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Species richness distribution and endemism of butterworts (*Pinguicula*: Lentibulariaceae) in America

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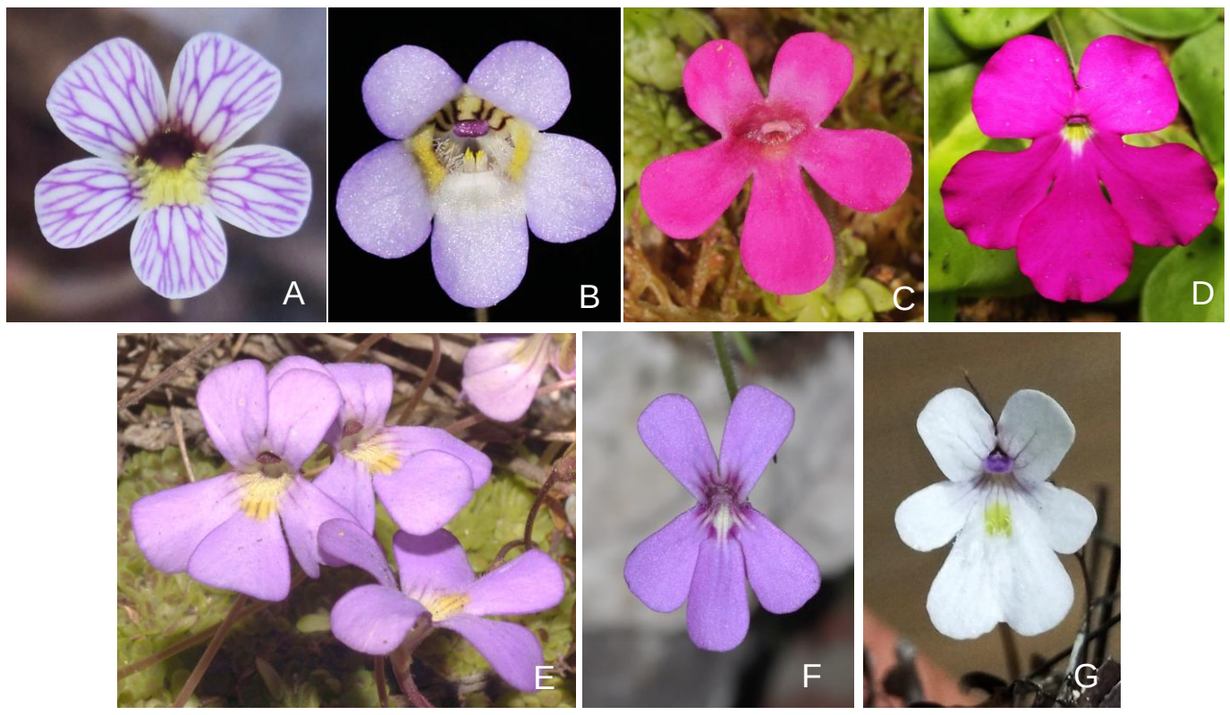
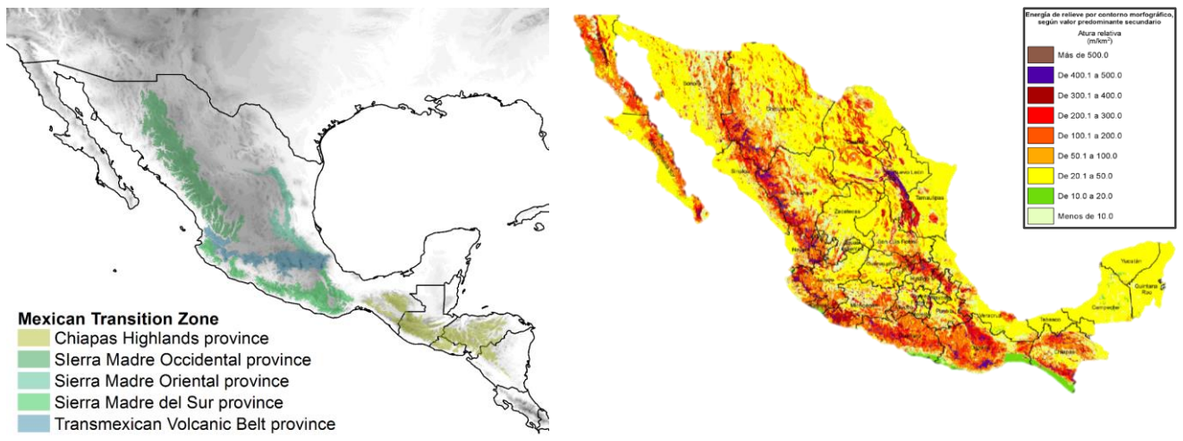
INTRODUCTION & AIM

