

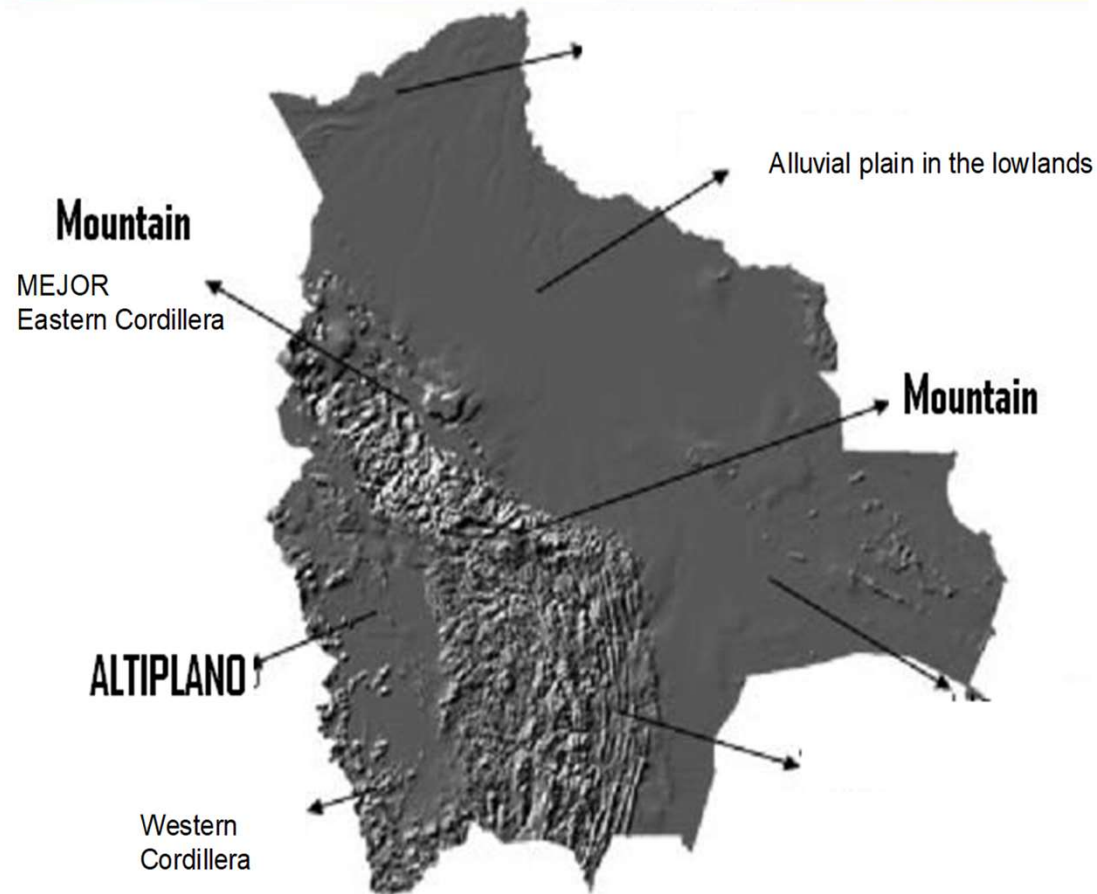
El género *Magnolia* (Magnoliaceae) en Bolivia: Oportunidades de conservación



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Landscapes systems of Bolivia

