

RHODE ISLAND 2020 FOREST ACTION PLAN Part 3: STRATEGIES

Department of Environmental Management
Division of Forest Environment
June 2020



Rhode Island

2020 State Forest Action Plan: Strategies

The Cooperative Forestry Assistance Act (CFAA) of 1978 (Public Law 95-313), as amended through [Agricultural Act of 2014 \(P.L. 113-79\)](#), gives the United States Forest Service (USFS) the authority to provide financial and technical assistance to states, and others, on a variety of forestry issues. These issues include forest management and stewardship, fire protection, insect and disease control, reforestation and stand improvement, and urban forestry. As amended by the 2008 (and 2014) Farm Bill, the CFAA also requires each State forestry agency to maintain a “Statewide Assessment and Strategies for Forest Resources,” or State Forest Action Plan (SFAP), to be eligible to receive funds under the authorities of the Act.

The programs which comprise Cooperative Forestry for Rhode Island include:

- State Fire Assistance & Volunteer Fire Assistance (SFA & VFA)
- Forest Health Management (FHM)
- Forest Stewardship (FSP)
- Urban & Community Forestry (U&CF)
- Forest Legacy (FL) – see [Appendix F](#)

The Cooperative Forestry Programs promote the health and productivity of forests, emphasizing timber and other forest products, wildlife, water resources, rural economies, and conservation practices. The programs’ overall goal is to maintain and improve the environmental, economic, and social benefits provided by the state’s urban and rural forests.

These programs:

- Improve cost effectiveness by using partnerships to deliver programs
- Increase forest-related values by sustaining forest productivity
- Use voluntary, non-regulatory approaches.

The financial assistance provided to each state must be equally matched by that state and each individual program must meet their national eligibility requirements, including the statewide strategy (revised every 10 years). The strategy must include strategies for addressing threats to forest resources in the state, a description of the resources necessary for the State Forester to address the statewide strategy, and must address the three national State & Private Forestry (S&PF) priorities:

1. **Conserve** and Manage Working Forest Landscapes for Multiple Values and Uses
 - 1.1 Identify and conserve high priority forest ecosystems and landscapes
 - 1.2 Actively and sustainably manage forests
2. **Protect** Forests from Threats
 - 2.1 Restore fire-adapted lands and/or reduce risk of wildfire impacts
 - 2.2 Identify, manage, and reduce threats to forest and ecosystem health
3. **Enhance** Public Benefits from Trees and Forests
 - 3.1 Protect and enhance water quality and quantity
 - 3.2 Improve air quality and conserve energy
 - 3.3 Assist communities in planning for and reducing forest health risks
 - 3.4 Maintain and enhance the economic benefits and values of trees and forests
 - 3.5 Protect, conserve, and enhance wildlife and fish habitat
 - 3.6 Connect people to trees and forests, and engage them in environmental stewardship activities
 - 3.7 Manage trees and forests to mitigate and adapt to global climate change

The Cooperative Forestry Programs have identified their respective goals, objectives and strategies to successfully deliver programs that address the issues and priorities in Rhode Island, which also correlate to the [DEM Strategic Plan 2019-22](#) (see correlation matrix in [Appendix D](#)).

Additionally, the state land managed by DFE, while not a part of the Cooperative Forestry Programs, is an important partner in the conservation and management of forest land in Rhode Island and provides recreation access and educational opportunities – which contributes to the achievement of some of the goals of the Cooperative Programs. As such, State Lands Management is included in the Strategies Section to fully communicate the extent and direction of RIDEM Division of Forest Environment.

State Priority Issues

Forest lands in the rural, urban, and interface/intermix are significant resources benefitting all residents. Suburban and urban “forests” are increasingly recognized (and researched) as contributors to the economic, ecological, aesthetic, and human health values associated with traditional forest land, and to the well-being and quality of life for those who live, work, and play there.

Rhode Island faces many of the same issues and concerns as almost all states, but at a smaller scale that reduces its resiliency and increases the impact and visibility of even comparatively small disturbances, land-use changes, or pest/disease infestations. Meanwhile, Rhode Island’s suburban sprawl continues to blur the boundary between forested and non-forested lands and creates opportunities for the introduction and spread of native, invasive, and naturalized insect pests, plants, and pathogens, potentially increasing risk to Rhode Island’s forest health. Not only do rural forest health issues overlap with urban and suburban issues, but insects and pathogens harmful to trees do not differentiate between the two, so actionable items in Rhode Island typically include and affect both communities.

The main threat to Rhode Island’s forests, whether rural, suburban, or interface/intermix, is disturbance. Throughout history, disturbance from one source or another has impacted forest land. However, the scale of that disturbance, its frequency, degree of degradation, and permanence, when placed in context of human population and demands, challenges the equilibrium of natural processes and environmental services.

The threats and issues and concerns discussed in the Assessment section of this document are all sources of disturbance, and are mainly driven by human activity or interference:

- Fragmentation
- Water
- Forest Health
- Fire
- Climate Change

Climate change further complicates and compounds these disturbance issues on an international scale by increasing pressures and stress on forest landscapes and individual trees and reducing resources and resiliency in those same landscapes. The impacts of these observable and measurable changes to planet-wide climatic processes influence forest processes, from the micro- to the macroscopic. These climate changes alter the equilibrium of our natural environment and its ability to recover, respond, or adapt to those changes. Humans may be the source of much of the pressures on forest lands, but they will also be one of the victims with the loss of large- and small-scale landscape functionality.

State Priority Landscapes

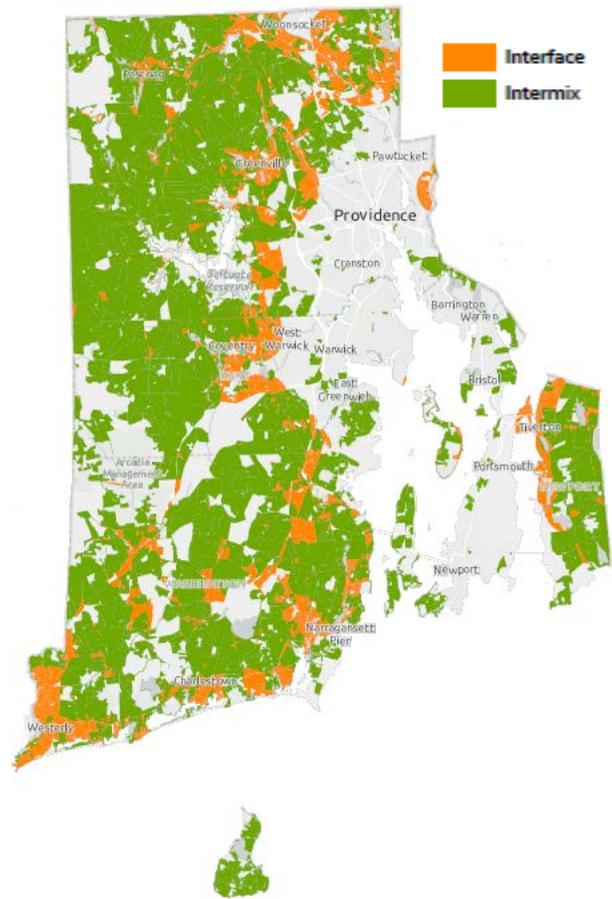
As discussed in the Assessment section on [page 53](#), each cooperative program has its own goals and objectives, but the impacts of disturbance and land change are priority concerns. With Rhode Island’s small size, disturbance in any area, whether rural, urban, or in-between, has direct repercussions in the adjacent areas. *This means that the entirety of Rhode Island remains important.*

Within Rhode Island, there are specific areas expected to face the most immediate disturbance pressures. Based on past development trends, those projected areas are in the Wildland-Urban Interface (WUI) adjacent to larger urban areas. While the entirety of the state is a priority, the WUI areas have been identified as specific areas of interest for all cooperative programs to deliver messages and technical support to **conserve, protect, and enhance** functional working lands in these urban-adjacent areas. Within the national priorities, the program’s goals are to work within the state’s priority areas to:

1. **Conserve** and Manage Working Forest Landscapes for Multiple Values and Uses
 - SFA: Conserve forest resources and ecosystems by supporting resiliency-focused management.
 - FHM: Promote the conservation and management of Rhode Island’s forests through practices that address forest health and resiliency.
 - FSP: Promote conservation of non-industrial private forest land (NIPF).
 - U&CF: Promote active and sustainable management to conserve trees and forests where people live, work and play.
2. **Protect** Forests from Threats
 - SFA: Protect communities and their ecosystems from negative impacts of wildfire.
 - FHM: Protect Rhode Island’s forests by monitoring and evaluating forest health conditions and threats.
 - FSP: Protect private forest land from development and degradation.
 - U&CF: Protect trees and forests from threats (invasive, catastrophic, climate, etc.) through planning and response.

3. Enhance Public Benefits from Trees and Forests

- SFA: Enhance public benefits from trees and forests to Rhode Island communities and residents by developing increased resiliency to wildfire.
- FHM: Enhance public benefits from trees and forests through promotion of practices and programs that address threats to forest health.
- FSP: Enhance forest resources and ecosystem services of private forest lands.
- U&CF: Enhance the public benefits of trees and forests through improved management practices.



Priority Landscapes: Wildland-Urban Interface/Intermix

Resources for Success

Accomplishing the goals identified in this SFAP requires three primary elements:

1. Continued federal funding for Cooperative Forestry Programs at current or increased levels.
2. Retention of professional staff committed to building internal capacity and delivering the best program possible within the limiting factors of stringent budget and staffing levels.
3. Positive and fruitful working relationships with Rhode Island forestry-focused and other allied non-profits.

Rhode Island receives the base USFS federal funding. Although DFE cannot be assured of future sustained federal support, the US Forest Service funding is crucial to the delivery of the DFE Cooperative Forestry Programs. The Program coordinators positions are contingent on that funding, which contributes to salary and programmatic travel needs.

While DFE has invested in acquiring dedicated and enthusiastic staff to deliver and advance state forestry programs, it struggles to work beyond the limitations of a minimal State budget (essentially supporting staff only). DFE staffing is minimal and staff experience an increasing workload and multitude of responsibilities. This results in DFE staff often lacking the time and the resources to fully engage and contribute to regional and landscape-scale efforts that address issues shared by multiple states.

DFE recognizes the challenges of retaining such staff with limited state and federal funding. Under ideal circumstances, sufficient resources would include increased funding to expand DFE staffing; increasing budget levels affected by years of reductions. The bare-bones budgets, lack of up-to-date resources, and the inability to access necessary resources (planning, mapping, assessment, etc.), keep the programs and the coordinators from accomplishing all that they are capable.

