



State and Private Forestry Fact Sheet

Puerto Rico 2021



Investment in State's Cooperative Programs

Program	FY 2020 Final
Community Forestry and Open Space	\$0
Cooperative Lands - Forest Health Management	\$0
Forest Legacy	\$286,884
Forest Stewardship	\$95,897
Landscape Scale Restoration	\$0
State Fire Assistance	\$260,000
Urban and Community Forestry	\$90,000
Volunteer Fire Assistance	\$0
Total	\$732,781

NOTE: This funding is for all entities within the state, not just the State Forester's office.

Puerto Rico's population is estimated at 3.9 million people and it is part of the Antillean archipelago located between the Caribbean Sea and the Atlantic Ocean. PR consists of the main island of Puerto Rico and a variety of keys and islands such as Culebra and Vieques to the east, and Mona, Monito and Desecheo to the west. The main and largest island is about one hundred eleven miles (160 km) long, thirty six miles (60 km) wide, and approximately nine thousand square miles (9,000 km²) of land area. The geographical regions and its geological primary substrates are divided into: Coastal Plains, Limestone Regions, and the Mountainous Interior that is composed of three main volcanic ranges; and the Plutonic batholiths and associated ranges. Fifty-three percent (53%) of the island is mountainous, twenty-five percent (25%) is plains, twenty percent (20%) is hilly, one percent (1%) is plateaus, and one percent (1%) is composed of rivers, lakes and reservoirs. According to Gould et. al. (2008) land cover in Puerto Rico today consists of 53% forest, woodland and shrub land vegetation; 32% dry and wet grasslands and pasture; 3% herbaceous agriculture, 4% saline and freshwater wetlands, 1% barren land, 1% fresh water, and 10% developed land. The history of land use is typical of most Caribbean islands. There are six Subtropical Holdridge Life Zones present in Puerto Rico (Figure 4) (Ewell and Whitmore 1973). At 62%, the Subtropical moist forest life zone contains the most land in mainland Puerto Rico. (Brandeis et. al. 2007). The Lower montane wet forest and the Lower montane rain forest zones combined are only slightly over 1%. Land area in the dry forest zone is almost 14%, and the combined wet forest and rain forest zones account for about 23%.

Program Goals

- Conserve working forests landscapes encompasses the need to perpetuate 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. Two main objectives under this goal are: •identify and conserve high priority forest ecosystems and landscapes in Puerto Rico currently under private control; to manage private forested land actively and sustainably.
- 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. Two main objectives under this goal are: •identify, manage and reduce threats to forested ecosystems health; •reduce risks of wildfire impacts.
- Enhance public benefits associated with trees and forests: maximizing services of trees and forests: protect and enhance water quality and quantity; improve air quality and conserve energy; assists communities reducing forest health risks; maintain and enhance economic benefits and values of trees; protect, conserve and enhance wildlife and fish habitat; connect people to trees and forests, and promote stewardship activities; manage forests to mitigate and adapt to global climate change.

Key Issues

- Fragmentation of forest ecosystems.
- Water resources and watershed conservation strategies.
- Information needs related to ecosystem services and other benefits from public and private forest land.
- Disturbances affecting forests (hurricanes, floods, fires, pests, etc.).
- Concerns over invasive species.
- Economic opportunities and alternative market development.

Forest Facts and Accomplishments

Selected Facts	Value	FY 2020 Accomplishments	Value
Population	3,725,789	Landowners Receiving Educational or Technical Assistance	1,623
Acres of Forest Land	1,141,901	Acres Covered by New or Revised Forest Stewardship Plans	989
Acres of Nonindustrial Private Forest Land	1,247,890	Acres in Important Forest Resource Areas Covered by New or Revised Stewardship Plans	972
Number of NIPF Landowners	19,951	Volunteer Fire Departments Assisted	0
Acres of Federal Land Under State Fire Protection	26,660	State Fire Communities Assisted	132
Acres of Private Land Under State Fire Protection	1,900,000	Coop Forest Health Acres Protected	0
Number of Rural Fire Departments	80	Forest Legacy Project Acquisitions	0
Cities and Towns	78	Communities Provided Urban Forestry Program Assistance	20
Forest Based Employment	1,541	Population Living in Communities Provided Urban Forestry Program Assistance	949,344
Economic Impact of Forestry (by rank)	20	Urban Forestry Volunteer Assistance	85
State Forestry Budget (All Sources)	4,089,319		

