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Caluera qorillaryana, a new orchid species and first record of the genus for the Peruvian flora

Caluera qorillaryana, una nueva especie de orquídea y el primer registro del género para la flora Peruana

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Abstract

A new species, *Caluera qorillaryana* (Oncidiinae, Orchidaceae) from southern Peru is described and illustrated, with comments on its ecology, geographical distribution, and conservation status. The new species, inhabits in Andean-Amazonian foothill forest in the Pongo de Qoñec, Kosñipata valley, is the five species of *Caluera* to be described and also represents the first record of the orchid genus for the flora of Peru.

Key words: *Caluera*, Orchidaceae, new species for Peru, Pongo de Q'onec.

Resumen

Se describe e ilustra una nueva especie, *Caluera qorillaryana* (Oncidiinae, Orchidaceae) del sur de Perú, con comentarios sobre su ecología, distribución geográfica y estado de conservación. La nueva especie, habita en el bosque de estribaciones Andino-Amazonicas en el Pongo de Qoñec, valle de Kosñipata, es la quinta especie de *Caluera* descrita y también representa el primer registro de este género de orquídeas para la flora de Perú.

Palabras clave: *Caluera*, Orchidaceae, nueva especie para Perú. Pongo de Q'onec.

Introduction

Caluera Dodson & Determann is a small Neotropical orchid genus of only four species. The genus is characterized by a small size, epiphytic habit on tree trunks, a verticillate inflorescence, with two to five flowers per inflorescence in form of an umbel, with flowers are geometrically arranged in one plane and the lips looking to the peduncle axis and the stigma is situated at the base of the column (Dodson & Determann, 1983; Campacci & Silva, 2008; Szlachetko et al., 2018).

All these plants offer oil in the lip cavity to their pollinators, but nothing is known on their pollination biology. *Caluera* is closely related to *Phymatidium* Lindl., *Eloyella* P. Ortiz and *Ornithocephalus* Hook., but differs by characteristic inflorescence, flowers with cordiform or narrowly oval lips having a cavity in the middle or its base and an elongated column with the anther and rostellum in the form of “T” (Dodson & Determann, 1983).

The genus is distributed in higher altitude locations in the Amazon and also on the edge of the Andes range with the Amazon Forest, *Caluera surinamensis* Dodson & Determann (Brazil, Suriname, Venezuela) and *C. tavaresi* Campacci & J.B.F. Silva (Brazil), are confined to the Guianan shield, *C. vulpine* Dodson & Determann, has a peculiar disjunct distribution, having been collected in French Guiana and the Amazonian flank of the eastern Ecuadorian andes, while *C. napoensis* Szlach., Kolan. & Mystkowska is recognized only by type material from Napo, Ecuador, on the Amazonian flank of the eastern Ecuadorian andes too (Dodson & Determann, 1983; Campacci & Silva, 2008; Szlachetko et al., 2018).

Here, we report a second *Caluera* from the border between the Andes and the Amazonian that does not correspond to any known species of the genus. The new *Caluera* represents a remarkable range extension (1400 km S) for the genus and a new record of the genus for Peru. Below, we describe this taxon as a new species to science, compare it to similar species, and provide an identification key for the species of the genus *Caluera*.

Material and methods

We conducted fieldwork in Kosnipata, Cusco, Peru, where different botanic projects have been conducted by the Jardín Botánico de Missouri – Perú (HOXA), the Herbarium of Cuzco (CUZ) and others institutions. Also, we examined specimens from several herbaria in Peru: AMAZ, CUZ, GEN, MOL and HOXA. We examined and described the floral structures using a stereomicroscope.

For this treatment, we used the terminology for plant parts and floral whorls of Harrys & Woolf (2001) and Stern (1966), and to estimate the conservation status of *C. qorillaryana*, we followed the criteria of IUCN (2017).

Taxonomy treatment

***Caluera qorillaryana* G. Calatayud & Huamantupa, sp. nov.** Type. — Perú. Cusco. Paucartambo, Pilcopata, Pongo de Q'õñec. Trocha Otorongo, 12°54'07"S, 71°22'20"W, 780 m, 28 June 2003, *I. Huamantupa 3506b* (holotype: CUZ). (Fig. 1 and 2).

