

NEW TAXA FROM THE UPLANDS OF WESTERN PANAMA¹

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ABSTRACT

Preliminary results of a recent expedition to Volcán Barú in Chiriquí Province have yielded two new species which are described here: *Verbesina baruensis* Hammel & D'Arcy (Compositae) and *Sicyos chiriquensis* Hammel & D'Arcy (Cucurbitaceae).

On a recent expedition⁴ to Volcán Barú in Chiriquí Province, Panama, we encountered numerous first records of vascular plants for Panama and several new species, two of which are described here. A full list of vascular plants known from the volcano above ca. 2,000 m is now being prepared and will be published later.

Verbesina baruensis Hammel & D'Arcy, sp. nov.—FIG. 1.

Arbor ad 25 m alta, ad 40 cm diametro ad altitudinem pecti; ramunculis lanatis. Folia alternantes, late lanceolata ad 60 cm longa, 30 cm lata, basim truncata vel leviter cordata, saepe obliqua; petiolis 10–12 cm longis, confertim lanatis. Inflorescentia late paniculata, capitulis globosis, basim truncatis, involucre 1.5–2 cm lato; paleis 10–12 mm longis, capitulis ca. 25 radios includentibus, tubo corollae ad 2 mm longo, pubescenti, ligula aurea vivida, lanceolata, ad 4 mm lata; corolla florum disci 6–7 cm longa, glandulosa pubescente basim $\frac{1}{3}$. Achinium ad 7 mm longum, alis ca. dimidio latitudine corpori, aristis validis, triangularibus, ca. $\frac{2}{3}$ longitudino corpori.

Tree to 25 m tall, 40 cm d.b.h.; trunk gray, smooth; wood white; young stems woolly with yellow brown hairs. *Leaves* alternate, broadly lanceolate; blade to 60 cm long, 30 cm wide, the base shallowly cordate or truncate, but acuminate near the inflorescence, often oblique, the margin with ca. 5 short teeth per cm, tomentose below, woolly on the veins, scabrous above; petioles 10–12 cm long, densely woolly. *Inflorescence* a broad panicle 15–20 cm across; pedicels 1–10 cm long, woolly. *Heads* globose, truncate at the base, the involucre 1.5–2 cm wide; involucre bracts approximating 2 whorls, the outer bracts wider and shorter than the inner more lanceolate bracts; paleas 10–12 mm long, folded around the floret; ray florets fertile, bright orange yellow, ca. 25 per head, the corolla to 20 mm long, abruptly expanded from the short, pubescent tube (2–4 mm long) into a lanceolate ligule to 4 mm wide; disc florets fertile, yellow green, the corolla 6–7 mm long, glandular pubescent on the lower $\frac{1}{3}$, cylindrical, slightly and gradually expanded towards the top, the lobes shallow, less than 1 mm long; anthers black, ca. 3 mm long; style branches spatulate, pubescent at the tips. *Achene* body black, to 7 mm long, the wings ca. $\frac{1}{2}$ the width of the body, one of them ciliate, the 2 stout triangulate awns ca. $\frac{2}{3}$ the length of the body.

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⁴ The field work was undertaken by the authors with the assistance of John E. Averett, University of Missouri, St. Louis, and four Earthwatch volunteers: Elaine C. Hill, Susan Schwartz, Helen M. and Oliver Wolcott. Housing and other help was provided by Maximo Menéndez Caballero and by the Panama Audubon Society.