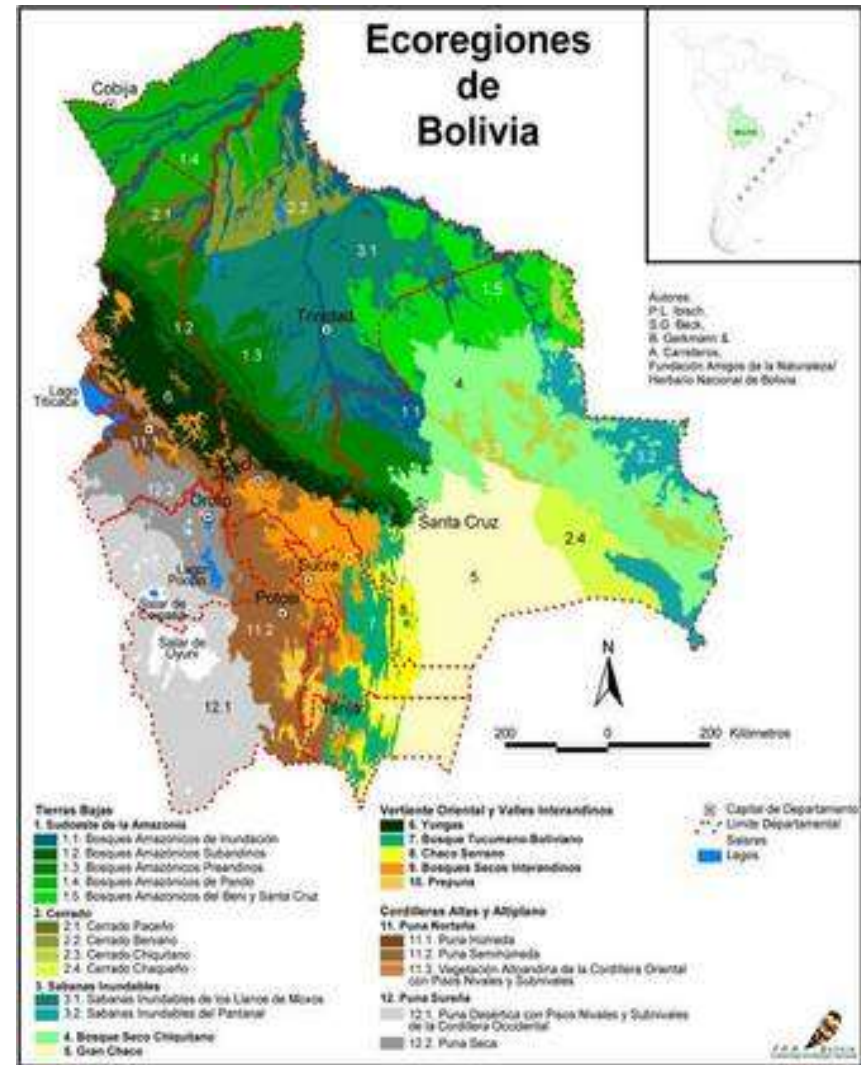
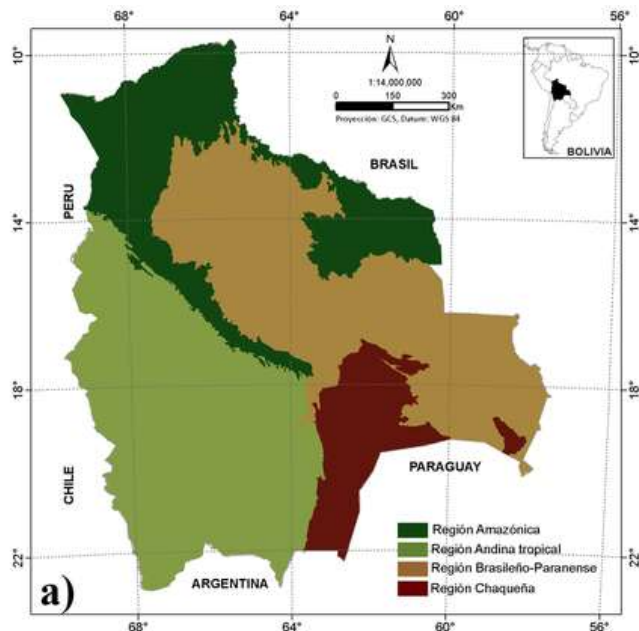
- Cordillera de los Andes (west, volcanic and eastern, tectonic) flank of the Altiplano (4.100 m) or inter-Andean platform (W); wet and dry inter-Andean valleys; and an extensive alluvial plane: Amazonian, of the Gran Chaco and Precambrian hills (E)
- Altitude range of 150-6,542 m
- Headwaters of watersheds: Amazonas, Andean endorreic and Paraná-Paraguay
- Two major seasons: winter (now) and summer





