



**Biodiversity and Population Dynamic Studies Across Dry Forests in Colombia  
Tatacoa Desert, Huila, Colombia  
Biosphere Colombia / Universidad de los Andes**

**BIG Biodiversity Challenge Award Category: *Biodiversity legacy Award***

**Project overview**

- The Tatacoa Desert has gained importance as a touristic place, this has affected the biodiversity and ecosystem. The efforts for conservation to included, biological measurements 3 times every year, training of the touristic sector, and presentation of data to the governance. The project started on 2013 and finished on 2022.

**What were the biodiversity conditions on site, prior to the enhancement?**

The Project saw the decrease of biodiversity due to the increase of non-sustainable tourism. In 2013 the biodiversity was not threatened, there were no constructions but the ecosystem change started in 2015. Many new hotels were built, and hundreds of people arrived every week, the decrease of biodiversity was measured using a spider species as indicator (Predator). In 2016, the local extinction of the species was recorded, and it was not found in the desert until 2021. During that time the project worked with the governance, community and tourists to improve the ecosystem health and biodiversity protection.

**What were the reasons behind this project ?**

The main goal was to study two sympatric species in the desert, one of those was used to human constructions, so we wanted to understand how these changes affected the diversity of the population. We did not expect the drastic effects recorded, so the conservation efforts grew bigger with the years. Planning with the governance, the design of courses and training of touristic guides, the setup of places where tourist could not go into, meeting with the land owners, etc. We managed to make a change in the conditions and have measured an increase in biodiversity since.



Photo: Alexandra Rueda  
Tatacoa Desert

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Tatacoa Desert

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### What were the biodiversity measures taken?

The measures taken for biodiversity used one spider genera as model (Latrodectus). The variables measured included: Environmental Temperature, Relative Humidity, Soil Temperature, Distance between each sampled specimen, number of egg sacs, Nest Temperature, Specimen Temperature, Species, Spider Size, Height from the ground, Soil Type, Transformation of the microecosystem by humans, Invasive Species, Predators Presence, touristic activity dates and relation to the dates of the collection, habitat modification due to tourism, and conservation plans being executed to date. This long-term project allowed the governance and community to see the decrease in biodiversity due to human actions, but even with those results, the economic need of the community made the conservation plan execution difficult and we had to make many adjustments according to their needs. Also, the governance gave priority to tourism, so the number of people could not be decreased. But we managed to develop a plan that included all, community needs and governance requirements. The advance was slow because the governance changes every 4 years and every new mayor, had new requirements and changed to be added. We managed to design a plan that can be achieved long-term and can be passed through the different sectors across the desert. Guides were trained by the governance and the negative effect tourism has had over the ecosystem has decreased. Many species have been seen back in the desert since 2021, like the native black widow spider and the lenten eagle.



Photo:  
Alexandra  
Rueda  
Tatacoa  
Desert

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### Further information

The program started being implemented on 2015, when the great change in the ecosystem was seen and when we got support from the local governance to make approaches to the community. Every year, we went 3 times, to measure the environmental and biodiversity variables, constructing a data base with all the information. Every year, we would make a presentation showing the mayor the results and including plans to the conservation project. The main focus of the governance and the community was the increase in tourism, an increase in economic income to the place. So, the difficulties we faced were related to the lack of interest the community had in biodiversity conservation. We had to change the focus of the project and include the needs of the community, the expectation of tourists and the requirements of the governance. The plan is still implemented, the governance trains the guides, the guides train the tourists and protect the ecosystem and the owners make changes based on the charge capacity of their land and the growth they want according to tourism increase every year. The training program for each sector is updated every year with the information recorded from the guides, community and governance. Now, biodiversity is included in the touristic plans, and guides learn about the different functions and species that live in the Desert.

### Project Team

- Alexandra Rueda – Emilio Realpe
- Biosphere Colombia

### What was the motivation for carrying out the enhancement?

The spider studied is native from the Tatacoa Desert, many different factors have put pressure on the species survival. Our objective was to decrease the negative effects of tourism in the ecosystem once we started to measure them. It was not an easy task, but every month that went by showed an even more drastic decrease, we had to do something. We are now trying to start a new project to implement the same program in Cañón del Chicamocha, other dry forest in Colombia.



Photo:  
Alexandra  
Rueda  
Cañón del  
Chicamocha

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