

NOTES ON THE GENUS *CAPPARIDASTRUM* (CAPPARACEAE)
AND THE DESCRIPTION OF *C. ESTRELLAE*,
A NEW SPECIES FROM NORTHWESTERN ECUADOR

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Abstract. The genus *Capparidastrum* (Capparaceae) is discussed and *C. estrellae*, a new tree species endemic to northwestern Ecuador, is described and illustrated. Its conservation status is here assessed as endangered.

Keywords: Capparaceae, Ecuador, *Capparidastrum estrellae*, endemic

Resumen. Se comenta el género *Capparidastrum* (Capparaceae), y se describe e ilustra *Capparidastrum estrellae*, una nueva especie de árbol endémica del noroccidente de Ecuador. El estado de conservación de *Capparidastrum estrellae* aquí asignado es en peligro.

Palabras claves: Capparaceae, Ecuador, *Capparidastrum estrellae*, endémica

Capparidastrum (DC.) Hutch. (Capparaceae) is a Neotropical genus of shrubs and trees, comprising two subgenera, *Capparidastrum* and *Pulviniglans* Cornejo & Iltis, and 24 species. These range from western Mexico to Bolivia and the West Indies, in dry, moist, and wet forests from sea level to 1600 m (Cornejo and Iltis, 2008, 2016; Mercado et al., 2020; Cornejo and Vargas, 2020). In South America, where 22 of the 24 species of *Capparidastrum* are found, subgenus *Capparidastrum* is represented by two species: the Amazonian *C. sola* (J.F. Macbr.) Cornejo & Iltis and *C. frondosum* (Jacq.) Cornejo & Iltis, the latter being the nomenclatural type and the only widespread species in the genus that is distributed from the West Indies and Central America to northern Colombia, Venezuela, and Brazil and disjunct to the seasonally deciduous dry forests of coastal Ecuador (Cornejo and Iltis, 2008). In South America, the transandean and mostly allopatric pattern of distribution of members of subgenus *Capparidastrum* (Cornejo and Iltis, 2008, 2010; Mercado-Gómez et al., 2019) is correlated with its recent Pliocenic origin (Cardinal-McTeague et al., 2016), suggesting that *C. frondosum* and *C. sola* simultaneously diverged as separate lineages and arrived (in the case of *C. frondosum*) or evolved after the establishment of Amazonia (in the case of *C. sola*) as a consequence of the Andean uplift.

Subgenus *Pulviniglans* includes 10 species (9 Andean plus *C. megalospermum* Cornejo & Iltis from the lowlands of southern Chocó in southwestern Colombia to northwestern Ecuador) characterized by having relatively large, fleshy, cushion-shaped floral nectaries, 4–9 mm wide; they are the largest floral nectaries in the genus and among all Neotropical Capparaceae, hence the subgeneric name *Pulviniglans*, which was inspired by the impressive

and distinctive massive floral nectaries of *C. petiolare*, the nomenclatural type (Cornejo and Iltis, 2008). The relatively high concentration of taxa in northwestern South America (Cornejo and Iltis, 2008, 2010; Cornejo et al., 2014; Mercado-Gómez et al., 2020; Cornejo and Vargas, 2020) suggests that the diversity was triggered by the Andean orogeny that drove the explosive formation of many local and regional endemics in wet, moist, and dry forests, as is the case for the regional evolution in Rubiaceae and many other taxa of Andean vascular plants (Antonelli et al., 2009). Sixteen species of subgenus *Pulviniglans* that produce medium- to large-sized pepo fruits, 4–8 cm in diam.—several of those eaten by wild mammals and sometimes also by humans, although not sold in local markets—are scattered throughout the northern and uppermost-central Andes (Cornejo and Iltis, 2005a,b), the center of diversity in this subgenus. From those 16 Andean species, *C. bonifaziana* (Cornejo & Iltis) Cornejo & Iltis, from western Ecuador to the lowlands of southwestern Colombia, and *C. petiolare* (Kunth) Hutch., from western and southern-central Ecuador and northwestern Peru, currently exhibit an allopatric pattern of distribution between the Andes and the Pacific coast (Cornejo and Iltis 2010, fig. 2). The fact that the fruits of both species are edible by extant medium- to large-sized mammals and humans, coupled with the several Andean autochthonous vernacular names of *C. petiolare* (X. Cornejo, unpubl. data), make it most likely that extinct megafauna played a role as dispersers and that domestication by Amerindian pre-Hispanic people may have driven the present pattern of distribution.

A new species in subgenus *Pulviniglans* was detected during the elaboration of the treatment of Capparaceae for the *Flora of Ecuador*, and it is formally described herein.

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TAXONOMY

1. *Capparidastrum estrellae* Cornejo & N. Mejía-Pazos, *sp. nov.* TYPE: ECUADOR. Pichincha: Cantón San Miguel de Los Bancos, Recinto Saloya, Reserva Choco Andés, secondary wet forest, ca. 0°01'07.7"N, 78°50'50.3"W, 1230 m, 10 Jan 2021 (fl, fr), *N. Mejía, W. Matango, I. Ortiz, and E. Vallejo 453* (Holotype: GUAY; Isotypes: to be distributed). Fig. 1.

