



## ***Baccharis magnifica* (Asteraceae, Astereae): a striking new species endemic to the summits of Serra do Caparaó, southeastern Brazil**

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### **Abstract**

*Baccharis magnifica*, a new species endemic to the summits of the Serra do Caparaó along the border between Espírito Santo and Minas Gerais, southeastern Brazil, is described. The new species is easily recognized by its shrubby habit, showy green and slightly wine-tinged, long-petiolate leaves with ciliate margins and corymbiform capitulescences. It is morphologically most similar to the allopatric *B. macrophylla*, which inhabits the mountain summits of the southerly Serra da Mantiqueira range. Illustrations, a distribution map, habitat information, and a conservation assessment are also provided for the new species.

### **Resumo**

*Baccharis magnifica*, uma nova espécie endêmica dos picos da Serra do Caparaó, ao longo da divisa dos estados do Espírito Santo e Minas Gerais, Sudeste do Brasil, é descrita. A nova espécie é facilmente reconhecível pelo hábito arbustivo, folhagem vistosa verde e levemente vinácea, folhas com pecíolos longos e margens ciliadas e capitulescências corimbiformes. Morfologicamente, assemelha-se à espécie alopátrica *B. macrophylla*, que habita os cumes das montanhas da Serra da Mantiqueira meridional. Ilustrações, mapa de distribuição, informações sobre o habitat e estado de conservação são fornecidos para a nova espécie.

**Key words:** Atlantic rain forest, Compositae, high altitude tropical grasslands

### **Introduction**

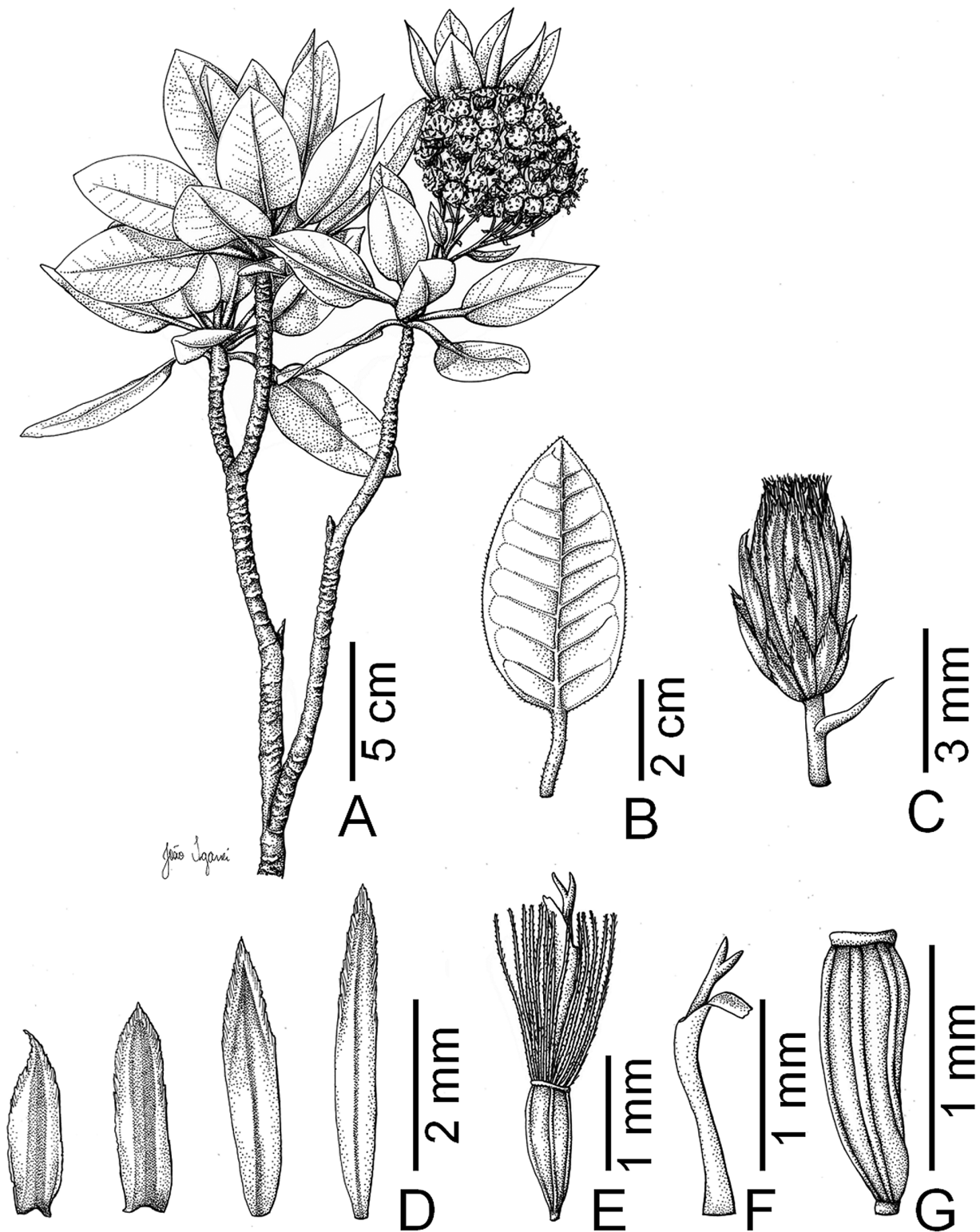
*Baccharis* Linnaeus (1753: 860; Asteraceae: Astereae) comprises between 354 (Müller 2013) and 400 New World species (Bremer 1994) and is broadly characterized by the usually tufted indumentum of the leaves and shoots and the common occurrence of dioecy (Müller 2006). Currently, 175 species of *Baccharis* are recorded for Brazil, with 27 species found in Espírito Santo and 95 species in Minas Gerais states (Heiden & Schneider 2013).