Diagnosis: Similar to *C. vulpina* Dodson & Determann in its erose cavity at the base of the lip but differing in its labellum shape being broader than long (vs. longer than broad), flowers with white petals, sepals and lip the unspotted (vs. flowers with petals, sepals and lip with spotted wine-brownish), and lip distinctly trilobed, flabellate with an reniform, brown-chestnut framed elaiophor (vs. lip heart-shaped with an orbicular, white framed elaiophor).

Plant epiphytic, caespitose herb to 40 mm tall. Rhizome very short, surrounded by fleshy, translucent deeply imbricating sheaths. Pseudobulbs inconspicuous, oblong, cylindric, 8 - 10 x 0.3 - 0.5 mm, covered with membranous sheaths. Leaves, fleshy, articulate, distichously arranged, asymmetric, narrowly elliptic, acute apex, without obvious veins. Inflorescence emerging from axils of upper leaves, verticillate 15 mm long, bearing 4 flowers, pedicels very short with 3 mm; floral bracts ovate to 2 x 1 mm; peduncule to 3 cm with 2 ovate bracts of 4 mm, at base. Flowers hyaline 5 - 6 mm, translucent whitish with small light pink spots; sepals free, spreading, slightly reflexed, abaxial side with a small keel along the mid vein, dorsal sepal oblong-lanceolate 4,9 x 1,7 mm, acute apex, margins erose, lateral sepals narrowly oblong to 4,9 x 1,7 mm, acute apex; petals oblong to 5,3 x 2 mm, undulate, obtuse at the apex with a little keel margins erose; lip depressed ovate, distinctly trilobed, flabellate 5.2 x 4 mm, acuminate, the elaiophor (callus) at the base of the lip light green with a chestnut brown frame, reniform, with an emarginate, cavity ca 2 x 0.3 mm adjacent to the tip of the callus, surrounded by a raised, erose, winged margin; column slender, slightly winged, terete arcuate, apex T-shaped with an elongate 2 mm long beaked rostellum, stigma in form of an elliptical cavity located at the base of the colum. Pollinia 4, 0.6 x 0.4 mm, yellow, are in two pairs, similar, ellipsoid-obovoid, and hard texture.

Discussion. — *C. qorillaryana* has a reniform basal callus (elaiophor) similar to that of *C. tavaresii*, and a cavity at the base of the lip similar to those of *C. vulpina* and *C. surinamensis*. *C. vulpina* and *C. surinamensis* however differ from *C. qorillaryana* in their cordate callus, depressed ovate in the latter.

Phenology. — Flowers from June to December; bearing fruits from August to January.