Program Highlights

Conservation and Restoration in Puerto Rico

Northern Arizona University (NAU) is implementing this project that aims to build a dataset of tree functional traits that are correlated to disturbance recovery, drought tolerance, and communities of herbivores and pollinators. It includes compiling traits from fifty (50) species in the Luquillo Experimental Forest and on twenty-five (25) planted tree species in reforestation in two types of forest- wet and coastal. During Fiscal Year 2020, NAU compiled data for 120 tree species at Luquillo Experimental Forest, 26 tree species at the Manati coastal ecosystem, 25 tree species at the Humacao coastal ecosystem, and 21 tree species at the Guanica dry forest coastal ecosystem. Produced nursery stock for 30 tree species that will be used in a drought experiment. At the Luquillo Experimental Forest, conducted initial trait and community assessments including a comprehensive literature review and data borrowed from prior investigations in the area. This included leaf economic traits on 126 tree species occurring naturally in the wild such as foliar carbon, phosphorus, nitrogen, and seed mass. This also included literature data on floral traits, mating system, and known herbivore and pollinators on these species. In collaboration with Nate Swenson (University of Maryland). Planted trees in three (3) experimental sites as part of various reforestation projects included initial site assessments. In Manati, collaborated with Reforesta (reforestation company that planted trees), and Paralanaturaleza (PLN) that manages those sites. In Humacaco, with Reforesta (plant propagators) and PLN (site managers). In Guanica, with Protectores Cuencas (plant propagators) and Puerto Rico Department of Natural Resources (DNER).

Cooperative Fire Protection

2021 Puerto Rico's dry season is predicted to be active in wildland fires due to vegetation accumulated from years before. In 2020, COVID-19 restrictions established by the Government of Puerto Rico limited

human activity, controlling people's ability to work and move. Woody debris accumulated after Hurricanes Irma and Maria and the material accumulated afterwards, resulted in high amount of downed plant material- fuel-, increasing wildland fire incidence. The Puerto Rico Fire Department (PRFD) has been implementing fuel mitigation measures and preparing for wildland firefighting in case of severe drought. Fire incidence many times depends on geographic location, humidity, and type of fuel. The southern region has the highest fire activity due to dry forest characteristics and limited rainfall. High wildland fire incidence occurs from January to the end of August. In 2020 the PRFD suppressed 2,077 fires in 750 acres. The 2020 was a wetter year resulting in lower number of wildland fires. In average, the PRFD suppress 3,000 to 5,000 forest fires annually. Wildland firefighting planning is an interagency effort and strategies are designed with the assistance of the USDA Forest Service, Weather Service, and state agencies. The PRFD has an operations center in Juncos. The center manages wildland firefighting in Puerto Rico and makes available resources, including specialized equipment, to the fire stations. Puerto Rico has fire crews strategically located and ready to respond and support wildland firefighting needs in Puerto Rico. Fire crews also implement fire prevention work such as prescribed burning and fire breaks in important ecological settings in Puerto Rico. In 2020, PR wildland firefighters supported fire suppression efforts in Oregon, California, and Colorado.

Extension Master Gardener program successfully completes its first year in Puerto Rico

The Extension Master Gardener, a volunteer program that trains individuals in the science and art of gardening in all 50 states, successfully completed its first year in Puerto Rico. The Agriculture Extension Service, from the University of Puerto Rico, received financial and technical assistance from the State and Private Forestry unit at the International Institute of Tropical Forestry to establish the program for the first time on the island. The 12-module program included the participation of 25 volunteers from all regions of the island, including the municipal islands of Culebra and Vieques. Each module was taught by agronomists from the participating Agriculture Extension Service regions. After completion of the program, all volunteers will be certified as Master Gardeners and will be able to teach community groups and school kids on gardening topics, while also helping the Agriculture Extension Service in its efforts to educate the general public about safe and correct gardening for non-commercial agricultural practices. The program covered topics such as: plant anatomy, pathology, entomology, soil, cultural management of community gardens, wildlife management, plant diseases and sustainable gardening, among others. During the modules, participants have been exposed to field trips and hands-on practice in various locations and ecosystems around the island, including the Rio Piedras Botanical Garden, El Yunque National Forest in Río Grande, and the Agricultural Extension Service facilities located in the municipalities of Moca, San Juan, Vieques, Luquillo and Lajas. After completion of the program, five plant clinics will be built on-site at the facilities of each station in the island, offering an opportunity for volunteers to transfer the knowledge to local visitors and school kids in their respective regions.