Capparidastrum estrellae is a new species from northwestern Ecuador, which resembles *C. bonifazianum* (Cornejo & Iltis) Cornejo & Iltis from western Ecuador and southwestern Colombia but differs from the latter by the stipules linear-lanceolate, 0.3–0.5 mm wide (vs. narrowly triangular, 0.5–0.8 mm wide), flower buds globose (vs. obovoid or ellipsoid), petals snow-white or pinkish-white (vs. cream to greenish), ovary ovoid to sublanceoloid, 4–5 mm long (vs. ellipsoid to subcylindrical, 6–8 mm long); fruits globose, 7.0–7.5 cm wide (vs. cylindrical or ellipsoid, 2–4 cm wide). It is also similar to the disjunct *C. petiolare* (Kunth) Hutch., from the dry forests of coastal Ecuador to northwestern Peru, but differs from the latter by the mature leaves elliptic (vs. mostly oblong), inflorescences glabrous (vs. pilose), sepals 5–8 mm wide, observable at anthesis (vs. 2–3 mm wide, hidden by the nectary glands at anthesis), floral nectaries dorsiventrally compressed (vs. subglobose), stamens ca. 60 (vs. 22 to 44), and found in wet forests (vs. dry forests).

Trees ca. 15 m high, stem to at least 30 cm in diam.; glabrous. *Stipules* linear-lanceolate, 1.0–1.2 × 0.3–0.5 mm. *Leaves* near ends of branches, unequal in size; blades coriaceous, elliptic to obovate-elliptic, 14–25 × 7–15 cm, obtuse to rounded at base, acuminate to slightly acute or obtuse and often apiculate at apex, dark green above, pale green beneath; lateral veins 8–11 per side; petioles 0.5–15.0(–20.0) cm long, glabrous, the pulvinus 4–10 mm long, dark brown when dried. *Inflorescences* terminal, erect racemes 5–20 cm long, glabrous; floral bracts triangular, minute; pedicels 2.5–5.5 cm long, glabrous. *Sepals* broadly deltoid to semiorbicular, 4–7 × 5–8 mm, more or less reflexed at anthesis, greenish to greenish-white without, whitish and erose-ciliate at margins. Floral nectaries 2.5–4.0 × 6–8 mm, dorsiventrally compressed, purple-red to pink or light-green, black to brown when dried. Flower buds globose, 13–20 × 15–20 mm. *Petals* ovate to ovate-elliptic, 17–20 × 15–16 mm, somewhat fleshy, ascending or divergent, forming a bowl-shaped corolla at anthesis, sessile at base, broadly rounded at apex, snow-white within,

snow-white and sometimes pinkish-white without, more or less entire, minutely and irregularly erose-denticulate at margins, glabrous without. Stamens ca. 60; filaments 6.5–7.8 cm long; anthers ca. 4 mm long, dorsifixed in the basal third, white. *Gynophore* 7–9 cm long, white, glabrous. *Ovary* ovoid to sublanceoloid, 4–5 × 2–3 mm, green; stigma truncate to hemispherical. *Infructescences* with gynophores ca. 10 × 0.4–0.6 cm, green to yellow. Fruits globose or subglobose, ca. 7.0–7.5 × 7.0–7.5 cm, green and densely white lenticellate, at maturity turning yellow, longitudinally 4-sulcate, the grooves deep green when immature, glabrous; fruit wall coriaceous, flexible; pulp white. Seeds 10–25, ca. 10 × 8 mm.

The placement of this new taxon in *Capparidastrum* subgenus *Pulviniglans* is supported by morphological evidence, such as the presence of glabrous leaves, 4 fleshy cushion-shaped floral nectaries, and pepo fruits. *Capparidastrum estrellae* may resemble the also-Ecuadorian *C. bonifazianum*, which vegetatively is very similar but from which it differs by the characters in flowers and fruits as described in the diagnosis.

Etymology: the epithet *estrellae* of this taxonomic novelty honors Dr. Eduardo Estrella Aguirre (1941–1996), an Ecuadorian researcher, founder of the Ecuador National Museum of Medicine and the great discoverer and editor of the long-lost work *Flora Huayaquilensis* by Juan Tafalla, a botanical masterpiece and the first flora of present Ecuador from the colonial period, in which the most common species of Capparaceae from coastal Ecuador were documented with splendid handmade, natural-sized illustrations.

Habitat and distribution: known from the type in the vicinity of San Miguel de los Bancos toward Saloya, a lower montane secondary wet forest, in which individuals of *Capparidastrum estrellae* are scattered forest elements at 1230 m and may persist as solitary individuals in open areas. On the basis of field photographs sent by Jaime West to the first author, it is most likely that a second population of this taxonomic novelty occurs at 500 m on the same western side of Pichincha Province.

Conservation status: at present, the native vegetation of the area where *Capparidastrum estrellae* occurs is disturbed by selective timber cutting, deforestation, and forest fragmentation due to the advancing agricultural frontier and cattle farming. Therefore, the species is assigned the preliminary status of Endangered (EN B1ab[iii]) (IUCN, 2017).

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FIGURE 1. *Capparidastrum estrellae* Cornejo & N. Mejía-Pazos. **A**, raceme bearing globose, snow-white flower buds, lateral view; **B**, flower at anthesis, lateral view; **C**, calyx, corolla, fleshy compressed nectary glands and base of filaments, lateral view; **D**, fruit nearly at maturity; **E**, mature leaf blade, abaxial view; **F**, gray bark. Photographs of the holotype, *N. Mejía-Pazos s.n.* (GUAY). Photographs by Nicanor Mejía-Pazos.

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