THE NATIONAL PARKS ECOSYSTEMS SERVICE AS A CLIMATE ADAPTATION MECHANISMS, IN TACHIRA-VENEZUELA.

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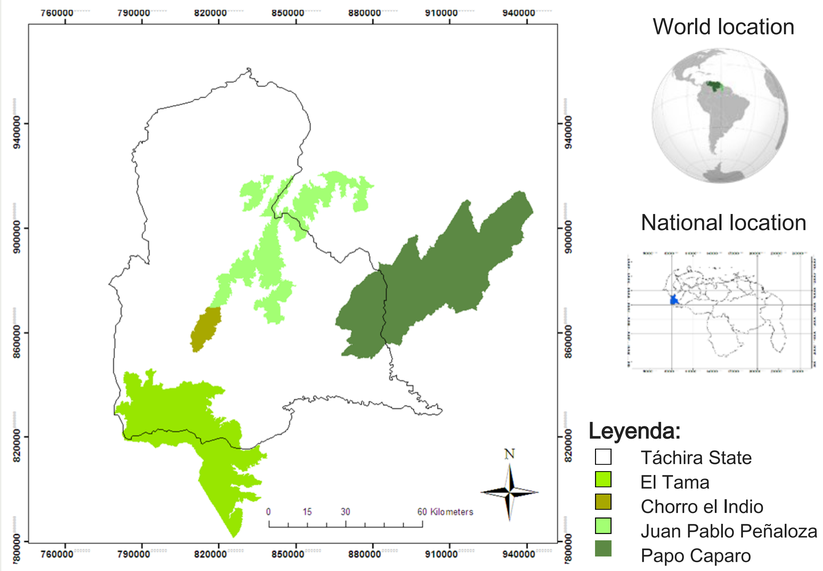
Introduction

The state Táchira`s national parks are undergoing transformation processes of the landscape resulting from deforestation, which increases the impact that climate change can generate because the original vegetation cover is eliminated and some of the ecosystem services that offer to the Venezuelan Andean population can lost it. For this reason, the evaluation of these spaces under the proposal of Chacón-Moreno et al. (2013) will facilitate the generation of baseline information on ecosystem services in different climate change scenarios (IPCC, 2014), which will allow the generation of planning proposals associated with climate mitigation and adaptation mechanism for society.

Study Area

Venezuela is located in the north of South America. It limits to the north with the Caribbean Sea and the Atlantic Ocean, to the West with Colombia, to the South with Brazil and to the East with Guyana. Táchira is one of the states that comprise it, which is located in the southwestern extreme Venezuela (Map 1), in the Andean Cordillera 07º 21 '49 ", 08º 37' 21" North latitude and 71º 19 '34 ", 72º 19 '03' of West length. It covers an area of 11,100 km2 and to the 2011, the total population of the state is 1.168.908 peoples (INE, 2014).

Map 1.- Geographical location of the Táchira`s National Parks, Venezuela.



Authors: Zambrano Z., Chacón E., Porras D., Ramírez C., Porras F., Zambrano V., Ramírez C. y J. Moros. Reference System: UTM WGS84 Zone 18N.
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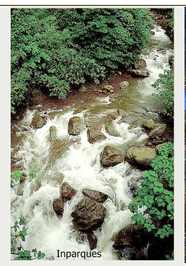
In Táchira state, four national parks can be found that cover around 1950.5 km2, which represents 17.57% of the total area of the state (Table 1). In these protected areas a series of socioeconomic activities are carried out that benefit the Venezuelan Andean population, among which the most important are agriculture and livestock. They were protected under the national park figure for different reasons due to a series of physical-natural characteristics that make these environments unique places in Venezuela. (Table 2).

Table 1.- Total and partial area of the Táchira`s national parks . Venezuela

National Park	Total Area (Km²)	Area within the state Táchira (Km²)
Tapo Caparo	2.048	411
Juan Pablo Peñaloza	963	638
Chorro el Indio	109.1	109.1
Tama	1395	794,4
	Total	**1950,5**