Ongoing taxonomic studies of *Baccharis*, with extensive study of herbaria specimens and fieldwork across the main centers of species diversity for the genus in Brazil, have allowed the recognition of a remarkable undescribed species of *Baccharis* from the summits of Serra do Caparaó. The Serra do Caparaó mountain range is the highest and northernmost of the tropical high altitude grasslands area (campos de altitude) in Brazil (Safford 1999a, 1999b). It is located in the Parque Nacional do Caparaó, which encompasses the highest mountain of eastern South America (Pico da Bandeira) and its surroundings. The new species found in this area is described below, is illustrated and its affinities, systematic position and geographic distribution are discussed.

*Baccharis magnifica* G.Heiden, Leoni & J.N.Nakaj., *sp. nov.* (Figs. 1 and 2)

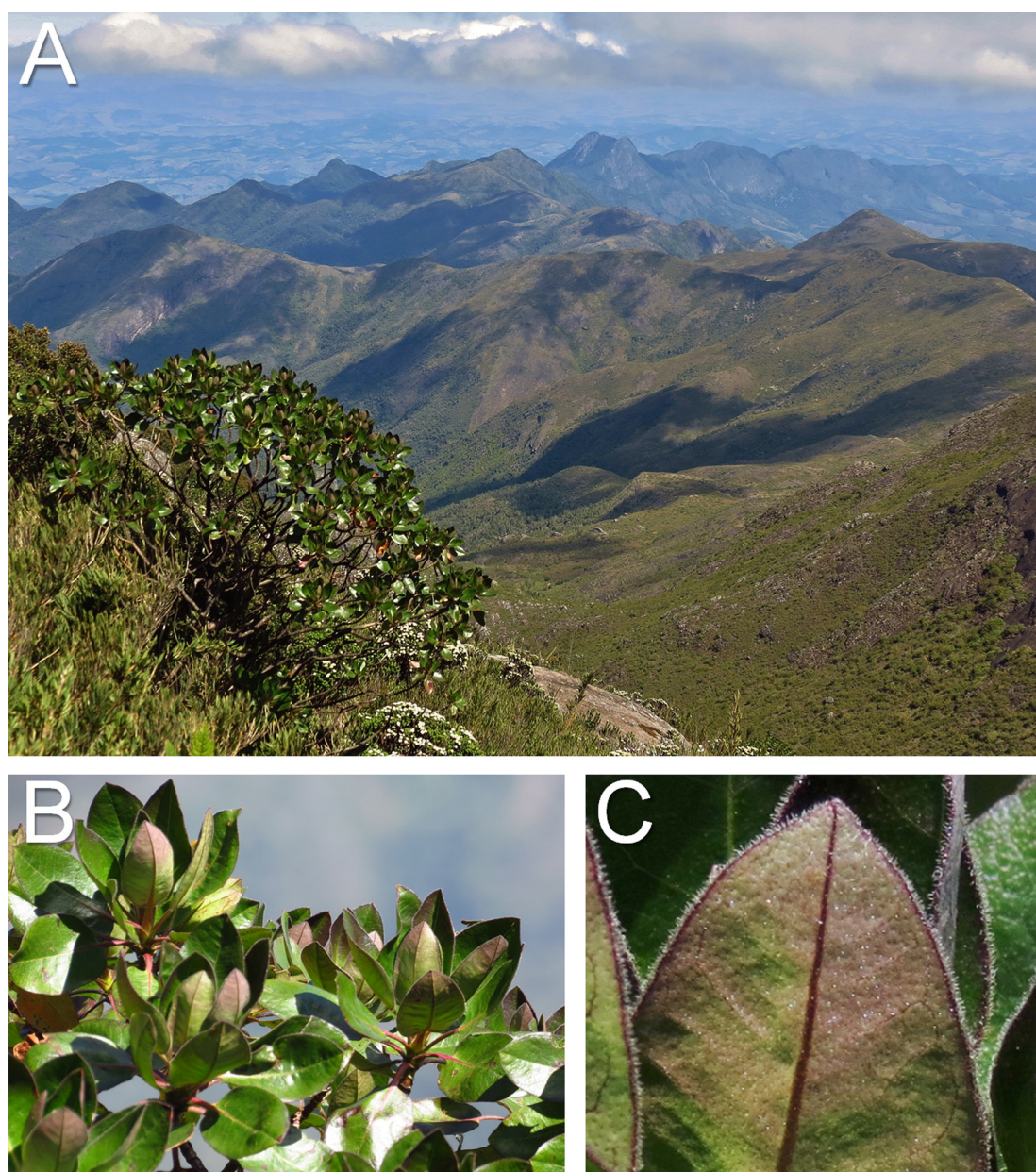
*Differs from Baccharis macrophylla* Dusén by its long-petiolate leaves with entire, flat and ciliate margins (versus short petiolate leaves with revolute, non-ciliate and 1–5 dentate margins).

Type:—BRAZIL. Minas Gerais: Alto Caparaó, Parque Nacional do Caparaó, córrego José Pedro (divisa MG/ES), [20°25'11"S, 41°48'41"W, 2350 m], 20 February 2000, fl., ♀, *V.C. Souza, J.P. Souza, W. Forster & F.F. Mazine 23530* (holotype ESA!; isotype GFJP!).



**FIGURE 1.** *Baccharis magnifica*. A. Fertile shoot. B. Leaf, abaxial view. C. Female capitulum. D. Phyllaries of female capitulum (outer to inner) and palea. E. Female floret. F. Corolla and style of female floret. G. Cypsela (pappus removed). A–F: *Souza et al. 23530* (ESA). G: *Brade 17005* (RB). Illustration by João Iganci.

