

PROJECT TITLE: A SURVEY OF FOREST PESTS AND EARLY DETECTION OF EXOTIC PESTS IN PUERTO RICO

Sponsor: USDA Forest Service

Abstract:

Native pests as well as exotic pests can threaten ecosystem health and viability. It is mandatory to develop and implement an early detection and rapid response effort for forest pests and non-native invasive species in Puerto Rico. Identifying potential native organism threats to forest ecosystems allows us to design effective surveys for early outbreak detection. In Puerto Rico, forest personnel need resources to help with the screening and rapid identification of key pests and diseases. The use of GPS time and position reference systems will enable us to collect useful information about existent organisms threats to forest ecosystems and to detect new exotic pests. The development of pest maps and educational materials will assist personnel related to forest management in the rapid identification of forest pests and development of a sustainable management plan for the protection of forest trees. This proposal requests \$30,000 in federal funds to: 1) develop a survey of pests in state and urban forests using GPS/ISIS mapping, and 2) develop an educational program through the use of pest advisory newsletters, seminars and field days to educate personnel of the Department of Natural Resources and Extension Agents in the correct identification of forest pests and implementation of effective management strategies. The outcomes of this project will lead to reduce the potential for pest problems on trees in state and urban forests in Puerto Rico.

PROJECT DURATION: One Year

Goals and Objectives

The main goals of the project are: early detection and rapid response to native or exotic insects and pathogens in Puerto Rico by a survey in state and urban forests, development of pest distribution maps using GPS/ISIS mapping and, adoption of more sustainable management strategies of forest pests through education of the forest community with pest advisory newsletters, seminars and field days.

The objectives of this proposal are the following:

1. To make a pest survey of state and urban forests in Puerto Rico using GPS/ISIS mapping.
2. To develop pest advisory newsletters to disseminate pest distribution maps and other information about forest pests.

3. To offer seminars and field days to Extension Agents and personnel of the Department of Natural and Environmental Resources about existent and recently introduced exotic pests.

Methodology/Timeline

To make a pest survey, the director and collaborators of this project will visit the state and urban forests and use GPS/ISIS mapping to help in the detection of tree pests in Puerto Rico. Exact location of pests will be established using a pocket PC based handheld device that have an integrated Global Positioning System (GPS) unit. The survey will be done in collaboration with APHIS personnel and the collected information will be transferred to an Integrated Survey Information System (ISIS) where it will be link to the locations where the pests are detected. Personnel of APHIS will train personnel participating in the project in the use of GPS and ISIS. The entomologist of the Agricultural Experiment Station will help in the identification of insects and the Plant Pathology Specialist in identification of pathogens in the Diagnostic Clinic of the Extension Service. When the identity of the causal agent is uncertain or unknown, we will use the expertise of taxonomic specialists from APHIS and from the National Plant Diagnostic Network (NPDN) and USFS Forest Products Laboratory (FPL) to identify the pest. Taxonomic verification determines whether a detected pest is a new introduction.

Pest advisory newsletters will be prepared bi-monthly to disseminate pest distribution maps and other information about forest pests. The newsletters will contain pest distribution maps and other information about existent or exotic pests that can threaten the Island's forests. The newsletters will include general information, insect activity, disease activity and pest maps. The purpose of the newsletter is to provide an informational document for personnel related to forest management and the public and provide easy access to current information available. This will facilitate awareness detection, prevention and management of forest pests and allows us to deliver timely information on new or reoccurring pest problems. The project director and the research assistant will prepare six newsletters. The publication will be available by the internet and in print form. Printed copies will be distributed by the Extension Service, Natural and Environmental Resources Department and local and federal Agricultural Offices.

Seminars and field days are part of the educational program that will be delivered to Extension Agents and personnel of the Department of Natural and Environmental Resources about existent and recently introduced exotic pests. A very important component of an educational program is to educate and involve personnel related to forest management in scouting practices, pest recognition and pro-active treatment of potential problems with acceptable practices. Seminars will be conducted in facilities of the University of Puerto Rico in Mayaguez, Isabela and Río Piedras. The field days will take place in state forests and the emphasis is correct identification of key pests and implementation of effective strategies to reduce the potential for insect and disease problems on trees in forests.

Workplan and Timetable

Key Personnel

Wanda Almodóvar, M.S., Extension Plant Pathologist and Project Director, UPR Agricultural Extension Service, College of Agricultural Sciences, Mayagüez, Puerto Rico

Edwin Abreu, M.S., Researcher and Entomologist, UPR Agricultural Experimental Station, College of Agricultural Sciences, Isabela, Puerto Rico

Ada Alvarado, M.S. Extension IPM Specialist, UPR Agricultural Extension Service, College of Agricultural Sciences, Mayagüez, Puerto Rico

Jan Paul Zegarra, Research Assistant

Major Collaborators

Hipólito O'Farrill, PhD., Extension Entomology Specialist, UPR Agricultural Extension Service, College of Agricultural Sciences, Mayagüez, Puerto Rico

Norberto Gabriel, Domestic Program Coordinator, APHIS, USDA.

Workplan:

The key personnel and major collaborators have expertise in all the areas needed for project development and implementation. The Extension IPM Specialist and the Extension Entomology Specialist will help in the revision of the educational materials. The APHIS Coordinator will train the project personnel in GPS/ISIS use and data analysis.

The director and collaborators of this project will visit the state and urban forests and make a survey using GPS/ISIS mapping. The APHIS Domestic Program Coordinator will train personnel participating in the project in the use of GPS and ISIS at the beginning of the project. Private transportation and transportation from the University of Puerto Rico, Mayaguez Campus and will be used to make the survey. Insect samples will be collected and verified by the entomologist of the AES. Diseased samples will be collected and verified by the Plant Pathologist of the Extension Diagnostic Clinic. APHIS personnel will assist us in the survey and identification of unknown or exotic pests.

The development of the advisory newsletters will be in charge of the project director and the research assistant. The Extension Entomology and IPM Specialists will revise the newsletters and help in the development of the educational program activities, like seminars and field days. The educational materials will be prepared in the Mayaguez

Campus Press and in the facilities of the Extension Crop Protection section. We will use a color laser printer and a CD duplicator to produce educational materials for seminars.

Timetable

This project will begin in October 2007 and end September 30, 2008. The schedule for project completion is:

October 2007	Personnel of APHIS will train personnel participating in the project in the use of GPS and ISIS.
November 2007 to March 2008	Visits to state and urban forests to survey forest pests.
February 2008 to July 2008	Analysis of information obtained by GPS/ISIS mapping and production of pest maps and bi-monthly pest advisory newsletters.
July 2008 to September 2008	Seminars and field days to Extension Agents and personnel of the Department of Natural and Environmental Resources about existent and recently introduced exotic pests.