State and Private Forestry Fact Sheet
Puerto Rico 2023

Investment in State's Cooperative Programs

<table>
<thead>
<tr>
<th>Program</th>
<th>FY 2022 Final</th>
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<tbody>
<tr>
<td>Community Forestry and Open Space</td>
<td>$0</td>
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<tr>
<td>Cooperative Lands - Forest Health Management</td>
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<tr>
<td>Forest Legacy</td>
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<td>Forest Stewardship</td>
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<td>Landscape Scale Restoration</td>
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<td>State Fire Assistance</td>
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<tr>
<td>Urban and Community Forestry</td>
<td>$181,242</td>
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<tr>
<td>Volunteer Fire Assistance</td>
<td>$23,770</td>
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<td><strong>Total</strong></td>
<td><strong>$1,239,818</strong></td>
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NOTE: This funding is for all entities within the state, not just the State Forester's office.

Puerto Rico population is estimated in 3,285,874. Is part of the Antillean archipelago, between Caribbean Sea and Atlantic Ocean. Includes the main island, two populated islands, Vieques and Culebra, Mona and Monito, Caja de Muertos, and small islands and cays. Measures approximately 100 miles E to W and 35 miles N to S. Land surface is approximately 3,449 mi². Has wide variations in elevation, climate zones and soil types. Geographical regions and geological primary substrates are: Coastal Plains, Limestone Regions, and Mountainous Interior composed of three main volcanic ranges; and Plutonic batholiths and associated ranges. The 53% is mountainous, 25% plains, 20% hilly, 1% plateaus, and 1% composed of rivers and reservoirs. Is divided in two climatologically regions. Northern two-thirds of the island relatively humid climate, and southern one-third is semi-arid. Mean monthly air temperatures ranging from 27 to 24 °C in coastal areas; and 25 to 22 °C in interior mountainous areas. Spatial distribution of rainfall is greatest in the Sierra de Luquillo rainforest (169 in/yr) and lowest in the southwest (30 in/yr). Land cover is: 59% forest, 13% developed, 10% agricultural, 9% scrub, 4% palustrine wetland, 3% grassland, and 1% estuarine wetlands, water and submerged lands and barren lands. Main cover (59%) is mixed forest dominated by trees generally 16 feet tall, and greater than 20% of total vegetation cover, either deciduous nor evergreen species are greater than 75% of total tree cover. Scrub lands (9%) contains areas dominated by shrubs less than 16 feet tall with shrub canopy greater than 20% of total vegetation. This class includes tree shrubs, young trees in an early succession, or trees stunted from environmental conditions. Developed land or impervious surface is the second land cover class, 12.6%, higher in coastal communities, 13.8% is classified as developed and 16.2% of the coastal zone’s inland limit. Third is agricultural land (10%)- crops, grass, hay

Program Goals

- **CONSERVING WORKING FOREST LANDSCAPE**- Need to preserve the multiple values, uses and services provided by the Puerto Rico forest cover. These benefits may be protected or increased by implementing better conservation practices. Main objectives under this goal are: Identify and conserve high priority forest ecosystems and landscapes in Puerto Rico currently under private control; and actively and sustainably manage private forested land.

- **PROTECT FORESTS FROM HARM**- Recognition of real threats or harm causes affecting forested lands, and to identify ways to control or reduce substantially their harmful effects. Objectives: identify, manage, and reduce threats to forested ecosystems health; and reduce risks of wildfire impacts.

- **ENHANCE PUBLIC BENEFITS ASSOCIATED WITH TREES AND FORESTS**- Maximizing social, environmental and economical services from trees and forests: protect and enhance water quality and quantity; improve air quality; plan/reduce forest health risks; maintain, enhance economics benefits and values of trees; protect, conserve and enhance wildlife and fish habitat; connect people to trees and forests, engage in environmental stewardship; and manage trees and forests to mitigate and adapt to climate change.
Key Issues