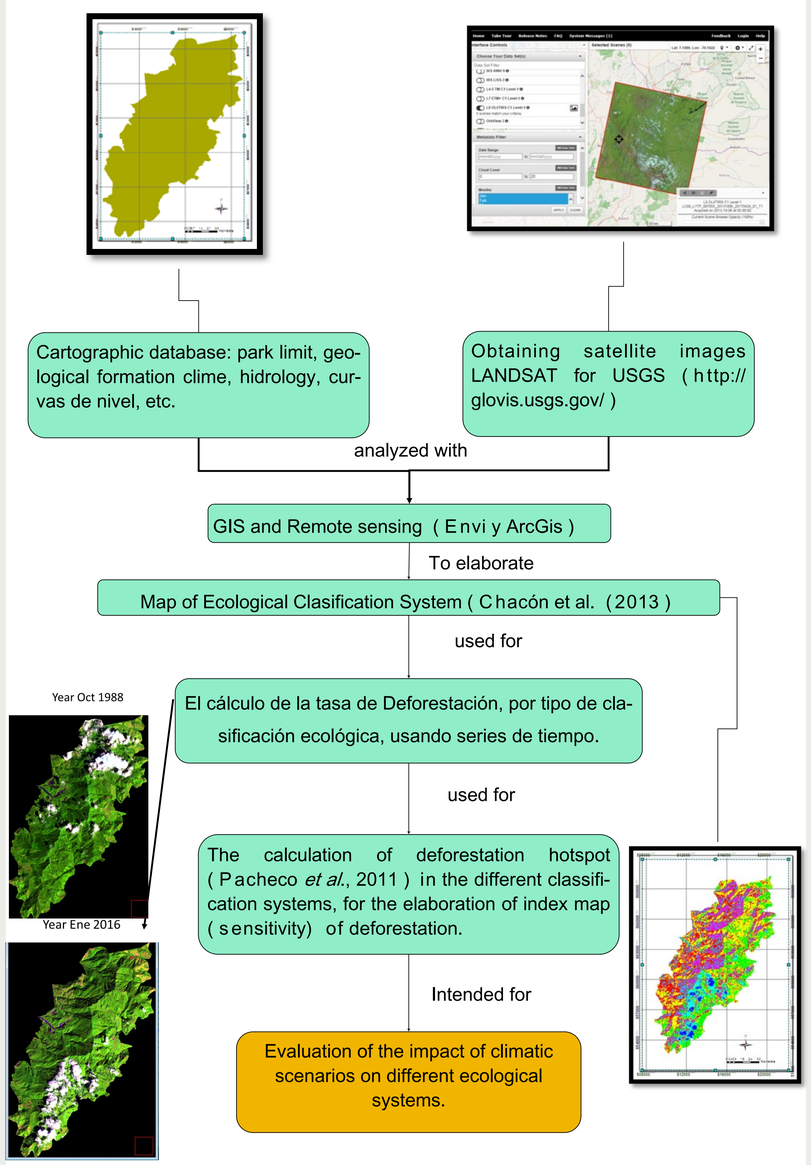
Table 2.– General information of the Táchira`s national parks . Venezuela

National Park	Creation Date	Purpose of creation	Altitude (msnm)	Clime	Vegetation
Tapo Caparo	March 1993	Watershed conservation for hydroelectric energy production	150-220	Rainy and warm Temperature 12-30ºC Precipitation 690 - 4000 mm	Dry forests, Humid and very damp.
Juan Pablo Peñaloza	January 1989	Conservation of biodiversity, landscape and water	1300-3942	Rainy and cold Temperature 4-17ºC Precipitation 700-2400mm	Wet forest, cloud forest, páramo
Chorro El Indio	January 1990	Recreation	1100-2600	Rainy warm. Temperature 12-23ºC Precipitation 1000-2000mm	Wet forest, cloud forest, subalpine páramo
Tama	March 1979	Water conservation	320-3329	Rainy warm Temperature 6-30ºC Precipitation 2000-4000mm	Wet forest, cloud forest, páramo



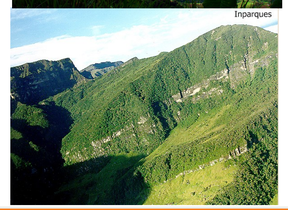
Methods

For each national park, the following steps will be taken. In this case, the Chorro El Indio National Park will be taken as an example:



Expected Results

This project is the first step in the assessment of national parks in mitigation and adaptation to climate change. Therefore, the generation of this information will serve as input as a baseline for further work that contributes to the improvement of the quality of life of the communities.
In this sense, for each national park, the following results will be obtained:
1.- Updated map of ecological systems.
2.- Map that expresses the areas within the park where there are the highest rates of vegetation replacement in the last 30 years.
3.- Calculation of places Deforestation Hotspot
4.- Map showing the changes of the ecological systems based on the scenarios of radiative forcing RCP2.6, RCP4.5, RCP6.0 and RCP8.5



General Impact

It is necessary to develop research that addresses the issue of ecosystem services with a holistic vision, such as national parks, which being protected areas, can be an excellent unit of analysis for the study of natural and modified spaces. In this sense, it is hoped to develop methodologies to know the fundamental role that the ecosystems, located in these spaces, fulfill, in relation to mechanisms of mitigation and adaptation before the Climate Change. This will be achieved by studying the effect of the impact of landscape change on ecosystem services. In this way we can predict what would happen in the future with ecosystem services under different climatic scenarios.

Likewise, fundamental information will be available to enable government entities and society in general to make adequate decisions in the application of sustainable management plans, which would involve considering different mechanisms of action in the face of Climate Change, allowing their replication or adaptation in others National Parks of Venezuela.

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