Life systems, ecoregions, soils

- Four biogeographic affinities: Amazon, Andes, Chaco and Cerrado
- 6 biomes, 12 groups of ecoregions, 208 land systems, 199 ecosystems and 24 soil types



Biodiversity of Bolivia



CHAPTER 1

Biodiversity in Bolivia

MÓNICA MORAES R.¹ and JAIME SARMIENTO²

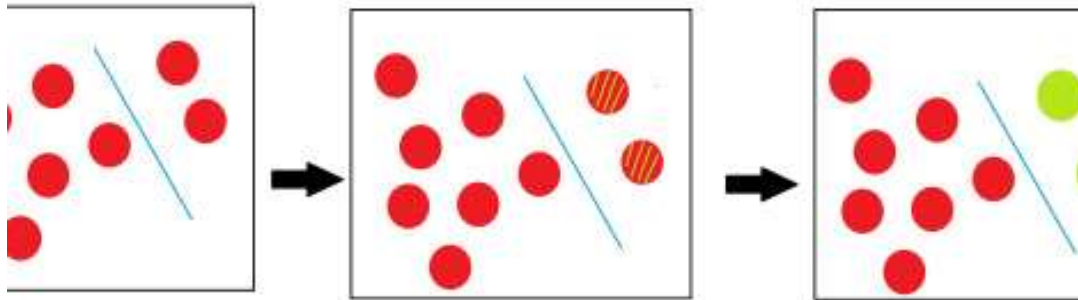
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Moraes & Sarmiento 2018

Taxon	Known and expected number of species
Algae	14,718 (19,500)
Lichen	2,000 (4,800)
Mosses	1,399 (1,428)
Vascular plants	12,245 (20,000)
Fungi	799 (956)
Mammals	389 (432)
Birds	1,435 (1,500–1,600)
Fish (freshwater)	908 (1,200–1,400)
Reptiles	313 (391)
Amphibians	251 (334)
Insects	13,719 (28,000)
Invertebrates (Crustacea)	46 (92)
Mollusca	103 (206)

