

RHODE ISLAND 2020 FOREST ACTION PLAN Part 4: APPENDICES A – E

Department of Environmental Management
Division of Forest Environment
June 2020



APPENDIX A

Land Use / Land Cover Mapping in Rhode Island

While moving to DOA/DEM/RIGIS 2011 Landuse/Landcover (LULC) data and DEM land records will make it easier to track change and assess changes in landuse over time as landcover data is updated in future satellite imagery, DFE is not incorporating this approach for the 2020 assessment. Future LULC updates will allow for assessing change but the differences in definitions and mapping between LULC and FIA do not allow this for 2020, as differences in approaches and priorities suggests that FIA, with its forest-centric definitions, incorporating canopy and site productivity, cannot directly correlate with land-use definitions based on apparent use. For example:

1. While the 2017 FIA forest land estimate of 368,000 acres shows an increase from 356,000 acres in 2007, that may be partly accounted for by the explanation of changes to the FIA protocols in the body of the assessment. Meanwhile, the LULC estimates 399,000 acres. The large increase, as identified under the LULC, cannot be assumed to indicate that forest land and habitat has drastically increased and is not at risk.
2. The mapping of ruderal forest as reported in the 2015 WAP by Photoscience using 2011 imagery showed 36.8 thousand acres. Much of this ruderal area would be defined as wildland urban interface (WUI), as seen in the i-Tree Landscape map (pages 31 and 53) and is located in close proximity to highly populated areas or areas of higher demand. It is possible that at least some of this ruderal forest would not have met the stringent FIA definitions to include it in the forest land estimate, although it should now be captured in the Urban FIA protocol initiated in RI in 2015.

The Division of Fish and Wildlife used the LULC data in their [2015 Wildlife Action Plan](#):

- 687,360 acres of land (not including the bay or coastal salt ponds)[‡]
- In 2011, 399,000 acres were forested, with an additional ~7,800 acres as brushland, for a combined 407,000 acres considered as open land*
- equaling 56.6% forested land, or 59.2% open land

While the FIA estimates are based on acreages different from the LULC, FIA data provides percentages that have been and continue to be applied to describe and assess forest and timber land in RI. FIA data provides valuable information in:

- status and trends in forest area and location
- species, size, and health of trees
- total tree growth, mortality, and removals by harvest
- wood production and utilization rates by various products, and
- forest land ownership.

A perceived increase in forest land, whether from FIA estimates or LULC mapping, should not be interpreted to suggest that permanent land conversion is not a threat to forest land in RI, as other means of tracking and reporting show that permanent land conversion is continuing to advance.

What is important to remember is that the trends, challenges, and issues facing Rhode Island's forests continue, even if the definitions of the land under threat change.

[‡] Source: RIGIS 1997, 1:5000 scale mapping of state boundary and shoreline

*Source: RIGIS Land Use and Land Cover <http://www.rigis.org/datasets/land-use-and-land-cover-2011>

FIA DEFINITIONS

FIA definitions that are used to determine land use and acreage are specifically defined with dimensions, canopy cover, and in some cases site productivity potential, related specifically to trees, and are not solely descriptive in nature. Nationally applied in the FIA process, they are the basis for estimating the forest characteristics. The annualized process means that land is assessed and reassessed over time, capturing changes in use and natural progression, and able to be directly compared with other states and locations.

Cropland:

Land under cultivation within the last 24 months, including cropland harvested, crop failures, cultivated summer fallow, idle cropland used only for pasture, orchards, active Christmas tree plantations indicated by annual shearing, nurseries, and land in soil improvement crops, but excluding land cultivated in developing improved pasture.

Forest land:

Land that has at least 10 percent crown cover by live tally trees of any size or has had at least 10 percent canopy cover of live tally species in the past, based on the presence of stumps, snags, or other evidence. To qualify, the area must be at least 1.0 acre in size and 120.0 feet wide. Forest land includes transition zones, such as areas between forest and nonforest lands that meet the minimal tree stocking/cover and forest areas adjacent to urban and built-up lands. Roadside, streamside, and shelterbelt strips of trees must have a width of at least 120 feet and continuous length of at least 363 feet to qualify as forest land. Unimproved roads and trails, streams, and clearings in forest areas are classified as forest if they are less than 120 feet wide or less than an acre in size. Tree-covered areas in agricultural production settings, such as fruit orchards, or tree-covered areas in urban settings, such as city parks, are not considered forest land.

Nonforest land:

Land that does not support or has never supported, forests and lands formerly forested where use of timber management is precluded by development for other uses. Includes area used for crops, improved pasture, residential areas, city parks, improved roads of any width and adjoining rights-of-way, powerline clearings of any width, and noncensus water. If intermingled in forest areas, unimproved roads and nonforest strips must be more than 120 feet (36.6m) wide, and clearings, etc., more than one acre (0.4ha) in size, to qualify as nonforest land.

