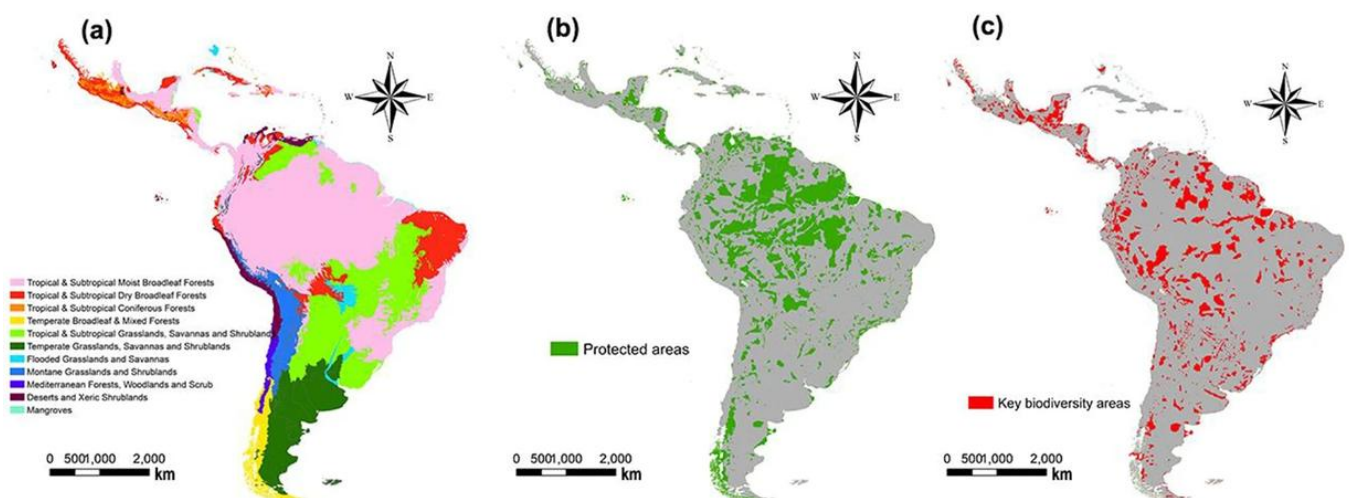


Quantifying Biodiversity Spillover from Protected Areas in the Neotropics

The world is facing an unprecedented biodiversity crisis, with species declining at alarming rates due to human pressures. To address this crisis, the Kunming–Montreal Global Biodiversity Framework established ambitious conservation targets, including the protection and effective management of 30% of the Earth's land and sea by 2030 (the "30×30" target).

Protected areas are widely recognized as one of the most effective tools for conserving biodiversity, by promoting the movement of organisms and supporting ecosystem processes. Their influence may extend well beyond their boundaries through positive spillover effects potentially benefitting surrounding landscapes through enhanced biodiversity and ecosystem services. At the same time, protected area expansion may also create conflicts, particularly in human-dominated landscapes, including restrictions on resource access, increased human–wildlife interactions, or the displacement of local communities. Understanding when protected areas generate net positive outcomes for biodiversity beyond their borders is therefore essential for designing effective conservation strategies.

In this project, you will use large biodiversity datasets to investigate spillover effects from terrestrial protected areas across the Neotropics. Combining vertebrate occurrence records collected between **1960 and 2019** with spatial environmental and data about conservation management, you will quantify biodiversity patterns inside and outside protected areas and identify the ecological and landscape characteristics that promote positive spillover. The project will involve large-scale biodiversity analyses and provide insights that can help improve protected area planning and contribute to international biodiversity conservation goals.



Starting date: variable. For EEC students, the thesis can be combined with a specialisation module.

Prerequisites: Good understanding data handling and analyses in R. Experience with large spatial data in R, understanding of statistical modelling and macroecological data analyses. Interest in conservation prioritisation, tropical and landscape ecology concepts. Good written and spoken English skills. Willingness to learn high-performance computing (HPC) and work with large biodiversity datasets.

Contact: Dr. Maira Cardoso maira.cardoso@uni-potsdam.de