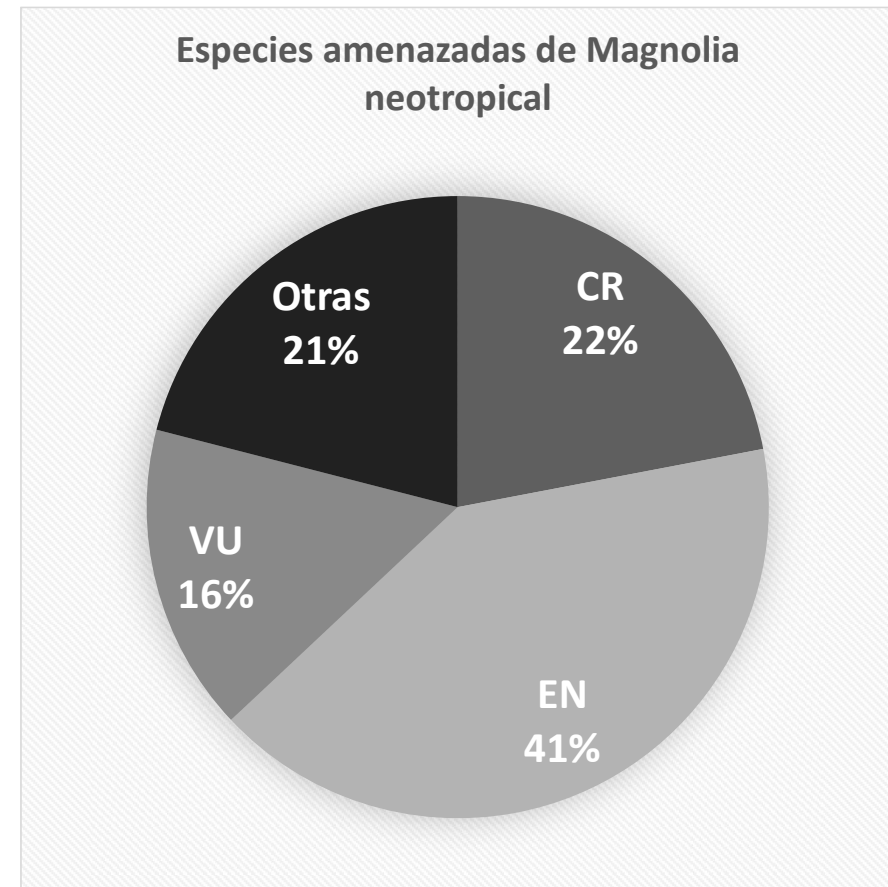
Magnoliaceae



- In the Neotropics with marked allopatric speciation in their lineages
- 94% (150) of the New World Magnolia species (160): Talauma section (121), Magnolia (25) and macrophylla (4)
- In tropical America in intermediate altitudes of cloud forests of the Andes of the N and some in humid forests of low zones
- They are found in very fragmented and highly deteriorated landscapes
- Eventually it derives from the North American holarctic
- In Bolivia the most southern native populations are located in its continental distribution

Conservation status

- They are a highly sensitive indicator of forests 'health' in which they are found
- Half of the *Magnolia* species worldwide are threatened with extinction (BGCI), ca. 131 species
- The Red List of Magnoliaceae concluded that 76% of Neotropical species of *Magnolia* are threatened and 16% as data deficient



