7–)1.3–2 cm lata tenuia, maturia glabra. Vexillum late ovatum, 1.3–1.4 cm longum, 1.2–1.6 cm latum, rubrum, per ca. 90° reflexum, apice rotundatum; alae spathulatae, 1.6–1.7 cm longae, 8–8.2 mm latae, rubrae; carina oblongo-falcata 1.7–1.8 cm longa, 6.5–6.8 mm lata, viridi-flava, tubus staminalis ad 2.5 cm longus, stamene vexillari libero ad 2 cm longo; ovarium 9.5 mm longum, stylus 1.6 mm longus, glaber; ovula 4–5. Fructus 5.0–6.6 cm longus, glaber subsessilis, aliquandum calyce persistenti basim cinctus.

Tree to 7 m tall, trunks more than 20 cm diam., with deep elongate holes up to 10 cm long which appear lobed in cross section, the bark smooth and grayish; branches hirsutulous when young, becoming glabrous. Stipules elliptic to lanceolate, 1–1.6 cm long, 4–4.2 mm wide, sparsely strigose, early becoming glabrous, deciduous; leaves (6.5–)8.4–16 cm long, imparipinnate or sometimes paripinnate; petiole (0.5–)0.8–15(–1.8) cm long, glabrescent; petiolules 2.8–4.3 mm long, yellowish green; leaflets elliptic or broadly elliptic, sometimes ovate, at apex rounded, obtuse, or frequently retuse, mucronate, (5–)9–29, (1.2–)1.7–3.8 cm long, (0.7–)1.3–2 cm wide, opposite or sometimes alternate, thin, glabrous at maturity, strigose when young on both surfaces, especially along the midvein, venation con-

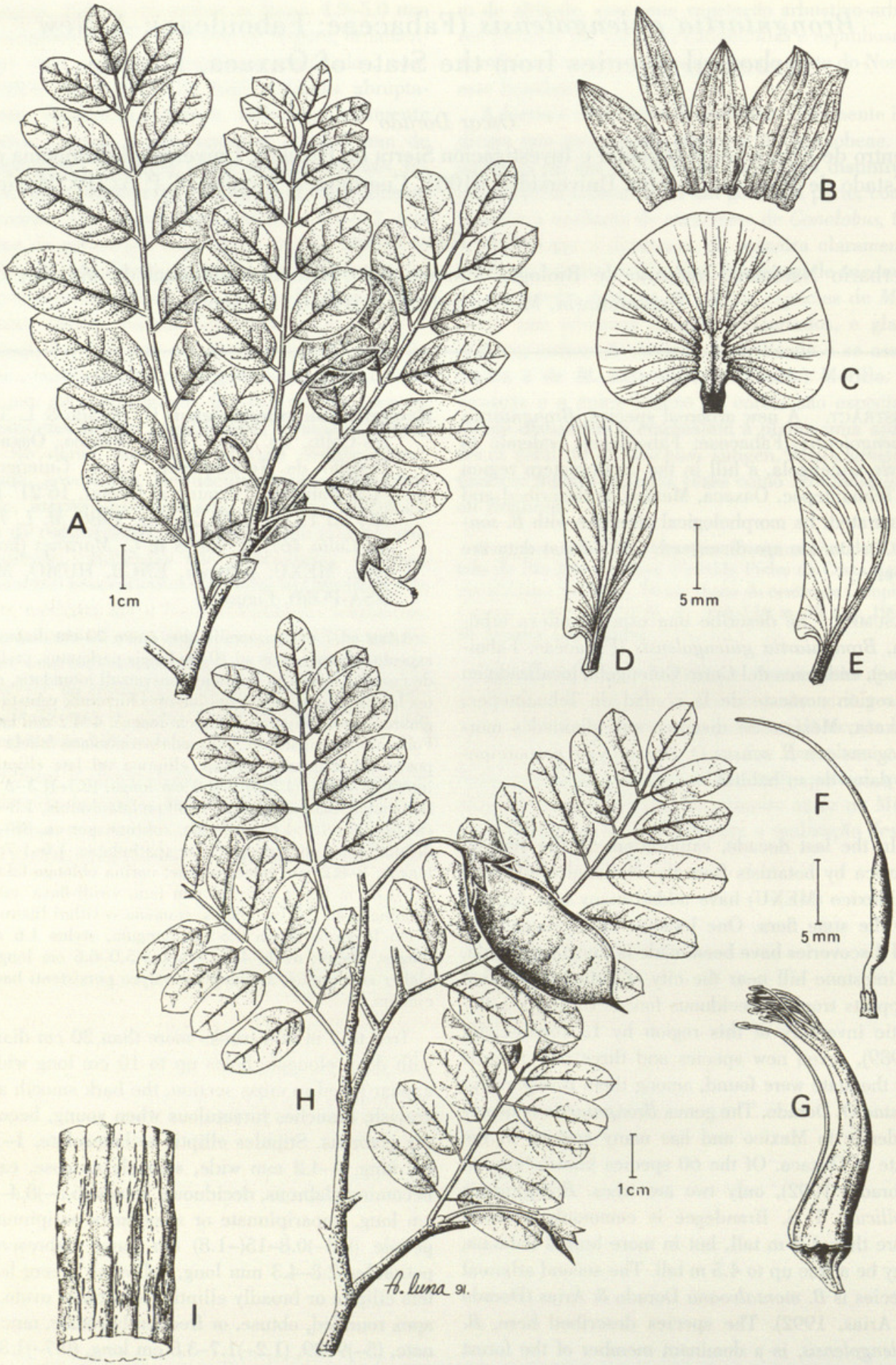

Figure. 1. *Brongniartia guiengolensis* O. Dorado & L. Torres-Colín. —A. Flowering branch. —B. Dissected calyx. —C. Standard petal. —D. Wing petal. —E. Keel petal. —F. Gynoecium. —G. Androecium. —H. Fruiting branch. —I. Trunk. Based on the holotype.

