

Shifting conservation priorities due to rampant deforestation in the Gran Chaco

Rubén Eduardo Chavez Navarrete, Master Thesis

Abstract

Dry tropical forests (DTF) are facing rapid landscape transformation due to the increasing pressure of land use change, causing biodiversity loss, and leading to a shifting conservation priority. Yet, despite the increasing number of studies on the allocation of priority conservation areas, in most applications of conservation prioritization, the landscape is assumed to be static due to the lack of data on change. This study addresses the research gap of how priority areas of conservation shift in response to land use change throughout time in the Gran Chaco and the south of the Chiquitano. The analysis was performed using the Rarity weighted richness encompassing 51 larger mammal species. From the rarity-weighted maps, I extracted the 5%, 10%, 17%, and 30% areas for each year, which were considered the priority areas. My results illustrate three major insights. First, priority areas of conservation have shifted from being continuous and concentrated in 1985 to scattered and fragmented in 2020. The study shows that the surface of priority areas has shifted and lost between 24% to 56%. Second, between 43% and 75% of past priority areas (1985) overlapped with contemporary priority areas in 2020, and 4% of the priority areas within protected areas are no longer a priority in the same year. Third, the turnover of priority areas shows a linear evolution until the period from 2015 to 2020 when it shows a rapid increase. The results also reveal conservation opportunities and that we need to incorporate 14% more priority areas to achieve the 30% of AICHI targets. More generally, my study reveals that including the temporal dimension when identifying priority conservation areas is key to addressing conservation efforts and guiding decision-makers in a Systematic Conservation Plan. Particularly in hotspots of biodiversity loss and deforestation such as the Gran Chaco and southern Chiquitano.

Keywords: Dry tropical forest, Systematic conservation planning, priority areas of conservation, land use change, Rarity-Weighted Richness.

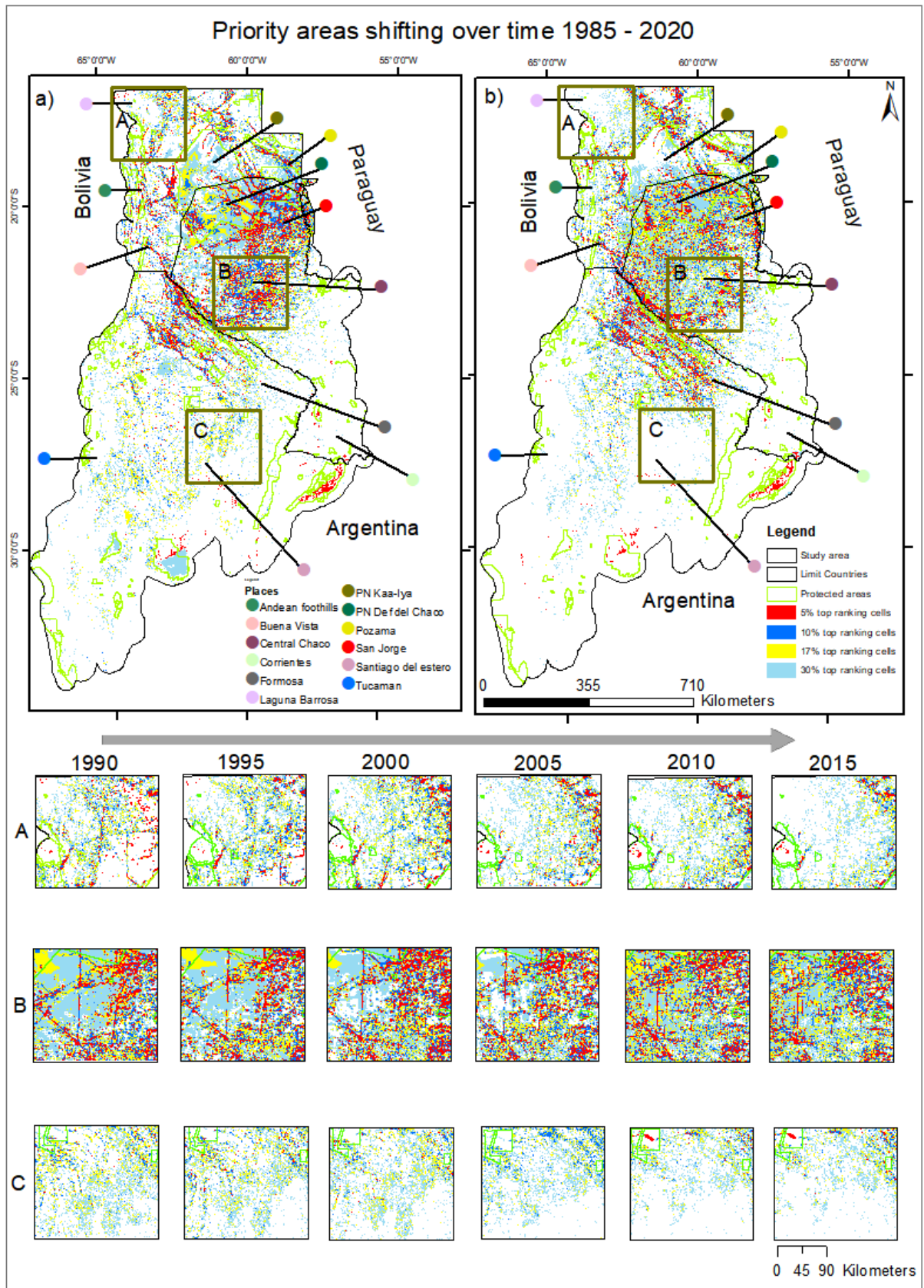


Figure 1 Evolution of the priority conservation areas from 1985 to 2020. a) Shows the beginning of the time series in 1985, continuing with the quadrants representing areas where there is a significant change over time, and continuing the years at the bottom, until b) the end of the reconstruction of priority areas in 2020.