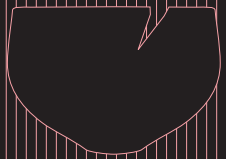


ARCHAEOLOGY

RESEARCH SUMMARY 2008-2010

HUMAN LANDSCAPES: HUMAN HISTORY AND CULTURE AT THE HACIENDA LA ESPERANZA NATURE RESERVE

Agamemnon G. Pantel Tekakis, Ph.D.
Citizen Science Program
Conservation Trust of Puerto Rico

AGAMEMNON G. PANTEL TEKAKIS, PH.D.

Assistant Scientist: Paola A. Schiappacasse, Ph.D.
Volunteer Leaders: Héctor Rivera, Luis Vélez

Agamemnon Gus Pantel Tekakis studied at the University of Athens before earning his bachelor's degree in Classic Arts from the University of Miami, where he also obtained his master's degree in Anthropology and Archaeology. He earned his doctorate in anthropology and archaeology from the University of Tennessee. He has also obtained the titles of Smithsonian Predoctoral Fellow and Policy Fellow at George Washington University and graduate of the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) in Rome.

Pantel Tekakis has served as a member of the board of directors and a consultant for various organizations, including the College of Arts and Sciences Advisory Board for Environmental Studies at Adelphi University in New York, the Roads and Transportation Authority, the Environmental Quality Board, and the Environment & Archaeology Committee, OAS in Washington D.C. Among his former titles, he was head of research at the Archaeology, Anthropology and

History Foundation of Puerto Rico, associate director of the State Historic Preservation Office (in the Governor's Office), manager of Patrimonial Resources, and forest archaeologist at the Caribbean National Forest. He currently directs the Center for the Study of Humans and the Environment ("Centro tropical para el estudio de los humanos y el ambiente") at the Polytechnic University of Puerto Rico.

As an educator, he has worked as professor of archaeology and urban historical preservation issues in the School of Architecture at the Polytechnic University of Puerto Rico. He has also worked toward the development of field programs related to archaeology, as well as programs based on museums and universities that seek to engage students in archaeology work at all levels. He has participated in archaeological studies and interpretative programs on many Caribbean islands, as well as Central and South American countries surrounding the Caribbean. Since the 1980s, he has been involved in the development and implementation of archaeological programs through the Conservation Trust of Puerto Rico, including extensive work at the Hacienda La Esperanza Nature Reserve (HLENR).

His research findings has been published by numerous organizations and publishing houses, including UNESCO, University Films, the University of Puerto Rico, the University of Boston, the United States Forest Service, and the Pan American Institute of Geography and History.

UPON SEVEN BILLION YEARS, THE STAR AT THE CENTER OF OUR SOLAR SYSTEM WILL GROW INTO A RED GIANT, ENGULFING PLANET EARTH. AT THAT MOMENT, ALL MATTER IN OUR PLANET WILL, IN TURN, BECOME PART OF THE STARS. ARCHAEOLOGY STUDIES THE NATURAL AND ARTIFICIAL REMAINS THAT ARE LEFT TO US BY HUMAN BEINGS, DURING THAT SHORT-LIVED PERIOD OF TIME IN WHICH WE EXIST WITHIN TIME AND SPACE.

INTRODUCTION

Studies have shown that some primates use objects found in their natural environments as tools to obtain food. Some chimpanzees in the Congo, for example, remove leaves from certain branches to dig inside termite nests and extract the insects for food. Other organisms, such as bees, beavers, and some species of birds, also transform materials found in their natural surroundings, whether by reorganizing or otherwise organically processing them.

Like these organisms, humans (Homo sapiens) also belong to the animal kingdom (Animalia), but what truly separates us from our fellow animals is our ability to transform matter into objects that we can then use to mold nature according to our particular needs. In other words, only we invent tools to build upon and gain a better understanding of our environment.

Still, like all other organisms, there comes a time when the living matter that makes up our own bodies ceases to be alive. Thus, we

die, and with us, our matter begins to decompose. Within this natural process, our bodies return to that totality of matter that makes up our universe—we become food for insects and microorganisms that, in turn, transform and return to the soil what was once living matter. Within seven billion years, the star at the center of our solar system will grow into a red giant, engulfing planet Earth. At that moment, all matter on our planet will become part of the stars. Archaeology studies the natural and artificial remains that are left to us by human beings, during that short-lived period of time in which we exist within time and space.

