

**Request for Proposals**  
**Department of Natural and Environmental Resources**  
**Habitat and Biodiversity Research and Conservation Bureau**  
**Project; Landscape Conservation and Management of Avian Communities in north**  
**Central and West Central Puerto Rico**

The Department of Natural and Environmental Resources, through the Habitat and Biodiversity Research and Conservation Bureau, will receive proposals for the implementation of a project of Landscape Conservation, Management and Habitat Improvement in north Central and West Central Puerto Rico

The Department of Natural and Environmental Resources include the parameters and requirements related specific to this project. In case of any further question related to this project can contact us by phone at this number 787- 772-2000, extension 2752 or email at golivieri@drna.pr.gov.

**Need Statement**

Puerto Rico suffered a high percentage of deforestation during the first three decades of the past century due to agricultural practices, primary drivers of the economy at the time. As in the early 20th century, the loss of forested lands and increasingly patchy distribution of habitat remnants may lead to the demographic vulnerability of avian species associated with forested landscapes (Brash 1987).

In Puerto Rico, only 8% of the Island is under some kind of protection, and the majority of ecologically important areas are privately-owned. Therefore, the conservation and restoration of these privately-owned lands is essential for the protection of trust species and their habitats.

However, we acknowledge that the best way to protect those species and their habitats is engaging private landowners in these conservation efforts. This approach will allow us to establish transitional biological corridors between protected and private lands and promote the establishment of agroforestry systems and sustainable agricultural practices within private lands in collaboration with several partners. The establishment of a strong partnership between agencies, private landowners, and others involved in this initiative will foster a long term conservation commitment that would develop a structured and adaptive process to manage, conserve, restore and protect Federal and State native species and their habitats in harmony with agriculture.

This project will focus on improving secondary forest patches that currently serve as functional corridors between the Maricao, Río Abajo and Guajataca State Forests, as well as creating new corridors, stepping stones, and habitat linkages by strategically planting native trees throughout the landscape. These actions will benefit native, endemic and migratory bird species

by increasing food availability, forest cover and habitat quality, by creating corridors and habitat forest patches that will promote the movement and safe passage of species, increasing the persistence of wildlife populations in the project's area of interest.

Examples of habitats that will be improved include low scale agricultural projects, specifically sun and shade coffee plantations. Both secondary forests and planted lands will be managed in order to provide resources and a complex forest structure to benefit endemic, native and migratory avian communities.

## Location of the Project

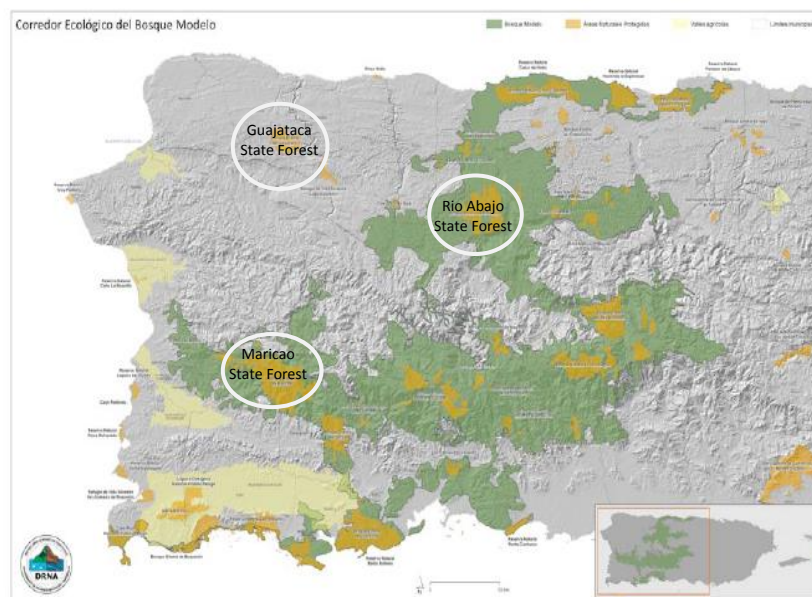


Figure 1. Area in Western-Central Puerto Rico. The circle delineates the approximate area of interest for this project.