- Fragmentation of forest systems- Forest fragmentation, specially of large forest parcels due to urbanization and development is an issue of concern; causes other problems such as the increase in wildland fires, and in pests. Fragmentation of forests due to the construction of telecommunications towers is an issue in various areas of Puerto Rico. Another concern is the loss of public open space.
- Water resources and watershed conservation strategies- Water quality is an issue of concern to the public and natural resource professionals. For domestic water supply watersheds, management practices and forest cover are viewed as key to maintaining the quantity and quality of water resources. Landslides associated with hurricane Maria and the loss of forest cover may have compromised important reservoirs. Prioritize reforestation of these watersheds to protect water supply and wildlife.
- Information needs related to ecosystem services and other benefits from public and private forest land- Develop supporting information about conservation of natural resources for new initiatives among government agencies, NGO's, and citizen group, sustainable land management, benefits of conservation programs, protected natural areas, and existing and new economic opportunities to integrate conservation into public policy decisions on land use.
- Disturbances affecting forests and climate change (hurricanes, floods, fires, pests, etc.)- Climate change will exacerbate the impacts of hurricanes, droughts, pests, floods, fires among other disturbances that affect forests. Undoubtedly, sea level change will impact the estuarine and palustrine coastal forests. Reducing the stressors and fragmentation of forest ecosystems could help decrease the impacts on these resources.
- Hurricane and natural disturbance preparedness and response- Hurricane Maria highlighted the importance of working on preparedness, response and recovery of forests and timber resources to the impacts of atmospheric events. Valuable hardwoods were mixed with debris and ended in landfills. A comprehensive preparedness, response and recovery strategy is needed to manage the waste stream, including rapidly assess downed woody, a process for removing downed wood, and increase sawmill capacity.
- Economic opportunities and alternative market development- Expand existing and develop new viable economic markets associated with forests. Provide market opportunities for private landowners, non-extractive uses of public lands, and ecosystem service markets (valuation and sale of forest services, carbon storage, water production, biodiversity conservation, coastal protection), and a comprehensive market research for wood products).
- Active management of public and private forests- Many of the state forests and other protected areas with important forest resources do not have management plans. Most of the forested lands are private. There is a need to continue working with private landowners in developing management plan and strategies for the protection and sustainable use of forest resources.
- Concern over invasive species- People want to know which exotic invasive tree and wildlife species are problematic and why. They are most concerned about impacts in natural areas.

Forest Facts and Accomplishments
Selected Facts

<table>
<thead>
<tr>
<th>Selected Facts</th>
<th>Value</th>
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<tbody>
<tr>
<td>Population</td>
<td>3,285,874</td>
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<tr>
<td>Acres of Forest Land</td>
<td>1,141,901</td>
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<tr>
<td>Acres of Nonindustrial Private Forest Land</td>
<td>1,247,890</td>
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<tr>
<td>Number of NIPF Landowners</td>
<td>13,159</td>
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<tr>
<td>Acres of Federal Land Under State Fire Protection</td>
<td>26,660</td>
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<tr>
<td>Acres of Private Land Under State Fire Protection</td>
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<tr>
<td>Number of Rural Fire Departments</td>
<td>80</td>
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<tr>
<td>Cities and Towns</td>
<td>74</td>
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<td>Forest Based Employment</td>
<td>1,541</td>
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<tr>
<td>Economic Impact of Forestry (by rank)</td>
<td>20</td>
</tr>
<tr>
<td>State Forestry Budget (All Sources)</td>
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FY 2022 Accomplishments

<table>
<thead>
<tr>
<th>FY 2022 Accomplishments</th>
<th>Value</th>
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<tbody>
<tr>
<td>Landowners Receiving Educational or Technical Assistance</td>
<td>1,936</td>
</tr>
<tr>
<td>Acres Covered by New or Revised Forest Stewardship Plans</td>
<td>7,158</td>
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<tr>
<td>Acres in Important Forest Resource Areas Covered by New or Revised Stewardship Plans</td>
<td>2,674</td>
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<tr>
<td>Volunteer Fire Departments Assisted</td>
<td>32</td>
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<tr>
<td>State Fire Communities Assisted</td>
<td>136</td>
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<td>Coop Forest Health Acres Protected</td>
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<tr>
<td>Forest Legacy Project Acquisitions</td>
<td>0</td>
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<tr>
<td>Communities Provided Urban Forestry Program Assistance</td>
<td>42</td>
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<tr>
<td>Population Living in Communities Provided Urban Forestry Program Assistance</td>
<td>1,069,088</td>
</tr>
<tr>
<td>Urban Forestry Volunteer Assistance</td>
<td>1,468</td>
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Program Highlights