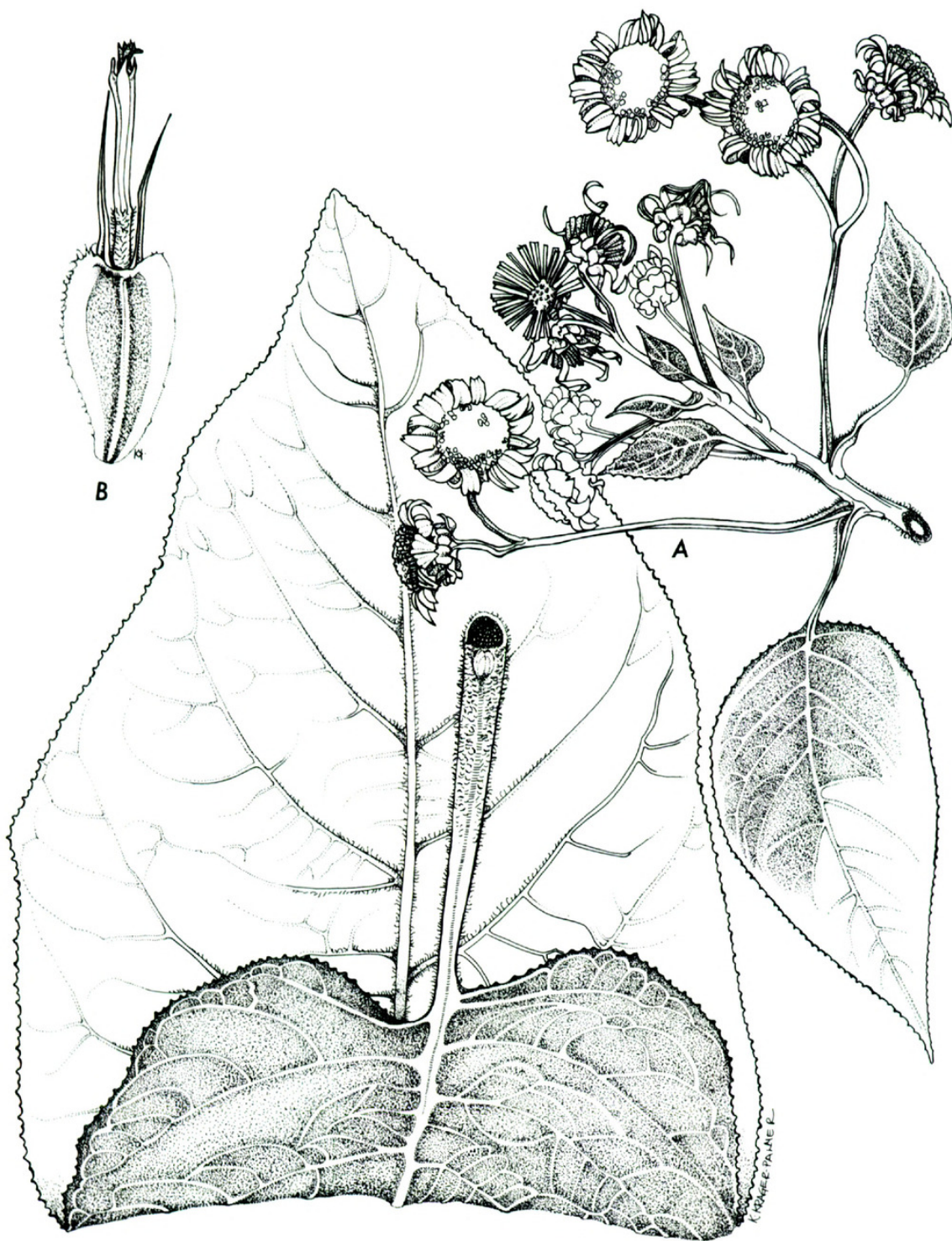


FIGURE 1. *Verbesina baruensis* Hammel & D'Arcy.—A. Habit ($\times \frac{1}{2}$).—B. Disc floret ($\times 4$).
[After Hammel et al. 6449 (MO).]

TYPE: PANAMA. CHIRIQUÍ: Volcán Barú, E slope along road to summit near Potrero Muleto, 10400 ft, Hammel et al. 6449 (MO, holotype; F, K, PMA, TEX, isotypes).

Other Specimens Seen: PANAMA. CHIRIQUÍ: E slope of Volcán Barú in wet forest N of Potrero Muleto along road to summit, 10200 ft, *Hammel 5643* (MO). E slope of Volcán Barú in wet forest N of Potrero Muleto along road to summit, 10400 ft, *Hammel 7490* (MO).

In the *Flora of Panama* treatment of the Compositae (D'Arcy, 1975) individuals of this species will key out to *Verbesina fuscasiccans* D'Arcy which is known only from central Panama. This species differs from *V. fuscasiccans* most obviously in overall size of the plants and in leaf shape. We saw no flowering material of *V. baruensis* under 15 m tall. The large cordate- to truncate-based leaf blades with densely woolly petioles are quite distinct from those of *V. fuscasiccans* which are long acuminate into a winged, slightly pubescent petiole. The flower heads of *V. baruensis* are about twice as large as those of the material of *V. fuscasiccans* studied, including its type.

