



MISSION REPORTS N°2

MERCi PROJECT
MISSION IN DOMINICA
MAY 2022

MISSION REPORT - May 2022

Training in capture-mark-recapture techniques for the study of the impact of an invasive species on the survival of the Dominican Anole (*Anolis oculatus*)

ANNABELLE VIDAL¹ AND JEANELLE BRISBANE^{**}

CONTEXT

Due to the geographical barrier between the islands, the fauna of the *Anolis* genus of the Lesser Antilles evolved in isolation, resulting in speciation among the islands. This is the case for Dominica, which hosts the endemic species *A. oculatus* (Fig. 1). Recently, a new species of anole from another Caribbean Island was introduced to Dominica: *A. cristatellus*, an invasive species from Puerto Rico. This very new interaction in the evolutionary history of these two species must be monitored in order to assess the risks to the endemic species and to design appropriate management plans.



Figure 1. *Anolis oculatus* male displaying. Photo: R. Dominique.

The "Managing Exotic Reptiles on Caribbean Islands" (MERCİ) project, managed by the association Caribaea Initiative financed by the Interreg Caribbean program of the European Union, aims to establish management plans for exotic reptile species on the islands of the Lesser Antilles, including Dominica, based on the results of robust scientific studies. Both the study process and the management process require trained local staff.

During the first part of this project, two experts commissioned by Caribaea Initiative trained a team from the on-the-ground partner - Forestry, Wildlife and Parks Division (Ministry of Environment, Rural Modernisation and Kalinago Upliftment) - in species recognition, lizard capture and handling, the collection of data on the behaviour, ecology, and morphology of individuals and their habitat, and the management of the data collected.

¹Intervening for the training. Instituto de Ecología y Sistemática, La Havane; Caribaea Initiative, Guadeloupe (avidalb82@gmail.com)

^{**} Local responsible for the training. Forestry, Wildlife and Parks Division, Roseau (jlkbrisbane@gmail.com)

A second training mission proved to be essential to complete the first part of the project with regard to the analysis of the demographic trajectory and the diet of the targeted species. This mission was carried out from 9-13th May 2022, during which a team from the on-the-ground partner received theoretical and practical training for the capture-mark-recapture (CMR) of Anolis lizards. Four sampling sites were established (300m transects) and two of them were sampled. At the end of these first two capture sessions, 101 adult lizards (males and females) were marked with permanent implants. Faecal and tissue samples were collected in order to continue studies on the diet and the genetic structure of the populations. Thirty-two capture-mark-recapture sessions will be carried out by the Dominican team by the end of September to complete this scientific survey.

TRAINING ACTIVITIES

Day 1

- Meeting with the Director of the Forestry, Wildlife and Parks Division, Mr. Minchinton Burton
- Team meeting
- Theoretical course (Figure 2a)
- Practical training at the Dominica Botanical Garden (Figure 2b)

Days 2 - 3

- Prospecting of three sites (Titou George, Soufriere, and Colihaut)
- Establishment of two 300m transects for CMR monitoring (Soufriere and Colihaut)

Days 4 - 5

- Survey of two sites (Cannor Park and Cabrits National Park)
- Establishment of a 300m transect and first session of CMR on these two sites (one day on each site; Figure 2c, d)
- Collection of faeces and tissues (3mm of tail tip)



Figure 2. Moments of the CMR training and monitoring of anole lizards in Dominica: a) theoretical training, b) practical training, c) capture and d) marking. Photos: R. Dominique.

TRAINED STAFF

The training was provided to five employees of the Forestry, Wildlife and Parks Division of Dominica:

- MSc. Jeanelle Brisbane, Assistant Forest Officer
- Lic. Norma Anthony, Caribaea Initiative master student, Assistant Forest Officer
- Ira Pierre, Amphibian Technician
- Ricardo Dominique, Forester I - Central Range
- Benjamin Stewart, Park Warden

MATERIAL DELIVERED

- PowerPoint presentation on the capture-mark-recapture project
- Work protocol
- Field sheets for data collection
- Rods for catching lizards
- Individual bags for the storage and transport of lizards
- Marking kit
- Equipment for the collection and storage of faecal samples
- Waterproof backpack for transporting field equipment and lizards
- Table in Excel for the database

ESTABLISHED STUDY SITES

Four sampling sites were established (Fig. 3). Two sites where the two species coexist in sympatry (WGS84: Soufriere N15.228569, W61.346166°; Cabrits N15.583905°, W61.473160°) and two sites where only the native species is found, in allopatry (WGS84: Colihaut N15.488748, W61.455492; Connor Park N15.637263°, W61.458789°). Soufriere and Colihaut correspond to disturbed habitats, while Cabrits and Connor Park correspond to forests in a good state of conservation. On each site, a 300m transect was delimited along paths with the Anole captures occurring within one meter on each side of the path.