**AgForestry Leadership Class #42 visit to Puerto Rico**

From May 12-21, 2022, Puerto Rico hosted the AgForestry Leadership Class #42 during their visit to Puerto Rico. The AgForestry Leadership is a leadership development program for professionals from Washington State who are working in agriculture, forestry, and natural resources-based businesses. Vicky Christiansted, former Chief of the US Forest Service, is a past graduate of the program. The State and Private Forestry Team welcomed the group at the IITF Conference Room and introduced the group to all State and Private Forestry Programs and their relevance in the conservation of Puerto Rico and US Virgin Islands’ landscapes. The schedule for the two weeks included visits to agricultural projects, model farms and community initiatives across Puerto Rico. Those site visits included Forest Stewardship Forests and Joint Chiefs’ LSR Partnership participants, emphasizing on the importance of agroforestry practices to sustainably manage our forests and get an economic benefit of agricultural practices. The group visited the Rio Hondo Community Forest in Mayaguez, first Community Forest in the US Caribbean, and had the opportunity to walk the forest accompanied of a community member. Other sites that the group had the chance to visit were the cacao project, Cacao 360, Finca El Remanso, Carite 3.0, Eye of the Rainforest among others. Most of the areas visited are participants of State and Private Forestry (SPF) Programs. The group also met with SPF collaborators such as Protectores de Cuenca, Centro para la Conservación del Paisaje, NOAA, and Semilla. During their visit to Puerto Rico, they learned about the benefits of agroforestry practices in the context of a tropical, Caribbean Islands and how these practices contribute to protect and conserve important habitats, food security, climate change mitigation, watershed conservation, sustainable agroforestry products, and diversification of income for underserved communities and small family farmers.

**Alliance for the restoration of the landscape in the eastern hydrographic basin in Puerto Rico**

The Joint Chiefs' Landscape Scale Restoration Partnership team for the Eastern Puerto Rico project offered a workshop on July 7 in Gurabo to private landowners and forest resource managers on this new initiative in Puerto Rico. Agencies and NGO’s work collaboratively at a landscape-scale level to increase conservation actions on private lands to improve ecosystem function and health in the region while improving economic and ecological services for local communities. As part of this effort, we will work to increase suitable habitat for Eugenia haematocarpa in El Yunque National Forest.

The workshop provided information on the technical and financial assistance opportunities available under this initiative with NRCS and a presentation on the Forest Stewardship Program’s management plans including benefits to landowners and forest custodians. Andy Rivera, a participating farmer from the Joint Chief of the Southwest, shared his experiences and success stories with the participants. The event included participation of representatives of the work team presenting details of the education and outreach activities sponsored by Sea Grant Program, technical assistance provided by the Department of
Natural and Environmental Resources, the Wildlife Partners Program of the Fish and Wildlife Service, Southwest Soil and Water District and its support to landowners in the area, Envirosurvey, Inc and Protectores de Cuenca in the production of plant material and finally Para La Naturaleza on monitoring activities with volunteers. As a culmination, a very interesting conversation was held with the attendees to provide additional information on the project.

**Bryophytes Workshop in Río Hondo Community Forest**

On September 1st, the Dr. Amelia Merced led a bryophytes workshop at the Río Hondo Community Forest. Partners from NRCS, Extension Services, University of Puerto Rico, Protectores de Cuencas, Caribbean Regenerative Community Development inc., and community members participated in the “taller magistral” by Dr. Merced. The workshop taught participants how to identify different bryophyte species inside a secondary moist forest and participated in a discussion about the importance of bryophytes for the ecosystem and as moisture storage in the forest in the face of climate change. You can download Dr. Merced's Puerto Rico guide to Bryophytes (in Spanish) from her website: https://sites.google.com/view/briofitaspr/home and Treesearch: https://www.fs.usda.gov/treesearch/pubs/64977

**Capetillo Urban and Community Community Forest, Nursery, and Edible Garden**

The Urban and Community Forestry Program at the International Institute of Tropical Forestry continue to work with University of Puerto Rico and the Capetillo Urban and Community Community Forest, Nursery, and Edible Garden, a local food forest within an underserved community in the heart of San Juan, Puerto Rico. This project is helping document forest conditions through a new tree inventory and identify tree management practices that help increase forest resiliency in the face of climate change and hurricanes. The project also engages neighbors and students in fruit tree plantings and workshops to showcase the food forest to nearby communities and the island as a whole.