Additional funding would be directed towards:

- capacity building across the S&P programs
- increasing resources to expand education and outreach to all constituents, public and private
- improved data gathering tools and mechanisms

Programmatically, this could translate to:

- Forest Fire – develop wildfire risk maps based on scale suitable for RI; increase access to low/no cost training for VFAs
- Forest health – fund sufficient flights for health monitoring; increase access and tracking for new controls, particularly biological
- Stewardship – direct funding to assist landowners with costs associated with plans; develop and print materials; increase program education and access
- Urban & Community Forestry – increase subgrant program to provide sufficient support for management: inventory, planning and canopy assessments

Increased funding to better plan, manage, diagnose, and disseminate information on the health, condition, and risks to Rhode Island's forests is essential to increase public support and advocacy for forest protection and enhancement activities.

Partnerships and collaborations are crucial to protect, conserve, and enhance Rhode Island's forest cover. DFE works closely with several non-profit and other state and federal governmental agencies, participating as frequently as possible, to improve forest management and education. These partnerships are integral to Rhode Island's forest management and future conditions, and without these crucial relationships the reach and engagement of all levels of residents and landowners would be drastically reduced.

The collective resources provided by the US Forest Service, providing financial and technical expertise; a qualified and motivated staff; and multiple working partnerships are all key to the DFE's success now and in the future.

Goals & Objectives Matrix

Conserve and manage working forest landscapes for multiple values and uses.		
Objectives	S&PF Programs	Partners
Develop and expand existing planning and hazard monitoring capacity.	FIRE (SFA)	Federal & Regional Partners RIEMA
Increase capacity for implementation of management recommendations to achieve resiliency goals.	FIRE (SFA)	DEM RIEMA Fire Departments
Develop and deliver information on multiple platforms that addresses the identification and management of forest insect, disease, and non-native invasive threats.	FHM Fire (SFA) FSP U&CF	URI RI Division of Agriculture NRCS
Increase collaboration with local partners' management efforts to address forest health.	FHM FSP U&CF	URI RI Division of Agriculture NRCS
Keep forests as forests by increasing NIPF certified under the Forest Stewardship Program through targeted outreach to landowners in cooperation with partner groups.	FSP	NRCS RIFCO RIWP private
Promote forest management and conservation within spatial communities of small landowners using a landscape-scale approach.	FSP Fire (SFA) FHM U&CF	NRCS RIFCO RIWP private
Maintain RI's active involvement in regional and national Cooperative Forest Management (CFM) committee.	FSP	
Increase the number of communities with active local urban and community forestry programs.	U&CF	RITC Local government
Improve technical and professional capacity of tree-care professionals and the green industry.	U&CF FHM	RITC Local government
Advance community urban tree inventory and planning capabilities.	U&CF Fire (SFA) FHM	RITC Local government

Protect forests from threats.		
Objectives	S&PF Programs	Partners
Develop in-state wildfire response (surge) capacity and specialist skills.	FIRE (SFA)	DEM RIEMA Fire Departments
Improve communication between in-state partners and responders.	FIRE (SFA)	RIEMA Fire Departments
Maintain fire response capacity.	FIRE (SFA)	Federal & Regional Partners Fire Departments
Survey for native and non-native forest insect and disease threats and monitor for their outbreak and spread.	FHM	URI RI Division of Agriculture
Work with regional and national partners to disseminate current information about the biotic and abiotic threats to RI's forests.	FHM	URI RI Division of Agriculture NRCS
Maintain lines of contact and support structures for NIPF owners via onsite visits, meetings, informational exchange, and site inspections.	FSP	NRCS RIFCO RIWP private
Provide access to and information on relevant educational opportunities, current events, and funding opportunities.	FSP	NRCS RIFCO RIWP private
Promote forestry BMPs, and expand messaging, especially in regard to harvesting operations, which should be inspected prior to harvest and during operations to prevent wetland violations.	FSP	NRCS RIFCO RIWP private
Develop disaster preparedness and threat response.	U&CF	RITC Local government
Assist communities with establishing tree planting goals and management plans including trees and urban forests as an energy-saving practice.	U&CF	RITC Local government

Enhance public benefits from trees and forests.		
Objectives	S&PF Programs	Partners
Increase public awareness of wildfire and the need for preparedness.	FIRE (SFA)	RIEMA Fire Departments Municipalities
Incorporate a Firewise approach to wildland urban interface areas.	FIRE (SFA)	RIEMA Fire Departments Municipalities
Expand stakeholder engagement in collecting forest health information and disseminating forest health messaging.	FHM	URI RI Division of Agriculture
Maximize messaging effectiveness by increased coordination with partners for responses regarding threats to RI's forests.	FHM	URI RI Division of Agriculture NRCS
Promote active, sustainable forest management supporting wildlife habitat diversity, structural diversity, and understory health to landowners.	FSP	NRCS RIFCO RIWP private
Promote good silvicultural practices to support forest health, ecosystem resiliency, wetland conservation, wildlife habitat, and carbon storage.	FSP	NRCS RIFCO RIWP private
Provide education and outreach on forest management for special areas, highlighting the relationships of private forest land to wetlands and water quality, air quality, climate protection, and urban-rural interface values.	FSP	NRCS RIFCO RIWP private
Incorporate green infrastructure into municipal planning.	U&CF	RITC Local government
Maximize program delivery and messaging effectiveness through partnerships and coordination with local, regional and federal partners.	U&CF	RITC Local government

STATE FIRE ASSISTANCE & VOLUNTEER FIRE ASSISTANCE (SFA & VFA) Programs

Program Description

The Rhode Island [Forest Fire Program](#) is comprised of two federally supported programs:

1. State Fire Assistance (SFA), CPG; and
2. Volunteer Fire Assistance (VFA), not CPG

Both support state and local rural fire prevention and control programs by providing financial support for prevention, control, suppression, and prescribed use of fires. This funding is also authorized to help conduct preparedness activities, including training, equipping, and otherwise enabling state and local firefighting agencies to respond to requests for fire suppression assistance and to uphold departments' statutory responsibilities. These funds, distributed through the Division of Forest Environment (DFE), promote mobilization readiness for efficient suppression of wildfires on all state and private lands, which assists in maintaining resilient forests and promotes working relationships and service excellence.

These federal funds are essential for DFE to address its critical fire management needs and to develop capabilities as described within the [National Cohesive Wildland Fire Management Strategy](#). The goals include restoring and maintaining resilient landscapes, fire adapted communities, and safe and effective wildfire response. Within its Forest Fire program, DFE is required to specifically address and report on expenditures and activities that contribute to achieving the goals related to:

- Preparedness
- Suppression and Support
- Equipment
- Training
- Community Mitigation and Hazardous Fuels

Strategic Partnerships

REGIONAL

While the Fire Program engages with its adjacent State counterparts, the main mode of engagement is through the [Northeastern Forest Fire Protection Compact](#) (NFFPC), of which Rhode Island is an active member. The multi-state, multi-provincial organization provides its member states and provinces with assistance to address fires that might be beyond the capabilities of a single member through information, technology, and resource sharing (mutual aid) activities. One of the primary services the NFFPC provides is facilitation for training and qualification development. The NFFPC makes it possible to access qualified individuals to deliver local training to better meet local and regional obligations. Involvement in NFFPC committees, planning, and meetings involves 100% of the Forest Fire Program staff (4 people) to fulfill the required state commitments.

LOCAL

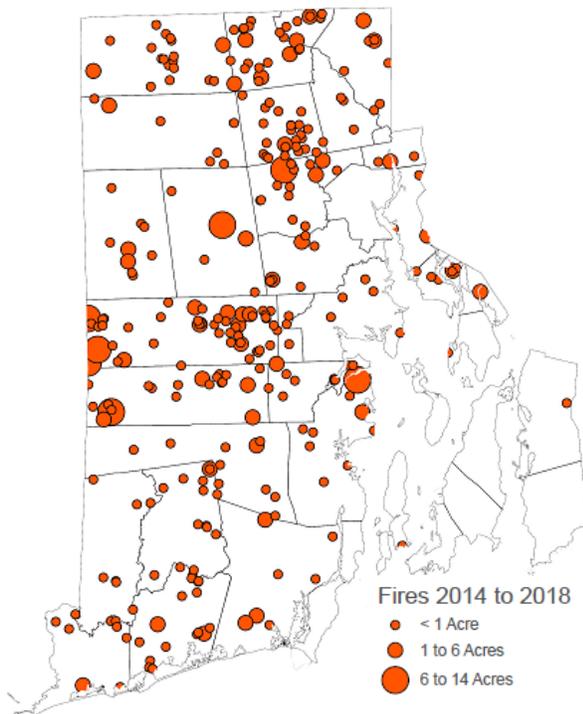
In Rhode Island, authority is delegated from the Director of DEM to the local fire departments to conduct wildfire suppression, prevention and mitigation work. The Forest Fire Program engages with the local fire departments and associations to identify and develop capacity to meet these goals. Partners include the [Rhode Island Association of Fire Chiefs](#), [Rhode Island State Firefighters' League](#), and the regional Fire Leagues: Northern Rhode Island, Central, Southern, and Woonasquatucket Valley Leagues. These partners are engaged in various activities such as training, hazard fuel reduction, prevention and outreach. The Forest Fire Advisory Committee, established by statute following disastrous fires in the 1940s, is an integral group to facilitate collaboration between the fire leagues, departments, and DFE.

STATE

The Forest Fire Program is working hard to develop increased visibility and stronger partnerships with Rhode Island state agencies, with the goal of creating efficiencies and improving interoperability and response. Currently, efforts are directed at increasing engagement with RIDEM Division of Emergency Response, RI Department of Public Safety, RI Fire Marshal's Office, and the RI Emergency Management Agency.

Programmatic Capacity

DFE's reduction in staffing has impacted the ability of the Agency to deliver a cohesive program. The Forest Fire Program has a staff of 4 (with 1 outstanding vacancy), straining its ability to address Preparedness, Suppression and Support, Equipment, Training, and Community Mitigation and Hazardous Fuels programming. It is fortunate that the incidence and size of fires have been diminished since the 1970's, as DFE is no longer able to provide robust response and leadership to support local wildfire suppression efforts. This reduction in large-sized fire occurrence has also resulted in a general lack of awareness on the part of



residents and a lack of engagement or sense of urgency on the part of local fire departments.