Verbesina baruensis is common along several draws and slopes at about 3,000 m in high rainfall areas on the east and north side of the volcano. From a distance we saw the plants widely scattered along a few deep draws but we also found a number of almost pure stands of this magnificent composite tree. Flowering collections have been made between November and May and it seems likely that this tree blooms in all months of the year. Only the tallest plants were found in flower.

***Sicyos chiriquensis* Hammel & D'Arcy, sp. nov.—FIG. 2.**

Labruscae monoeciae, foliis simplicibus 3–5 lobatis basim profunde cordatis. Inflorescentia staminata axillaris, racemosa, de inflorescentiis foemineis separata; inflorescentia pistillata axillaris capitata. Flos staminatus 5-merus campanulatus 4–6 mm longus, 3–4 mm latus, lobis calycis linearibus 1 mm longis, staminibus 5, filamentis connatis sed apice leviter divergentibus, antheris reniformibus, prope medio insertis. Flos pistillatus 5 merus salverformis, perianthio perianthiis staminatis minori, ca. 3 mm longo, stigma 2 vel 3 lobata. Fructus in fasciculis ad 4 cm diametro retentes, maturi samaroidei elliptici ca. 2 cm longi, 1.5 cm lati papyracei praeter partem seminis, cristis binis centralis longitudinalis semine obtectis margineque irregulariter serratim, dentibus late triangularis 2–4 mm longis, aristis recurvatis tectis.

Slender monoecious *vines*; stems glabrous to slightly pubescent when young. *Leaves* simple, pentagonal in outline, 5–15 cm long, equally wide, primarily 3-lobed to $\frac{2}{3}$ the distance to the midrib, the lower 2 lobes with 1 or 2 secondary enations, the leaf base deeply cordate and hastate, the margin undulate dentate with ca. 3 teeth per cm, the blade scabrous above with scattered short hairs, more numerous toward the margin, hirsute below, prominently so on the veins; petioles 1–22 cm long, pubescent along one side; tendrils 1–2 branched. *Staminate inflorescence* axillary, racemose, 2–6 cm long, few(ca. 10)-flowered, floriferous in the upper $\frac{1}{3}$, the pedicels to 2 cm long. *Flowers* yellow green, campanulate, 4–6 mm long, 3–4 mm wide; lobes of the calyx 5, linear, 1 mm long; corolla 5-merous, merging imperceptibly with the calyx tube, divided to $\frac{2}{3}$ the length, the lobes broadly lanceolate, nearly erect, incurved, densely papillose-pubescent inside, 3–7-nerved; stamens 5, the filaments united into a column equalling or slightly exceeding the floral tube, free and divergent for ca. 1 mm at the summit, the anthers reniform, attached near the middle. *Pistillate inflorescence* axillary, capitate, 15–20 flowers sessile on the end of a peduncle ca. 2 cm long; perianth smaller than that of the staminate flowers, ca. 3 mm long, 5-merous, salverform;