Forest Conservation Training

To our unit is important to provide our partners with basic and specialized training opportunities to increase their capacity on forestry related topics. Training is a key element to sustainable forest management practices, establishment and management of urban forests, and protect our forest resources. During Fiscal Year 2020 we offered several training sessions hosted by partners and the State and Private Forestry Unit. We partnered with the University of Hawaii, the RNGR Team, Cafiesencia, the University of Puerto Rico- Extension Service, the University of Virgin Islands, and Centro para la Conservacion del Paisaje to coordinate and provide these training sessions. For example, we hosted a Nursery Management Webinar Series and a Master Gardener Webinar series for 25 UPR Extension Service volunteers. During Fiscal Year 2020 our unit hosted/supported a total of thirty-six (36) training sessions.

Forest Health Protection

The University of Puerto Rico, Extension Service-Forest Health Clinic visited the Department of Natural and Environmental Resources nursery to provide assistance in the assessment of pest and diseases in areas next to the nursery. Forest Health Specialists took foliage samples of pepper elder affected by lepidopterous larva and showing leaf spot for identification. Two insect pests were identified, *Gonodonta nitidimacula*, the fruit piercing moth and *Peridinetus signatus*, a snout weevil in a shrub identified by the Cambalache nursery manager as pepper elder, *Piper amalago*. Also, the foliage was affected by anthracnose, a disease that is common in forests where humidity and temperature are high. UPR Forest Health Clinic representatives visited Para La Naturaleza Tree Nursery is located in the UPR Botanical Garden in Rio Piedras. Extension Ornamental Specialist provided advice in relation to tree

development, media used for propagation and other aspects related to tree development and growth. Site inspection confirmed presence of pest and diseases in the nursery. Cooperator and Para La Naturaleza agreed to conduct a pest and disease assessment of on all Para La Naturaleza nurseries in the Island to produce a Pest Management Plan. Initial inspection identified three insect pests: the sea grape flatid, *Petrusa epilepsis* in strongbark, *Bourreria succulenta*; the common plant hopper, *Bothriocera undata* in white fiddlewood, *Vitex divaricata* and sea grape, *Coccoloba uvifera*; the cloudless sulfur, moth whose larva causes damage on *Senna obtusifolia* or "hediondilla". A long-legged fly, *Condylostylus* sp. was identified as biological control of the common planthopper, *B. undata* in white fiddlewood. A disease was detected causing damping off (*Pythium* sp., *Fusarium* sp.) in seeds and plantlets of *Thouinia striata*, "Serrazuela".

Forest Legacy

Guanica State Forest Project- Reducing Forest Fragmentation The Guánica State Forest (GSF) was designated in 1981 as the 2nd UNESCO Biosphere Reserve in Puerto Rico (PR). GSF has been protected from deforestation, goat grazing and farming for more than 140 years, and is perhaps the best example of natural vegetation in Sub-tropical Dry Forest anywhere in the World. Fragmentation of the in-holdings is of special concern since habitat fragmentation is one of the greatest threats to natural ecosystems and global biodiversity. Private forest lands adjacent to the GSF are threatened with fragmentation and development preventing future expansion. The fee acquisition of 220 acres in 10 proposed forested parcels located in the south, north and west boundaries of the GSF will increase the forest protected area and promote the connectivity among critical habitats for federal endangered and threatened species. Currently, all of the parcels are for sale. During 2020, the DNER was able to complete appraisals and appraisals review for the following properties: Lot 7- Gutierrez, Lot 2- Gutierrez, Lot 3- Gutierrez, Lot 6- Gutierrez, Lot 8- Pitirre, Lot 9- Pitirre, Lot 1- Ballenas, Lot 2- Ballenas, and Vacant Lot- Yauco-Guayanilla. These tracts provide diverse wildlife and critical habitat for both endangered Puerto Rican Crested Toad (PRCT) and Puerto Rican Nightjar, as well as 16 other listed species. Private lands and previously approved urbanization plans, located inside the designated area, put at risk the continuity between marine and terrestrial ecosystems.