Program delivery is more than firefighting readiness, and includes:

- Provide training opportunities for fire departments/districts, including chainsaw safety, land navigation, fire behavior, and other department-specific requests;
- Manage Volunteer Fire Assistance (VFA) grant funding. These monies are used to organize, train, and equip fire departments in rural areas and rural communities (having a population of 10,000 or less) to suppress fires;
- Administer the Hose Loan Program to maintain a supply of clean and tested fire hose for fire departments/districts;
- Deliver an equipment-on-loan program for requesting fire departments;
- Assist with community planning to develop fire protection plans and prevention activities for schools, fire departments/districts, and municipalities as time and staffing permits;
- Manage the Federal Excess Personnel Property (FEPP)/ Firefighter Property Program (FPP);
- Hazard Mitigation Planning, and implementation; and
- Fire Danger and Hazard Monitoring

PREPAREDNESS:

DFE Fire staff conduct several activities that facilitate and maintain a state of readiness, including the analysis of current and predicted weather conditions, wildfire occurrence, and the presence and availability of vegetative fuels throughout the year, maintaining a continual assessment of wildfire risk. Utilizing this information, agency staff develop daily forecasts, to assist the state and local government entities in preparing for and responding to periods of elevated fire danger (i.e., fire seasons), as well as administering "Open Air" burn permitting and other restrictions.

Two technology challenges continue to impede the ability of the DFE Forest Fire Program to

fully deliver preparedness planning and messaging:

1. Lack of fire risk mapping at a scale appropriate to Rhode Island's size: Due to the size of Rhode Island and the comparatively small parcel/project sizes, the 30- or 120-meter resolutions of the National and Regional Hazard Assessments are of limited use for management decisions. While these scales lend themselves well to broad landscapes, they are too coarse to capture small-scale forest characteristics or changes in forest cover due to fragmentation and development in Rhode Island, where 5m resolution would be more useful. Tools that can identify stand level data and cover/fuel type changes are a missing foundational component of state hazard assessment and state lands management. Mapping tools or programs are needed in order to effectively develop management plans and implementation strategies. Insufficient staffing levels do not allow for the manual development of stand level data to manage state lands or to communicate and educate landowners, communities and fire departments for wildfire planning and mitigation. Efforts to access other federal funding sources to develop this capacity have been made, and those efforts will continue.
2. Lack of up-to-date weather technology: Existing weather stations (Arcadia and Chepachet), while comparatively recent, lack compatibility with the GOES16 satellite system, and are unable to collect solar radiation data. The Forest Fire program is still using a manually calculated danger rating using **1967 indices**, which do not correlate well to more recent iterations. This system will be completely obsolete when the new, updated danger rating system is released in 2020.

Response planning is also a component of maintaining a state of readiness. This often includes engaging partners to identify and address areas of significant hazard, risk, or challenges. DFE is working to increase the level

of engagement with other state partners to ensure resources and information is exchanged freely. It is critical for DFE to be a part of the conversation when plans such as the [State Hazard Mitigation Plan](#) and the [Comprehensive Emergency Management Plan](#) are revised.

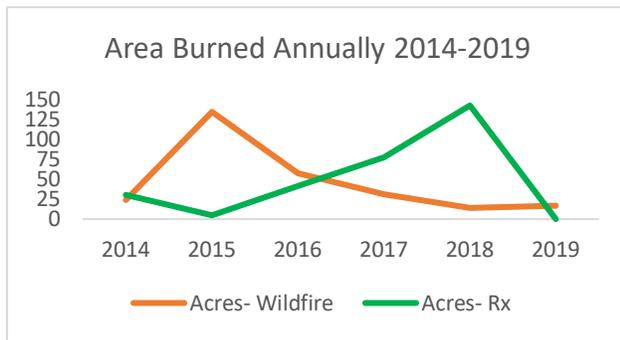
SUPPRESSION / SUPPORT:

Improving efficiency of the protection program including:

- firefighter training and testing to maintain a list of qualified personnel for in-state and out-of-state response;
- maintaining readiness of fire protection resources, available both in-state as well as to other states (outside of Rhode Island's planned fire season).

Currently, due to staffing limitations, the qualified list is only comprised of DFE Fire Program staff. This requires DFE Forest Fire Program to successfully attract DEM and other state agency staff to commit to involvement, training, and maintenance for their readiness. While historically, Rhode Island has not needed to utilize the mutual aid services offered by the NFFPC, the Rhode Island Forest Fire Program is wholly dependent upon the NFFPC and the services provided.

While DFE support capacity and capability is severely limited with existing staffing levels, response to active fires remains a cornerstone of the Forest Fire Program and is critical in meeting the goal of minimizing the impact of event fires and fulfilling the statutory obligations of the Director of DEM. RIDEM is making progress in developing policies and procedures to direct and guide the Forest Fire program including: a State Fire Plan, Standard Operating Procedures, a formal training progression, and a strategies template to develop wildfire response (surge) capacity. Until surge capacity is developed, all forest fires that exceed the volunteer/municipal fire department capacity may require a declaration for a state of emergency. Additional work needs to be initiated for collaboration and information exchange to be institutionalized within DEM.



The acres of wildfires since 2014 and prescribed fire (Rx) by the Forest Fire Program.

TRAINING:

From 2014 to 2018, 589 firefighters attended training either directly taught or facilitated by the DFE Forest Fire Program staff. Delivering training programs is a DFE priority and is critical to address the short- and long-term goals of developing capacity and incident management skills: providing training to volunteer firefighter and Forest Fire Program personnel in wildland fire fighting, firefighter safety and risk analysis, prescribed fire, usage of state forestry hose program, incident preplanning/complexity progression training, ICS, and Wildland-Urban Interface (WUI) Operations.

Besides the training progression, DFE is also increasing partnership efforts with NFFPC and local partners to increase in-state access to non-DFE or DEM staff. In 2019, the program, enabled by NFFPC, hosted an in-state Staging Area Manager course attended by 39 emergency and firefighting staff from across Rhode Island. Future educational courses will be planned and will assist in advancing the training progression efforts.

COMMUNITY MITIGATION AND HAZARDOUS FUELS:

The Forest Fire Program is committed to wildfire mitigation and prevention programs that help reduce hazardous conditions that, in turn, lower the risks from wildfires. The program focuses on outreach, planning, and implementation through public information and messaging from such programs as: Smokey Bear, Firewise, and Ready Set Go.

Existing capacity for fuel reduction efforts rely on DFW and federal partners to implement. On

a state-wide basis, capability to implement moderate complexity prescribed burns is insufficient. Developing that capacity is needed to effectively implement prescribed burning as a fire management tool.

Increasing the ability of the Forest Fire Program to support municipal planning efforts in developing priorities and setting objectives was initiated from a 2015 [Wildfire Risk Reduction \(WRR\)](#) grant for a [Community Wildfire Protection Plan \(CWPP\)](#) for [Prudence Island](#). While the project has been successful, additional time and effort will be required to further implement the preparedness messages for this first CWPP and for other communities statewide. The 2019 WRR grant awarded to DFE focuses on delivering the Firewise program and providing active technical support and developing in-state informational materials that will be made available online. This effort will include utilizing existing risk assessment tools, identifying communities at risk, and initiating proactive contact and follow-through with community leaders in these areas.

EQUIPMENT:

The Forest Fire Program currently maintains:

- a “strike team” of six type 6 engines;
- one type 3 engine;
- specialized deployable kits available to fire departments and NFFPC members; and
- a forestry hose loan and maintenance program for 35 miles of forestry firefighting hose for fire department/district apparatus. The basis for Rhode Island’s initial attack capacity since the 1960s, the program requires a substantial time investment to maintain.



Humans cause most fires in Rhode Island with the potential to spread and impact multiple assets.



Hose laid out for cleaning; to be rolled and delivered to local fire departments.

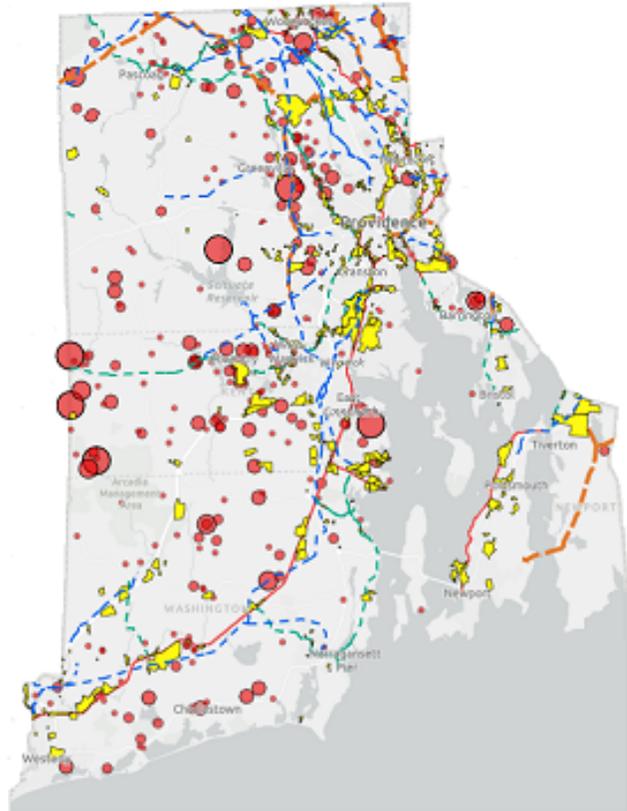
Equipment maintenance is a critical component of maintaining a state of readiness. A priority for DFE is the development (and funding) of an equipment replacement plan as the majority of DFE’s specialized equipment ages, depreciates, and can no longer be repaired. Due to budgetary constraints, large dollar items (such as vehicles) are currently on a 35-40-year replacement schedule. This is an unfeasible timeframe for second-hand vehicles and engines and requires a significant commitment of staff time to maintain, affecting reliability and the Forest Fire Program’s ability to meet its fire responsibilities.

Program Priorities

Forest loss and fragmentation increases as the population continues to migrate from urban centers into adjacent forest land. As a result, fire departments are increasingly fighting fires within the expanding Wildland-Urban Interface (WUI), defined as areas where homes are built near or among lands prone to wildland fire. The increased population results not only in an increased proximity to fire, and more potential sources of ignition, it also exposes more residents, and their material assets ([values at risk](#)), to increased risk from wildfire. The vast majority of Rhode Island’s fires are a result of human activity or carelessness, and often burn within the home ignition zone. The one benefit of increased population is more eyes reporting smoke or fire. However, the close proximity to

values-at-risk reduces the time available to respond, assess, plan, and attack fires. This results in the potential for moderate to high consequence fire environments, characterized by:

- 1) the relatively high complexity due to the proximity and number of values-at-risk threatened, and
- 2) the high number of resources required to engage and control the fire.



