

Population biology of the bird La Selle thrush (*Turdus swalesi*), a species endemic to Haiti: applications to the management and conservation of the species

population biology # conservation # endemic species

Context

The island of Hispaniola, shared between two countries, the Dominican Republic in the East and the Republic of Haiti in the West, is considered a reservoir of species in terms of biological diversity, with a high rate of endemism and the greatest diversity of bird populations in the insular Caribbean. It is home to around 300 species of birds, 31 of which are considered endemic. Among these, the La Selle thrush, *Turdus swalesi*, is one of the most recently described endemic bird species in Hispaniola, currently classified as "vulnerable" on the IUCN red list. Its geographical range in Haiti seems to be restricted to the Massif de La Selle, where the type specimen was collected in 1927 from a dense patch of cloud forest. Other populations have since been discovered in the Dominican Republic. The species was very common until the 1980s. However, a strong decline has been observed in its geographical range in recent years. According to IUCN, the overall population of the *T. swalesi* was estimated between 1,500 and 7,000 adults in 2018, but precise and reliable quantitative data on this demographic trend is still lacking.

Objectives

In order to obtain the data necessary for an appropriate management of the species, the present research project has three major objectives:

- Conduct a demographic monitoring of the Haitian populations of *T. swalesi*
- Study the level of genetic differentiation between the different Haitian and Dominican subpopulations of the species
- Study the selection of habitat in relation to the increase of deforestation in Haiti over the past 30 years

Methods

Demographic monitoring

Two methods of monitoring are mainly used. The capture-mark-recapture (CMR) method consists of capturing individuals using gillnets installed in the species' natural habitat. Birds captured are then individually marked with both a metal ring engraved with a unique alphanumeric code and coloured plastic rings, attached on their tarsi, and allowing their recognition from a distance. Capturing individuals also enables biometric measurements and the collection of samples for genetic analysis. In addition to the CMR method, twenty camera traps are currently installed less than 15 centimetres above the ground in the favourable habitat of the species in various locations of the study area.



T. swalesi © R. Rodriguez

DATES
2018-2021

COUNTRY
Haiti

STUDENT
Jean-Marry Exantus

EDUCATION LEVEL
Doctorate



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Genetic analyses

Birds DNA can be extracted using non-invasive methods such as the sampling of saliva or feathers. Blood samples, extracted from the brachial vein with a needle and a capillary tube, are used to monitor infections by blood parasites.

Habitat

Satellite images covering the study area will be acquired to make a diachronic analysis of the vegetation cover over the last thirty years. These images will be analyzed using QGIS and Ecognition software to specify the extent of the reduction in habitat favorable to the species.

Results

- 46 *T. swalesi* individuals have been captured and marked so far. Among them, 20 have already been recaptured with nets or identified with binoculars
- About twenty camera traps are installed in the study area. Images already captured are being analysed
- A total of 44 feather samples, 28 saliva samples and 27 blood samples were taken from the 46 individuals captured.

About the research team

Jean-Marry Exantus started his PhD research in 2018 at the Université des Antilles, in Guadeloupe. His research is funded by Caribaea Initiative, with support from the Fondation Connaissance et Liberté (FOKAL). His thesis is under the supervision of Frank Cézilly, professor at the Université de Bourgogne Franche-Comté, and Etienne Bezault, Associate Professor at the Université des Antilles. With this double supervision, Jean-Marry benefits from Frank Cézilly's skills in the field of bird population biology (who published several articles on turdids and on bird species endemic to the Antilles), as well as the skills in population genetics of Etienne Bezault, who will provide facilities for the analysis of DNA data in the laboratory.

Before his doctorate, Jean-Marry studied at the Université Episcopale d'Haiti to obtain his degree in Agricultural Engineering, specializing in Natural Resources and Environment. He passed his master's degree at the Université des Antilles. Jean-Marry joined Caribaea Initiative in 2016, after obtaining his Agronomist Engineer diploma following his research work on the wildlife of the Parc National Urbain de Martissant (PNUM).

Publications

Exantus, J.-M., Beaune, D. & Cézilly, F. (2021). The relevance of urban agroforestry and urban remnant forest for avian diversity in a densely-populated developing country: The case of Port-au-Prince, Haiti. *Urban Forestry & Urban Greening* 63: 127217.

In process

Exantus, J., Beaune, D., Cézilly, F. (2021). Contrasted avian communities between two protected areas in Port-au-Prince, Haiti.