**Cooperative Fire Protection**

Puerto Rico is facing the arrival of the dry season, which will influence the vegetation accumulated throughout 2022, which was a wet fall season. The PR Fire Department (PRFD) has been implementing measures in preparation for wildland firefighting in the event of a possible drought scenario in 2023. In 2022, the PRFD managed 2,505 wildland fires in 1,140 acres. Puerto Rico is susceptible to fuel burning from the early January to late August, which keeps firefighters busy fighting fires with an average of 3,000 to 5,000 annual forest fires. The South region of the island is the one with the highest fire activity due to the type of flora and the minimum amount of precipitation. With the assistance of SPF unit at IITF, NOAA NWS, and other agencies, the PRFD implements the prevention, mitigation, and response programs to wildfires, establishing strategies under interagency efforts to work together in the planning process, response phase, resource coordination and fire monitoring. The PRFD has an operations center in the municipality of Juncos, from where they centralize the management of wildland fires throughout the island and other specialized operations. For the management of wildfires, the PRFD incorporates four fire crews during the dry season, covering the south, west, north, and east of the island. These fire crews implement fuel mitigation processes by controlled burning and fire breaks in abandoned and state lands, in addition to fighting uncontrolled fires. The strategies implemented using heavy equipment, practices, and tools subsidized by the State Fire Assistance Program make possible the control of fires and prevent the spread to other areas, thus protecting flora and fauna. 2023 is expected to be a very active in fires due to vegetal fuel material available in the fields to burn. Our goals will be having six fire crews; one in the North, two in the West, two in the South, one in the East to respond to wildfires and perform fuel mitigation efforts.

**Egg Hunting Activity/Pollinators’ Workshop**

The special assistant to the senator for the District of Carolina, Marissa Jiménez, invited the US Forest Service to an event dedicated to children on March 25, from 8 am to 2 pm, at the Sports Complex Jaime Rivera Hance, in Canovanas. Participants were kids who are in custody of the Department of the Family. The main activity was an Easter Egg Hunt.

Lorena Cortes, Greening Youth Intern, in coordination with Dania Rivera, from the UPR Experimental Station in Corozal, put together a Pollinator Workshop. That day and for the enjoyment of all children they put together a flower exhibition and taught the kids the different parts of the flower, how pollinators pollinate flowers, the different types of pollinators and their importance.
**Forest Health Protection**

The Forest Health Clinic together with the staff of the Guanica and Boquerón Forests of the Puerto Rico Department of Natural and Environmental Resources continue monitoring the traps located in those forests. State Forest Managers and the DNER Forest Health Coordinator do the routine monitoring to identify insects collected and for early detection on introduced pests that are causing damage to the vegetation.

The DNER continues monitoring a long horn beetle (Family Cerambycidae) that is affecting the almacigo trees (Bursera simaruba) in the Guanica State Forest.

The UPR Extension Service- Plant Disease Clinic and the Department of Natural and Environmental Resources continue offering support to the Puerto Rico Department of Natural and Environmental Resources in the identification of pests and diseases. The Clinic supports field personnel and the DNER Cambalache Tree Nursery to improve management practices at the nursery.

**Forest Legacy**

The Puerto Rico Department of Natural Resources (PRDNER) focused on acquisition efforts under projects "Expanding the Guánica State Forest" and "Protecting the Central Mountain Range". The PRDNER completed the fee of El Pitirre 8 tract, 3.229 acres, and Yauco/Guayanilla tract, 42.86 acres. El Pitirre 8 tract is one of three tracts proposed within el Pitirre area. This area has been subdivided for residential and vacation homes. Yauco/Guayanilla tract contains a mature habitat dominated by native and endemic species with high ecological value. Species, considered to be of conservation interest to DNER, were identified: Celtis trinervia, Zamia portoricensis, Machaonia portoricensis, Guaiacum officinale and Eugenia woodburyana. The latter is listed locally and federally as Endangered. DNER biologists estimated its population at more than 200 individuals (adults and juveniles). Several E. woodburyana trees were in advanced reproductive stages. These acquisitions guarantee the conservation in perpetuity of 46 acres that will be added to Guanica State Forest. PRDNER is close to completing the acquisition of 5 additional tracts located in the south, north and west boundaries of the Guanica State Forest (Expanding the Guánica State Forest). These acquisitions will increase the forest protected and promote connectivity among critical habitats for federal endangered and threatened species. These tracts provide diverse wildlife and critical habitat for both endangered Puerto Rican Crested Toad and Puerto Rican Nightjar, as well as 16 other listed species.