This map shows a few of the assets at risk, related to recent RI fires: electrical transmission lines, urban industrial areas, natural gas lines, railways and roads. These are only a fraction of the values at risk should a large event wildfire occur. Homes, businesses and communities are scattered throughout Rhode Island amongst forest land.

These trends have been further exacerbated by the oak decline and mortality caused by several years of gypsy moth infestation and by trends of lower summer precipitation. The values at risk and the ecosystems that cohabit those areas are seeing increased fuel loading short-term, and change in fuel types long-term to more



Typical 0.2 acre fires located in populated areas: adjacent to forest fuels and structures, including garden and farm storage.

aggressive shrub fuel models better adapted to drier conditions, and dramatically increasing fire behavior; a dangerous combination.

As a result, the Forest Fire Program’s priority is to address these high complexity response challenges appropriately, to the best of its capacity, including accessing additional grant funds like the WRR grants. Expanding public information and outreach and increasing planning and technical support efforts targeting communities and fire departments within the interface and intermix is the long-term and on-going priority of the Forest Fire Program.

Goals, Objectives, Strategies

Besides the S&PF National Priorities of Conserve, Protect and Enhance, the Forest Fire Program must also address the goals of the [National Cohesive Wildland Fire Management Strategy](#) (NCS):

1. Restore and Maintain Landscapes: Landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives.
2. Create Fire Adapted Communities: Human populations and infrastructure can withstand a wildfire without loss of life and property.
3. Improve Wildfire Response: All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions.

GOAL 1: *Conserve* forest resources and ecosystems by supporting resiliency-focused management. (NCS: Restore and Maintain Landscapes)

Objective 1.1: Develop and expand existing planning and hazard monitoring capacity.

Strategy 1.1.1: Pursue funding opportunities for fire risk mapping at a scale appropriate to Rhode Island for planning and prioritization.

Strategy 1.1.2: Pursue funding opportunities to purchase NFDRS compatible weather stations to update fire danger tracking and national reporting capability.

Strategy 1.1.3: Use improved planning capacity to establish fire program priorities for land management on state lands.

Strategy 1.1.4: Work with partners to assist landowners, municipalities, and agencies to address fire adapted ecosystem management.

Objective 1.2: Increase capacity for implementation of management recommendations to achieve resiliency goals.

Strategy 1.2.1: Work with partners to develop prescribed fire crew capacity and qualifications.

Strategy 1.2.2: Identify opportunities to employ alternative fuel treatment methods, like herbicide application and mechanical treatment.

Goal 2: *Protect* communities and their ecosystems from negative impacts of wildfire. (NCS: Improve Wildfire Response)

Objective 2.1: Develop in-state wildfire response (surge) capacity and specialist skills.

Strategy 2.1.1: Identify and initiate training for DFE, DEM and other state employees to meet Type 3 incident management needs.

Strategy 2.1.2: Increase local fire department's basic proficiency for wildfire suppression and safety.

Strategy 2.1.3: Work with state agencies and lawmakers to develop an updated emergency hire program.

Objective 2.2: Improve communication between in-state partners and responders.

Strategy 2.2.1: Work with RIEMA to improve and increase interaction and partnerships, and implementation of communications interoperability.

Strategy 2.2.2: Continue to host Forest Fire Advisory Committee meetings and improve fire departments' and partners' access to fire hazard, prevention, suppression, training, and preparedness information.

Objective 2.3: Maintain fire response capacity.

Strategy 2.3.1: Leverage Hose program efforts to increase Fire Department engagement in surge capacity development.

Strategy 2.3.2: Maintain agreements with Federal partners and NFFPC for response, and address barriers to resource sharing.

Strategy 2.3.3: Maintain or replace specialized equipment to ensure initial response capacity.

Goal 3: *Enhance* public benefits from trees and forests to Rhode Island communities and residents by developing increased resiliency to wildfire. (NCS: Create [Fire Adapted Communities®](#))

Objective 3.1: Increase public awareness of wildfire and the need for preparedness.

Strategy 3.1.1: Develop education/awareness outreach, utilizing existing programs like [Firewise](#) and [Ready-Set-Go](#)

Strategy 3.1.2: Work with state partners to incorporate wildfire into environmental hazards preparedness messaging.

Objective 3.2: Incorporate a Firewise approach to wildland urban interface areas.

Strategy 3.2.1: Identify communities at risk through hazard assessment and developing fuel management strategies.

Strategy 3.2.2: Provide technical assistance for communities to develop fuel management strategies and/or Community Wildfire Protection Plans (CWPP).

Strategy 3.2.3: Pursue funding to assist communities with plan development and implementation costs.



Forest Health Program

Program Description

The goal of Rhode Island's Forest Health Program is to protect, enhance, and conserve the health and sustainability of forest resources and, therefore, the values they provide. Distributed through the Rhode Island Division of Forest Environment (DFE), the program is funded by two federal match programs which support national priorities and state activities:

- The [Cooperative Forest Health Protection](#) (CFHP) allocation in the Forest Service directives ([FSM 3400](#), Chapter 3430) is a minimum of \$60,000. Activities include ground-based surveying, outreach and education, training and technical assistance. It is required to have a full-time forest entomologist or plant pathologist on staff.
- The [Forest Health Monitoring](#) (FHM) component promotes the collection of forest stress and disturbance data on Federal, State, tribal, and private lands using nationally standardized methods and data fields. The data is collected through aerial and ground surveys using [Digital Mobile Sketch Mapping](#) (DMSM) codes, standards, and format. Allocation of FHM base funding (\$23,000) is based on the number of participating States and acres of forested land in those States.

These programs fund activities to detect and monitor threats to Rhode Island forests, to evaluate forest health conditions, and to inform and educate others about the status of known and possible threats, and future conditions of the forest resource.

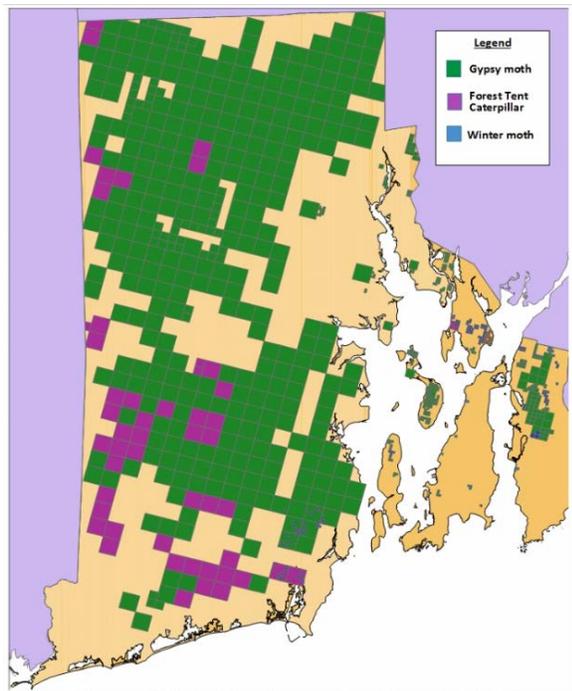
Surveying is the fundamental tool used in the Forest Health Program, from soliciting/collecting information from the public via phone calls, mailings, conversations, or social media, to monitoring forest health plots situated around the state. The same platforms and opportunities are used to disseminate information and/or provide technical

assistance. CFHP activities are critical in the conservation, protection, and enhancement of the forest and include surveying, monitoring, outreach, trainings, technical assistance, cooperative assistance with partners and cooperators, and evaluation of the collected information.

The CFHP in Rhode Island utilizes the same scientifically recognized and accepted survey protocols as other programs across the country to ensure consistent, valid data is collected. Protocols are in place for trapping (sticky traps, funnel traps), collecting with insect nets, or creating "trap trees" (a tree deadened or felled for the purpose of luring insect pests). For some insects, laboratory rearing from the larval stage to adults is required. Methodology is based on such considerations as the damage causing agent (DCA), tree species, lure availability, site parameters, purpose of the survey, etc.

While the CFHP program relies on ground-based activities, FHM involves aerial detection surveys (ADS) of the state's forested landscape to map canopy damage, defoliation, discoloration and/or tree mortality; to identify the cause of those problems; and to evaluate the risks that those threats pose. Mapped areas are "ground-truthed" to confirm the DCA.

In Rhode Island, common pests include: winter moth (*Operophtera brumata*), forest tent caterpillar (*Malacosoma disstria*), gypsy moth (*Lymantria* spp.), hemlock woolly adelgid (*Adelges tsugae*), orange-striped oakworm (*Anisota senatoria*), and southern pine beetle (*Dendroctonus frontalis*). On occasion, unanticipated DCAs or events (fire, weather events, human activities, etc.) require assessment. For example, in 2018, emerald ash borer (EAB) was confirmed, and spotted lanternfly (SLF) (*Lycorma delicatula*) is aggressively advancing in the northeast.



2017 Defoliations by DCA

FHM also relies on on-line tools, such as the USFS [Forest Health Assessment & Applied Sciences Team's \(FHAAS\) "Forest Disturbance Monitor"](#) (FDM). The FDM tool uses remote sensing to detect incremental changes in the "greenness" (deviation in how green the canopy should be compared to what it had been in the past few years) of small patches (about 16 acres) of the forest canopy. Monitoring and evaluating this data can provide warnings that the identified area may be experiencing a forest health threat and requires further investigation.

Strategic Partnerships

University of Rhode Island: Department of Plant Sciences and Entomology

DFE is a state forest health partner without a permanent entomologist or plant pathologist on staff. To meet the national requirement for funding, DFE annually requests a waiver from this requirement and submits a detailed plan for approval that demonstrates how the CFHP program will be implemented and monitored.

The University of Rhode Island (URI) is an essential partner in program delivery and fulfills the role of entomologist required for the federal funding. A yearly contract with URI

allows the Forest Health Program to meet the national requirement and supports a close working partnership.

URI assists in the identification of forest damage-causing agents and, as necessary, propagation of suspect plants, insects, and pathogens for identification. URI also provides technical assistance to landowners and cooperates with the FHP on projects such as the rearing and release of species utilized in an approved integrated pest management program (biocontrol). URI also conducts surveys for forest damage causing agents in furtherance of the stated goals of FHP, and otherwise advises on pest management strategies, including participation at workshops and/or training sessions.

Department of Environmental Management: Division of Agriculture

The Division of Agriculture (DAG) is the State lead agency for the implementation of the [Cooperative Agricultural Pest Survey \(CAPS\)](#) which focuses on agricultural pests, some of which can impact forest resources. Issues that affect forest environments require partnerships for outreach and messaging to all stakeholders. Combined efforts and shared data and analysis are essential elements of this partnership.

