

Unearthing our Roots

Proposal for CiLab Projects

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Introduction

- Background

Human-induced climate change and its potentially adverse global effects are one of the most pressing issues governments worldwide have to address. The urgency of this issue for communities living on islands and low-lying coastal areas is acknowledged by the United Nation's General Assembly Resolutions 44/206 of 22 December 1989 and 44/172 of 19 December 1989, particularly because of the imminent threat of sea level rise. These resolutions state that environmental changes are expected to affect with increased adversity coastal non-industrial societies, already suffering poverty, hunger and disease. Even though the intensity and scale of today's human-induced climate change is unprecedented, archaeological studies in different parts of the world have shown that this is not the first time in history that humans have faced the need to respond to rapid changes in climate and the environment (e.g. Dugmore et al. 2007; Rosen 2007). Studying how people have successfully or unsuccessfully responded to change in the past can help us learn how to prepare for change in the present and the future. Notwithstanding the expected vulnerability of Caribbean populations, the outcomes of climate change and their effect on human societies are still poorly understood. Archaeological research has the potential to contribute to our understanding of change by providing examples of dramatic change in the deep- and recent-past and case studies of adaptation success or failure (Bailey 2007; Butzer 1982; Erickson 2010; Rivera-Collazo 2011). With this approach it is possible to identify long-term outcomes of change illustrating specific conditions that have made societies – and their individuals – vulnerable to change, and what elements are indispensable to insure the sustainability of human occupations (Dearing 2006; Balée 2010; Kirch 2007).

- Project Summary

- Problem Statement

The hydrological basin that incorporates the Grande de Manatí and Encantado Rivers has been inhabited for thousands of years. Through all this time, people have modified and domesticated the landscapes, enhancing their use of the river as a resource in different ways, reflecting social interests and priorities. These behaviors and attitudes towards the environment leave behind patterns in the geomorphology, reflecting changes in the social perception of the topography and the natural resources. This project attempts to use surface inspection techniques to identify the patterns that human habitation have left behind on the landscapes along the Encantado and Manatí River basins, from the late Ceramic period (Chicoid or Taino) to the present. The objective is to identify use patterns along the basins, and to identify how human use of the river and forest resource modified the environments that we are studying within the Scientific Citizen program.

- Justification (Importance, urgency and contributions of project)

The relevance of this project is twofold. First, identifying how social interactions with the landforms and natural resources have changed in time will help understand the processes of adaptation to environmental and climate change, and will facilitate a deeper comprehension of the impact that human activity has had on the tropical forests of the island. Second, the patterns of human activity along the river basin through time have affected the other non-human resources that are being studied by the different projects of the Scientific Citizen program. This research on the human aspect of the ecodynamics will contribute towards a more complex and comprehensive analysis of the effect that human activity has on the environments, and will provide solid data for the Puerto Rico Conservation Trust and its scientists to make significant contributions to the understanding of climate and environmental change from a human perspective.

- Hypothesis or Question

Three main research questions guide this project: How has human settlement patterns have changed through time along a river basin? To what extent changes in landform use and modification reflect social idiosyncrasies of particular periods? Is there a continuation of settlement patterns in spite of cultural changes?

Project Description

- Goals (Principal purpose of project; contributions that are obtained by the results of the project)

The main goal of this project is to identify patterns of land use and modification along the river basin, taking specific sections of the river as case study

- Short Term:

- Identify areas that reflect pre-Columbian and historic occupation.
- Plot (geographically) and describe areas individually

- Identify purposeful modification of landforms and attempt to link them to specific contexts
 - Long Term:
 - 10 Radiocarbon dates are requested in the budget in order to date high-quality samples and produce strong chronological statements that go beyond typological associations.
 - Analyze how settlement from different time periods differ geographically and physically
 - Consider the environmental context of each social period and interpret the results
- Objectives (Identifies how the goals are going to be met)
 - Short term goals
 - Research what is known of the area, and select sections of high potential to serve as case study
 - Inspect the areas and select a specific number of areas where to focus attention on. The number of areas to be studied will depend on the progress of the volunteer teams and other adjustments on the field.
 - Following surface inspections, describe the contexts according to a selected series of parameters (including GPS coordinates, time period, characteristics and density of artifact surface scatter, documentation of structures, identification and documentation of landscape modification)
 - Stratigraphic cuts will also be searched for, inspected and documented with the intention of identifying and documenting buried archaeological deposits.
 - Long term goals
 - Input the data into a GIS database and study changes in settlement pattern per time period, as well as patterns in the other observed variables.
 - Conduct additional research on the paleoenvironmental characteristics contextualizing the time periods observed on the field.
- Materials (Complete list of materials to be used without including cost)
 - Access to the 1936 aerial photographs for the entire area
 - Rite in the Rain field notebooks
 - Pencils
 - Rulers
 - Metric measuring tapes (100m and 10m)
 - Camera
 - Complete photography scale set
 - One Meter Provenience Drawing Square
 - Machetes

- Hoes
- Trowels
- Gloves
- GPS
- Brunton Professional mirrored compass
- Sample bags
- Aluminum foil
- iPads with protective field case
- TouchDraw app for iPads
- GIS software
- Adobe Photoshop CS6 or Elements
- Work Plan
 - Work to be completed and projected dates or phase in which it will be accomplished
 - January – March 2013
 - Planning and project design.
 - Identification of volunteers
 - April – June 2013
 - Training of volunteers
 - What is archaeology
 - Identification of archaeological remains
 - Documentation of structures
 - Documentation of stratigraphy
 - Sampling
 - Use of equipment (iPads, Compass, GPS)
 - August 2013 – August 2014
 - Fieldwork
 - Preliminary survey
 - Identification of case study areas
 - Documentation of sample cases
 - Building of database
 - Input information into database
 - Articulate database with GIS
 - Start analysis as data are brought back from field
 - August 2014 – February 2015
 - Analysis
 - Collate data and identify patterns
 - Analyze GIS results
 - Analyze background environmental data
 - Start preparing articles and final reports

- Work with volunteers to design the final product they would like to produce from the research (e.g. visual guide, book, handbook, exhibition, etc).
- February 2015 – October 2015
 - Complete publications
 - Participate in conferences
 - Complete final product of the volunteers

Volunteers

- Duties Description
 - Training participation
 - Assistance to training is required for continuous participants.
 - Additional volunteers may participate without training but they will only assume a supporting role for trained volunteers.
 - Fieldwork participation (August 2013 – August 2014)
 - Conduct field inspection
 - Clear transects and observation points
 - Collect samples when instructed
 - Draw surface plans / maps of areas
 - Accurately fill required forms
 - Work in teams
 - Data analysis (August 2014 – February 2015)
 - Interested volunteers will be recruited to assist in database input and creation of GIS maps
 - Volunteers interested in developing their own research threads within the project will receive appropriate support during this stage as well. Duties will vary.
 - Preparation of final output
 - Output design
 - Work Schedule
 - Fieldwork
 - All day, twice a month
 - Analysis
 - All day, twice a month
 - Materials to be used
 - Fieldwork
 - Rite in the Rain field notebooks
 - Pencils
 - Rulers
 - Metric measuring tapes (200m and 10m)

- Camera
- Complete photography scale set
- One Meter Provenience Drawing Square
- Machetes
- Hoes
- Trowels
- Gloves
- GPS
- Brunton Professional mirrored compass
- Sample bags
- Aluminum foil
- iPads with protective field case
- TouchDraw app for iPads
- Analysis
 - GIS software
 - Adobe Photoshop CS6 or Elements

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