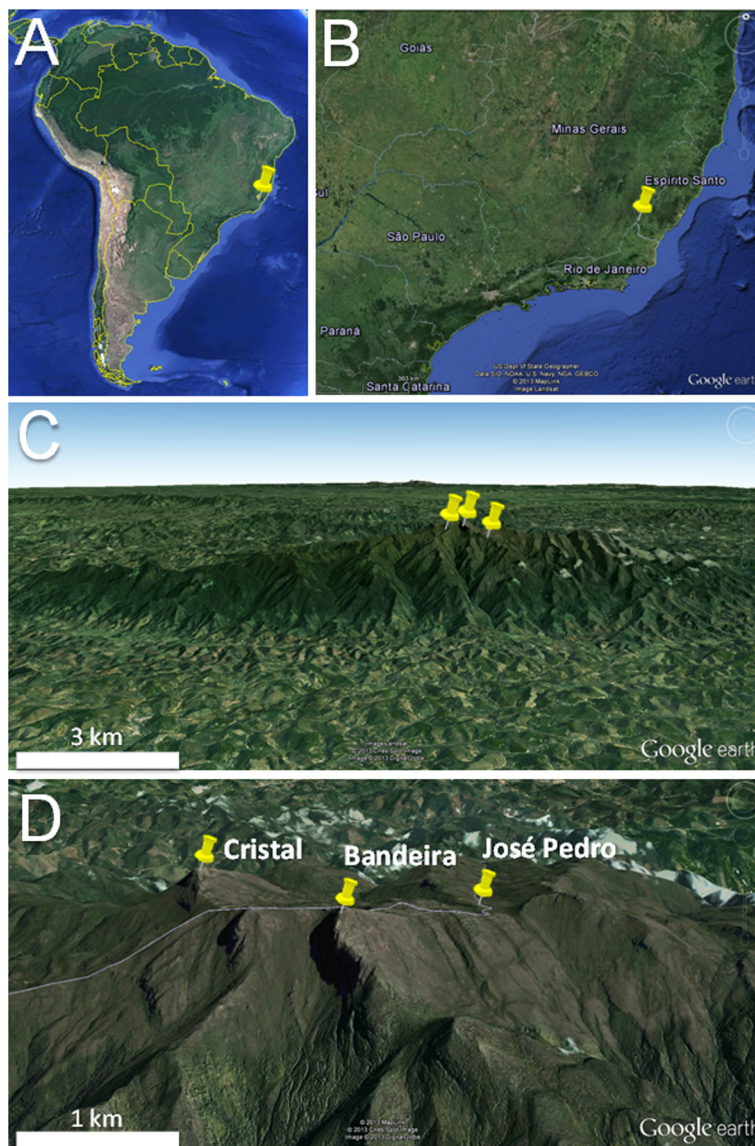
*Shrubs* 1.3–1.8 m tall, erect; shoots terminating in a capitulescence, concomitantly originating dichotomous branching from neighboring nodes; bark brown, scars of leaves prominent and stramineous. *Leaves* green and slightly wine-tinged with petioles wine, 1.7–3 cm long, leaf blade cartaceous, 3.7–7.3 cm long, 1.7–3.7 cm wide, oblong to ovate, apex acute to obtuse, apiculate, base rounded, margins wine, entire, flat, ciliate, resinous, venation wine, pinnate, brochidodromous, with 8–16 pairs of major lateral veins, midrib flat or slightly sunken on adaxial surface, prominent on abaxial surface, both surfaces with tufts of glandular hairs appearing as small resinous dots. *Female capitulescence* a corymbiform panicle of 5–7 racemes each bearing 5–21 capitula, terminal, 5–6 cm long, 4.4–8.3 cm diam. *Capitula* pedunculate; peduncles 4–8.5 mm long. *Female capitula* 3.7–4.3 mm long; florets 18–26; involucre 3.5–4.1 mm long, 2.5–5.5 mm wide, cylindrical to campanulate; clinanthium (receptacle) convex, paleate, glabrous, paleae linear-lanceolate; phyllaries 3–4-seriate, light brown, outer linear-ovate, median and innermost lanceolate to linear-lanceolate, margins scarious, apex acute. Corollas 1.3–1.6 mm long, short-rayed, sometimes with 2–3 apical teeth; style 1.6–1.8 mm long, branches 0.15–0.3 mm long. Cypselae 0.9–1.3 mm long, 0.3–0.5 mm wide, light brown, glabrous, narrowly obconical, laterally compressed, carpopodium annular, small, 4–5 longitudinal ribs; pappus uniseriate, 1.3–1.6 mm long, bristles 16–20, apically not broadened, not elongated at cypselae maturity. *Male capitula* not seen.



**FIGURE 2.** *Baccharis magnifica*. **A.** Habit and habitat in the escarpments of Pico da Bandeira. **B.** Vegetative branches depicting the showy green and slightly wine-tinged foliage. **C.** Resinous dots and ciliate margins of the leaf, visible to the naked eye.