Additional partners are also recipients of data collection (compiled and analyzed), such as Conservation Districts, cooperators like Forest Stewardship Program landowners, and non-profits such as RI Forest Conservators Organization (RIFCO). State data, combined with the results of data collected by other states, present a perspective of forest conditions at regional and national scales. Sharing this data enhances the health of forests in each state.



Looking for EAB Larvae: Bark Peeling

Programmatic Capacity

The Forest Health Program is managed by one full time staff person, with one seasonal (6 month) employee (as available). Coordination with program partners is integral to successful program outcomes. For example, some types of surveys or trapping are undertaken with URI on a geographical basis; messaging may be hosted/disseminated by URI, DAG and/or DFE depending on the type of pest or disease and the target audience. The additional threats posed by new pests (e.g. EAB and SLF) increase the need for more surveys, tracking, delimiting, and reporting. These activities all require an overall increase in time and effort from all partners.

Not including aerial detection flights, significant time is spent:

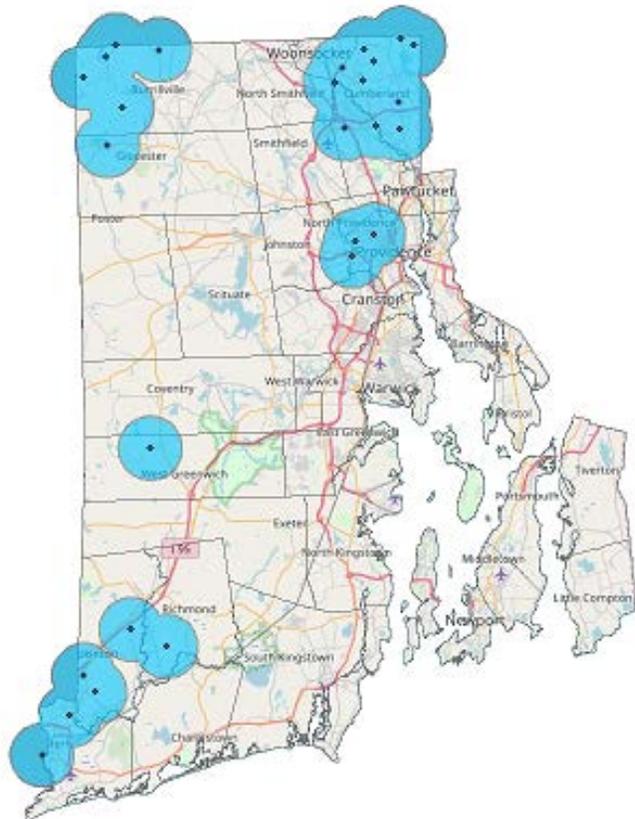
- Undertaking statewide gypsy moth surveys, (counting egg masses was a monumental task during the epidemic outbreaks in 2016 and 2017).
- Monitoring Eastern white pine needle damage (WPND), which has recently been noted, although the pines do not appear to have suffered harmful impacts to date.
 - Long term monitoring plots have been established regionally to monitor changes.
- Surveying for the native southern pine beetle, recently found in Rhode Island, indicates the species continues to thrive regionally, but has yet to cause the type of damage and mortality seen in other parts of its range (predominantly the SE).
 - Monitoring for population changes is continuing.
- Detecting EAB using the *Cerceris* bio-surveillance protocol, now supplemented by ash trap tree establishment and baited lindgren funnel trap installation.
 - Information from these surveys is vital as communities prepare for the impact to ash resources.
- Mapping winter moth damage, which has expanded its range into Rhode Island, periodically causing severe canopy

defoliations (especially to red maple), particularly in the coastal zone.

- As red maple is the state tree of Rhode Island, the threat to this resource is of particular interest.

Additional Issues being monitored include:

- Two-lined chestnut borer (*Agilus bilineatus*) (identified as a possible source of secondary mortality of Gypsy moth damaged oaks)
- *Cynipid* gall wasps (Oak mortality)
- *Phytophthora ramorum* (various types of damage)
- Oak wilt (*Bretziella fagacearum*) (decreased vigor and/or mortality)
- Beech bark disease (insect/disease complex: *Cryptococcus fagisuga* and *Neonectria* spp) causes Beech mortality)



EAB trapping in 2019 shows locations where adults were caught using lindgren funnel traps. The blue boundary indicates a two-mile radius, the extent the infestation is presumed to have reached. 2020 trapping will start on these boundaries to further delineate the extent of infestation in Rhode Island.

In addition, DFE has adopted The Nature Conservancy's [Don't Move Firewood](#) campaign as a proactive protection step to prevent the introduction and slow the spread of invasive species. The FHP disseminates outreach materials to RV parks, campgrounds, and other appropriate facilities, and venues as part of Rhode Island's forest protection outreach. Informing the public at these outlets has a direct impact at a point source for potential infestations that reaches beyond the property boundaries of the facility, since the movement of firewood has been identified as the major vector for introduction of forest pests into uninfested areas.

Program Priorities

Similar to the other Cooperative Programs, land use change and development pressures present the greatest challenge to forest health. Sprawl and transit corridors provide multiple pathways and opportunities for the introduction and spread of native, invasive, and naturalized insect pests, plants, and pathogens, many affecting tree species and habitats. But urban problems don't remain urban and rural forest health is impacted, whether through competition, decline or mortality, or loss of synergistic flora and fauna. The popularity of recreation exposes trails and campsites to hitchhikers in or on vehicles travelling from infested to non-infested areas, and through the movement of infested firewood or wood products. Since forest health issues cross state boundaries, a regional approach to management is often required, necessitating cooperation with partners within the region, as well as continued vigilance within Rhode Island.

Priority areas where educational efforts can be targeted and are prime locations for trapping pests include locations where sprawl and development are occurring (typically immediately adjacent to existing urban areas, and in areas of high human activity, such as campgrounds). However, rural forests remain a priority given that mortality and regeneration, changes in species mix, and chronic stressors can affect habitat and forest characteristics for generations.

Goals, Objectives, Strategies

Goal 1: Promote the *conservation* and management of Rhode Island's forests through practices that address forest health and resiliency.

Objective 1.1: Develop and deliver information on multiple platforms that addresses the identification and management of forest insect, disease, and non-native invasive threats.

Strategy 1.1.1: Develop messaging that emphasizes a landscape approach to tree and forest management and threat response, incorporating shared messaging from other DFE programs: Stewardship, Fire, and Urban Forestry.

Strategy 1.1.2: Utilize internal and external social media platforms and websites such as DFE's [Current Threats to Forest Health](#), and [Don't Move Firewood](#) to inform and prevent the spread of invasive pests.

Strategy 1.2.3: Utilize survey and monitoring data to assist management efforts that further Forest Health Program goals.

Objective 1.2: Increase collaboration with local partners' management efforts to address forest health.

Strategy 1.2.1: Share latest techniques and protocols for identification and management of current forest threats.

Strategy 1.2.2: Pursue funding opportunities for alternative treatment methods and biocontrol response to damage causing agents (DCAs).

Goal 2: *Protect* Rhode Island's forests by monitoring and evaluating forest health conditions and threats.

Objective 2.1: Survey for native and non-native forest insect and disease threats and monitor for their outbreak and spread.

Strategy 2.1.1: Maintain federal collection protocols for priority species and complexes.

Strategy 2.1.2: Assess effectiveness and adapt methodology of state gypsy moth plots as appropriate.

Objective 2.2: Work with regional and national partners to disseminate current information about the biotic and abiotic threats to Rhode Island’s forests.

Strategy 2.2.1: Attend regional and state meetings to share and exchange information and efforts.

Strategy 2.2.2: Establish Rhode Island representation on the [Northeastern Forest Fire Protection Compact](#) (NFFPC) *Forest Health Working Group*.

Goal 3: Enhance public benefits from trees and forests through promotion of practices and programs that address threats to forest health.

Objective 3.1: Expand stakeholder engagement in collecting forest health information and disseminating forest health messaging.

Strategy 3.1.1: Engage local stakeholders with trapping and monitoring efforts by providing materials and training and promoting local efforts on social media and public workshops/presentations.

Strategy 3.1.2: Continue to support local partners (such as RI Conservation Districts, Envirothon, and RI Forest Conservators Organization (RIFCO)) by sharing data and information and participating in outreach efforts to professionals and the general public.

Objective 3.2: Maximize messaging effectiveness by increased coordination with partners for responses regarding threats to Rhode Island’s forests.

Strategy 3.2.1: Continue to collaborate with primary in-state partners, URI and RIDEM Department of Agriculture, on developing consistent messaging across programs and platforms.

Strategy 3.2.2: Maintain engagement with Federal and other State Forest Health counterparts for updating, coordinating and assisting with regional forest health efforts and initiatives.



Lindgren funnel trap for SPB



Purple prism trap for EAB

Forest Stewardship Program

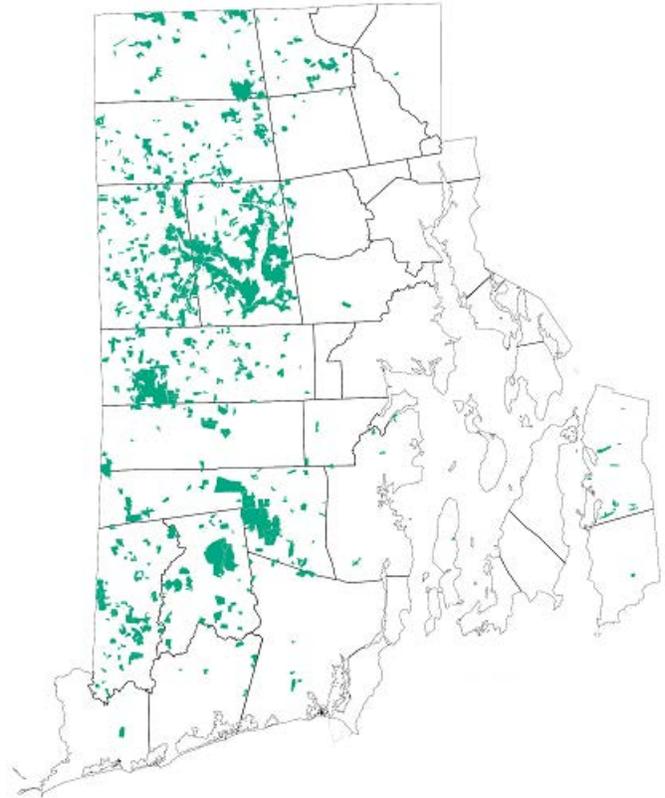
Program Description

The Rhode Island [Forest Stewardship Program](#) (FSP), under the US Forest Service, serves to promote and support active forest management on non-industrial private forest lands (NIPF). Through the Rhode Island Division of Forest Environment (DFE), this program provides NIPF owners with access to professional and technical assistance. In Rhode Island, this assistance includes:

- Maintenance and delivery of the Forest land Classification current use taxation program
- Site visits to forest landowners requesting technical assistance
- Education and outreach for both landowners and the general public
- Timber harvesting permitting and BMP education for landowners and loggers
- Dissemination of information on education and funding opportunities

The Rhode Island FSP is also responsible for tracking land-use change and ownership patterns, seeking out new programmatic opportunities, and exploring creative, flexible ways to serve the needs of Rhode Island's people and forests.