Nonstocked:

Forest land stocked with less than 10 percent of full stocking with all live trees. Examples are recently cutover areas or recently reverted agricultural fields.

Sawtimber:

Forest land stocked with at least 10 percent of full stocking with all live trees with half or more of such stocking in poletimber or sawtimber trees or both, and in which the stocking of sawtimber is at least equal to that of poletimber.

Timberland:

Forest land that is producing or is capable of producing crops of industrial wood and not withdrawn from timber utilization by statute or administrative regulation. (Note: Areas qualifying as timberland are capable of producing in excess of 20 cubic feet per acre per year of industrial wood in natural stands. Currently inaccessible and inoperable areas are included.)

LULC DESCRIPTION

The forest cover data is taken from the 2011 Statewide land use/landcover GIS data layer coded to a slightly modified Andersen Level III schema.

LULC Definitions

The coding schema for Land Cover/Land Use type is derived from the Anderson (modified) coding schema used by RIGIS in previous (1988 and 1995) land cover/land use data sets. It includes level 3 coding for Urbanized Developed areas (100 Codes); level 2 coding for agricultural (200 Codes), Forested lands (400 Codes), and Barren Lands (700 Codes); and level 1 coding for Brushland (300 Code), Open Water (500 Code), and Wetlands (600 Code).

Brushland (shrub and brush areas, reforestation) (#300):

Brushland is characterized by lots of shrubs and very few trees (< 50% canopy). It includes areas that are being reforested but the trees are not large or dense enough to be classified as forests. It also includes areas that are more permanently shrubby, such as heath areas, wild blueberries, or mountain laurel.

Cropland (tillable) (#220):

Cropland is generally tilled land used to grow row crops. There is usually evidence of intense land management. The land is often flat, well drained and the field boundaries are generally very well defined. This category also includes turf farms that grow sod. Associated facilities include barns and other outbuildings.

Forest Lands (#400):

Trees are classified as forests when the tree canopy covers at least 50% of the space when viewed from above on an aerial photograph. The three different categories depend upon the composition of deciduous vs. coniferous trees. On aerial photographs, most coniferous trees have conical shapes (except for pines) with dense needles and tight branching with dark spectral signatures, whereas deciduous trees have a more open or freeform shape with leaves (during the growing season) that give the tree a coarser texture or pattern and a looser or more open branching arrangement. Deciduous spectral signatures are generally lighter than coniferous signatures.

- Deciduous Forest (>80% hardwood) (#410)
- Coniferous Forest (>80% softwood) (#420)
- Mixed Forest (#430)

Idle Agriculture (abandoned fields and orchards) (#250):

When pasture, cropland and other agricultural uses have not been active for a few years, it is classified as idle agriculture. Often, early successional vegetation is seen growing around the edges and there is no evidence of any land or vegetation management. Eventually, it will become brushland.

Orchards, Groves, Nurseries (#230):

This category includes fruit orchards, greenhouses, plant nurseries, Christmas tree farms, vine crops (such as vineyards, strawberry and blueberry patches), and cranberry bogs (including sandy areas adjacent to the bogs that are used in the growing process). The orderly pattern of the vegetation generally indicates that one or more of these land uses is present. Associated facilities include barns, other outbuildings, and parking lots. Orchards and greenhouses are often symbolized on USGS topographic maps. Commercial lawn and garden centers that do not produce or grow the product will be considered Commercial.

Pasture (agricultural not suitable for tillage) (#210):

Pastureland is generally used for grazing of animals and for the growing of grasses for hay. It is often hilly, may have poor drainage or stoniness, and the field boundaries may be less defined than cropland. There may be scattered trees or shrubs in the field. Associated facilities include barns and other outbuildings.

