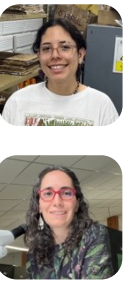


Systematics of the *Elaphoglossum dendricola* clade, a tropical American group of ferns (Dryopteridaceae)

Lucía Vargas-Longas^{1,2} and Alejandra Vasco²

¹Texas Christian University ²Botanical Research Institute of Texas, USA



Introduction

- Understanding the diversity and distribution of species on Earth is crucial in the face of threats to biodiversity.
- The genus *Elaphoglossum* has more than **600 species** distributed across the **Tropics**.¹
- *Elaphoglossum* is a **taxonomic challenge** because of the large number of species and the similarity among them.^{1,2}
- In the genus, species limits are not well understood, and many species remain undescribed.

This research aims to overcome some of the challenges in the study of *Elaphoglossum* by reviewing the systematics of the dendricola clade.

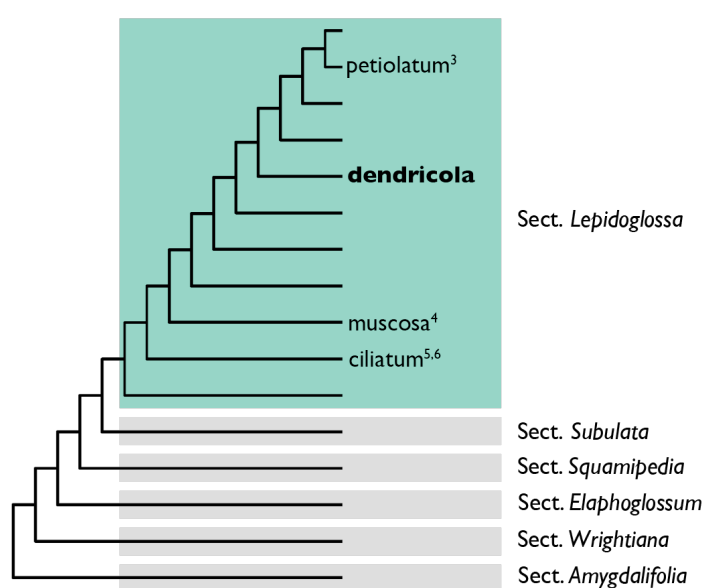


Fig 1. Summary of *Elaphoglossum* phylogeny depicting its main sections. Highlighted in blue is *E. sect. Lepidoglossa*, named clades have published monographs.

Research questions

- Which species belong to the dendricola clade?
- Where are the species distributed?
- What are their evolutionary relationships?
- What are the key characters for identifying among these species?
- What is the conservation status of these species?

Methods

Phylogenetic studies

- Chloroplast markers
- Nuclear genes (GoFlag primers)

Taxonomic revision

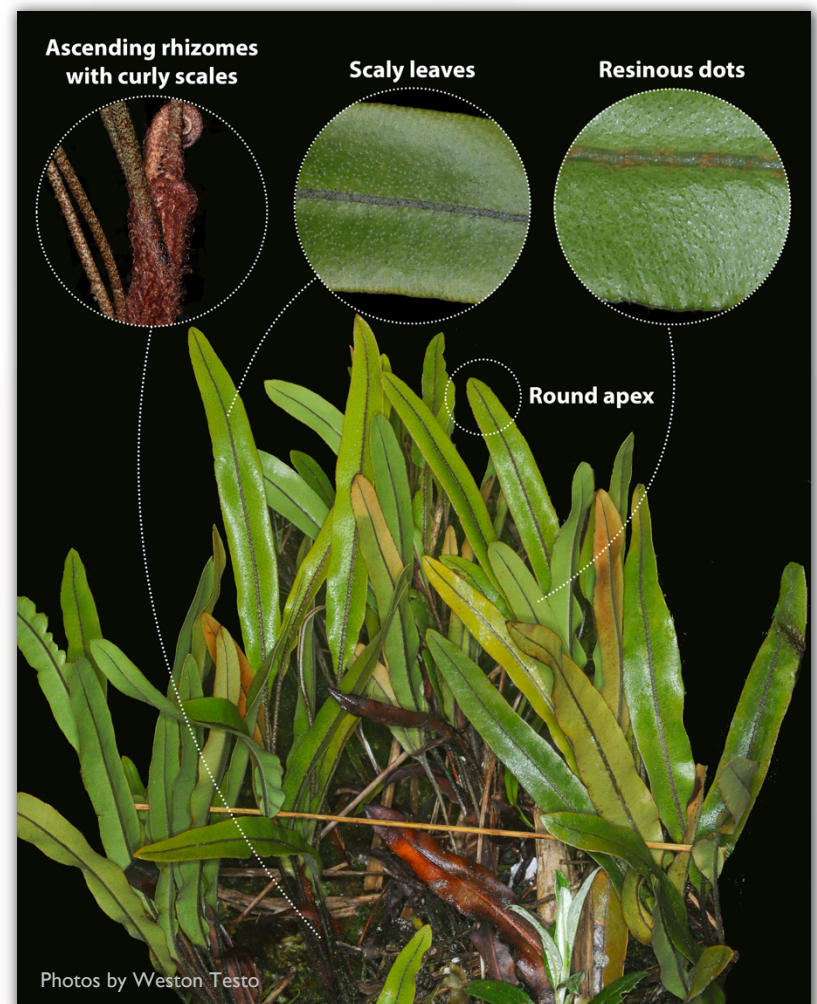
- Nomenclatural analysis
- Herbarium and morphological studies
- Fieldwork: Colombia, Ecuador, Perú? Bolivia?