Forest Recovery in the Puerto Rico Coffee Zone

Hurricane Maria impacted shade coffee plantations losing 90% of these important agroforestry systems, massive loss of forest and biodiversity, and increased erosion. Hurricane Supplemental funding assisted private landowners providing technical assistance and forest management planning to accelerate restoration of these important systems and plan for a future of climate risks and threats, also offering training workshops. Cooperators are providing technical assistance and forest management planning to private landowners within the Puerto Rico coffee zone to restore agroforestry practices (shade coffee). Landowners opt to apply for incentives available in NRCS and Fish and Wildlife Service to restore forest cover to restore agroforestry practices and to improve wildlife habitat for species such as the dwarf forest warbler, Puerto Rican Parrot (*Amazona vittata*, reintroduction plan in the area), Puerto Rican Broad-Winged Hawk (*Buteo platypterus Brunnescens*), and Puerto Rican boa (*Epicrates inornatus*).

Forest Stewardship

FSP approved, partnering with Cafiesencia, Centro para la Conservación del Paisaje, Distrito para la Conservación del Caribe, and Protectores de Cuenca, 18 management plans. We have 16 plans in progress, for a total of 2,216.17 acres of forest in priority zones, servicing 34 private landowners. The plans include specific recommendations, but are not limited to forestry practices that serve the focal points of the program: 1) supporting owners in sustainable management protecting and conserving forested areas in the highest areas of the priority watersheds to help maintain and improve the quality of water bodies. 2) Improvements in wildlife habitat through the reintroduction of tree species that provide food and shelter, 3) prevent fires in areas of PR's semi-arid ecoregion.

Year 2020 was impacted and interrupted by a series of events of force majeure that affected Puerto Rico and caused delays in the processes. Seismic activity in Puerto Rico has increased beginning December 28, 2019. January 6 a magnitude 5.8 earthquake struck Puerto Rico causing damages to residential and business structures in Puerto Rico. On January 7 Puerto Rico was struck by another big earthquake, 6.4 magnitude. This earthquake was felt all over Puerto Rico and cause damages in the Southern area and other areas in Puerto Rico and the power service was lost for a week. People's lives including our collaborators, were disrupted, either lost their houses or needed to move to a shelter. Seismic activity continues and is expected to continue for up to 10 years per USGS report. In March 16 and due to the

COVID-19 pandemic, the PR Governor issued an Executive Order implementing a lockdown and limiting activities including closing non-essential business and activities. Our partners were limited to carry out the activities established in their grants and agreements, including, among others, field visits to private landowners, field assessments, data collection, and offering technical assistance.

i-Tree Canopy Project Puerto Rico Municipalities

The Urban and Community Forestry Program at the International Institute of Tropical Forestry is developing a 30,000-point online inventory to calculate urban tree canopy cover for a quarter of Puerto Rico's municipalities using the i-Tree Canopy app. To date 20,000 points have been assessed by Institute interns and volunteers. The goal for FY 2021 is to complete the remaining 10,000 points and provide each surveyed municipality, an urban canopy cover status report.

i-Tree tools optimization for US Caribbean

Davey Trees Expert Company is optimizing their i-Tree tools for Puerto Rico and US Virgin Islands to develop full functionality in the Caribbean US territories. The project is funded by the Urban and Community Forestry Program. The proposal from the International Institute of Tropical Forestry and local partners was accepted and awarded in 2020. Progress is ongoing and expected to be completed in late 2021.

Joint Chiefs' Landscape Scale Restoration Partnership

We continue our partnership with NRCS implementing the Joint Chiefs' Landscape Scale Restoration (LSR) Partnership initiative in the southwest Puerto Rico. Other partners in this effort are the Southwest Soil and Water Conservation District, FWS, the Puerto Rico Department of Natural and Environmental Resources, Protectores de Cuenca, and Para La Naturaleza. The project has received funding for three consecutive years. Project provides technical assistance and forest management planning for landowners in the area to restore important habitats that house at risk species such as broad-winged hawk, sharp-winged hawk, elfin-woods warbler, and improving habitat for the reintroduction of the Puerto Rican parrot. We received funding to provide technical assistance, production of native trees that are recommended for the reforestation practices, host educational activities with volunteers in private properties implementing their management plans to monitor practices implementation and their effectiveness on the restoration of habitats. The area has a high fire incidence so educational activities about fire prevention practices such as fire breaks are included and offered to private landowners and agency representatives. US Forest Service total investment as of FY2020 is \$1,535,000. In Fiscal Year 2020 the project provided technical assistance to 24 private landowners, completed 6 Forest Stewardship Management Plans covering 458 acres, produced 30,000 native trees, and delivered 5,711 trees. Landowners with a Forest Stewardship Management Plan could apply for incentives available in NRCS and FWS.