PRDNER has also advanced efforts under the Protecting the Central Mountain Range Project. This project seeks to acquire 712 forested acres within four properties. In 2022 all appraisals under this project were completed. The acquisition of these tracts ensures the conservation in perpetuity of buffer zones and biological corridors that connect two important life zones and expands habitat protection for two State Forests.

**Forest Legacy Programs Efforts Surrounding El Yunque National Forest**

The Puerto Rico Department of Natural and Environmental Resources (PRDNR) has been participating of a working group comprised by the USDA-Forest Service International Institute of Tropical Forestry- State and Private Forestry Unit, the USDA- Forest Service El Yunque National Forest, the U.S. Fish and Wildlife Service Caribbean Ecological Services Field Office, Para la Naturaleza (a local NGO), and other stakeholders, to advance efforts for the acquisition and protection in perpetuity of private lands adjacent to the El Yunque National Forest. These private lands are in area surrounding El Yunque National Forest and are threatened by development and conversion to nonforest uses. The proposed initiative aims in increasing the habitat of the Puerto Rican parrot, protection of the cloud forests, sources of potable water to the eastern region of Puerto Rico and establishing forest corridors as a climate change adaptation strategy. Consequently, it is an area of conservation concern. We are developing a Memorandum of Understanding between the agencies and groups to join efforts towards the common goal of expanding the delimitation of El Yunque National Forest and guarantee the conservation in perpetuity of this area of high ecological value. As all Forest Legacy Projects, the title of the land will be hold by the Puerto Rico Department of Natural and Environmental Resources.

**Forest Stewardship**

At the end of 2022, the Forest Management Program added 33 new landowner participants, approving
their respective 33 management plans, which add an amount of 5,027.93 acres of impacted forest, for a total of 155 participants and 16,179 acres. This, according to the data collected on the SMART platform and thanks to the valuable technical assistance of the associated NGO collaborators (Cafiesencia, Center for Landscape Conservation, Caribbean Conservation District, Protectores de Cuencas, Inc.), advance without their assistance it would not have been possible to achieve.

These management plans included specific technical recommendations with the following forestry practices that meet the focal points of the program, such as: 1) commitment of the owners in actions aimed at protecting and conserving the forested areas in the highest areas of the priority watersheds to help maintain and improve the quality of water bodies. 2) improvements in habitat for wildlife through the reintroduction of tree species that provide food and shelter, 3) control fires in prone areas of the semi-arid ecoregion of the island, 4) promote ecotourism and educational activities that allow owners to of land to obtain additional economic income.

During the year, a total of 1,583 people were provided with technical forestry guidance associated with the program, through workshops, orientations, educational talks and/or technical advice, according to reports from the seven (7) DNER administrative regions.

Another aspect achieved for the Program was having complied with the random selection monitoring process, allowing the situation of the participating owners to be probed, identifying their successes and needs with the information that helps make the necessary changes and adjustments.

**Guía de Arboles Nativos para Prácticas de Conservación**

Envirosurvey, Inc. presented Guía de Arboles Nativos para Prácticas de Conservación (Guide of Native Trees for Conservation Practices in Puerto Rico and US Virgin Islands). The idea of preparing this Guide resulted from a discussion and analysis by the agencies and entities that are part of the Forest, Wildlife and Wetlands Subcommittee of the NRCS State Technical Committee. This group assists in establishing the priorities that could be addressed through the conservation programs of the agencies that comprise it, the US Forest Service, the Natural Resources Conservation Service, the Fish and Wildlife Service, and the Department of Natural and Environmental Resources with the support of non-profit organizations such as Envirosurvey, Inc. The Guide was produced by an interdisciplinary team coordinated by Envirosurvey, Inc., and with the valuable and expert contributions from the Fish and Wildlife Service, the Department of Natural and Environmental Resources, the Natural Resources Conservation Service (NRCS), among others.