Just as bones are the only remaining material from our human bodies, under certain conditions human artifacts also withstand the test of time: tools, objects, food remains, as well as parts of structures that formerly provided shelter for humans and that presently stand as ruins. Archaeology examines these remains, and together with other disciplines uses information from diverse sources. In doing so, it builds upon our conceptions of history and how humans lived in the past, whether the Spaniards who colonized the islands of Puerto Rico, or the nomadic fishermen, hunters, and farmers who first navigated across the Antilles in search of food.

Hacienda La Esperanza (HLENR) offers the ideal space for studying and reconstructing part of our history, since its grounds have yielded evidence of human remains belonging to all groups that have, at one time or another, been linked to our past. From pre-Columbian settlements to treasures of industrial archaeology, the Reserve represents a significant repository of Puerto Rico's historical wealth and heritage. Of the evidence found on these lands, we know more about the humans who arrived during the Spanish colonization period and their descendants than of the first indigenous inhabitants.

The achievements and failures of the different groups who have inhabited the area within the HLENR offer valuable lessons regarding land-use practices. This research, in part, seeks to understand the natural factors that contributed to the sustenance or demise of human groups within the Reserve. To understand this history and draw future plans regarding these lands, it is first necessary to study the relationship and dynamics between these former inhabitants and their natural environment.

DESCRIPTION

BACKGROUND AND LEARNING ENVIRONMENT: HUMANS AND THE HLENR

Human evidence on the Reserve dates back to the Igneri, sometime between 250 BC and 600 AD. This indigenous community belonged to the culture known as Saladoid, who mastered polychromatic pottery work and the cultivation of certain crops. They also consumed seafood and land crabs, which subsequently remained a part of the diet for humans on the Reserve, as evidenced through other Citizen Science Program (CS) researches.

The second group to inhabit or use the Reserve's lands dates back to the Ostionoid, sometime between 600 AD and 1200 AD. Evidence suggests that this group represented a sort of transition between the Igneri and the Taíno, reflecting a change in the traditional Igneri diet, with a shift from land crab consumption to oysters and clams, as well as fishing in general. The third and final pre-Columbian group is the Taíno, who occupied the Reserve at the time of the Spanish colonists' arrival.

The remains of these three human groups were found mainly at a site near the Río Grande de Manatí, including four indigenous squares that were used for recreation, rituals, and religious festivities. The great importance of this site resides within its location, since it is the only one of its kind found along the coast, and thus contradicts the generalized conception that these groups only existed within the island's mountainous interior. This particular site was discovered in

the 1970s by members of the Guacabó Archaeological Society, which led to a formal research directed by archaeologist Ovidio Dávila, and carried out by the Conservation Trust of Puerto Rico (CTPR) and the Institute of Puerto Rican Culture.

OBJECTIVES AND QUESTIONS

This research is not limited to the study of pre-Columbian remains. It also encompasses the study of artifacts and other findings belonging to the colonial period after the arrival of the Spaniards, our direct ancestors along with certain African groups and indigenous cultures. Archaeological materials found at other CTPR properties have also been examined as part of the research. The objective is to study the area comprising the HLENR in an effort to better understand its human history. The findings will serve to explore the changes in the area's natural environment over time, and to place these changes within the context of Puerto Rican history.

METHODOLOGY AND ACTIVITIES

Activities took place mainly during morning hours. During these sessions, citizen scientists inventoried the archaeological artifacts and later cleaned and classified them, according to their origins: pre-Columbian and post-Columbian.

As a way of training in the methods they would be employing, citizen scientists performed laboratory tasks with materials classified as European-Colonial. They also processed materials from researches carried out in four CTPR properties: HLENR, Las Cabezas de San Juan Nature Reserve (Fajardo), Hacienda Buena Vista (Ponce), and Casa Ramón Power y Giralt (San Juan). Processed artifacts were mainly composed of rocks, ceramics, shells, bones, glass, and metal.