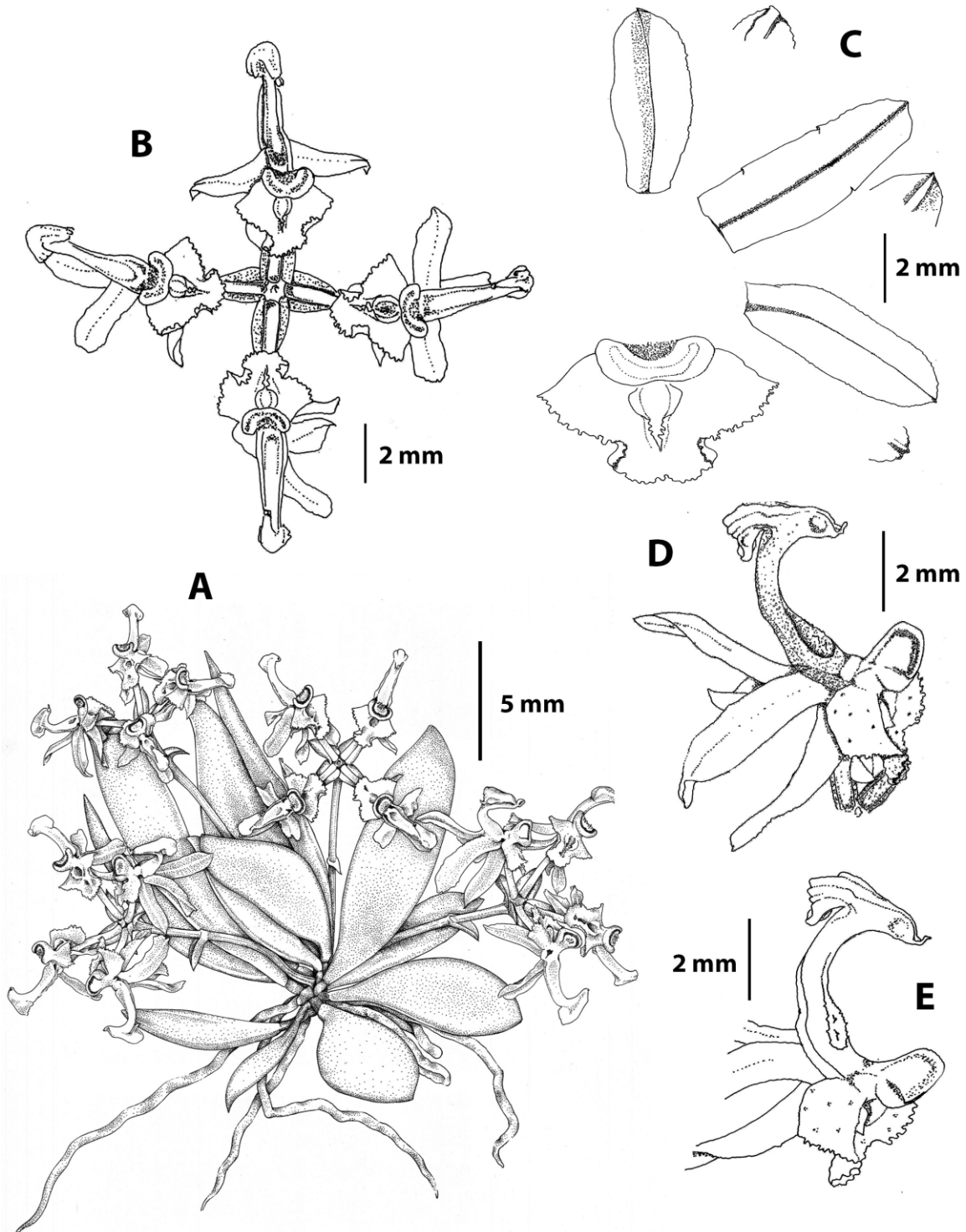


Figure 1. *Caluera qorillaryana*. **A.** Habit, **B.** Inflorescence, **C.** Sepals, petal and lip, **D.** Flower, side view and **E.** Colum with the callus (From Huamantupa 3506b; Floral parts drawing G. Calatayud, Habit plant drawing N. Sánchez).



Figure 2. *Caluera qorillaryana*, **A.** Habit, **B.** Fruit capsule, **C.** Inflorescence half lateral view, **D.** Inflorescence frontal view (Photographs I. Huamantupa).

Conservation status. — This species is only known from the type collection. For lack of additional information, it is proposed as Data Deficient (DD) (IUCN, 2017).

Habitat and Distribution. — *Caluera qorillaryana* is thus far known from the yungas in the lower slope of the Andes, southern Peru, province of Paucartambo, Cusco region.

It is an epiphytic plant that grows on trunks of medium-size trees and shrubs in wet pre-montane rain-forests at 500-1000 m. The type locality harbors a very high tree diversity, with 249 species per hectare (Huamantupa-Chuquimaco, 2010).

Etymology. — The specific epithet "Qorillary" honors the daughter of the second author; this word comes from Quechua and is translated for ingles as "golden dawn". The nomination is due to a promise made when the baby Qorillary was infested by a serious illness.

Common names and uses. — "uña sipas" comes from Quechua which could be translated as "small mademoiselle", this name is local from the Peruvian south.

Key of Species

1. Lip longer than broad
 2. Lip with elongated middle tooth..... *C. napoensis*
 - 2' Lip without elongated middle tooth
 3. Column thin an long, rostellum 7 mm long *C. surinamensis*
 - 3' Column thicker, rostellum 4mm long *C. vulpina*
- 1'. Lip broader than long
 4. Lip saccate in the middle, limb of lip unicoloured..... *C. qorillaryana*
 - 4' Lip not saccate in the middle, limb of lip mottled..... *C. tavaresii*

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