Farmers, private landowners, natural resource managers and students will find in this Guide information on native trees to propagate, plant and establish conservation practices. The Guide includes a description of the species that help in the identification of the species, accompanied by photos that allow the user to become familiar with the species. This Guide groups 140 species of trees native to Puerto Rico and the US Virgin Islands (St. Thomas, St. John, and St. Croix) and provides technical information by species to be used in conservation forestry practices in forests and forest landscapes on state and private land. To download the guide and use an interactive tool that assists users to select the right tree for conservation and mitigation practices visiting https://guiadearboles.org/

**Landscape Scale Restoration**

Forest Fire Prevention in Fire Prone Landscapes in Puerto Rico - Phase II

The Northeast Ecological Corridor Natural Reserve (NEC), in northeast Puerto Rico, is within one of three Joint Priority Landscapes (JPL) delimited in the Puerto Rico Forest Action Plan (PRFAP; 2016). The JPL are areas of high ecological value and of conservation concern and have been designated in order to leverage efforts and resources to advance conservation and restoration actions. The NEC contains most of the general types of coastal wetlands classified in PR. The area is also within the Fire Prone Landscape and has been delimited as a Critical Wildlife Area by the US Fish and Wildlife Service (FWS). The forests of the NEC are threatened by wildfires and are at increased risk due to invasive plant species that interfere with native species regeneration. Planting native, fire resistant tree and shrub species, as well as the eradication of invasive grasses, will reduce the risks of wildfire impacts by removing the fuel which allows wildfires to quickly spread across landscapes and create a fire cycle with the same areas igniting year after year. Creating a closed canopy of native tree species will help prevent the recolonization of invasive grass species. During 2022, project reforested 50 acres in NEC with native tree
and shrub species and the eradication of invasive grass species (PRFAP Strategy 7) 2. Community Wildfire Protection Plan developed with at least three different communities (PRFAP Strategy 4) 3. Engage the public through wildfire prevention education and outreach activities (PRFAP Strategy 3) 4. At least 2 educational materials for wildfire prevention developed for outreach activities (PRFAP Strategy 3) 5. One final report detailing the project implementation, opportunities, and recommendations

**Pollinators**

On December 10, 2021 the UPR Extension Service- Plant Disease Clinic hosted a workshop on pollinators Ayudemos a los polinizadores. Workshop took place in the Corozal Experimental Station and included the participation of the public. This workshop is part of a series of training sessions on the importance of pollinators and part of the initiative ECO-IPM: Protecting Pollinators in the Urban Forest.

ECO-IPM: Protecting Pollinators in the Urban Forest completed the establishment of two demonstration gardens, one in the Alzamora Farm at the Mayaguez Campus, UPR and the other in the Agricultural Experimental Station at Corozal. Those gardens are used to educate the public and promote plants, including annuals, herbs, and shrubs that are most beneficial to pollinators in the Island. You can find more information on this project and other UPR Extension Initiates at https://www.uprm.edu/sea.revista-sea/. Please visit the Polinizadores issue to read an excellent article on the project.

Puerto Rico celebrated the National Pollinators Week from June 19-2, 2022. On June 25th we celebrated the First Pollinator Fest. The Pollinator Fest took place in the UPR Botanical Gardens to celebrate the culmination of the National Pollinator Week. The event's purpose was to create awareness on the importance of the pollinators in Puerto Rico and to educate people about different ways they can protect and promote pollinators. The festival was a success with around 1,400 participants and more than a dozen collaborator organizations and local vendors. As a result of the success of the event, the governor proclaimed the days from June 20-26 as the official pollinator week of Puerto Rico and encouraged the public and private and public entities to participate in this and future related events. The Governor of Puerto Rico, Pedro Pierluisi, signed a proclamation making the days from June 20 to 26 the official Pollinator Week of Puerto Rico!

**Private Forest Working Group**

The Private Forests Working Group and the Forest Stewardship Program hosted a field visit to a shade coffee farm in the Maricao area. Felix Rivera from Cafiesencia was our guide for the day and was joined by the farmer and his family. Don Jose Cruz, his wife Sara, and his son Jose explained to the group how they established a coffee plantation using an existing secondary forest for the shade. The field visit included representatives from the US Forest Service, NRCS, Fish and Wildlife Service, the Puerto Rico Department of Natural and Environmental Resources, Protectores de Cuenca, Cafiesencia, Centro para la Conservacion del Paisaje, Distrito Suroeste de Conservacion de Suelos y Agua, and private landowners of the area. During the visit we learned more about the different shade coffee models. Participants showed interest in understanding better this agroforestry model and how to incorporate this model into existing forest management practices at state and federal programs.