The genus *Pinguicula* (Lentibulariaceae) includes 127 species of carnivorous plants and Mexico is a recent centre of diversification.



A) P. kondoi; B) *P. lilacina*; C) *P. crassifolia*; D) *P. colimensis*; E) *P. esseriana*; F) *P. gypsicola;* G) *P. gracilis.* A-G) J. López-Pérez.

The Mexican Transition Zone extends from Mexico to Nicaragua. Represents the boundary between the Nearctic and Neotropical regions and its geodiversity and climatic complexity promote floristic richness and angiosperm endemism in Central and North America.



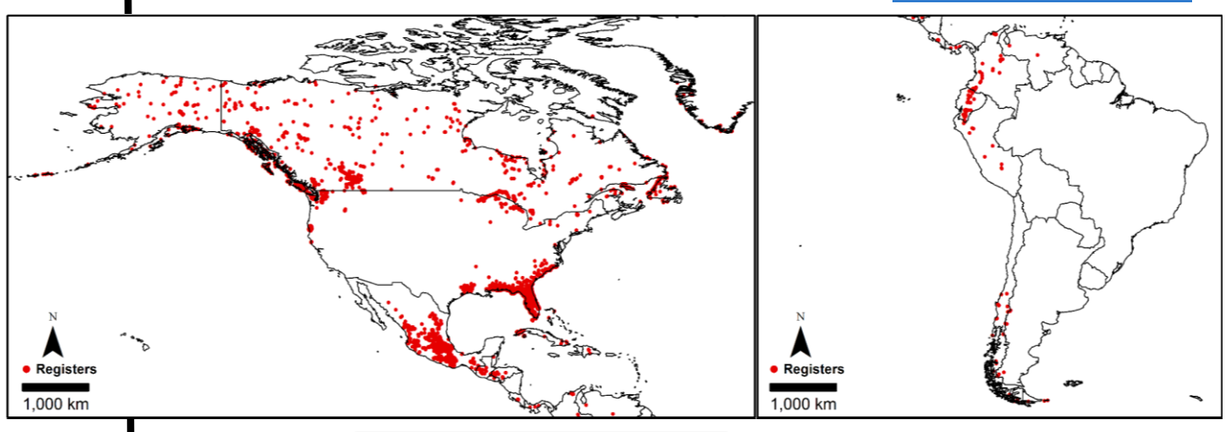
Based on this, we expected that the species richness distribution and endemism of *Pinguicula* will show the same pattern. To prove this, the species richness distribution and endemism of *Pinguicula* in America were evaluated by country, ecoregion, biogeographic province, elevation gradient, and grid cell.

METHOD

Data base construction

- Electronic databases
- Herbaria specimens
- Geolocation information

GBIF Global Biodiversity Information Facility
WorldClim
Biodiverse — A tool for the spatial analysis of diversity



