

Project Update: May 2023

ACTIVITIES DEVELOPMENT

- In October 2022, we performed, in collaboration with the local communities, rangers of national parks and students, the third fieldwork campaign to sample the bird communities and to improve the estimation of species richness patterns throughout the Zulia state. Specifically, we focused in target areas with limited or poor biological information. It is important to note that fieldwork also included participation in the October Big Day (8th October 2022), where several activities were performed together with the ONG "MANGLE" and academic personal from Zulia's University, promoting the social participation in this international and important day for biodiversity.
- From December 2022 to April 2023, we developed the three meetings/workshops entitled: "*Construcción colectiva de un Plan de Acción para la conservación a largo plazo de la avifauna del Estado Zulia*" (In English: "*Meeting for the collective construction of an action plan for the bird long-term conservation in the Zulia state*"). For these activities, we included the participation of local people, national and international experts, scientific-educational institutes, NGOs, governmental institutions, and private businesses. During the activities, we discussed the general outcomes (i.e., the global climate change effects into biodiversity) obtained from my Rufford project, identifying threats, gaps and targets for the conservation, but more importantly we discussed the urgent long-term implementing actions. All this information has been integrated into a general document entitled "*Research priorities and action plan for long-term maintaining biodiversity's of birds in Zulia state, Venezuela*", which will be sent (in the next couple months) to *Ornitología Neotropical* journal for evaluation.
- From January to April 2023, I am working on writing a scientific article entitled "*Zulia conservationists' warning of global change impacts on spatio-temporal biodiversity patterns of avifauna*". This document will show the main trends identified into our spatio-temporal analyses about the potential impacts of climate change on biodiversity (including taxonomic, phylogenetic, and functional information levels) across the study area. This is critical because results of this research suggest a potential scenario of biotic homogenisation process by the future climate change, and therefore it is important to discussed about future implications. This manuscript will be sent soon to *Neotropical Biodiversity* journal.
- From February to March 2023, we developed (in Mexico) the training course of undergraduates and postgraduate students, entitled "*Análisis espaciales para estudios en biogeografía y conservación*". (In English: "*Spatial analysis tools for biogeographical and conservation studies*"). This course was carried out in both on-line and in-person ways to guarantee the participation for a greater number of students and interested parties. In this course, the students were trained in the uses of GPS, the develop spatial analysis of maps, as well as in the need of integrate the social, ecological/evolutionary, and biological components in the development of conservation projects. In this sense, it is important to highlight that this training course provided the tools and skills necessary for new students

finished their thesis projects and, subsequently, joined to my laboratory. These students are:

1. Sebastián Hernández de la Fuente: He is a student from Universidad Nacional Autónoma de México (UNAM). Sebastian finished his thesis entitled: "Los reptiles de la Megalópolis mexicana: Patrones de distribución y riqueza de especies bajo escenarios futuros de cambio climático global".
 2. Mariana Maya Romero: She is also student from UNAM. Right now, she is working in thesis intitled "Utilización de grupos funcionales de aves y mamíferos para la identificación de sitios prioritarios de restauración en los bosques secos tropicales de Mesoamérica".
 3. Alan Geovani Medrano Hernández: He is another student from UNAM, who finished his thesis entitled "Patrones de distribución y riqueza de especies de los Goodeidos (Cyprinodontiformes: Goodeidae) en México".
- In March 2023, we registered the work entitled "Es el cambio global una amenaza para la avifauna del estado Zulia, en Venezuela?" (In English: "*It is the global climate change a threat to the avifauna from Zulia state, Venezuela?*") at an international congress: "Congreso Internacional de Cambio Climático con Enfoque Territorial – CICCET 2023." This presentation was accepted by the Committee and will be performed on 10th May 2023.
 - In April 2023, we performed a fourth (last) fieldwork campaign to sample the bird communities and to improve the estimation of species richness patterns throughout the state. At same time, we performed the three new educational talks:
 1. "Técnicas de estudio y monitoreo de la biodiversidad" (In English: "*Monitoring methods and techniques of the biodiversity*"); (2) "Las aves del Zulia: bellas, importantes y amenazadas" (In English: "*The Birds of Zulia state: Beautiful, important but threatened*"); and (3) "La Biodiversidad del Neotrópico ante la crisis climática: ¿Por qué estudia biología?" (In English: "*Neotropical biodiversity under the climate crisis: Why is important to study Biology?*"). All these activities have as main goal to teach about the importance of Biology and Conservation sciences into protection and monitoring of the different elements and services of biodiversity, as well as to promote a positive vision towards the birds as indicators of diversity and ecosystem integrity. Besides, these activities allowed to the local communities and institutions to participate actively in obtaining information on the birds and to acquire ability to develop sightseeing tours for bird watching and environmental talks. This represents an important step to encourage a new perspective about their conservation.
 - On 21st April 2023; I participated in the Forum "Eco-retos del Zulia" (in English: "*Environmental challenges to Zulia state*"). This activity was performed by the political partners and institutions of the government at Zulia state. In this activity, I showed the talk "El cambio climático global y la biodiversidad: Impactos,

verdades y temas por resolver" (in English: Global climate change and biodiversity: Impacts, truths, and challenges"). This activity was very important because allowed us to show and disseminate our results, but also get closer to the new government authorities at State.