**Urban and Community Forestry**

Puerto Rico is still in the process of recovering from Hurricanes Irma and Maria and the earthquakes and now Hurricane Fiona that impacted the island. The reconstruction processes can already be seen in different areas of the island and in some natural areas. We continue under the consequences of the Pandemic caused by the SARS-CoV-2 virus and its variants. During the past year, community activities continued to be postponed due to this situation. In the year 2023 we hope to be able to work fully with the communities.

To encourage participation in the Tree City Program, we communicate directly with all municipalities on the island. This is to explain the Program and what it means to participate in it. At a meeting held on December 8, 2022, 33 municipalities participated. We hope that during the next year more municipalities will participate, for this we will continue with direct communication with them. In addition, the universities that are members of Tree Campus USA and the Municipality of Caguas, a member of Tree City USA, have continued their reforestation efforts.

As part of the education on the importance of reforestation we signed an agreement with the Department of Education and started visiting schools with talks and tree planting. We are also reinforcing our direct
efforts in the communities with education and seeking to get them to use the correct species in their areas. An activity, which although it is a two-day effort per year, we are collecting Christmas trees and exchanging them for a tree to be planted. This activity is in collaboration with the University of Puerto Rico and non-governmental organizations.

The Urban and Community Forestry Program continues to work with the non-governmental entities selected under the Cost Share Program to ensure that they can carry out all the proposed activities. To ensure that more organizations join this effort, we are updating the proposal guidelines to make them more user friendly.

**Webinar i-Tree Applications on Caribbean Research**

On February 2, 2022, State and Private Forestry offered the webinar i-Tree Applications on Caribbean Research as part of the Forest Management and Disaster Recovery Training series. The webinar showcased research and case studies conducted in the Caribbean using the i-Tree Eco and Canopy tool.

This webinar was presented in English and Spanish in collaboration with Biological Scientist and International Cooperation Team director Gerald "Jerry" Bauer; International Institute of Tropical Forestry's Resources Assistance Program Interns Christina De Jesús Villanueva and Andrés González Nieves; University of Puerto Rico's Environmental Science Professor Elvia Meléndez-Ackerman, PhD and University of Puerto Rico's Environmental Science Department Assistant Professor and Senior Personnel for the Luquillo Long-Term Ecological Research Program Christopher Nytch, PhD. The webinar was attended by 88 participants from United States, Puerto Rico, US Virgin Islands, Peru, Colombia, Dominican Republic, Venezuela, Panama, Nicaragua, Montserrat, and the Philippines.

**Wildland Fire Prevention Workshops**

On April 29, 2022, Protectores de Cuenca and the Distrito Suroeste de Conservación de Suelos y Agua offered a Wildland Fire Prevention Workshop to landowners and forest conservation professionals who are working with landowners within the Southwest Joint Chiefs' landscape Restoration Partnership (a State and Private Forestry Project). The workshop took place in Rancho AA in Sabana Grande, owned by Andy Rivera and Myrna Comas and participants of the Joint Chiefs Initiative. The Distrito Suroeste de Conservacion de Suelos y Aguas made a presentation as an introduction explaining the Joint Chief's Initiative, the agencies and collaborator groups, and project components such as technical assistance and forest management planning, incentives for practices funded by NRCS, monitoring activities with volunteers with Para La Naturaleza, tree production by Protectores de Cuenca, and trainings. Yasiel Figueroa from Protectores de Cuenca made a presentation on wildland fire incidence in Puerto Rico; Ivan Llerandy from Fish and Wildlife Service discussed impact of wildland fires in the biodiversity in Puerto Rico; Darien Lopez, Guanica Forest Manager for the DNER presented the Guanica State Forest as a case study of wildland fires in natural protected areas; the Puerto Rico Fire Department explained about the science of fire, prevention strategies, estimated costs on different wildland fires scenarios, and wildland fire respond with the Puerto Rico Fire Department Wildland Fire Crews; and Ricardo Colon from NRCS and Edwin Mas from Protectores de Cuenca discussed the conservation practices incentivized by NRCS to prevent wildland fires. After the presentations we had demonstrations of conservation practices discussed during the day.

A second workshop was offered May 27, 2022 in Hacienda Esperanza in Manati.

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