## Statement of Purpose and Approach

The proposed approach for this project addresses the primary resource concerns that will benefit game and non-game wildlife species in the north central and west central Puerto Rico in order to promote the restoration and sustainable use of natural resources at the regional scale within non-industrial private and agricultural lands. Land acquisition has been the strategy mostly used to protect trust species and their habitats. However, we acknowledge that the best way to protect those species and their habitat is engaging private landowners in these conservation efforts. This approach will allow us to establish transitional biological corridors between protected and private

lands and promote the establishment of agroforestry systems and sustainable agricultural practices within private lands in collaboration with several partners. The establishment of a strong partnership between agencies, private landowners, and other partners involved in this initiative will result in a long term conservation commitment that will develop a structured and adaptive process to manage, conserve, restore and protect Federal and State trust species and their habitats in harmony with agriculture.

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Examples of habitats that will be improved include low scale agricultural projects, specifically sun and shade coffee plantations. Both secondary forests and planted lands will be managed in order to provide resources and a complex forest structure to benefit endemic, native and migratory avian communities.

The flora in the Maricao, Río Abajo and Guajataca State Forests is highly diverse, consisting primarily of secondary forests in varying stages of succession that reflect historical anthropogenic impacts. These landscapes harbor an array of wildlife, mainly dominated by avian species. Prevalent species include native and endemic forest dwellers (Puerto Rican Tody, Puerto Rican Vireo, Puerto Rican Bullfinch, Puerto Rican Tanager and the Puerto Rican Woodpecker), common/open area birds (Common Ground Dove, Black-faced Grassquit, Bananaquit, Gray Kingbird and Northern Mockingbird), forest game birds (White-winged Dove, Zenaida Dove, Ruddy Quail-Dove, Key West Quail-Dove and Scaly-Naped Pigeon), and migratory species (Black-whiskered Vireo, Prairie Warbler, Ovenbird, Louisiana Waterthrush, Black-throated Blue Warbler and American Redstart).

Strategic habitat enhancement and restoration practices (e.g. planting of native trees) will be monitored throughout the grant period in order to assess the successful implementation of these actions and, when necessary, implementation adaptive management strategies will be conducted to ensure the project's success. Candidate areas and habitat patches for improvement will be selected by an interagency working group that includes representatives from the contracted entity, DNER, United States Fish and Wildlife Service (USFWS) and Natural Resources Conservation Service (NRCS). DNER has completed a preliminary selection of tree and plant species that will benefit wildlife in North West Central Puerto Rico. The selection includes a combination of pioneer (fast growing) and mature (slow growing) species. Habitats with current and potential

wildlife corridor, stepping stone or linkage value (demonstrating structural or functional connectivity between forests) will be prioritized by the project.

The establishment of a regular avian monitoring protocol will allow DNER to create a baseline wildlife inventory that will not only measure the effectiveness of the habitat enhancement activities over time, but will also provide valuable information on the status of many native, endemic, and migratory species of interest that are currently considered data deficient. The data collected will inform future conservation actions, such as those described in the Puerto Rico's 2015 State Wildlife Action Plan. Staff from the contracted company will evaluate the avian community response to habitat improvements and management actions taken. Avian species will be monitored through time of detection point count surveys, which will be conducted before and after habitat management and improvement actions are completed. Invasive species will also be monitored. The evaluation of management strategies is aimed at assessing the short and long term effectiveness of the actions taken to improve habitat in the Bosque Modelo region. Biodiversity indexes will be calculated and compared over time. Avian behavior, such as foraging, nesting activities and habitat use will also be documented. Survey data will be used to determine the patch dynamics (colonization, extinction, occupancy) of the study area. Results from these surveys will inform future actions and adjustments to the management strategies implemented in this project.