Figure 3. Sampling sites for CMR monitoring of anole lizards in Dominica.

DATA COLLECTED

We captured and marked 101 adult lizards over the two monitoring days (Cannor Park and Cabrits sites; Table 1). Data about the sex, size, and weight of each capture was collected, as well as 12 faecal and 55 tissue samples. The analysis of the faecal samples will determine if the diet of the native species varies in the presence of the invasive species. The genetic analysis of the collected tissues will verify whether potential variations in morphological traits and feeding behavior are correlated with potential variations in the genetic structure of the populations studied.

Table 1. Number of lizards marked during the first capture session of CMR, respectively at Cannor Park (CP) and Cabrits (C), Dominica.

Marked	<i>Anolis oculatus</i>	<i>Anolis cristatellus</i>	Total
Males	28 (CP) / 26 (C)	1 (CP) / 15 (C)	70
Females	20 (CP) / 10 (C)	0 (CP) / 1 (C)	31
Total	84	17	101

CONTINUATION OF THE STUDY

The local team plans to carry out thirty-two more CMR sessions until the end of September, with a fortnightly frequency per site. The collaborators will make rotating teams of three people on each monitoring day. During the following CMR sessions, the team will maintain the collection of faeces and complete 20 tissue samples for each species at each site. The data collected will be digitized by the Dominican team members and the information and samples collected will be shared with Caribaea Initiative.

ETHICAL NOTE

Collection of 3mm samples of tail tip is a low impact method on lizards due to their ability to regenerate the tail following a predator attack.

The export of faecal and tissue samples to the University of the Antilles of Guadeloupe (a Caribaea Initiative partner) was approved by letter by Mr Minchinton Burton, Director of the Forestry, Wildlife and Parks Division (Annex 1). Neither of the two species under study is named on the CITES species list.

Information resulting from the data and samples analysis will be shared with the Forestry, Wildlife and Parks Division. The publication of the results of the project will be done with the agreement and the co-authorship of members of the local team.

ANEXE 1. Permit to export samples.



COMMONWEALTH OF DOMINICA
MINISTRY OF ENVIRONMENT, RURAL MODERNISATION & KALINAGO UPLIFTMENT
FORESTRY, WILDLIFE AND PARKS DIVISION

Tel: (767) 611-5852
Fax: (767) 440-8023
Email: forestry@dominica.gov.dm
Website: www.dominica.gov.dm

Windsor Park Road
Roseau
Commonwealth of Dominica
West Indies

13th May 2022

Re: Exportation of non-live anole samples from Dominica to Guadeloupe

To Whom It May Concern

Please be informed that Annabelle Vidal, from the Managing Exotic Reptiles in the Caribbean Islands (MERCi) Project done in partnership with the Forestry, Wildlife & Parks Division, is transporting on her person from the Commonwealth of Dominica to Guadeloupe the following:

- € 55 anole tissue samples (*Anolis oculatus* and *Anolis cristatellus*)
- € 12 anole faeces samples (*Anolis oculatus* and *Anolis cristatellus*)

None of the samples are from CITES-listed species and do not require any import or export permits. These samples contain no live anoles and are contained. The Division believes, after assessment, that these samples are **non-infectious** and pose no risk to the health of humans or animals. As the government authority responsible for the conservation and protection of Dominica's terrestrial biodiversity (under the Forestry and Wildlife Act of 1976), the Division confirms that the removal of these samples from the island of Dominica would not have a negative impact on the island's population, environment or on the health of the anoles. Therefore, permission has been granted by the Forestry, Wildlife, and Parks Division for Annabelle Vidal to carry these 67 samples into Guadeloupe.

This initiative aims to help Dominica's wildlife managers better understand the ecology, and behaviour of the island's endemic and invasive anoles. Annabelle Vidal will be required to report to the Forestry Division any additional findings of the samples collected in the Commonwealth of Dominica.

Sincerely,

Minchinton Burton
DIRECTOR FORESTRY, WILDLIFE & PARKS DIVISION

"Building a Resilient Public Service: A Collective Response"