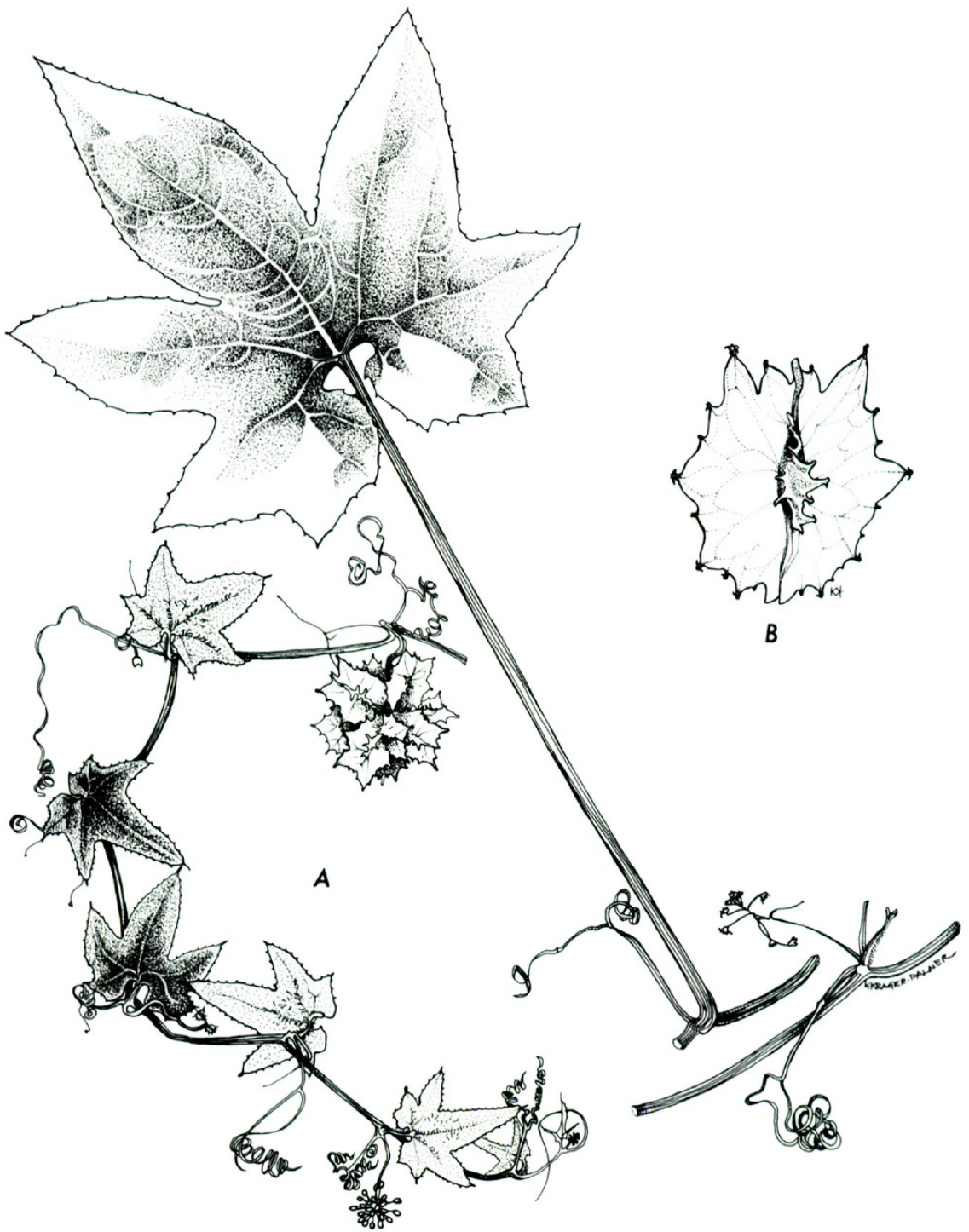


FIGURE 2. *Sicyos chiriquensis* Hammel & D'Arcy.—A. Habit ($\times \frac{1}{2}$).—B. Fruit ($\times 2$). [After Hammel et al. 6823 (MO).]

calyx lobes linear, 1 mm long; corolla lobes lanceolate-triangular, 2 mm long, papillose inside; stigma 2- or 3-lobed, the flat elliptic ovary with a low, longitudinal ridge on the center of each face, these ridges and the margin of the ovary toothed, the teeth capped with 4 recurved barbs. *Fruits* samaralike, tan to lustrous brown,

ca. 2 cm long, 1.5 cm wide, paper thin except in the area of the seed, the central longitudinal ridges over the seed and margin of the samara irregularly serrate, the teeth broadly triangular, 2–4 mm long, capped with recurved barbs, the fruits held by these barbs in pendulous clusters to 4 cm in diameter; seed adherent to the fruit wall.

TYPE: PANAMA. CHIRIQUÍ: Along small stream in backyard of Audubon cabin, Bambito, 6200 ft, *Hammel et al.* 6823 (MO, holotype; DUKE, F, K, MICH, PMA, US, isotypes).

Sicyos chiriquensis is quite distinct from other Panamanian Cucurbitaceae in its paper-thin samaroid fruits. Although these represent an extreme otherwise unknown in the genus, somewhat flattened fruits and armed fruits with recurved barbs on the spines do occur. This complex of characters suggests that animal and perhaps torrent dispersal have been important in the evolution of *Sicyos*.

To the casual observer *Sicyos chiriquensis* might easily appear sterile while in full flower and fruit. The small green flowers and leaflike clusters of fruits are very inconspicuous. The type locality has been visited by many biologists in recent years but this appears to be the plant's first gathering. The collection was made in April on the wet northwest side of Volcán Barú near Cerro Punta.

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