### **Broad Scope of Work and Expected Results**

- The project should promote the restoration and sustainable use of natural resources on a regional scale (i.e. Río Abajo, Maricao, Guajataca State Forests and the intervening areas between these three forests) within non-industrial private and agricultural lands including wetlands, riparian, freshwater, estuarine, and marine lagoon habitats located at the targeted regions.
- Develop and promote the implementation of conservation measures within at least 75 non-industrial private forested and agricultural lands (25 private lands/year) within this region to protect targeted species and their habitat by reducing sediment and pollutant runoff, promoting the establishment of agroforestry systems and transitional biological corridors between protected and private lands. Increase in at least 75 more private lands with conservation agreements under existing State and Federal conservation programs for private lands (e.g., Conservation Agreements with private landowners, Farm Bill Conservation Program, State Conservation Easements Program, Private Forest Stewardship Program, USFWS Partners for Fish and Wildlife and Coastal Programs, Urban Forests, Auxiliary State Forests Program, Forest Legacy Program, among others).
- Establish short, intermediate and long term monitoring protocols that allow the project assess the outcomes success and benefits to the species and their habitats to develop a public education and outreach program and provide field guides for private landowners.

- The establishment of restoration and conservation practices within the area of interest that facilitate the implementation of different interagency habitat enhancement and restoration programs. These programs should benefit wildlife species (i.e., game and non-game forest bird species) in this region and at the same time educate private landowners.
- Monitor avian species in the area of interest (Figure 1) before and after management actions to allow the project to evaluate its effectiveness.
  - Monitoring should be aimed to evaluate the short and long term success of the actions taken to enhance habitat for wildlife in the region. Information obtained through standardized avian community surveys should allow the DNER and collaborators to fill knowledge gaps (density, abundance, distribution, etc.) for species of interest that lack such information. These should include native, migratory and endemic forest dwellers, many of which are considered “species of greatest conservation need” (SGCN) in the DNER’s State Wildlife Action Plan (PRSWAP, 2015).
  - Game bird species and other species of interest for hunters (pigeons, doves and quail doves) will also be monitored through this project to obtain population estimates and habitat preferences for these species.
  - Collected monitoring data should aid DNER in determining applicable management strategies to be implemented through other projects aimed at establishing or enhancing new and existing hunting areas in Puerto Rico.

## **Breakdown of Scope of Work and Expected Results**

### **Action 1: Habitat Improvement**

Purpose: Establish new wildlife corridors and enhance the quality of existing ones by strategically planting native and endemic tree species to benefit wildlife in north central and west central Puerto Rico.

#### **Objective 1: Evaluation of Private Lands**

- Identify, visit and evaluate owners/farms as potential candidates for habitat enhancement in the area of interest and priorities (Phase 1).
  - To ensure the success of the project, the evaluation of private lands for potential enhancement activities during the first phase of this project should be conducted.
  - These evaluations should take into consideration the PRDNER, NRCS and USFWS land ranking process and the pre-planning phases with new farmers in their programs.
  - During this first phase (in collaboration with other partners if necessary), the exact percentage of eligible producers and landowners in the project area should be identified.

- As part of the first phase of the project, the contracted entity should identify, visit and evaluate potential new farms in areas of interest.
- Monthly reports will be prepared and submitted for evaluation.
  - The monthly reports should describe the properties, wildlife resources, conservation needs, conservation practice recommendations and wildlife species of interest.
  - A benchmark wildlife habitat inventory, an assessment of wildlife biological requirements, photos, and maps indicating the locations of each farm should be included in the reports.
  - The contractor will include evidence of the interactions and approach to the private land owners in the monthly reports.

