Anthurium sect. *Calomystrium* of Esmeraldas, Ecuador

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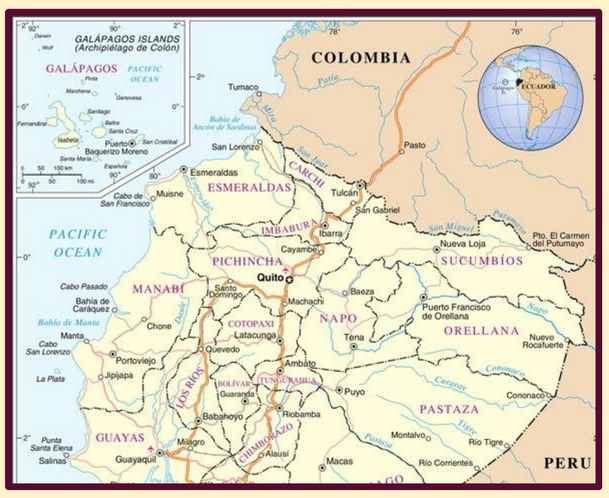
PROJECT SUMMARY

Research and field collections of plants in the Neotropics continue to reveal new species to science and valuable data to aid in conservation efforts to preserve tropical biodiversity. The distribution and diversity of species in the genus *Anthurium*, is still not fully known. Demonstrating a high species richness and endemism may contribute to a decrease in deforestation or an increase in protected habitat.
As part of the NSF Research Experience for undergraduates (REU) program, we have constructed a revisionary flora of *Anthurium* sect. *Calomystrium* of the Lita-San Lorenzo Region, Esmeraldas Province, Ecuador, as well as a dichotomous key for future studies in the same region.

INTRODUCTION



Location

The northwestern part of Ecuador, especially the Esmeraldas Province constitutes one of the most species-rich part of Ecuador. Esmeraldas ranges south of the Río Mira to the Pacific Ocean with its attended lowland coastal forests.

Anthurium section *Calomystrium* Schott

Anthurium, a large genus in the Araceae, Aroid family, consists of an estimated 2,000 total species, and is divided into unique sections. Section *Calomystrium* has an estimated 350 total species and is one of the most natural based on molecular studies. This section ranges from Mexico to the Andean regions of western South America, in Venezuela, and especially common in the western Andes of Colombia and Ecuador at 500–1500 m elevation, common in cloud forests. There are numerous species of Aroids endemic to Ecuador and within the Esmeraldas Province. The family is recognized by a distinctive inflorescence, consisting of a spike of flowers, termed a spadix, subtended by a bract-like spathe. The leaf blades in *Anthurium* sect. *Calomystrium* are typically large and ovate-cordate to ovate-sagittate. Examples of conserved characters include venation, leaf blade surfaces, and inflorescence structure.

METHODS

- Sort herbarium material into species groups
- Generate descriptions based on morphological characters
  - Taxonomic Treatment
  - Resources: herbarium specimens, photographs, transcribed field notes, microscope, measuring tape
- Compare species with known species
  - *Anthurium* Lucid Key
- Compile manuscript of all Esmeraldas species
- Generate dichotomous key for future studies

A morphological character: Leaf blade surface

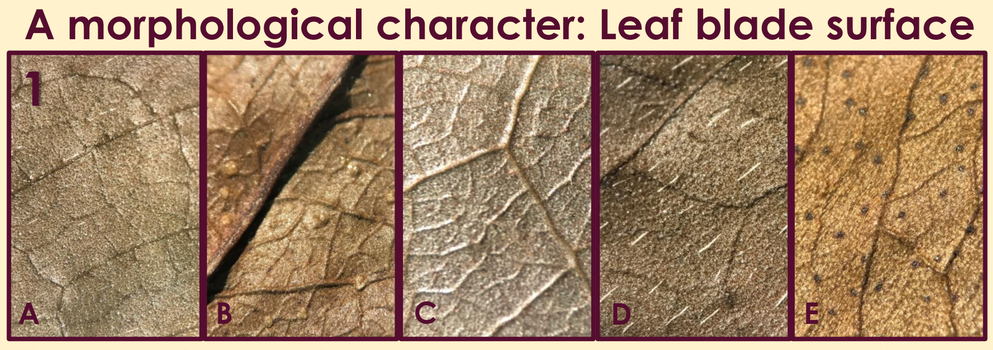


Figure 1. Leaf blade surface characters under the microscope. *Anthurium* species have variation on the upper and lower leaf blade surface, species may have none or multiple characters on a single surface. (A) Granular, (B) Pustular, (C) Brown-speckled, (D) Short pale-lineate, (E) dark-punctate.

RESULTS

24 species total were described in our flora and key for *Anthurium* sect. *Calomystrium* of the Esmeraldas Province:

- 3 published species, found in Ecuador and Columbia
- 18 new species are fertile, endemic to Ecuador and given species epithet
- 3 new species are sterile, but are unique enough to be set aside as their own species, represented by a number

Figure 2. *Anthurium litense* Croat, holotype specimen and field photographs.

Figure 3. *Anthurium durangoense* Croat, holotype specimen and field photographs.

Species New to Science:

A. aulestiroum Croat
A. balsarenoense Croat
A. bellajunglense Croat
A. dunivantianum Croat
A. durangoense Croat
A. huntingtonianum Croat
A. kennedyae Croat
A. litense Croat
A. lorguelpeorum Croat
A. pallescens Croat
A. pallidisiccum Croat
A. placerense Croat
A. reticultepalum Croat
A. ricardoi Croat
A. rosmalenii Croat
A. schwerdtfegeri Croat
A. whitehilliae Croat
A. zulcasteorum Croat

Figure 4. *Anthurium dunivantianum* Croat, holotype specimen and field photographs.

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