

Project:

Biogeography and Conservation Status of Diurnal Raptors in Venezuela

Progress Report

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### Preliminary Results

The geographic distribution of 65 species of diurnal raptors has been modeled using 6,177 presence records and Maximum Entropy (MaxEnt) modeling software; we estimated the extension of occurrence (EOO) of each species in Venezuela using minimum training presence threshold in MaxEnt since this threshold include all the known localities of each taxon. We have found that Andean condor (*Vultur gryphus*) and Semicollared hawk (*Accipiter collaris*) have the lowest EOO: 1,072 km<sup>2</sup> (Figure 1) and 8,570 km<sup>2</sup> (Figure 2), respectively; Turkey vulture and Roadside hawk has the greatest EOO (>850,000 km<sup>2</sup>).

The species richness map (Figure 3) has been produced; mountain regions and the Guayana Massif hold the greater numbers of species; annual mean temperature and elevation are the most important environmental variables explaining the species richness.

The conservation status was evaluated using the EOO criteria of the IUCN, *Vultur gryphus* meet the criteria to be classified as Endangered, four species were classified as Vulnerable and 60 species are classified as Least Concern. The conservation status assessment need to consider the other IUCN criteria, we are evaluating the use of other MaxEnt thresholds to determinate the area of occupancy (AOO) which is defined as “the smallest area essential at any stage of to the survival of the taxon”, we are considering this as highly suitable habitat that would be estimated with the maximum training sensitivity plus specificity threshold in MaxEnt. On the other hand, the GAP Analysis showed a negative correlation between EOO and percentage of EOO protected by national parks, national monuments and wildlife

refuge; mean percentage of EOO protected is estimate in 19.5%, EOO protected range from 5.4% (*Parabuteo unicinctus*) to 86.1% (*Vultur gryphus*).

During this stage of the project we have found problems about species presence records in Venezuela. In this analysis we did not include *Ictinia mississippiensis*, *Circus cyaneus* and *Micrastur buckleyi* since there are not confirmed records of these species in the country. We are considering building a distribution model of these species using records from other countries and project the maximum entropy into environmental conditions of Venezuela.

This project yield a conservation status assessments using quantitative data of the geographic distribution, we are not able to use other criteria such population size because there is not available data to be used as background to infer or project population size numbers. For the first time in Venezuela reliable information on the geographic distribution of bird species is being produced. Geographic distribution maps are useless without metadata; the maps produced with this project have metadata which let them be useful in monitoring the vulnerability of raptors species.

The results will be presented in form of technical report to the National Office of Biological Diversity of the Ministry of Environment of Venezuela in order to contribute with decision making for the conservation of biodiversity.

