

PP235 A comparison of the bird fauna in forest types in Pacaya Samiria, Peru

The bird fauna in the Peruvian Amazon is one of the most diverse found anywhere on Earth. There are several theories that can explain this species richness, including 1) differential extinction rates between more seasonal climates and the less seasonal tropics, 2) greater speciation rates in the tropic due to the formation of refugia during periods of cooling (Pleistocene refugias), 3) greater habitat diversity resulting in greater numbers of niches and a greater resource base, and 4) greater stability in the tropics allows for tighter niches (niche packing).

The flooded forests of western Amazonia are some of the most seasonal habitats in the Amazon basin with an annual flooded period between December and May and a dry period between June to November. This results in movements of fauna both horizontally and vertically..

The bird fauna at the Samiria River sites of the Pacaya=Samiria National Reserve will be compared between three types of flooded forests, including open varzea, liana forests and the aguaje palm swamps. The research will compare species richness and abundance of avifauna between habitats that are extrinsic regulated by flooding and help better understand the processes behind greater diversity of tropical forests.

In addition, Amazon basin is going through dramatic climate changes that will impact the largest rainforest on Earth. In 2010 the water levels of the Amazon River were at a historic low resulting in extreme dry conditions. In 2009, the same river was at a historic high, flooding huge area of Amazonian forests. More recently in 2011, the high water was again at historic highs, and then drained to historic low levels. Each year the Amazon River goes through seasonal changes between the flooding period from December to June and the low water period between July to November. However, these normal seasonal changes are now becoming more intense, which is impacting the wildlife and local people.

Research on the avifauna populations is being conducted to understand how the ever increasing climatic changes are impacting their ecology and populations. The wildlife of the Samiria River lives in an ecosystem that is driven by the large seasonal fluctuations occurring between high and low water seasons. The ecology of the aquatic and terrestrial wildlife revolves around these seasonal changes in water level.

The ecological conditions of long periods of flooding, up to 6 months, are very harsh on much of the floral and faunal community. Even the arboreal wildlife is impacted by the flooding, since many of the fruit trees are quite seasonal in the flooded forests, resulting in seasons with low food production. The normal cycles in the Amazon forests are now being disrupted by the extreme flooding and drought events that are occurring. The flooded forests are particularly important at understanding the impacts of climate change in the Amazon, since the aquatic and terrestrial interface between high and low water seasons makes this habitat sensitive to greater seasonal variations.

Methods

Mist nets involving capture of understory bird species will be used to analyse the abundance and diversity of the avifauna. Ten mist nets will be set up along line transects in three habitat types, including open varzea, liana forests and aguaje palm swamps. These habitats

represent the major terrestrial habitat types of the Samiria River sites. Data from previous years will allow an analysis of the impact of climate change variations on the avifauna.

Mist netting will be conducted with the assistance of an experience birder from the National University of the Peruvian Amazon, who has conducted bird captures and is qualified at ringing. Nets will be let down at 5:30 am and captures will be conducted throughout the day until the nets are put up at 5:00 pm. Trained field assistants will help students with removing the birds from the nets, ringing them with coloured and numbered bands, taking morphometric measurements, weights, photos, and data records..

Analyses will include species richness comparisons, abundance comparisons using Catch per Unit Effort, and density estimates using capture re-capture analysis. Analyses will be conducted between the different habitats, between different sections of the Samiria River and between years using past data collected at the sites.