Extinction risk assessment

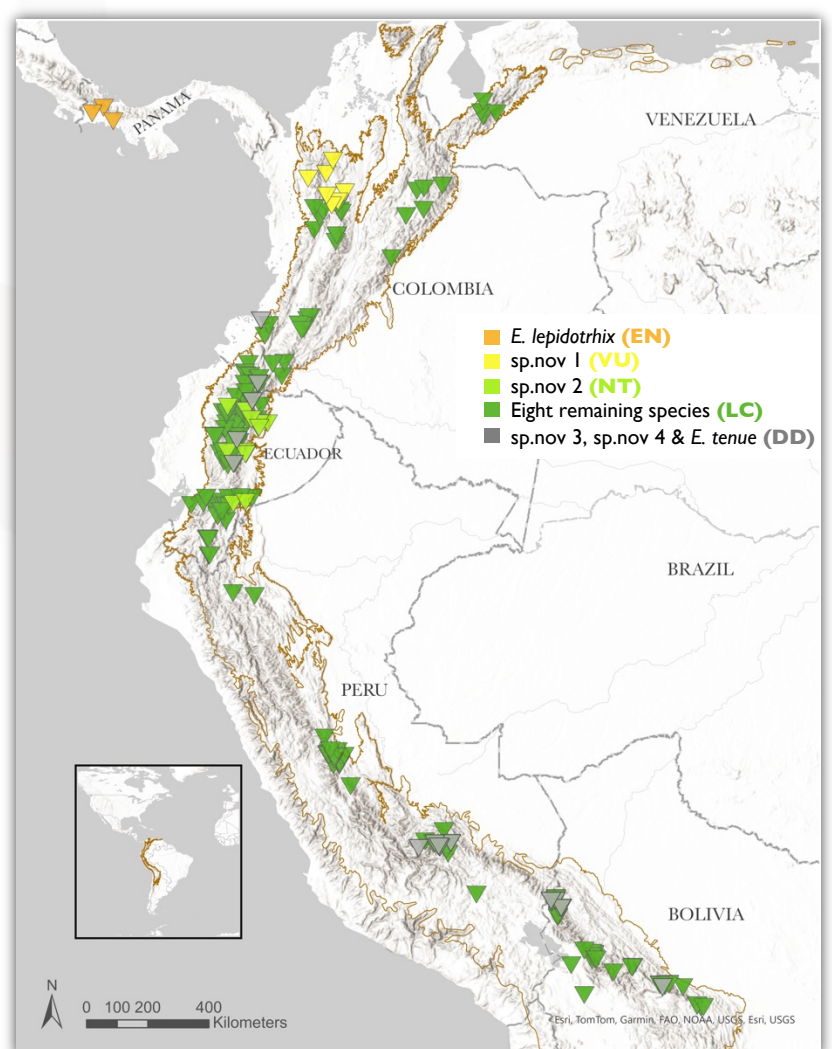
Based on distribution range (B criterion, IUCN)
Using GeoCAT and ConR

Preliminary results

All the species of the dendricola clade **share the following characters:**



- Morphology of mm-long scales on leaves and rhizomes is useful to distinguish among species
- 13 already described species → 22 names.
- Six undescribed species.
- Distributed mostly in the **Tropical Andes**, biodiversity hotspot for conservation priority.⁶
- From the 14 species evaluated, 14% are in one of the threatened categories, and 21% were data deficient.



Future research

- Complete herbarium revision (500+ specimens).
- Include more species in the phylogeny.
- Assess spore micromorphology for taxonomic value.
- Evaluate changes of extinction risk categories after revision.
- Study character evolution: scale types, resinous dots, etc.
- Study clade biogeography in relation with the Andean uplift.

References

1. Mickel, J. T., & Atehortúa, L. (1980). *American Fern Journal*.
2. Rouhan, G., Dubuisson, J. Y., Rakotonirainibe, F., Motley, T. J., Mickel, J. T., Labat, J. N., & Moran, R. C. (2004). *Molecular Phylogenetics and Evolution*.
3. Martínez-Becerril & Vasco. In press. *Ann. Missouri Bot. Gard.*
4. Vasco, A. (2011). *Blumea*.
5. Vasco, A., Moran, R. C., & Rouhan, G. (2009a). *Taxon*.
6. Vasco, A., Moran, R. C., & Rouhan, G. (2009b). *Brittonia*.
7. Myers, N., Mittermeier, R. A., Mittermeier, C. G., da Fonseca, G. A. B., & Kent, J. (2000). *Nature*.



4-minute explanation!
Follow the QR code for a short video about my research



Any doubts? Contact me:
l.vargaslongas@tcu.edu