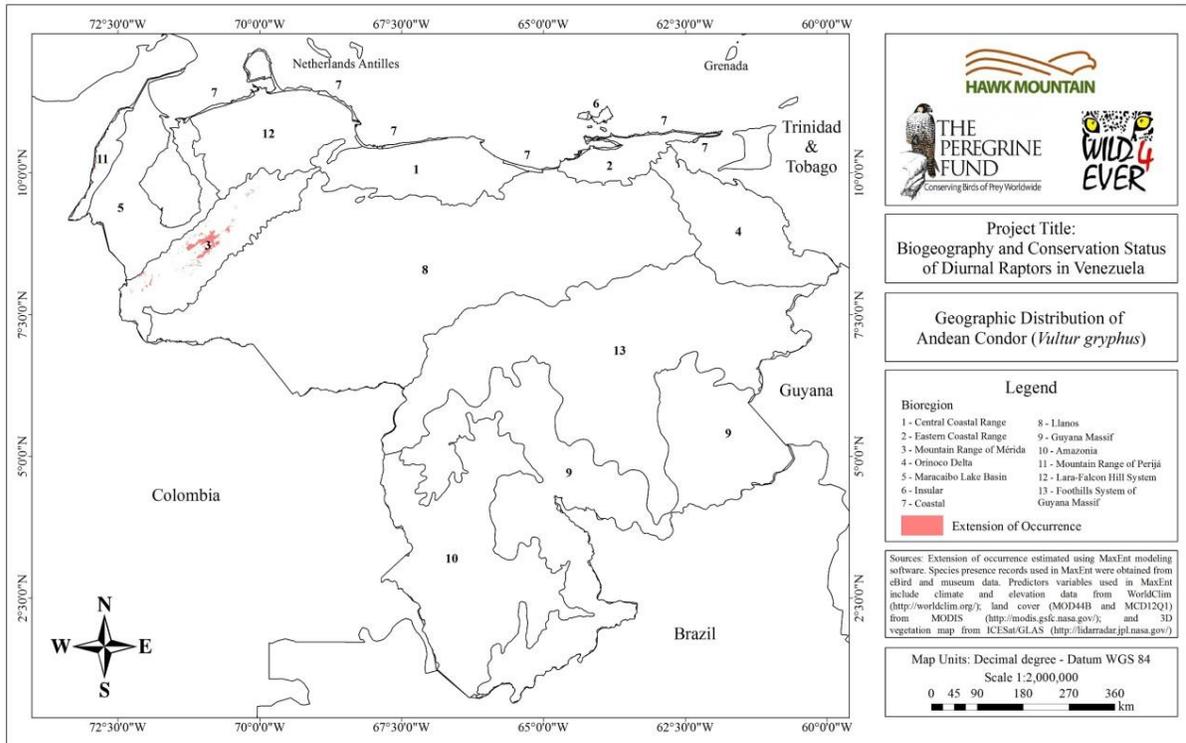


Figure 1. Geographic distribution of Andean Condor in Venezuela.