Specific tasks included sorting the materials, washing them in water, laying them out to dry in the sun, packaging them in bags, and inventorying them once the materials from all collections had been processed. To sort the materials, work stations were set up for each group of volunteers, with tools such as sieves consisting of a metallic mesh held up by a trestle, as well as hoses for washing materials. Each bag with materials was carefully labeled and handled in order to prevent its contents from mixing. The contents were emptied over the sieve in order to wash them, in some cases, and to label and store them, in other cases. Materials such as ceramics, glass, and rock were carefully washed using low-pressure water and delicately cleaned by hand, using only the fingers and no brushes or abrasive cleaning agents, merely enough to remove dirt and dust from each artifact in the process of identifying and classifying them.

To dry the materials, they were laid on the sieves under the sun, and they were turned frequently in order to prevent them from capturing any humidity. At the end of the session, the researcher separated the materials and prepared new storage bags, while citizen scientists labeled each new bag correspondingly before preparing a final inventory of all the processed bags.

As part of the study, there were efforts to identify and recover additional historical objects and to interpret this physical evidence of human activity through excavations at the HLENR, but these activities were adversely affected by climate conditions and soil saturation.

A reconnaissance was also carried out over approximately 20 acres of the Reserve, with the purpose of identifying cultural and structural materials, among others. This superficial survey was performed by walking systematically and searching the grounds for any artifact or manmade evidence, using tools such as a compass and the Global

Positioning System (GPS), which helped to electronically document the volunteers' trajectory through a transmitter attached to their arms. The GPS registered precise information automatically, so that volunteers only needed to concentrate on inspecting the surface rather than recording their location.

To perform the field study, the researcher and his assistant established a 100-meter-long base line. Each citizen scientist positioned him/herself within 10 meters of that line, and proceeded to walk in a direction perpendicular to that line in order to inspect an entire square. A flag was placed on the ground each time an artifact was found, so as to return to that spot once the entire path had been covered. Finally, the team returned back to the laboratory to transfer data from the transmitters into a computer, where they could observe the entire area covered against a map of the HLENR.
In archaeology, as in any other scientific discipline, the absence of evidence is as important as its presence. Both instances help to establish human behavior patterns over the surface area, although the field study or survey is not necessarily the only way to uncover and analyze archaeological evidence.

MATERIALS AND EQUIPMENT

Volunteers used field notebooks to document their observations, containers to store historical artifacts, and multiple excavation tools such as shovels, tripods, buckets, and sieves. They also used brushes and watering cans to clean materials, cameras to provide photographic documentation, and GPS to locate and record research spots.

RESEARCH SUMMARY

OUTSTANDING RESULTS

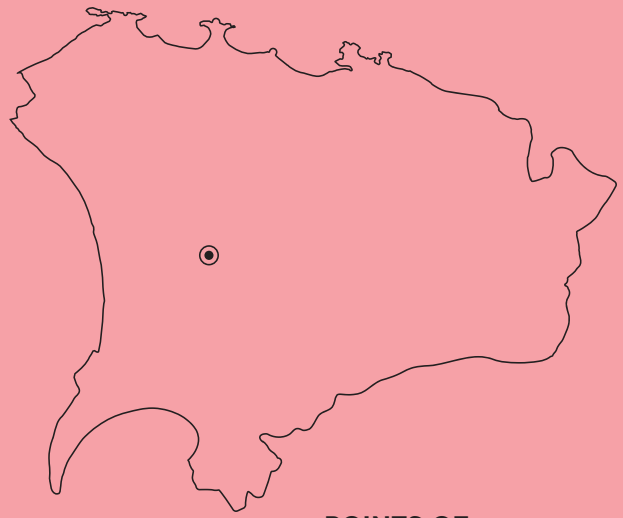
Field survey tasks were severely affected due to unusually heavy rainfall for the entire duration of the research, as well as by soil saturation. However, the new system developed for the systematic control of ground surveys at the HLENR was tested and refined thanks to the field tasks performed by citizen scientists. As a way to train the volunteers on the methods they would be employing, the research work began with the materials classified as European-Colonial. Other materials collected throughout various CTPR properties were also processed. During the more advanced stages of the research, citizen scientists were able to process pre-Columbian materials from the Tierras Nuevas site, located in the mouth of the Río Grande de Manatí.