Landowner participation in the FSP is driven by the current use program that allows lower land tax valuations for lands under Forest land Classification (FLC). To maintain FLC under the Rhode Island [Farm, Forest, and Open Space Act](#) (FFOS), NIPF owners must actively manage their forest land according to federal FSP standards. While FFOS requires a landowner to manage 10 or more acres of forest land to qualify for FLC, all NIPF owners in the state are eligible for assistance from the FSP and can request assistance at any time. Outreach and education are also available to any groups requesting relevant assistance, including presentations, guided walks, or workshops.



Forest land enrolled in the FFOS Program, 2019

Strategic Partnerships

Personnel and resource limitations requires the Stewardship Program to rely on close associations with partner groups. Currently, an MOU is being developed between [Natural Resources Conservation Service](#) (NRCS) and DFE that recognizes the importance of Rhode Island forest management and makes provision for close cooperation and collaboration between the programs to provide and deliver technical assistance to NIPF owners.

The [Rhode Island Woodland Partnership](#) (RIWP) is a local partner organization drawing from public agencies, small businesses, and non-profit organizations, to meet shared stewardship goals. The broad membership representation allows RIWP to act as the Stewardship Advisory Council for periodic meetings and input.

Other partner groups include:

- [Rhode Island Forest Conservators Organization \(RIFCO\)](#)
- [Rhode Island Resource Conservation & Development Council \(RIRC&D\)](#)
- [Rhode Island Association of Conservation Districts \(RIACD\)](#)
- [RI DEM Division of Fish and Wildlife \(DFW\)](#)
- [American Tree Farm System, Rhode Island Council \(ATFS\)](#)
- [Forest Stewards Guild](#)

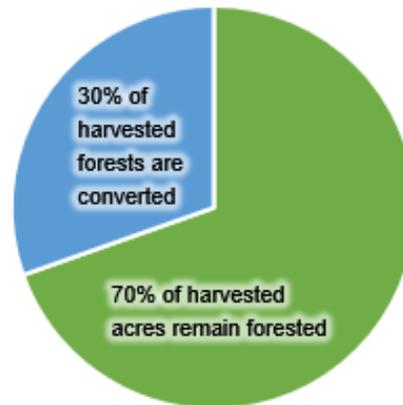
Program Priorities

Stewardship Program priorities include mitigating the effects of urbanization by promoting the protection and management of swaths of undeveloped and contiguous forest land in Rhode Island and promoting forest management in the wildland-urban interface (WUI). By percentage of urban land, Rhode Island is the second most developed state in the US, so every acre of remaining forest land is crucial for the health of both the human and wildlife populations of this state.

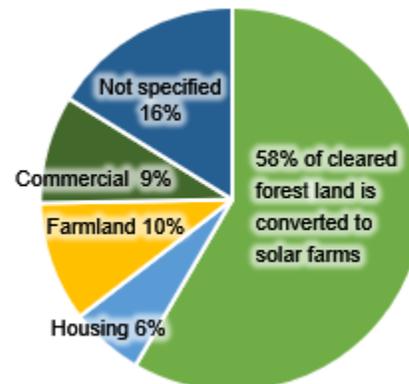
Currently, the pressures to develop private forest lands remain steady and are increasing as the state recovers from the Great Recession. Trends over the last two years indicate that nearly a third of all timber harvesting in Rhode Island results in permanent land conversion (top graphic on right), the majority of which is due to pressures from alternative energy development (bottom graphic on right). Landowners may not continue to manage and maintain their lands as forest if they perceive a lack of value and support for forest management – to the detriment of all of Rhode Island and its inhabitants. By providing private landowners with technical assistance, education, and outreach, the FSP acts as a support system for forest landowners.

Forested areas under the greatest conversion pressure - those in which the most forested acreage is being permanently converted - are rural areas with cheaper land and higher taxes relative to other towns in Rhode Island (e.g. Hopkinton, Foster). Exurban and wildland-urban

interface areas continue to face steady pressures from housing development, resulting in fragmentation from house lots and subdivisions carved from contiguous forest.



Conversion of forest land based on harvesting permit data (2018 – March 2020). Of all harvested forest land acreage, 29% is deforested for permanent conversion to other



Use of converted forest land based on harvesting permit data (2018 – March 2020). Of all deforestation occurring via permitted harvesting, more than half is converted to solar energy farms and 16% to conventional agricultural uses.

This priority focus for the FSP coincides with the modernization efforts underway on national and regional levels and addresses the four critical issues of concern. By targeting remaining contiguous forests in rural western Rhode Island and in the Sakonnet landscape of Tiverton and Little Compton, as well as the interface and exurban areas in Rhode Island, active forest management addresses the issues of concern:

- **Reducing wildfire risk to communities** through active forest management and maintenance of trails within properties.
- **Protecting water resources** by monitoring water quality protection during harvesting, retaining forests adjacent to waterways, and promoting conservation of forests in important watersheds.
- **Enhancing wildlife habitat and promoting forest health and resiliency** through active forest management including successional intervention, invasive species control, and forest health improvement.
- **Supporting jobs in the woods** via retention of working forest lands.

The demand for land for development and other uses resulting in permanent land conversion is increasing, and landowners must be supported and educated on the value and benefits of managing their forests as forests. Without active and consistent efforts, many landowners will succumb to the enticement of selling their land. The FSP acts as a support system for forestland owners by providing private landowners with technical assistance, education, and outreach.

Goals, Objectives, Strategies

Goal 1: Promote *conservation* of non-industrial private forest land (NIPF).

Objective 1.1: Keep forests as forests by increasing NIPF certified under the Forest Stewardship Program through targeted outreach to landowners in cooperation with partner groups.

Strategy 1.1.1: Identify key areas of qualifying NIPF and target outreach efforts toward landowners in these key areas to increase awareness about both the Forest Stewardship Program and the importance of sustainable forest management.

Strategy 1.1.2: Continue to promote the current tax provisions of the FFOS Act as a tool to conserve forestland and work with municipal tax assessors to reach eligible landowners.

Objective 1.2: Promote forest management and conservation within spatial communities of small landowners (with less than ten contiguous acres) using a landscape-scale approach.

Strategy 1.2.1: Develop a landscape-scale management framework to benefit small landowners in Rhode Island (<10 acres) who do not qualify for FLC under FFOS.

Strategy 1.2.2: Identify key areas of small landowners with potential for collaborative management and provide outreach to encourage forest management under the landscape-scale management framework.

Objective 1.3: Maintain Rhode Island’s active involvement in regional and national Cooperative Forest Management (CFM) committee.

Strategy 1.3.1: Attend annual regional NMSFA CFM committee meetings and biennial national CFM committee meetings.

Strategy 1.3.2: Utilize the Forest Stewardship Committee (RIWP) to advise Stewardship Program activities.

Goal 2: *Protect* private forest land from development and degradation.

Objective 2.1: Maintain lines of contact and support structures for NIPF owners, via onsite visits, meetings, informational exchange, and site inspections.

Strategy 2.1.1: Educate NIPF owners on forest fragmentation prevention, sustainable forest management, and conservation-based estate planning.

Strategy 2.1.2: Cooperate with the Rhode Island Forest Fire Program to provide NIPF landowners with wildfire protection and prevention resources.

Objective 2.2: Provide access to and information on relevant current events, partner group initiatives, and funding opportunities.

Strategy 2.2.1: Increase NIPF owner awareness of programs available through collaborative and partner group efforts, such as the “Forestry for Rhode Island’s Birds” program.

Strategy 2.2.2: In cooperation with partners, provide outreach and education to tax assessors, realtors, and public officials on the importance of opportunities for landowners to protect NIPF from development and degradation.

Objective 2.3: Promote forestry BMPs, especially in regard to harvesting operations, which should be inspected prior to harvest and during operations.

Goal 3: Enhance forest resources and ecosystem services of private forest lands.

Objective 3.1: Promote active, sustainable forest management supporting wildlife habitat diversity, structural diversity, and understory health to owners of both managed and unmanaged forest land.

Strategy 3.1.1: Provide education and outreach on: (1) invasive species identification and control, and (2) insect and disease recognition and response.

Strategy 3.1.2: Provide education and outreach on the importance of sustainable forest management in supporting fish & wildlife habitat, improving watershed function, and contributing to air quality.



Strategy 3.1.3: Encourage landowners to seek assistance from qualified natural resource professionals.

Objective 3.2: Promote good silvicultural practices, backed by sound science, to support forest health, ecosystem resiliency, wetland conservation and watershed function, wildlife habitat, and carbon storage.

Strategy 3.2.1: Support best management practices (BMPs) for forest management through education and follow-up.

Strategy 3.2.2: Promote silvicultural practices that support a diversity of forest structures and habitats, especially for threatened & endangered plant and wildlife species and those vulnerable to suburbanization and fragmentation.

Objective 3.3: Provide education and outreach on forest management for important forest ecosystems, highlighting the relationships of private forest land to wetlands and water quality, air quality, climate protection, and urban-rural interface values.

Strategy 3.3.1: Promote “Call Before You Cut” program to educate landowners before timber harvesting.

Strategy 3.3.2: Provide education and outreach to groups outside of NIPF owners, such as community groups, policy makers, and schoolchildren, with specific focus on the universal benefits of private forestland conservation and management.

Strategy 3.3.3: In cooperation with partner groups, inform and educate state and local government officials of the need to provide sound policies for the funding, protection and enhancement of private forest resources.

Urban & Community Forestry Program

Program Description

The goal of the Rhode Island Urban & Community Forestry Program (U&CF) is to support communities in developing sustainable urban forestry programs that enhance the environmental, economic, social, and health benefits that healthy trees and forests provide. U&CF aims to do this by assisting communities with the:

- Development of urban forest resource assessments and management plans
- Development and review of tree ordinances and policies
- Education of citizens, private industry, agencies, and community groups on tree establishment and management
- Establishment or improvement of the effectiveness of advocacy and advisory organizations

To a degree, Rhode Island's forest land has benefited from the industrialization and movement of population from rural to urban areas in the past century, as well as the migration of industry and manufacturing out of the state. Even the slow recovery from the Great Recession has buffered the rate of development and land conversion. But this recovery and reprieve is coming to an end as populations grow and expand both in Rhode Island and in neighboring states.

