
A New Species of *Hagenbachia* (Anthericaceae) from Ecuador

Robert W. Cruden

Department of Biological Sciences, University of Iowa, Iowa City, Iowa 52240, U.S.A.
robert-cruden@uiowa.edu

ABSTRACT. A new species of *Hagenbachia* Nees & Mart. (Anthericaceae), *H. ecuadorensis* Cruden, is described from Ecuador. In addition to being geographically isolated from the other broad-leafed species in *Hagenbachia*, it has longer pedicels, filaments, and anthers, as well as qualitative differences in other traits.

Key words: Anthericaceae, Ecuador, *Hagenbachia*, IUCN Red List.

In 1987, I included broad-leafed specimens of *Hagenbachia* Nees & Mart. (Anthericaceae) from Ecuador in *H. panamensis* (Standl.) Cruden and noted that the anthers of one specimen were substantially longer than those of specimens from Central America (Cruden, 1987). The flowers of subsequent collections from Ecuador also had longer anthers. In addition, the filaments and pedicels were longer and differences in other traits were consistent with plants from Ecuador representing an undescribed species that is geographically disjunct from the other broad-leafed species, which occur in Central America and eastern Brazil, respectively (Cruden, 1987).

***Hagenbachia ecuadorensis* Cruden, sp. nov. TYPE:** Ecuador. Napo: rd. Baeza–Tena, 10.5 km from Baeza, forested slopes E of Río Cosanga at suspension bridge, 1850 m, 13 Apr. 1992, Øllgaard 99995 (holotype, AAU; isotype, QCA not seen). Figure 1.

Haec species *Hagenbachiae brasiliensis* Nees & Mart. et *H. panamensis* (Standl.) Cruden similis, sed ab eis pedicellis filamentis et antheris longioribus differt; etiam in Aequatoria crescit.

Perennial herbs from a short rhizome with thickened roots. Basal leaves 6 to 12(to 23), narrowly elliptic, (10–)13–48 × 7–29 mm. Scape 1(or 2), glabrous, 30–63 cm high, (1–)1.1–1.8(–2.4) times the length of most basal leaves, 0- to 3-branched; cauline leaves (1 or)2 or 3, lowest (0.7–)2–7 cm. Pedicels (4.5–)5.5–7.5 mm in flower, (6–)8–13 mm in fruit; flowers nutant, 2 to 4(or 5) per node. Tepals white with greenish tips, 4–7 mm; filaments slender, smooth, 2.5–3.2 mm, widened at the base; anthers 1.4–2 mm; ovaries 1–2.5 × (0.8–)1–2(–2.5) mm; styles persis-

tent, straight, 3–3.9 mm; ovules (4 to)5 to 8(or 9) per carpel, (14 or 15)19 to 23 per ovary. Capsules ± globose, shallowly lobed, 3–5(–5.5) × 3–5 mm.

Distribution and habitat. *Hagenbachia ecuadorensis* is a species of steep slopes in wet, montane forest on the east side of the Andes in both primary and secondary forests. Its range extends ca. 450 km from Oyacachi (Napo Province) in northern Ecuador south to Parque Nacional Podocarpus (Zamora-Chinchipe Province) in southeastern Ecuador. Collections from the Cordillera del Cóndor (Croat & Ferry 98902, Croat et al. 91061) in northeastern Zamora-Chinchipe suggest that this species might also occur in adjacent Peru. Collections from northern Ecuador were made between 1800 and 2150 m and those from southern Ecuador between 917 and 1500 m.

IUCN Red List category. *Hagenbachia ecuadorensis* is evaluated here as Least Concern (LC) according to IUCN Red List criteria (IUCN, 2001). This assessment is based on the distributional range that extends ca. 450 km from north to south and a number of collections that have been made over that range in the past 20 years.

Phenology. Flowering specimens have been collected throughout the year; fruiting specimens have been collected in February, April, July, and August.

Etymology. *Hagenbachia ecuadorensis* is named for the country in which it occurs.