Rivers et al. 2016

Magnolia in Bolivia

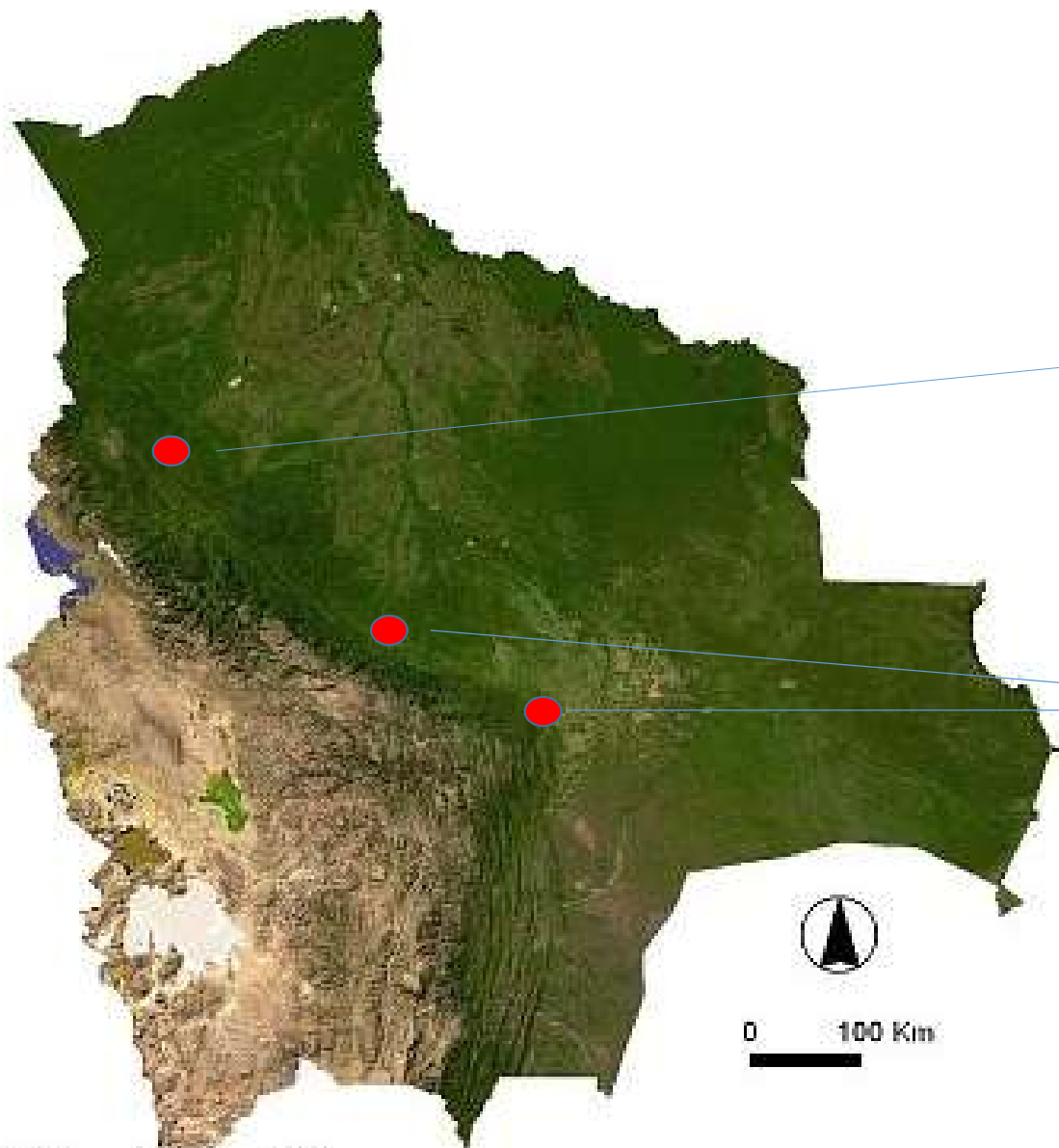


One introduced species, cultivated as ornamental



Magnolia macrophylla L.

- Native to SE USA and E Mexico
- Cultivated in Bolivia for ornamental purposes in highland cities (La Paz, Cochabamba, Sucre): 1.000-3.600 m
- To 10 m tall



Magnolia madidiensis

Magnolia boliviana



0 100 Km



Two native species in Bolivia



Magnolia boliviana (M. Nee) Govaerts (= *Talauma boliviana*)

- "Granadilla, sinini de monte", 25 m height and 50 cm diam.
- Andean piedmont: 200-500 m, **also in Peru (?)**
- It is threatened (EN) by loss of habitat and by felling by wood and for thinning of arable land
- Registration: protected areas within its range, such as: **Los Amigos Conservation Concession in Peru?** and the Amboró National Park and the Indigenous Territory and Isiboro-Secure National Park in Bolivia





Fotos: Michael Nee

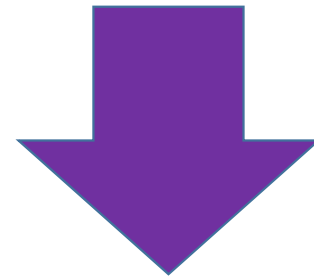
Magnolia madidiensis A. Vásquez (endemic)