In Rhode Island, municipalities are facing development pressures that result in forest land conversion, from traditional house lot construction to solar field installations. These municipalities are generally not prepared to address these demands in a way that best represents community identity and character; most communities have no or limited ordinances that address trees and landscape within infill or new development sites. Tree maintenance is typically a reactive event with limited proactive planning.

And, while Rhode Island requires all people working in arboriculture have a state license, to a total of nearly 700 active licenses in 2019, there is no required on-going education requirement.

The opportunity and need for technical support and assistance for communities, professionals and residents in Rhode Island rests on the base funding received for the Urban & Community Forestry Program (\$200,000 per year). To be eligible for base funding requires:

- full-time program coordinator
- full-time or equivalent volunteer/partnership coordination capacity
- active state advisory council, and
- current 5-year plan that may be included in the State Forest Action Plan (as is here)

Unlike most states that receive base funding, Rhode Island utilizes some of that base funding to deliver a small subgrant program (typically \$30,000 per year) awarding ~10 small subgrants yearly.

Strategic Partnerships

Rhode Island provides funds to the RI Tree Council (RITC) through a cooperative agreement to fulfill the required volunteer coordinator position necessary to receive federal funding; due to funding limitations, and managing the subgrant program, Rhode Island does not have a volunteer/partnership coordinator employed in State service. RITC manages the champion tree registry, plans and organizes the State Arbor Day, delivers a myriad of public education programs, including the extensive Tree Stewards Program, works with municipalities (e.g., the Set-Back Tree Planting Program with three active municipalities in 2019), and represents the U&CF Program throughout the state, providing education and engagement opportunities in urban and community forestry for Rhode Island citizens.

The U&CF Program provides support or technical assistance to other small or local non-profits and tree boards around the state where support or technical assistance is needed. However, there are multiple opportunities to work with other State Agencies, providing technical support and advocating for trees. In particular, opportunities have been identified to increase engagement with:

- RI Department of Environmental Management [State Parks](#): aging and decaying trees, Emerald Ash Borer, planning and replanting strategies, greenway issues
- RI Department of Environmental Management [Division of Agriculture](#): Invasive pests and diseases affect local agriculture and local forest environments requiring partnerships in outreach and messaging to all stakeholders
- RI Department of Health [Health Equity Zones \(HEZ\) Initiative](#) is a partner for the project funded by American Forests for the RI Urban Forests for Climate and Health initiative
- RI [Emergency Management Agency](#) is increasing engagement with the DFE Forest Fire Program, but opportunities for U&CF to promote the inclusion of trees in emergency planning and to support communities through U&CF's involvement with the 2019 NUCFAC: *The Accessible Community Tree Inventory: Expanding State Capacity for Planning and Risk Management*

A final significant partnership, since 2015, is the funding received through the [RI Regional Greenhouse Gas Initiative](#) that funds the Energy-Saving Trees Program, described further below. The [Arbor Day Foundation](#) is essential in implementing this effort.

Programmatic Capacity

Beyond the technical support and partnerships, the U&CF program delivers or manages several efforts:

U&CF SUBGRANTS

Since 1990, the U&CF program has made a portion of their base funding available for subgrants ranging from \$1,000-\$4,000, with a 60/40 match requirement. At one time grant monies were as high as \$100,000 but, in recent years, funding has held steady at \$30,000. Applications from municipalities and varied non-profits and applications are reviewed with the RITC Board. Traditionally, many of the projects are related to tree planting, but the U&CF Program encourages applications for planning and management through its review process where funding priority is given to projects that advance a community's urban forest management program, provide training to public agency staff, educate the public on urban forestry issues, or promote tree planting in low-to-medium income communities with below-average tree canopy cover.

ENERGY-SAVING TREES

A successful grant-funded partnership with The Arbor Day Foundation in 2015 through their [Energy-Saving Trees](#) Program (EST) led to an extension of the partnership funded by Rhode Island's [Regional Greenhouse Gas Initiative](#). Two tree giveaways are offered June and September, for 1,000 trees each.



Since the EST program's inception, Rhode Island has planted 11,400 trees around RI residences to reduce heating and cooling costs. An initial survivability study was conducted on the fall 2015 giveaway season one year after their planting and found 78% of trees were planted correctly and still alive; additional survivability studies have not been conducted due to short-staffing and funding. Interest in the program remains high and all trees are typically reserved within a week. Any unclaimed trees are given to RITC, which uses them as part of their outreach and planting efforts.

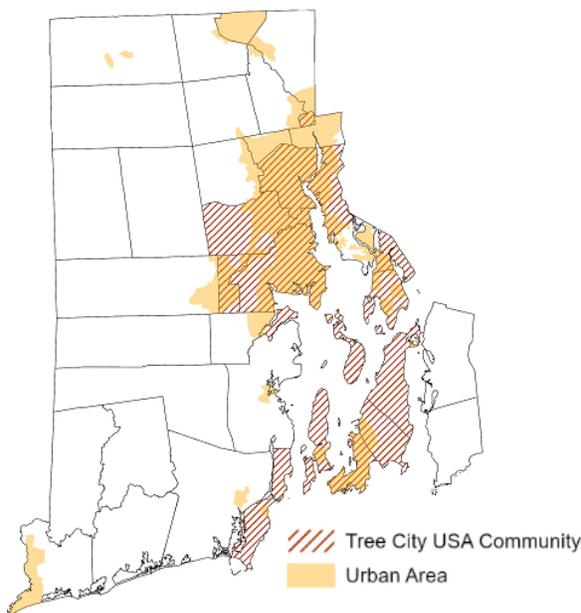
U&CF partners with the [RI Nursery and Landscape Association](#) (RINLA) to facilitate the EST program. RINLA is a statewide 501(C)3 that promotes the green industry and supports the marketing of green industry goods and services throughout Rhode Island. Through the partnership with RINLA, trees are stewarded throughout the duration of the season and delivered to each of the 4 giveaways locations.

TREE CITY USA & TREE CAMPUS USA

The U&CF program administers these Arbor Day Foundation programs with [13 municipalities](#) and [one university](#), Salve Regina University, all in the eastern, and highly-populated, side of the state.

There are 39 municipalities in Rhode Island, many which are, or have, highly rural areas associated with them, which will be targeted in future outreach efforts.

National Grid services over 95% of Rhode Island and is recognized as a Tree Line USA utility company in Massachusetts. Obtaining a local designation is a clear target for the program.



STATE ARBORIST LICENSE

Rhode Island State General Law regulation, [§2-19-2](#), requires that “any person, firm or corporation desiring to engage in or practice the art or trade of arborist, ..., shall obtain a license to engage or practice from the director

of environmental management.” The U&CF Program manages the yearly renewal of state licenses, which also administers the qualifying exam four times a year. Nearly 700 licenses were issued in 2019. This contact list provides the basis for offering regular training and workshop opportunities to arborists and allied green industries, to encourage voluntary continuing education.

MUNICIPAL TREE WARDENS

Rhode Island State General Law regulation [§2-14-2](#) establishes the requirement that all Rhode Island municipalities have a Tree Warden, who shall be a licensed RI arborist, appointed each January by the town council or mayor. While some appointments are licensed staff or consultants, other municipal staff, such as planners or public works, may have the responsibility added to existing duties. Providing on-going education to Tree Wardens, as well as technical support, has been enhanced with the start of regular workshops targeting Tree Wardens.

TECHNICAL SUPPORT & EDUCATION

The U&CF Program seeks to leverage its modest resources to serve the greatest number of Rhode Islanders possible. It does this primarily by its programs but also by providing technical urban forestry services to groups, including cities and towns, environmental non-profit organizations, schools, tree care professionals, and others. Increasing access and engagement on-the-ground is a priority. Recent efforts include the purchase of a [resistograph](#) which will allow education and direct observations on tree structural integrity, and the start of yearly workshops targeting tree wardens and professionals each spring and fall. These workshops will increase education opportunities, expanding on the existing audience focus by RITC, which mainly targets individuals, and building volunteer capacity.

Program Priorities

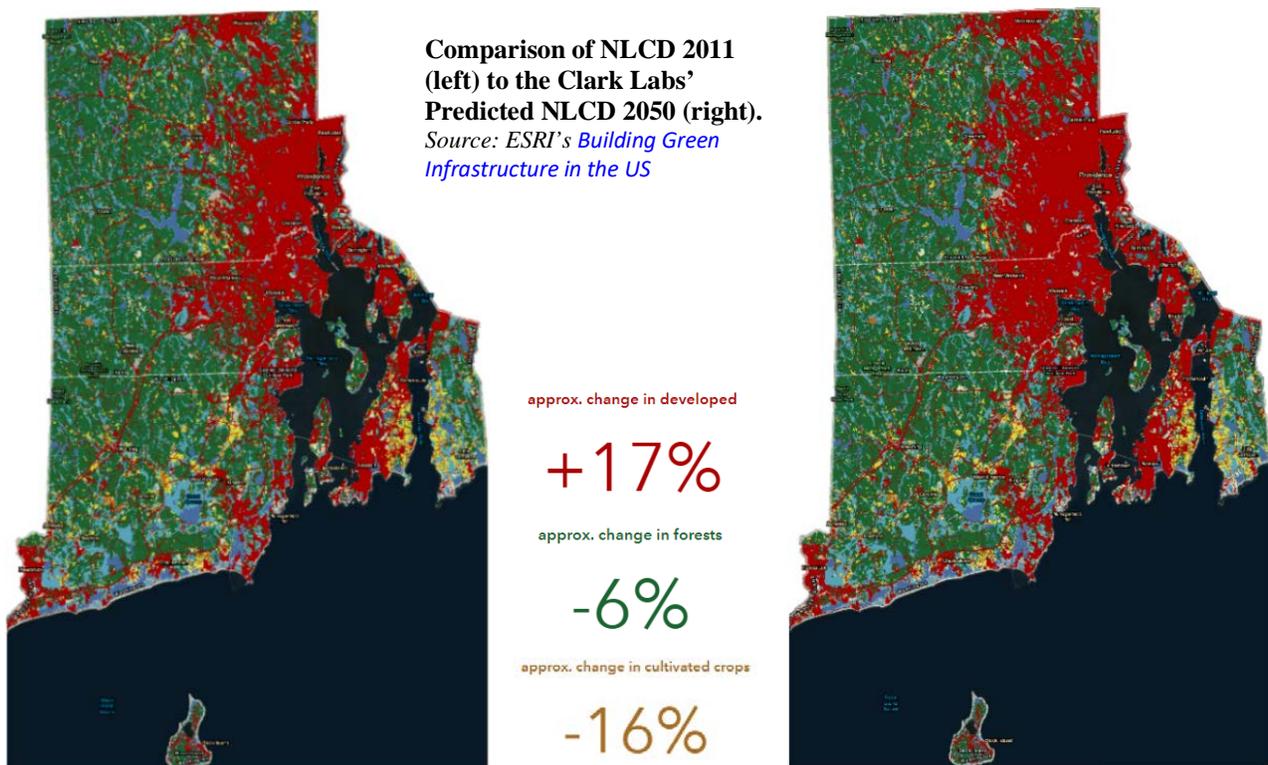
The U&CF Program is multi-faceted and works with groups from large urban centers to small unincorporated communities and all that lies in-

between, including wildland-urban interface and intermix. Ever the advocate for trees and their proper management, the entire environment has come under the purview of U&CF professionals. Trees not only provide multiple and quantifiable economic benefits, but they also play a significant role in the environment and habitat needs of humans and flora/fauna.