Discussion. Vegetatively this species is similar to the other broad-leafed species in *Hagenbachia* (Fig. 1; also see illustrations in Cruden, 1987; Cruden et al., 1991). However, the flowers of *H. ecuadorensis* are generally larger than those of *H. brasiliensis* Nees & Mart. and *H. panamensis* (Table 1). The flowers of *H. ecuadorensis* have somewhat longer tepals, longer anthers, longer filaments, and its ovaries contain more ovules. Likewise, the pedicels of the flowers and capsules of *H. ecuadorensis* are usually longer than those of *H. brasiliensis* and *H. panamensis* (Fig. 2). Furthermore, the capsules of *H. ecuadorensis* and *H. panamensis* are globose to subglobose (3–5[–5.5] × 3–5 mm) and those of *H. brasiliensis* are wider than



Figure 1. Holotype of *Hagenbachia ecuadorensis* (Øllgaard 99995, AAU).

long (2–4 × [3.5–]4–6 mm). Also, in general, the scapes of *H. ecuadorensis* are taller relative to the length of the basal leaves ([1.1–]1.3–1.8[–2.4]) compared to those of *H. brasiliensis* (0.7–1.3[–2]) and *H. panamensis* (0.9–1.3).

Hagenbachia ecuadorensis is geographically disjunct from both *H. panamensis* and *H. brasiliensis*. The former occurs in Central America from Darién in southeastern Panama, quite close to the Colombian border, north through Costa Rica between 650 and

Table 1. Floral and capsule traits of the broad-leaved species of *Hagenbachia* and *Phalangium latifolium*.

	<i>H. brasiliensis</i> *	<i>H. panamensis</i> *	<i>H. ecuadorensis</i>	<i>P. latifolium</i>
Tepal length (mm)	2.5–4.5	4.5–5.5(–6)	4–7	7–10(–12)
Filament length (mm)	1.5–2.5	2–2.5	2.5–3.2	3.5–5.5(–6.5)
Anther length (mm)	0.4–0.8	0.9–1.5	1.4–2	1.5–2.5
Style length (mm)	NA	NA	3–3.9	(2–)3.5–7(–8)
Ovary length (mm)	ca. 1	0.8–1.2	1–2.5	1.5–2.5(–3.5)
Ovules per carpel	2	4 to 6	(4)5 to 8(9)	9 to 12
Capsule length (mm)	2–4	3–5	3–5(–5.5)	5–9.5(–10)
Pedicel of flowers (mm)	2.5–5.5	3–5	(4.5–)5.5–7.5	(5–)7–11(–12)
Pedicel of capsules (mm)	3–10	6.5–8	(6–)8–13	9–15

* From Cruden (1987).

NA = not available

1800 m where it occurs in rainforest, lower montane wet forest, and mid-elevation cloud forest. The latter is endemic to eastern Brazil where it occurs below 400 m in caatinga gallery forest, evergreen forest, and disturbed sites. In addition, *H. ecuadorensis* occurs at higher elevations than *H. brasiliensis* (917–2150 m vs. 40–300 m).

Hagenbachia ecuadorensis might be confused with *Phalangium latifolium* Kunth, which will be included in an undescribed genus (Cruden, in prep.). The tepals, pedicels of the flowers, and pedicels of the capsules of *P. latifolium* are generally longer (Table 1), the filaments are expanded in the upper half, and the capsules, which contain more ovules, are broadly oblong to oblong. *Hagenbachia* species differ in having straight filaments and capsules that are globose or wider than high. *Phalangium latifolium*

is the only species in the undescribed genus that occurs in Ecuador. It occurs primarily on the Pacific slopes of the Andes (Azuay, Bolívar, Chimborazo, Cotopaxi, Imbabura, Loja, Pichincha, and Tungurahua provinces) and usually at higher elevations than *H. ecuadorensis* (1800–3900 m vs. 917–2150 m), which occurs on the Atlantic side of the Andes (Napó, Pastaza, Tungurahua, and Zamora-Chinchipe provinces). Both species were collected in Tungurahua, where *H. ecuadorensis* was collected between 1300 and 1800 m between Baños and Cashurco (*Hitchcock 21840*), and the two collections of *P. latifolium* were made between 1600 and 2200 m (Volcán Tungurahua above Baños, *Lehmann 7772* [K]) and 1860 m (Baños above Río Pastaza, *Ravenna 240* [K]). The Lehmann collection was undoubtedly made above 1850 m, as the elevation of Baños is



Figure 2. Pedicels and capsules of the broad-leaved species of *Hagenbachia*. —A. *H. brasiliensis*. Note the short pedicels and capsules that are wider than long (*Santos 2333*, U). —B. *H. ecuadorensis*. Note the long pedicels and subglobose capsules (holotype). —C. *H. panamensis*. Note the short, thick pedicels and subglobose capsules (*Croat 68911*, MICH).