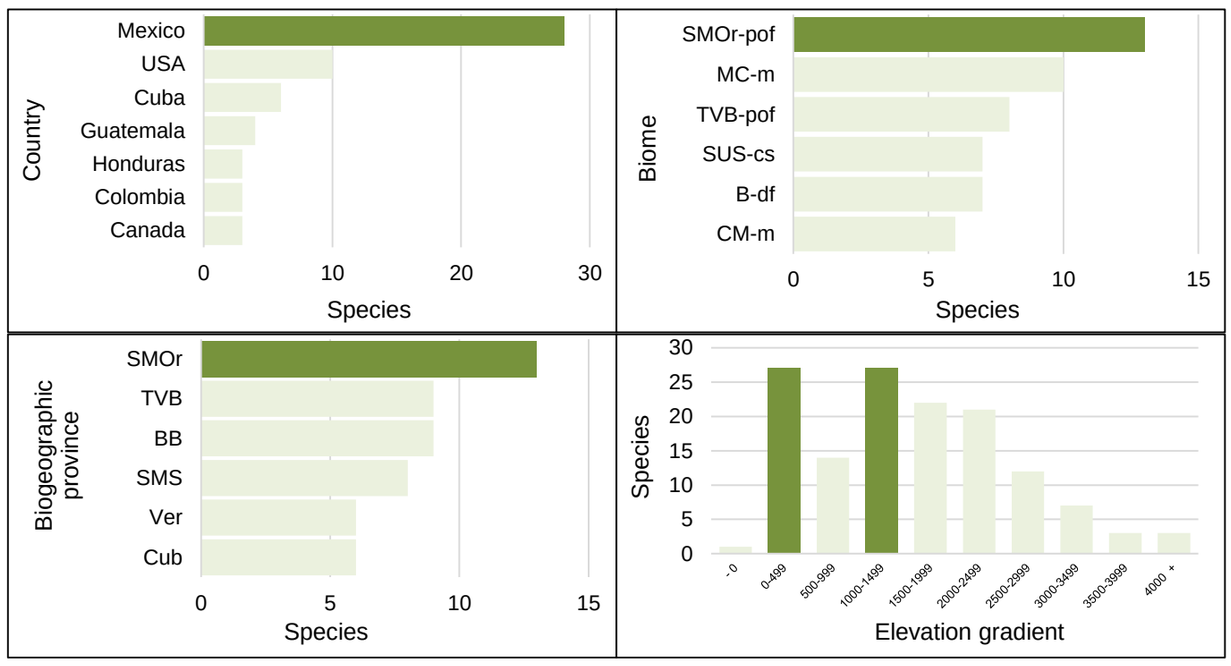
Data analysis

- Country
- Ecoregion
- Biogeographic province
- Elevation gradient
- Grid cell

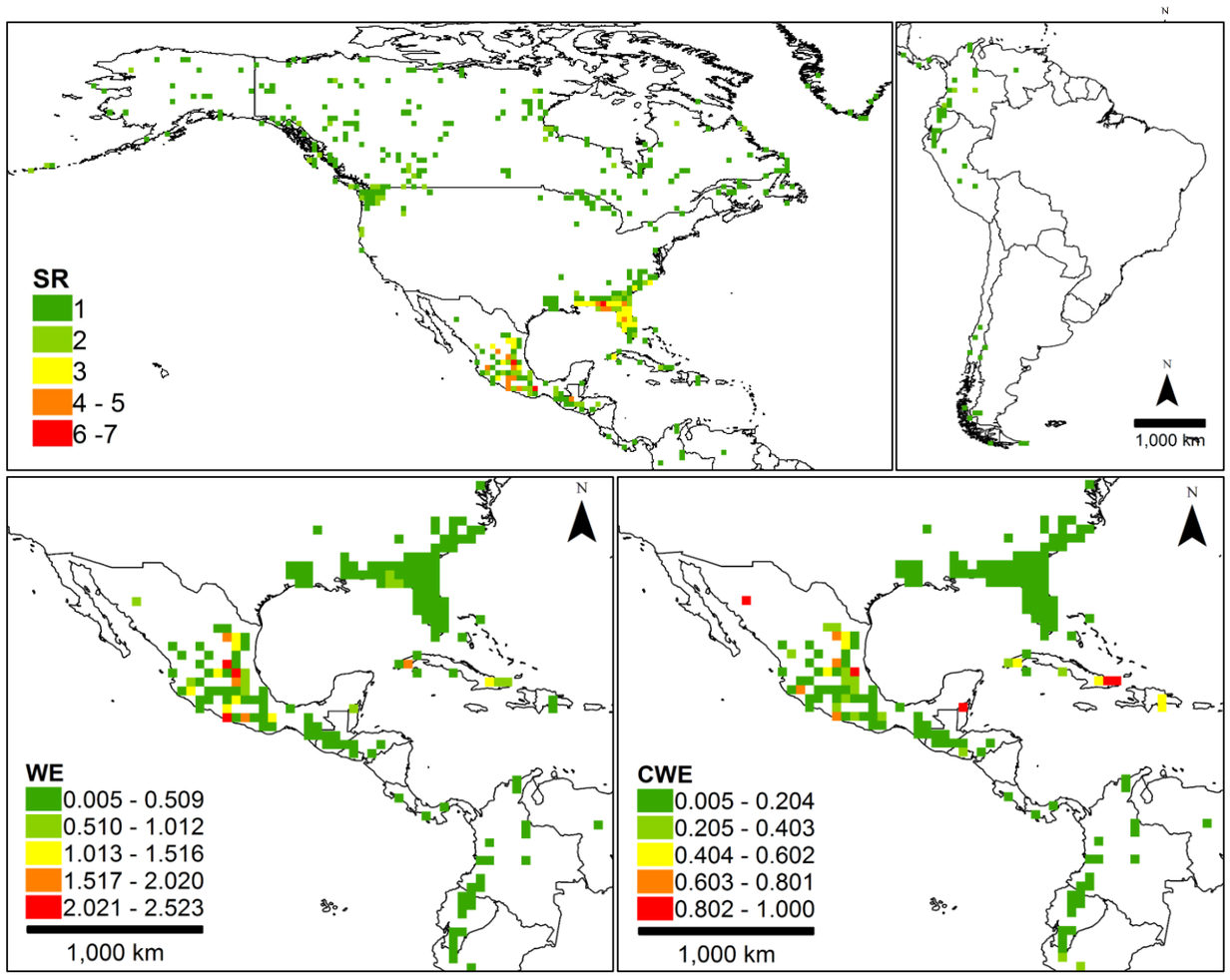
→ Count of species by polygon
→ Elevation Digital Model Intervals of 500 m
→ Maximum distances Cell size of 93 × 93 km

RESULTS & DISCUSSION

Pinguicula is distributed in 20 countries and Mexico harbors the highest number of species. The *Pinguicula* species grows in 104 ecoregions and the Sierra Madre Oriental pine–oak forests ecoregion is the richest. Meanwhile, 19 biogeographic provinces include almost one species, of which the Sierra Madre Oriental is the most diverse. On the other hand, the richness based on the elevation gradient was concentrated between 0–499 and 1,000–1,499 m. The grid cell analyses identified cells with high values of richness and endemism within the Mexican Transition Zone in Mexico.



Biogeographic province: (SMOr) Sierra Madre Oriental; (TVB) Transmexican Volcanic Belt; (BB) Balsas Basin; (SMS) Sierra Madre del Sur; (Ver) Veracruzan; (Cub) Cuban. **Biome:** (SMOr-pof) Sierra Madre Oriental pine-oak forests; (MC-m) Meseta Central matorral; (TVB-pof) Trans-Mexican Volcanic Belt pine-oak forests; (SUS-cs) Southeast US conifer savannas, (B-df) Balsas dry forests; (CM-m) Central Mexican matorral.



SR) Species richness, WE) Weighted endemism, CWE) Corrected weighted endemism.

CONCLUSION

The results showed that the pattern of species richness and endemism of *Pinguicula* was concentrated along the Mexican Transition Zone, particularly in the Sierra Madre Oriental province.

FUTURE WORK / REFERENCES

GBIF.org (23 November 2023) GBIF Occurrence Download https://doi.org/10.15468/dl.za2wd4