*Distribution*:—Only known from localities at elevations between 2,350–2,834 m a.s.l. along the córrego José Pedro and on the summits of the Pico da Bandeira and Pico do Cristal alongside the Serra do Caparaó range. The creek and the peaks are the natural boundary between the states of Espírito Santo and Minas Gerais, southeastern Brazil (Figure 3).



**FIGURE 3.** Distribution of *Baccharis magnifica*: **A.** Overview of South America. **B.** Southeastern Brazil and the Caparaó pinpointed. **C.** and **D.** Three dimensional maps depicting the Serra do Caparaó and plotting the Pico do Cristal, Pico da Bandeira and the córrego José Pedro, while the thin white line in D is the boundary between Espírito Santo (front) and Minas Gerais (behind).

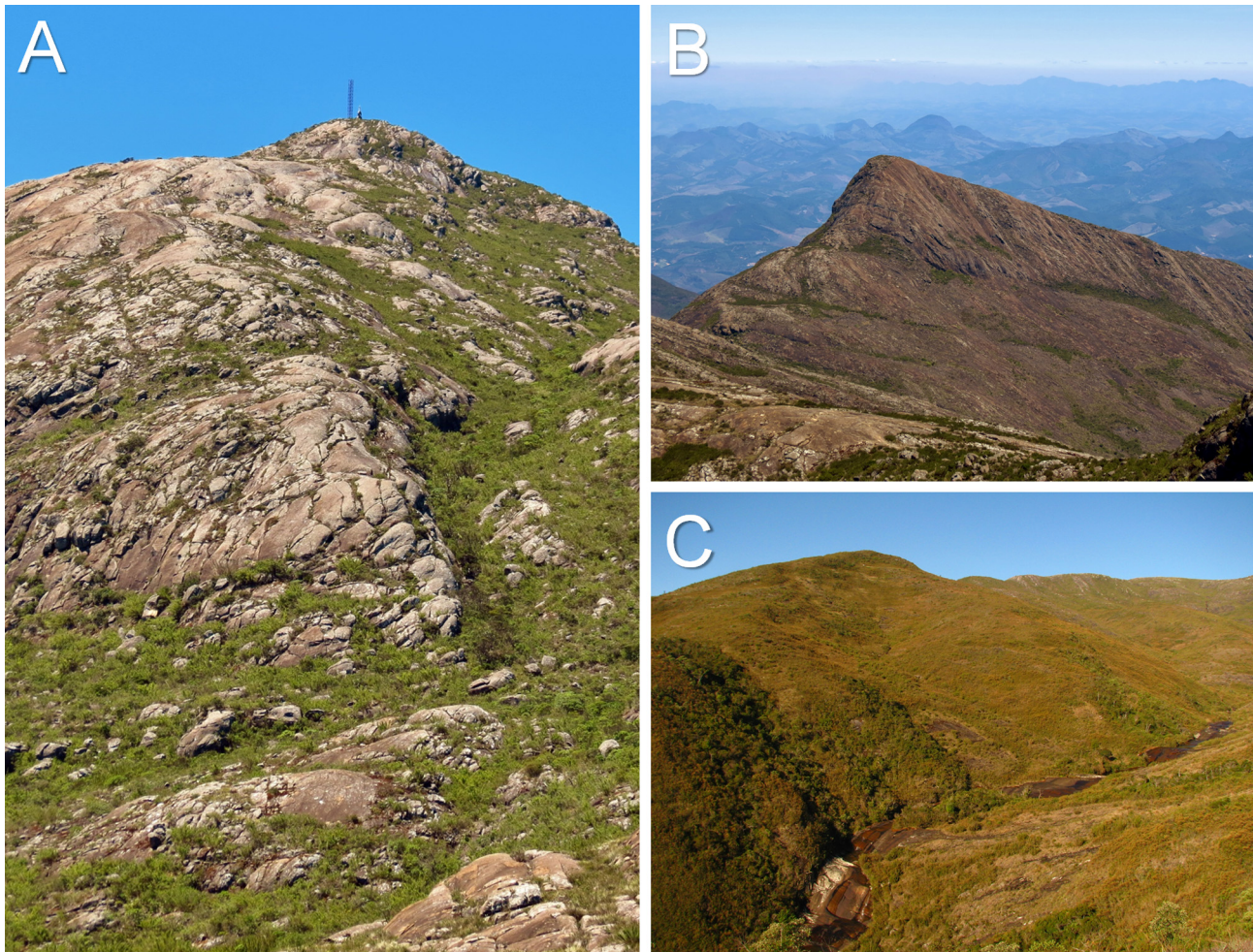
*Habitat*:—*Baccharis magnifica* forms sparse populations, along the escarpments (Figure 2) of the highest summits of the Serra do Caparaó, on bare rock outcrops or in riverine vegetation within the sky islands environments of the high altitude tropical grassland biome (Figure 4). This biome has a wider distribution, presenting an archipelago-like pattern across the Serra do Mar and Serra da Mantiqueira ranges of mountains, within the Atlantic Rainforest Domain (Safford 1999a, b).