Increasing public awareness and expanding education efforts are one element to encourage improved municipal management planning. But, like Rhode Island's own U&CF Program, most communities are operating on a shoestring budget, if they have a budget for urban tree programming at all. These limitations seriously affect the ability of the U&CF Program to lead or support efforts to address the impacts of increasing urbanization, protect community values and culture, maintain landscape functionality, and plan for catastrophic events. Information is only one part of the equation; implementation is the other. Limited funding affects the ability of the U&CF Program and RI's municipalities to carry out substantive efforts.

Rhode Island's small size allows U&CF to make direct and personal connections with municipal staff and identify opportunities to provide support and assistance with additional technical ability and increased contact. These efforts are essential to encourage planning and management to include trees and forests, and to realize their significance as resources that help achieve other municipal goals, including maintaining community character. While core urban centers are limited in their ability to substantially increase their tree cover and the associated benefits, the edges of the communities where development is expanding is a prime opportunity for U&CF to engage communities, and to find the motivating factors and priorities that drives each community, including, among others:

- Connectivity and corridors
- Landscape functionality
- Stormwater management
- Air quality
- Human health
- Culture and character
- Right tree, right place.



Goals, Objectives, Strategies

Goal 1: Promote active and sustainable management to **conserve** trees and forests where people live, work and play.

Objective 1.1: Increase the number of communities with active local community forestry programs (managing/developing).

Strategy 1.1.1: Raise awareness levels of elected officials and policymakers on the benefits of urban trees and their management.

Strategy 1.1.2: Improve local governments' capability to write effective tree protection ordinances and policies.

Objective 1.2: Improve technical and professional capacity of tree-care professionals and the green industry.

Strategy 1.2.1: Provide workshops and training opportunities for tree wardens, municipal tree managers and professional arborists to increase their technical knowledge and ability.

Strategy 1.2.2: Support RITC's outreach efforts to promote current tree planting and maintenance best practices

Objective 1.3: Advance community urban tree inventory and planning capabilities.

Strategy 1.3.1: Provide information, training and technical support for community street tree inventories.

Strategy 1.3.2: Promote community-scale canopy studies to assess urban forest populations to determine their conditions, derived benefits, and values, as a basis to improve planning and management of the urban forest.

Goal 2: *Protect* trees and forests from threats (invasive, catastrophic, climate, etc.) through planning and response.

Objective 2.1: Develop disaster preparedness and threat response.

Strategy 2.1.1: Assist communities with incorporating trees into their emergency planning processes.

Strategy 2.1.2: Incorporate proactive planning for invasive species into municipal tree inventories and planning/management practices.

Objective 2.2: Assist communities with establishing tree planting goals and management plans including trees and urban forests as an energy-saving practice.

Strategy 2.2.1: Encourage communities to consider environmental and health equity when prioritizing tree planting projects.

Strategy 2.2.2: Facilitate strategic planting and maintenance of community trees for public benefits.

Goal 3: *Enhance* the public benefits of trees and forests through improved management practices.

Objective 3.1: Incorporate green infrastructure into municipal planning.

Strategy 3.1.1: Foster awareness that trees can help municipalities meet federal standards and requirements for air quality, stormwater management and water quality.

Strategy 3.1.2: Promote stormwater management practices using trees, natural systems and other green infrastructure measures.

Objective 3.2: Maximize program delivery and messaging effectiveness through partnerships and coordination with local, regional and federal partners.

Strategy 3.2.1: Provide education and support to RITC, TCUSA tree boards, tree non-profit groups, and other non-traditional partners.

Strategy 3.2.2: Continue to collaborate with regional initiatives and support in-state partners and agencies to develop consistent/shared messaging across programs and platforms.

Strategy 3.2.3: Engage with federal and state U&CF counterparts, attend meetings, share information, skills, and assistance.

State Lands Management

Program Description

RIDEM state land management is not one of the federal cooperative programs, however, the significance of these DEM properties warrants a brief discussion of this program in context with program delivery for the cooperative programs.

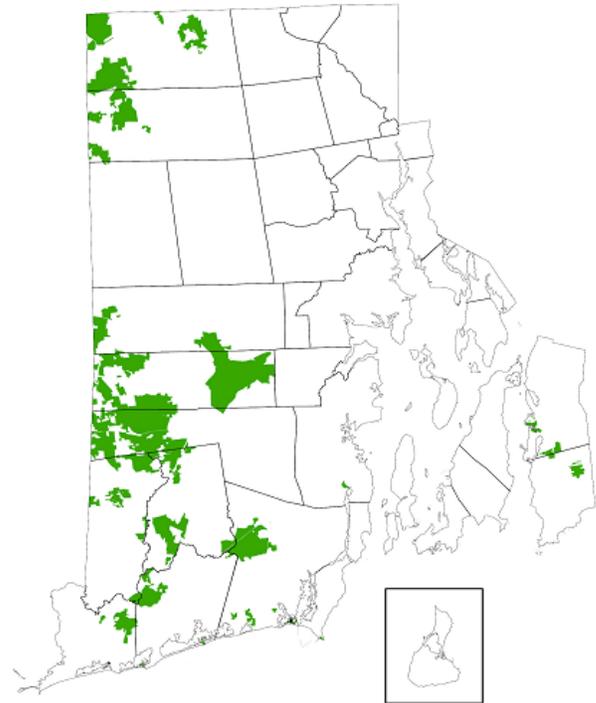
The over 57,000 acres designated as state lands is comprised of 29 management areas. The land is essentially under shared management/responsibility by the Divisions of Forest Environment (DFE), and Fish and Wildlife (DFW). Forest health silvicultural prescriptions are implemented when the situation warrants. Most of these types of harvests deal with white pine sawtimber and pulp. Harvests targeted to habitat maintenance/creation are conducted jointly with the Division of Fish and Wildlife addressing nesting season and general BMPs for wildlife. DFE also delivers prescribed burning through the Forest Fire Program and DFW assists with those burns.

Responsibilities of the State Lands Forester include a wide range of duties, such as recreational permitting, infrastructure maintenance, timber harvesting, and general patrols of management areas.

Strategic Partnerships

RIDEM DFW is the primary partner with DFE where land management is concerned, but land use by stakeholder groups is overseen by the Management Area Stewardship Committee, which is comprised of representation from five divisions of RI DEM (DFE, DFW, Parks, Legal, and Enforcement).

The committee is tasked with recreational permitting and oversees projects such as timber harvesting, trail work, clean-ups, and a vast array of volunteer events. As forest loss and fragmentation continues, and demand for recreational opportunities increases, the committee's role in permit review is essential to manage access and use.



Land under RI DEM Management

Due to the limited maintenance staffing, stakeholder groups are essential to coordinate events and conduct trail work/projects, some of the most active groups include:

- MOUs with:
 - Appalachian Mountain Club
 - Rhody Rovers
- Partners include:
 - Audubon Society, The Nature Conservancy, University of Rhode Island, RIFCO, American Tree Farm

Programmatic Capacity

With only one State Lands Forester, long-term planning has been regulated to a back burner as history, long-term goals, and strategies are maintained within the heads of active staff. This methodology becomes more untenable in the face of fragmentation, climate change, staffing turnover, and the threats these changes present to high value habitats and forest.

With Rhode Island's small size, its management areas are highly accessible to the public and management actions are highly visible. Prescribed fire and other management actions are publicized (signage and notification to abutting property) but the opportunities for effective public education and showcasing forest management strategies has been under-utilized. The development of demonstration sites for various practices, including management practices for deer browse or assisted species migration, sequential prescribed fire recovery sites, and habitat enhancement would be invaluable when communicating messaging regarding stewardship, forest health, fire management, and even urban forests.

DFE State Lands staff face pressure by numerous stakeholder groups for access, the creation of unofficial trails with the resultant degradation, and a lack of enforcement.

Program Priorities

Oak mortality has become a serious concern throughout Rhode Island as outlined in the forest health section of this Action Plan. Salvage operations have been ongoing within state-owned management areas but future salvages may not be considered merchantable timber harvests as the dead standing oak continues to degrade.

Future conditions of existing oak forests are an important concern as threats and stressors continue to negatively impact these forests. In the years to come it will be critical to understand how Rhode Island's state-owned lands can adapt to these changes while providing safe recreational use areas, and healthy and productive forest habitats.

State-managed forest lands are an important component of program delivery for the cooperative programs. Location of management areas and their ease of access means that efforts undertaken on state land provides visibility and education to residents, including those who might not attend field days. State land priorities support the cooperative programs' priorities and can assist in their education and outreach efforts.

Goals, Objectives, Strategies

Goal 1: Support land conservation partners and DEM Land Acquisition Committee efforts to **protect, conserve**, and acquire large tracts of contiguous forest by highlighting the multiple public benefits of keeping forests as forest.

Goal 2: *Protect* forest land from improper management practices and degradation from increasing recreational use.

Objective 1.1: Develop use and maintenance stewardship standards for harvesting and trail maintenance on state land.

Objective 1.2: Develop forest management plans for priority areas (high value/high use).

Objective 1.3: In partnership with cooperative programs, identify funding sources to aid development of management plans for high value/high use locations and demo sites.

Goal 3: *Enhance* and expand the use of state forest land for public education and recreation.

Objective 2.1: Develop demo sites on state land to highlight the benefits of BMPs and forest management (e.g. harvesting, regeneration/restocking, deer browse, prescribed fire, etc.).

Objective 2.2: Deliver outreach and education to the general public, landowners, and wood operators, with partner organizations and cooperative programs.