given as 1826 m. Furthermore, *P. latifolium* generally occurs in habitats that are quite different from the wet montane forest in which *H. ecuadorensis* occurs, e.g., deciduous dry forest, subpáramo, and jalca, as well as a variety of disturbed habitats. Finally, neither *H. ecuadorensis* nor other species of *Hagenbachia* are likely to be confused with species in *Echeandia* Ortega, nearly all of which have yellow flowers, scaled filaments and/or connate anthers, and broadly oblong to oblong capsules (Cruden, 2009), or with other genera in Anthericaceae (see Conran, 1998; Cruden, 2009).

A specimen (*Mayor 329, Z*) from western Colombia ([Antioquia]: Don Elias near Angelópolis) composed of a scape and one basal leaf may represent another undescribed species. The collection site is on the western side of the Andes 300–500 m higher than those of *Hagenbachia ecuadorensis* (917–1850 [–2100] m vs. 2400 m). The collection site is much closer to the southeasternmost populations of *H. panamensis* in Panama (ca. 275 km vs. 780 km) but 700–800 m higher than the localities in Panama (650–1650 m). The specimen bears three fruits and an immature flower. The pedicels of the flowers are shorter than those of *H. ecuadorensis* (3.5–5 mm vs. [4.5–]5.5–7.5 mm long) and the pedicels of the capsules are longer than those of *H. brasiliensis* and *H. panamensis* (11–13.5 mm vs. 3–10 mm and 6.5–8 mm long, respectively). Also, the scape is ca. 1.4 times the length of the basal leaf, which is typical of *H. ecuadorensis* ([1–]1.1–1.8[–2.4] times the length of the longest basal leaf) and somewhat greater than those of most *H. brasiliensis* and *H. panamensis* (0.7–1.3[–2] and 0.9–1.3 times the length of the longest basal leaf, respectively). Finally, the basal leaf is narrower than most of those of the other species (11 mm vs. 8–24 mm, 7–29 mm, and [8–]13–28 mm wide for *H. brasiliensis*, *H. ecuadorensis*, and *H. panamensis*, respectively). Furthermore, the leaf is narrowed to ca. 3.5 mm wide 8–9 cm above the base and thus has the appearance of being petiolate. In the other broad-leaved species, leaves of equivalent length narrow 2–6 cm above the base and, in general, are broader (4–8 mm wide).

Paratypes. ECUADOR. **Napo:** Oyacachi, *Ståhl, Báez, Resl & Ternéus 3108* (AAU). **Pastaza:** Rd. Baños–Puyo, Km 38, valley betw. El Cedro & Río Santa Maria, *Jørgensen & Løgaard 56455* (AAU, QCA not seen); 4.5 km W of Mera,

Puyo–Baños rd., *MacBryde 1542* (MO). **Tungurahua:** valley of Pastaza River, betw. Baños & Cashurco, *Hitchcock 21840* (US). **Zamora-Chinchipec:** Quebrada del León, affluent of Río Bombuscara, S of Zamora, edge of Parque Nac. Podocarpus, *Madsen & Ellemann 75114* (AAU, MO); 1100 m, *Madsen & Eriksen 85984* (AAU, QCA not seen); Quebrada de León, affluent of Río Bombuscara, S of Zamora, *Øllgaard, Madsen, Ellemann & Eriksen 90355* (AAU); rd. from Quime Ferry Crossing into Cordillera del Cóndor, 22 km above Río Zamora, 03°37'46"S, 78°26'17"W, *Croat, Hannon, Walther & Jua 91061* (MO); rd. Tundaima to Condor Mirador, 19.4 km from main jct. in rd. near military post, 03°30'00"S, 78°26'08"W, *Croat & Ferry 98902* (MO); rd. from Zamora to Romerillos along Río Jambué, 13.3 km E of Río Bombuscaro Bridge in Zamora, 0.3 km E of Pituca (04°08'03"S, 78°56'37"), *Croat 91771* (MO); rd. betw. Namirez on Río Zamora to Nambija, 14.7 km E of Namirez, 5.9 km above San Carlos, 04°03'11"S, 78°47'48"W, *Croat 91421* (MO); rd. Loja–Zamara, Km 49, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Øllgaard 3800* (AAU, F, MO, NY, U).

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