*Phenology*:—Flowering specimens have been collected in February, while inflorescences with mature cypselae can be found up to September.

*Conservation status*:—Because of the limited area of occupancy, the uniqueness of Caparaó habitat (a range of mountains up to 2,892 m surrounded by medium-elevation hills and lowlands), the very low population size with records of distribution from only three locations that are close to each other, and the decline of quality of the high altitude grasslands environment due to anthropogenic pressure as accidental fires and tourism on the summits take place, the new species is assessed as Endangered: EN B1ab(iii) (IUCN 2011).



*Etymology*:—The specific epithet refers to the size of the leaves and to the striking and overall aspect of the plant.



**FIGURE 4.** Habitats of *Baccharis magnifica* in the Parque Nacional do Caparaó: **A.** Pico da Bandeira. **B.** Pico do Cristal. **C.** Córrego José Pedro.

**Additional specimens examined (paratypes):**—BRAZIL. Espírito Santo, Ibitirama, Parque Nacional do Caparaó, Pico da Bandeira, escarpas, S 20°26'4", W 41°47'49", 2834 m, 1 October 2012, st., *G. Heiden, C.T. Oliveira, M. Bünger & V.L. Rezende* 1955 (BHCB, RB, SPF). Minas Gerais: Alto Caparaó, Parque Nacional do Caparaó, Pico do Cristal, [20°26'37"S, 41°48'42"W, 2769 m], 24 September 1941, fr., ♀, *A.C. Brade* 17005 (RB); 12 February 1996, fl., ♀, *L.S. Leoni* 3195 (CARAN).

**Discussion:**—Unfortunately, no staminate specimens were available to provide the characters of the male plants of the new species. *Baccharis magnifica* appears to be related to *Baccharis* sect. *Oblongifoliae* Candolle (1836: 416), where the morphologically similar *B. macrophylla* is placed due to the combination of paleate clinanthium, flat paleae, few-ribbed cypselsae and the pappus not elongated at cypsela maturity. However, due to the lack of male specimens, which bear characters important for infrageneric placement, such as the shape of the style apex and length of the sweeping hairs, any attempt to place the new species in an infrageneric framework would be pointless.

In habit, expanded leaves, terminal capitulescence, paleate clinanthium of female capitula and short-rayed female corollas, *Baccharis magnifica* resembles the allopatric *B. macrophylla* Dusén (1903: 14), endemic to the southerly Serra da Mantiqueira in the border area of Minas Gerais, Rio de Janeiro and São Paulo states and only known for the Serra do Itatiaia (MG/RJ border) and Serra Fina (MG/SP border). The new species can be distinguished by its longer petioles (1.7–3 cm long), chartaceous leaf blades with rounded base and entire, flat and ciliate leaf margins, smaller female capitula (3.7–4.3 mm long), and smaller female corollas (1.3–1.6 mm long) and

styles (1.6–1.8 mm long), whereas *B. macrophylla* presents shorter petioles (0.3–0.9 cm long), coriaceous leaf blades with attenuate base and revolute, non-ciliate margins with 1–5 subapical teeth in the upper 1/3, larger female capitula (5–6 mm long), and longer female corollas (2–2.6 mm long) and styles (2.5–3.5 mm long).

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