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. sosae 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. sosae 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 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 sosae 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.


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, cor- tex laevis, cinerascens; rami juniores hirsutuli, vetustiores glabrescentes. Stipulae 1—1.6 cm longae, 4—4.2 mm latae. Folia imparipinnata vel aliquando paripinnata; foliola op- positae vel aliquando alternae, elliptica vel late elliptica, interdum ovata, (1.2—)1.7—3.8 cm longa, (0.7—)1.3—2 cm lata, 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—1.5—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-
Brongniartia guiengolensis is from August to November. Cerro Guiengola, although the latter is found at most similar to B. sousae, which also grows in the or. The flowering and fruiting period 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.


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

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>B. guiengolensis</th>
<th>B. sousae</th>
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<tbody>
<tr>
<td>Habit</td>
<td>tree to 7 m tall</td>
<td>shrub to 3 m tall</td>
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<tr>
<td>Trunk and main branches</td>
<td>with deep elongate holes, appearing lobed in cross section</td>
<td>without deep fissures</td>
</tr>
<tr>
<td>Stipules</td>
<td>1-1.6 cm long, 4-4.2 mm wide</td>
<td>0.22-0.3(-0.4) cm long, 1.2(-3) mm wide</td>
</tr>
<tr>
<td>Bracteoles</td>
<td>0.8-1 cm long</td>
<td>0.5-0.8 cm long</td>
</tr>
<tr>
<td>Length of vexillar calyx lobes</td>
<td>(6-)8-10 mm long</td>
<td>6-8(-10) mm long</td>
</tr>
<tr>
<td>Connation of vexillar calyx lobes</td>
<td>⅛ to ⅓ of their length</td>
<td>⅛ of their length</td>
</tr>
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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 cm long; two vexillar lobes (6-)8-10 mm long, 6-7 mm wide (both lobes), connate ⅛ to ⅔ 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 spatulate, 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, Lysisoma microphyllum Bentham, Plumeria rubra L., and shrubby Mimosa torresiae R. Grether and Eupatorium guiengolense L. Torres-Colín & J. L. Villasenor. 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.
the Genus *Brongniartia* (Fabaceae). Ph.D. Dissertation, Claremont Graduate School, Claremont, California.