SUMMARY OF RESULTS

Contrary to other CS research projects, which relied, to a certain level, on a yearly cycle to gather and analyze data, the study of human history in the Reserve does not require sticking to those parameters. In that sense, research of this type may be enriched by information gathered and analyzed at any given point in time.

REMAINING QUESTIONS AND FUTURE APPLICABILITY

Future researches about human history at the HLENR could be tied to other fields of study, from land crab populations, which have been so intricately linked to the human diet, to the morphological changes that coasts and other bodies of water in the Reserve have undergone over time. The variables studied by other CS research projects have the potential to be studied together with archaeology, as a way of learning how humans have used and transformed the Reserve throughout its history, and how the Reserve itself will continue modeling our future presence within its space.



POINTS OF INVESTIGATION

18.466278° -66.522385°

LIST OF PARTICIPATING CITIZEN SCIENTISTS

Adlín A. S. Reyes Rivera
Adriana B. Padilla
Aida Medina Reyes
Aida Torres
Aileen D. González Rodríguez
Alvin Alvarado
Amparo Torres
Ana E. Rodríguez
Ana Sevilla
Anainés Corbet
Angel E. Colón Rivera
Angel M. Rolón Zayas
Angel R. Colón
Angel R. Cruz Collazo
Ángela Adams Amador
Antonio Muñiz
Ariana Beltrán Burgos
Ariel E. Ortíz
Arminda Hernández
Ashley Andújar
Auday López Ramos
Awilda Ayala Sánchez
Awilda Gautier
Awilda Marrero Ortiz
Axel Centeno Torres
Axel E. Roberts Santos
Basilisa Colón
Bernadet Feliciano
Berta Evelyn Rodríguez Alvarado
Bethzaida Otero Rodríguez
Carla M. Rubildo Cancel
Carlos Alberto Morales Ramírez
Carlos Bonilla
Carlos Díaz
Carlos G. Rodríguez Vega
Carlos G. Santiago Marrero
Carlos Méndez
Carlos Mercado Falconi
Carlos Omar Rodríguez
Carmen Lagoa
Carmen M. Andino
Christian La Luz
Christian Meléndez
Dafne Jiménez
Dalma Rivera
Damián López
Daniel S. Cabrera
Daniela E. Ruiz
Darinés Martínez Rivera
Darlene González Torres
Davette Nazario
David Fontánez Meléndez
David Palos
Dayra M. Flores
Deandra Rodríguez
Deliris Deliz Pagán
Diana Vega
Diego Colón Serrano
Dinia Ortíz Burgos
Dinorah Osorio Lebrón
Eddie Meléndez
Edgardo J. Bayó
Edwin Reyes
Edwin Rivera
Efraín Sosa
Eileen Rivera Vélez
Elba Rico
Eleonora Cannella
Eliana Pérez
Eliseo Pabón
Elizabeth Figueroa
Elsie Robles
Elynette Maldonado
Emma Rodríguez
Emmanuel Figueroa
Emmanuel Soto Alvarado
Emmanuel Vega Class
Enid Mata
Enrique Marín
Erika Vázquez
Ernesto Ortíz
Ethien Soto González
Evelyn Collazo
Félix González
Félix Méndez
Fernando Díaz
Fernando Figueroa
Fernando J. Soto
Fernando Roca López
Francisco Oliveras
Gabriel López Somohano
Gabriela P. Román
Gabriela Torres
Gerardo Cartagena
Gerardo Cartagena Rivera
Gianfranco Delgado
Gladimarie García Cartagena
Gladys Negroni
Gladys Piñeiro
Glen Malaret Hernández
Glenda I. Camacho Rivera
Gloria Montañez Quiñonez
Gloria Ríos
Glorivee Pereira
Guillermo Espinosa
Héctor L. Huertas
Héctor M. Rivera
Ines Cruz
Ismael Mulero Vélez
Iván F. Oliveras
Iván Francisco Medina
Iván Martínez
Ivette Machin
Janelis M. Tirado
Janeth Centeno
Janpole Santana Castro
Jarvin Figueroa
Javier Díaz
Javier J. Morales González
Javier Ojeda
Jean Carlo M. García
Jeannette Carrión
Jemanuel Martínez González
Jeremy Pérez Colón
Jessaid Pagán
Jessica Rodríguez
Jesús Cambre
Jesús González Ortiz
Jesús López Adams
Jocelyn Albino
Johanna Hernández
Johanna Rivera
Jorge F. Toledo
José A. González Cruz
José A. González Irizarry
José A. Mestre Maldonado
José Aponte
José E. Molina Vázquez
José J. Ramos Bartolomei
José J. Rodríguez
José Nicolás Medina
Jose R. Martinez
José Vargas Rivera
Juan G. Rivera
Judith Rivera
Julio Cabrera Martínez
Julio Plaza
Kaleb N. Aponte
Karla De Los Santos Alicea
Karla G. Sanabria
Karla M. Cepeda Quiñones
Karla Silvestrini
Keisha Mercado Falconi
Kernell Huertas
Krystle La Luz Jiménez
Leonardo Cartagena
Leslie A. Santos
Linís Rivera León
Liznery Tirado