Landscape Scale Restoration

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LiDAR Canopy Cover Map

The US Forest Service is mapping canopy cover for Puerto Rico's urban areas and the entire US Virgin Islands using 2018 LiDAR data from USGS. The project is expected to be completed in late 2021.

Partnership helps deliver agroforestry tools to increase biodiversity

Cafiesencia partnered with the International Institute of Tropical Forestry for the development of Forest Stewardship Program Management Plans benefiting rural farmers and landowners in Puerto Rico. The FSP Management Plans are developed with the active participation of private landowners to meet their forest conservation and management objectives. Cafiesencia is providing special emphasis to landowners within the Puerto Rico coffee zone and as part of the Hurricane Recovery efforts led by the Institute. These new FSP Management Plans represent an advancement of the collaboration to successfully integrate agroforestry practices, shade coffee, in farms, providing a variety of ecosystem benefits. Cafiesencia, is a non-government organization that specializes in providing educational and technical assistance to private landowners and communities in Puerto Rico. Cafiesencia assists communities in improving their quality of life and achieve social and economic justice through sustainable economic development of agriculture, agroforestry, tourism, historic and natural preservation, and education.

Cafiesencia has a special initiative called, Cafeicanto. This initiative is part of the technical assistance provided to private landowners that opted to participate in the Forest Stewardship Program. Cafeicanto provides social, environmental, and economic opportunities to private landowners and their communities through the implementation of agroforestry practices to improve and create habitats to increase biodiversity. Cafiesencia partnered with the Puerto Rico Ornithology Society and Birdlife International to train farmers and private landowners in bird monitoring techniques, electronic reporting tools, and the identification of eco-agro tourism opportunities.

Partnership protects crucial watersheds in the southern region of Puerto Rico

Protectores de Cuencas is working on vital projects targeting diverse conservation goals concentrated along the southern side of Puerto Rico, to include the municipal islands of Vieques and Culebra. PDC is concentrated in ecologically sensitive areas with the following goals: increase forest resilience, reduce land-based sources of pollution that are reaching local coastal ecosystems and protect key watersheds in the region. Watersheds are directly related to the health of Guanica Bay and are part of a multiagency conservation initiative.

Protectores is collaborating on the post-hurricane forest recovery efforts, working with private landowners to provide technical assistance to mitigate the effects of Hurricanes Irma and Maria on local forest resources. The ultimate objective is to provide landowners with a forest stewardship management plan that will give them the opportunity to opt to participate in incentive programs that are available through other USDA agencies as well as the US Fish and Wildlife Service. This service is available to private landowners and farmers in southern Puerto Rico, Vieques and Culebra. PDC developed a landscape plan for the region that proposes the establishment of thirty conservation agreements.

PDC has agreements with the Puerto Rico Department of Natural and Environmental Resources to manage the Guanica State Forest. This forest was recognized as a biosphere reserve in 1981 by the United Nations. They have been successful in implementing important coastal restoration efforts, which include sand dune restoration, dirt road stabilization and reforestation of degraded areas using native coastal vegetation. PDC has a growing network of collaborators which include municipal, state and federal agencies. Most importantly, they have the participation and support of the local communities. They are committed to protect and conserve the forest landscape for them and future generations.

Partnership supports bryophyte survey in Puerto Rico

A cooperative effort between the International Institute of Tropical Forestry and the University of Puerto Rico Herbarium led to the creation of a survey of epiphyte and bryophyte vegetation. The survey emphasized the role epiphyte and bryophyte vegetation play in supporting arthropod and invertebrate fauna and assisted in developing adaptive management guidelines for montane wetland and cloud forest vegetation communities within and outside of El Yunque National Forest. Montane cloud forests are high elevation environments characterized by persistent clouds or fogs, sometimes with small trees, with abundant lichens, mosses, ferns and other similar plants. This project shows how bryophytes are critical components in the indicators for forest health, both in El Yunque and in urban forests. Within the forest types of El Yunque, cloud forests stand out when compared with other forest types in terms of their abundance of epiphytes, including liverworts and mosses (Bryophyta). El Yunque/Luquillo Experimental Forest contains more than one-half of Puerto Rico's moss flora. However, the role of epiphytes and bryophytes in maintaining unique ecosystems and as forest health indicators is severely under-

documented.

One of the main goals for this project is creating educational materials for public identification and protection of the species through its inclusion in forest management plans. Bryophytes include a wide range of mosses, liverworts and anthocerotae. In the last surveys--more than 20 years ago--284 moss species, 232 hepatics and 5 anthocerotae are recognized for the area. This project was initiated in 2017 and it is expected to be completed in 2020. Collaborators include experts from the IITF as well as the UPR Herbarium, located in Rio Piedras. To date, 34 specimens representing 20 different species have been identified at El Yunque National Forest and Las Cucharillas Swamp in Cataño.

