FUTURE CLIMATE CHANGE SCENARIOS AND CULTURAL LANDSCAPES IN THE MIXED OMBROPHILOUS FOREST IN SOUTHERN BRAZIL. DIFFERENT APPROACHES TARGETING PRESERVATION OF Araucaria angustifolia

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Introduction

The Araucaria angustifolia (Bertol.) Kuntze is a threatened and an emblematic cultural plant species in Southern Brazil. The Atlantic Rainforest domain (Figure 1), as the Ombrophilous Mixed Forest (OMF) in Southern Brazil (Figure 1 – beige color), are both highly.

Only 12.6% of MOF original cover still exists (Figure 2). Nature Reserves are the main strategy for conservation, despite their questionable effectiveness. Also, climate change play a role in Araucaria future distribution. The species nuts, known as “pinhão”, are appreciated as food, being consumed and playing a role in OMF’s landscape presently and historically in Southern Brazil.

Objectives

One main guiding question of this PhD Project is to describe how future climate change scenarios will affect Araucaria’s population (and its ethnoecological varieties distribution) in the OMF, in order to test the effectiveness of Protected Areas.

Method’s fluxogram

- 1) Georeferenced Data
  - Literature review;
  - Very High Resolution (VHR) satellite information;
  - Fieldwork (Santa Catarina and Paraná States)

- 2) Environmental Data
  - WorldClim 30-s Arc present (1950 – 2000) and future data (2050 and 2080)

- 3) Statistical Models
  - GAM;
  - GLM;
  - RF;
  - Maxent.

- 4) GCMS
  - Community Climate System Model- CCSM4;
  - Goddard Institute of Spatial Studies - GISS –E2-R;
  - Hadley Centre of Climate Prediction – HadGEM.

- 5) RCP
  - 4.5 – Mitigation Scenario;
  - 8.5 – Business As Usual.

- 6) Dispersal Scenarios
  - Zero and Full Hypothesis.

Expected results

- Possible reduction of fundamental niche of Araucaria;
- Description of the climatic niche of Araucarias’ varieties;
- Identify new relevant areas for the species’ preservation outside Protected Areas;
- Discuss the influence of local communities in the dispersion of Araucaria’s nuts in Brazilian’s Southern cultural landscape.

References