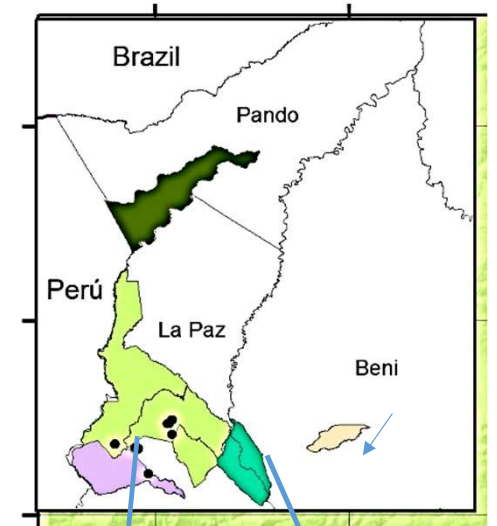
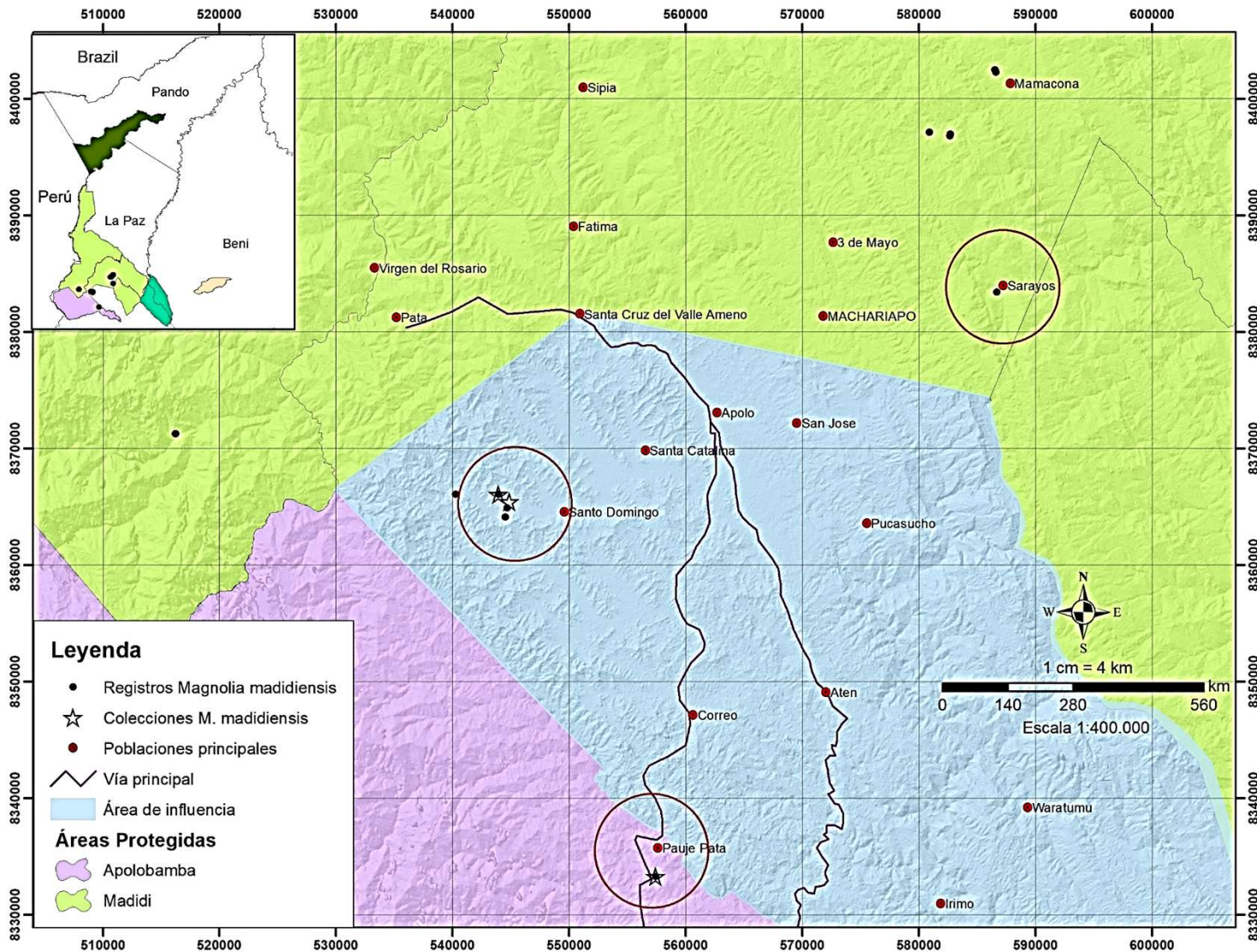
Fotos: Project LPB-BGCI 2018-2019