## Objective 2: Habitat Improvement

- Provide and sow 20,000 trees as part of the habitat enhancement and restoration activities.
  - Provide and sow within their respective preselected parcels 20,000 trees during this grant period.
  - The amount of trees per parcel will vary depending of site conditions.
  - The contractor will also provide technical assistance to landowners regarding effective tree maintenance activities.
  - The following list includes selected tree species for planting:
    - *Cecropia shreberiana*
    - *Citharexylum spinosum*
    - *Zanthoxylum martinicense*
    - *Clusia rosea*
    - *Ochroma pyramidale*
    - *Cordia alliodora*
    - *Guarea guidonia*
    - *Ficus citrifolia*
    - *Tabebuia heterophylla*
    - *Thespesia grandiflora*
    - *Piper aduncum*
    - *Eugenia biflora*
    - *Eugenia monticola*
    - *Guapia fragrans*
    - *Bursera simaruba*

- *Bourreria succulenta*

### Objective 3: Technical Assistance

- Provide technical assistance to 75 landowners before, during and after the implementation of conservation practices.
  - Provide technical assistance (i.e. information of proper species of trees for planting within their private lands according to their terrain characteristics, information of proper care to newly planted trees, etc.) to landowners before, during and after the implementation of the conservation practices.
  - Provide information about conservation practices and monitoring protocols pertinent for the habitat.
  - Demonstrate implementation of practices in the field, certify conservation practices and implement education and outreach plans during all the phases of the project.
  - All technical assistance activities should be documented and presented in the monthly reports
  - The evaluation and practices certification should follow the NRCS Conservation Practice Standards to ensure that are applied correctly, and to achieve with at least the minimum quality criteria that must be met during the application in order for it to achieve its intended purpose(s).

### Objective 3: Outreach

- Engage at least 75 stakeholders and partners through activities that should include visits and meetings with communities in the Model Forest region.
  - Conduct the necessary outreach activities focused on the USDA-Farm Bill Programs, and the DNER and USFWS Habitat Restoration Programs to reach at least 75 committed land owners.
  - Outreach activities should include: visits to landowners, person to person conversations, telephone calls and meetings.
  - Coordinate and conduct meetings with the community of identified focus areas in order to monitor and promote the project while engaging with new partners.
    - As part of this task, the contracted entity should provide information regarding the program requirements (e.g. eligibility, forms, applications, and the general process) to landowners.

- Explain the important role that farms play in the conservation of natural resources and their roles as farmers in implementing conservation practices on their lands and augmenting corridors and habitat connectivity.
- All outreach activities described above should be documented and presented in the monthly reports.

## **Action 2: Evaluation of Management Strategies**

Purpose: Monitor the progress of management activities from Action 1 through regular avian community and population surveys before and after habitat enhancement activities are completed. These activities should help DNER establish a baseline database for avian species in the area.

### Objective 1: Establishing a Wildlife Monitoring Protocol

- Establish and implement a short, intermediate and long term protocol to evaluate forest health, the status of targeted species, and changes in biodiversity (e.g., birds, reptiles, amphibians and arthropods species) as a measure of success.
  - Establish a protocol for monitoring avifauna within the area of impact at the short (six months to a year), intermediate (one to three years) and long term (over three years) to evaluate the progress and outcomes of the habitat enhancement actions.
    - Point counts should be conducted throughout the area of interest (Figure 1), primarily focusing on lands participating in the habitat enhancement practices from Project 1. Survey stations should also be placed in secondary forests of varying maturity selected randomly within the area of interest (Figure 1) and included in the sampling scheme as a control group. All stations should be selected randomly (within the enhanced and restored private land) through GIS applications and visited prior to the beginning of the study, in order to determine their accessibility.
    - Observers should record every bird detected in a 30-meters-radius during a 10 minute time interval, and recording individual bird locations every 2.5 minutes. Each survey site should be visited once per season. Seasons should be established as pre-breeding, breeding and post-breeding, using known tropical bird phenology. Observers should also record covariates, such as



fruit availability, forest cover, understory cover, slope and aspect for each survey station in order to reflect habitat condition and adjust results for detection probability in the analysis.