Table 1. Characteristics distinguishing *Brongniartia guiengolensis* and *B. sousae*.

Characteristics	*B. guiengolensis*	*B. sousae*
Habit	tree to 7 m tall	shrub to 3 m tall
Trunk and main branches	with deep elongate holes, appearing lobed in cross section	without deep fissures
Stipules	1–1.6 cm long, 4–4.2 mm wide	0.22–0.3(–0.4) cm long, 1.2(–3) mm wide
Bracteoles	0.8–1 cm long	0.5–0.8 cm long
Length of vexillar calyx lobes	(6–)8–10 mm long	6–8(–10) mm long
Connation of vexillar calyx lobes	$\frac{1}{10}$ to $\frac{1}{8}$ of their length	$\frac{5}{6}$ of their length

spicuous on both surfaces, base acute to rounded, mucro more than 0.5 mm long. Flowers axillary, solitary or 2–5 per node, contemporary with the leaves; peduncles 2–2.5 cm long, glabrescent; bracteoles ovate to elliptic, 0.8–1 cm long, 6.5–7 mm wide, strigose or sometimes glabrous, deciduous before anthesis; calyx campanulate, 1.4–1.6 cm long, 5–6.5 mm wide, glabrous when mature but sometimes densely strigose, glabrescent internally, tube 3.5–4 mm long; two vexillar lobes (6–)8–10 mm long, 6–7 mm wide (both lobes), connate $\frac{1}{10}$ to $\frac{1}{8}$ of their length; lateral lobes 1–11 mm long, 4.5–5 mm wide; carinal lobe (7–)9–11 mm long, (2.5–)3–4 mm wide; standard petal broadly ovate, 1.3–1.4 cm long, 1.2–1.6 cm wide, red, reflexed ca. 90°, apex rounded, claw 2 mm long; wing petals spathulate, 1.6–1.7 cm long, 8–8.2 mm wide, red, claw 2.2–2.6 mm long; keel petals oblong-falcate, 1.7–1.8 cm long, 6.5–6.8 mm wide, greenish yellow, claw 2.1–2.3 mm long; staminal tube up to 2 cm long, vexillar stamen free up to 2 cm long; ovary 9.5 mm long, style 1.6 mm long, glabrous, ovules 4–5. Fruit 5.0–6.6 cm long, subsessile, glabrous, sometimes with the calyx persistent surrounding the base of the fruit. Seeds 5 per fruit, known only immature.

Distribution. *Brongniartia guiengolensis* is known only from Cerro Guiengola, a hill in the northwestern region of the city of Tehuantepec. It is a dominant tree of the tropical deciduous forest, between 700 and 1000 m above sea level, associated with arboreal species such as *Ceiba parvifolia* Rose, *Lonchocarpus lanceolatus* Bentham, *Lysiloma microphyllum* Bentham, *Plumeria rubra* L., and shrubby *Mimosa torresiae* R. Grether and *Eupatorium guiengolense* L. Torres-Colín & J. L. Villaseñor. The flowering and fruiting period of *B. guiengolensis* is from August to November.

Relationships. *Brongniartia guiengolensis* is most similar to *B. sousae*, which also grows in the Cerro Guiengola, although the latter is found at lower elevations, below 450 m (Dorado, 1987). Extensive explorations in the area have shown that the two species are not sympatric and that altitude may be an important limiting factor in the distribution of both. While *B. guiengolensis* is a tree up to 7 m tall, *B. sousae* is a shrub shorter than 3 m. Additional morphological features are compared in Table 1. The very restricted range of *B. guiengolensis* suggests that it may be a vulnerable species. Official protection of Cerro Guiengola should be given priority due to the high number of endemic species.

Paratypes. MEXICO. **Oaxaca:** Distr. Tehuantepec, El Desmonte, donde está el mango, Cerro Guiengola, 26 nov. 1986, *M. L. Torres-Colín 572, A. García & L. Cortes* (HUMO, MEXU); subida al Cerro Guiengola por la ladera S, 26 nov. 1986, *M. L. Torres-Colín 703, R. Torres & C. Martínez* (HUMO, MEXU); "Las Palmitas," subida al Ocotal, lado este del Cerro Guiengola, 26 July 1987, *O. Dorado 1773, S. Zona & R. Torres* (HUMO, MEXU); subida a Las Palmitas ladera oriente del Cerro Guiengola, 13 nov. 1987, *M. L. Torres-Colín 972, R. Torres & C. Martínez* (HUMO, MEXU); ladera norte del Cerro Guiengola, 13 sep. 1988, *M. L. Torres-Colín 1006, R. Torres & C. Martínez* (HUMO, MEXU).

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