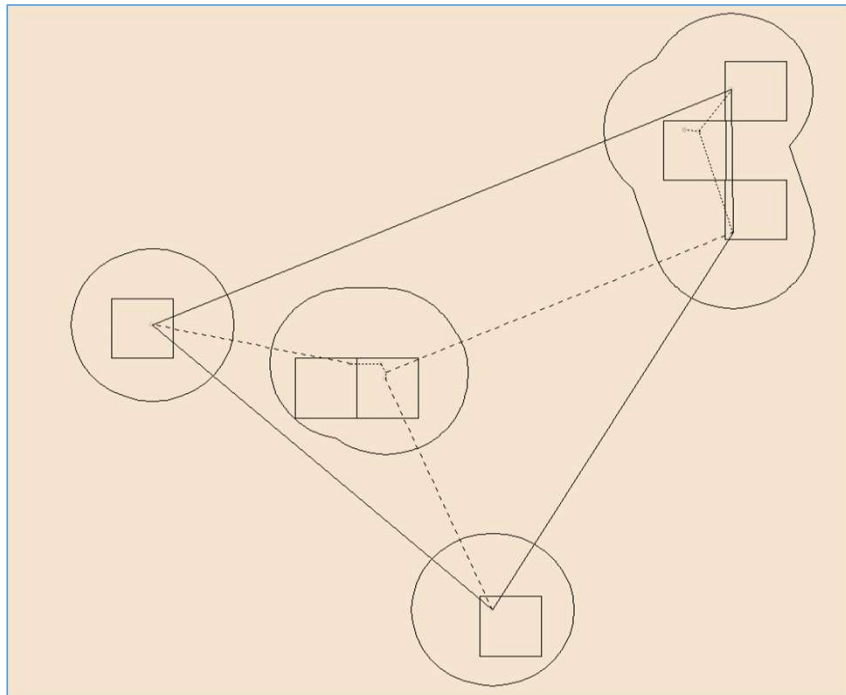
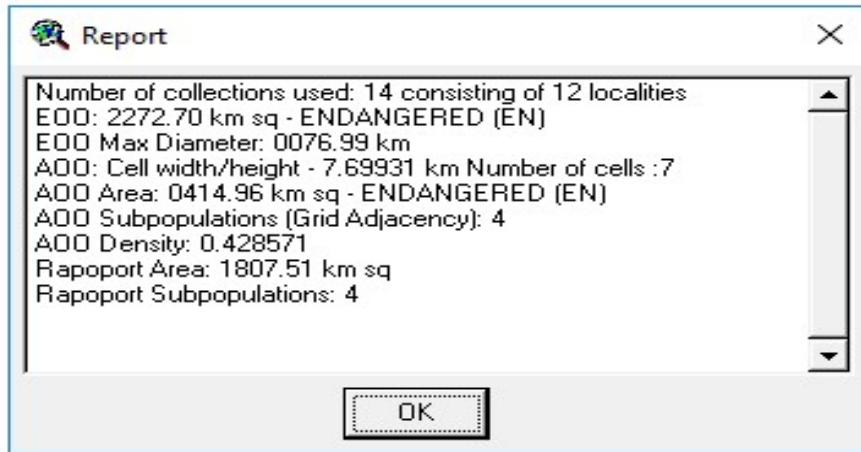
- Recently described and recognized as endemic to Bolivia (flower buds), 8-10 m
- In an Andean pluvial montane forest with arboreal ferns and also in the Subandino forest of Yungas, between 1,200-2,100 m altitude
- Categorized as threatened (EN)



- BGC I conservation project (2018-2019): Propagation of the species by reduced number of sites and endemism
- Ex situ conservation and awareness



- PN ANMI Madidi
- PN-TI Pilón Lajas



Limitations for *ex situ* conservation

- There are only four sites with this species in Madidi montane forests, difficult to access (two days on the way)
- The description included only floral buds
- After three field trips since April / 2018 no individuals were found in flower nor fruit
- Local residents mention that it fructifies every 2-3 years
- The population density is very low

Options

- Join efforts to get to know this genus and species in Bolivia
- To increase collections and better document their distribution
- Build up specialist networks
- Grafts with other cultivated species
- Inclusion in conservation programs in the Madidi national park





Thanks!