Tree nursery restoration in Puerto Rico

Rehabilitation of the Cambalache Tree Nursery- The Cambalache Tree Nursery is the DNER facility that produces plant material for the reforestation projects in rural and urban areas in Puerto Rico. The nursery was practically destroyed after Hurricanes Irma and Maria. The DNER identified the rehabilitation of the nursery as a high priority for the restoration of the forest resources in Puerto Rico. The rehabilitation of the Cambalache Nursery was completed during Fiscal Year 2020, and project was officially delivered to the DNER in July 1, 2020. The project included installation of 13 hoop houses, shade houses, ground cover, germination tables, irrigation system, individual valve system for each hoop house, rehabilitation of a water well, installation of water pump, installation of water tank, improvement of electrical system, repair of existing seed fridge and acquisition of a new unit, installation of a seed lab, and one-on-one technical assistance to nursery manager. During Fiscal Year 2020 we provided specialized training on nursery management targeting DNER training needs and benefiting other entities in Puerto Rico, US Virgin Islands, and international partners.

The 8-acre nursery has a production area of 15 hoop houses, germination beds and a hardening area for young trees. Seeds are collected from different collection sites. DNER staff cleans and dries the seeds and keeps records of the number of pounds of seeds and the collection dates. When trees are ready, DNER Forest Technicians distribute the containers trees to the regional nurseries around the island. Cambalache produces trees for urban forestry projects and for rural forestry initiatives with the participation of private landowners and farmers.

Urban and Community Forestry

Puerto Rico continues to work with recovery efforts after the 2017 hurricanes Irma and Maria, and a series of earthquakes that impacted the south part of Puerto Rico from December 2019 and continued throughout most of 2020. Despite the earthquakes and the pandemic, with its subsequent island-wide lockdowns and curfews, our two university campuses and city participating in the Arbor Day Foundation programs, Tree Campus USA and Tree City USA, continued their work with reforestation in urban areas. The city of Caguas, a Tree City USA, participated of a USDA Forest Service National study of cities that are leading the way in urban tree maintenance.

During 2020, we had three active Urban and Community Forestry Program (UCF) cost-share grant projects running in different parts of Puerto Rico. In addition, the UCF cost-share program received 10 new proposals of which five were selected and are in process to be funded. The proposals were reviewed by the UCF Advisory Council, volunteers who advice and help in different aspects of the Program, and are awaiting processing, which was delayed due to recurrent government closures throughout the year due to the COVID-19 pandemic.

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US Caribbean Island-scale Urban areas and Wildland Urban Interface Project

A collaboration between the University of Wisconsin-Madison and the International Institute of Tropical Forestry is mapping urban areas for Puerto Rico and US Virgin Islands. The data will improve planning and analysis of urban areas at the island-scale. This project is also mapping the wildland-urban interface for Puerto Rico and US Virgin Islands using the National standards used for the Continental United States. The wildland-urban interface is the social-ecological zone where human settlements and wildland

vegetation meet or intermingle. It serves as a focal area of environmental conflicts such as forest loss and fragmentation, introduction of exotic species, wildlife subsidization, disease transfer, and wildfires.

Workshops help local farmers innovate, rebuild in the aftermath of hurricanes

Cafi Cultura Puertorriqueña Inc., a private educational non-profit organization best known as Cafiesencia, delivered this summer two important workshops on the island, targeting local farmers and landowners interested in expanding their economic opportunities in the agriculture sector. These workshops are part of the State and Private Forestry Program initiatives to assist private forest landowners after hurricanes Irma and Maria. Through a cooperative alliance, SPF has given technical and financial assistance for Cafiesencia to develop management plans in farms and to organize workshops like the ones in Puerto Rico and the U.S. Virgin Islands. Along with SPF, Cafiesencia assess the health conditions of forests and private estates, identify potential problems and opportunities and recommend management practices. The group is also an important part of the joint chief landscape-scale restoration initiative to establish biological corridors and restore ecosystem functionality after the impact of a major hurricane in the Caribbean area. Cafiesencia provides rural communities of Puerto Rico opportunities to improve their quality of life and achieve economic growth through sustainable economic development of agriculture, tourism, historic and natural preservation, and education.

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