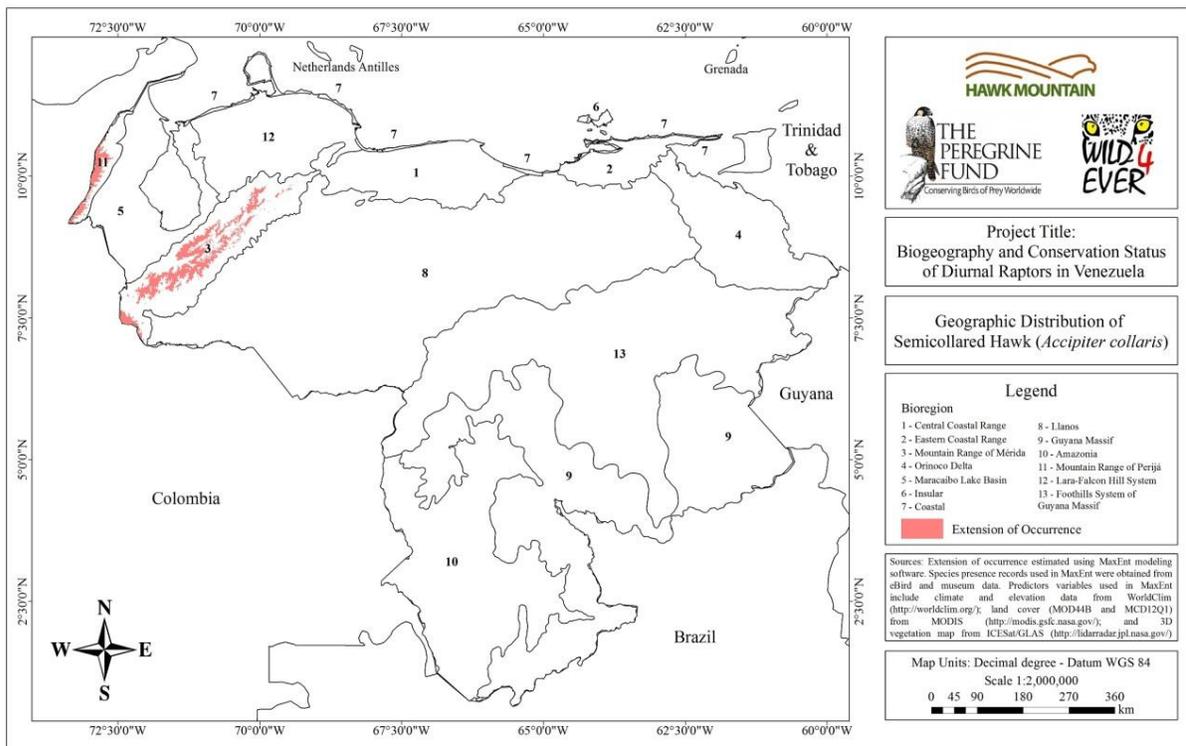


Figure 2. Geographic distribution of Semicollared Hawk in Venezuela.

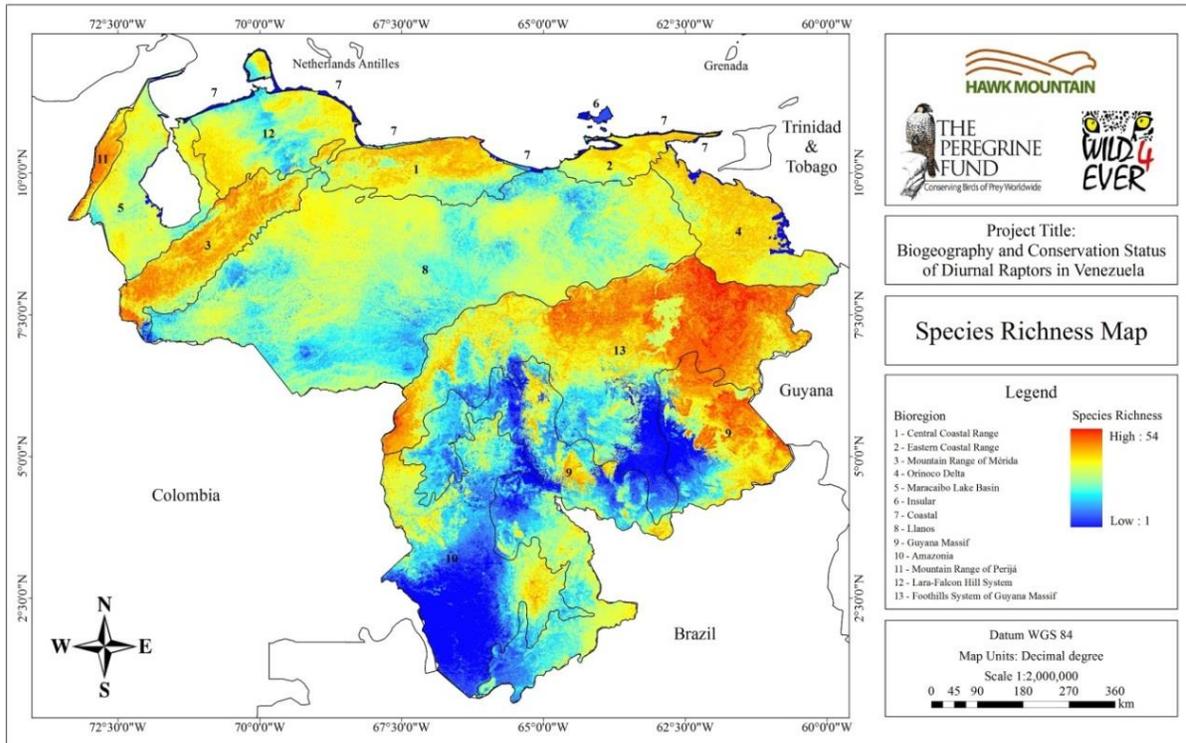


Figure 3. Diurnal Raptors Species Richness Map in Venezuela.