Lucila Hernández Vidal
Lucy Currás
Luis A. Olivencia
Luis M. Cabrera Martín
Luis Pabón
Luis Sánchez Cruz
Luis Vélez
Luz Barreto
Luz E. López
Lyxelis Rodríguez
Madeleine Rodríguez
Magda Figueroa
Manuel Barrios
Manuel Carretero Cannella
Manuel Juan Escudero
Margarita Lagoa
María D. (Lolín) Fuentes
María E. Falconi Santana
María Rullán
María Sánchez
Mariana García de la Noceda
Maricel Beltrán Burgos
Mariceli González Cartagena
Marielle Rodríguez
Marilis Aveillez Larrache
Marilyn Montalvo Montalvo
Marina Del C. Medina
Marnie Cruz
Marta Alvarez
Melissa Reyes Maldonado
Migdalia López Forty
Milagros Bravo Vick
Millie Cortés
Millie Serrano Boschetti
Modesta Montanez
Naceli Pérez Escobar
Natalie Rivera
Natalie Rodríguez
Nathan R. Colón
Nayda Rivera
Nelissa Caraballo Ramos
Nilda Berríos
Nitza M. Pagán Beauchamp
Noel Vera-Gonzalez
Noemí Otero Fernández
Norman Storer
Olga I. González Miranda
Omar G. Vargas
Omar González
Omayra Romero
Orjan Mattos
Rafael Calderín Calzada
Raquel M. Torres Tirado
Raúl A. García
Raúl Ayala
Ricky Jiménez
Roberto Muñoz
Rodolfo Caballero
Rosa H. Alicea Ortiz
Rosa Padilla
Rosael Rodriguez
Rosalina Román
Rosaliz Rodríguez
Roxana Ronda
Ruth Rodríguez
Ruth S. Medina
Sachayma Varela
Sandra Martínez Colón
Sara Iam Guzmán Merced
Saul Salazar
Sifmad Rodríguez
Siomarie Varela
Sofia Rosa
Swantje Rigal Antonelli
Tania Díaz Márquez
Tatiana Padilla
Tomás A. Ocasio
Víctor A. Centeno Torres
Víctor Collazo
Viviana Mired
Wanda L. Santos
William Cartagena
Winston A. Estelritz
Xavier Aponte Medina
Yalitza N. Serrano
Yarilyn Meléndez Rodríguez
Yasmin Pérez Ortiz
Yolanda Gonzalez
Yomara Cruz Torres
Zamia Romero Nieves
Zoe Feliciano
Zuleyka Juarbe

The Conservation Trust of Puerto Rico is a private, nonprofit organization whose mission is to secure functional and healthy ecosystems on the islands of Puerto Rico, and to instill in their inhabitants a sense of responsibility toward the conservation of our natural resources, so that we may have ecosystem services that will help us achieve our social, economic and quality-of-life goals.

The Conservation Trust of Puerto Rico believes that we can achieve our full potential, both individually and collectively, if we can sustain the ecosystem services on the islands of Puerto Rico and respect all forms of life with which we share our natural environment.

787.722.5834

ciudadanocientifico@fideicomiso.org
www.ciudadanocientifico.org
www.fideicomiso.org

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