- The time of detection point counts should be supplemented by behavioral observations of focal (e.g. forest dwelling) species. Observers should record habitat use, nesting behavior and feeding behavior, identifying the fruits eaten and tree species used whenever possible.
- Create and maintain a database of all observations and point count data. Point count data will be analyzed using program MARK in order to obtain abundance estimates for the yetto be determined focal species while adjusting results for detection probability. Survey data should be used to generate a biodiversity index (e.g. Chao estimator in program MARK), in order to measure changes in species composition in target areas over time.
- Species occurrence data and abundance estimates should be correlated to habitat conditions, identifying the preferred habitats and conditions for focal species while informing future management actions in the area.
- Survey data should also be analyzed with program PRESENCE (USGS, 2015) in order to determine patch dynamics.
- Habitat parameters such as plant condition, associated vegetation, and evidence of possible pollinators and/or dispersal vectors should also be recorded.
- Analyze project data and produce two (2) reports per year to inform the progress of the project and provide recommendations and input for further actions.

### **Terms of contract and timeline**

#### **Year 1:**

**Habitat Improvement:** During the first year of the project: complete agreements with 25 landowners, provide technical assistance to these landowners and plant 6,500 trees.

Evaluation of Management Strategies: Establish 30 sampling stations and conduct birds counts during the first year. Each sampling station must be visited at least once after the contract is granted.

Year 2:

Habitat Improvement: Make agreements with other 25 landowners, provide technical assistance to these landowners and plant 6,500 trees.

Evaluation of Management Strategies: Continue monitoring biodiversity in the 30 sampling stations. Each sampling station must be visited at least once during the second year.

Year 3:

Habitat Improvement: Make agreements with other 25 landowners, provide technical assistance to these landowners and plant 7,000 trees.

Evaluation of Management Strategies: Continue monitoring biodiversity in the 30 sampling stations. Each sampling station must be visited at least once during the third year.

**Administrative Considerations**

- All proposals should be submitted to Gustavo Olivieri, Project Leader, at [govivieri@drna.pr.gov](mailto:govivieri@drna.pr.gov) 30 days after its posting.
- Each proponent should submit a budget narrative of the proposal according to each action phase.
- DNER will reserve the rights of accept or denying any proposal to any of the proponents under its set parameters and/or conditions.
- Any payment breakdown should be presented according to each phase of the project.

**Requirements and Legal Considerations**

Any proponent with an approved proposal should submit the followings requirements in order to be in compliance with the Circular Letter Number 1300-25-14 before the Formalization of the Professional or Consultants Service Contract:

- Certified copy of the certificate of incorporation issued by the Department of State
- Certificate of Good Standing issued by the Department of State

- Tax Return Filing certification on income taxes over the past five years (Form SC 6088)
- Income Tax Debt Certification (Form SC 6096)
- Certification of property taxes filing (CRIM)
- Debt certification for all concepts of the CRIM or existence of payment Plan. [a. in cases in which the contractor possesses personal and real estate property, he/she shall submit the tax return filing certification on the personal property and debt certification for all concepts or existence of payment Plan; b.] In cases in which the contractor does not possess personal property but do possess real properly will present a negative certification of personal property, the debt certification for all concepts or existence of a payment plan and the affidavit; c.] in cases where the contractor possess personal properly but does not possess real property shall submit the tax return filing certification on the personal property and debt certification for all concepts or existence of payment Plan; di in cases where the contractor does not possess personal or real property, will present negative personal and real properly certification and the affidavit]
- Employer registration and debt certification of unemployment insurance and insurance for disability, or employer registration and debt certification by concept of Drivers Insurance, or certification that is not registered as an employer with the Department of Labor
- Negative certification of Child Support or Certified Statement of Account by the Administration for Child Support Enforcement (ASUME)