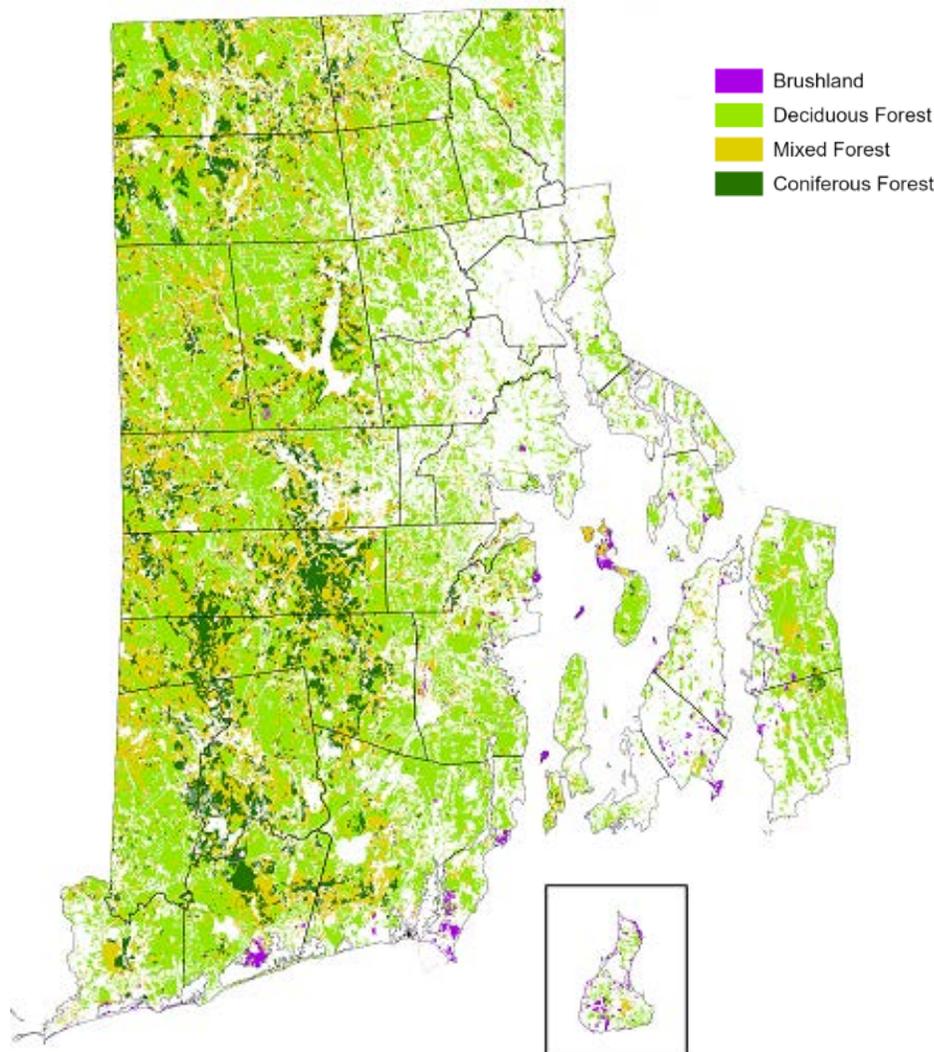
Vacant Land (#162):

Land is classified as vacant if it is abandoned land that isn't being used for any other land use, isn't being prepared for another use (see 750 Transitional Area below), and does not have enough tree growth to be

classified as forest or enough vegetation to be classified as brushland (300). It may include structures and indicates that the land was previously used for one of the urban categories

Type of Forest	Acres
DEM-protected forest	73,324
DEM owns by fee	47,384
Other (conservation easement, deed to development rights, recreation easement)	25,940
Other protected forest (by other land conservation entities)*	51,616
Total protected forest	124,940
Privately-owned, unprotected forest	274,060
FFOS forest	45,659
Total statewide forest	399,000

*Includes U.S. Fish & Wildlife Service, The Nature Conservancy, Audubon Society of RI, Municipal and Private Land Trusts, Municipal Governments, Private Homeowner Associations, Providence Water, and the URI W. Alton Jones Campus.



APPENDIX B

Rhode Island's Farm, Forest and Open Space (FFOS) Program

The Farm, Forest and Open Space ([RI Gen. Law § 44-27](#)) program allows Rhode Island landowners to have their property assessed at the current use, and not at development values. Properties enrolled in the program are assessed at a lower rate in exchange for ensuring that the property will not be developed for at least 15 years without paying a penalty, or Land Use Change Tax. Established in 1980, the law recognizes that it is, "in the public's interest to prevent the forced conversion of farm, forest, and open space land to more intensive uses as the result of economic pressures caused by assessment for purposes of property taxation at values incompatible for the preservation as farm, forest, and open space land." The FFOS law authorizes the RIDEM as the regulatory body governing both farm and forest land enrolled in the program, while the Open Space is administered by the city or town where the land is located. The FFOS has three classifications:

- **Farmland:** ornamental, vegetable and orchard crops, dairy and livestock (including forage crops) and the forest and wetlands associated with the property of at least 5 acres, actively devoted to agriculture.
 - Landowner must produce at least \$2,500/year in farm products (can be for personal consumption)
 - Landowner agrees to have a written Farm Conservation Plan on property, and follow Best Management Practices outlined therein, and will renew the plan every 10 years to stay in the program
- **Forest land:** Forest land of at least 10 acres bearing dense growth of trees including young regenerating forest and including wetlands, exclusive of house site
 - Landowner must have a Forest Stewardship or Management Plan at the time of application, and agrees to implement the plan and renew it every 10 years to stay in the program
- **Open Space:** undeveloped land (including farm or forest land) of at least 10 acres where the land serves to enhance agricultural or forest values, enhances wildlife habitat or protects ecosystem health
 - Classification based on soils; no management plan required

The funding methodology for land values used in the FFOS program was created in 1999 and is modeled on Connecticut and Massachusetts, while taking into consideration the higher cost of values for agricultural land in the state. The recommended value for lands classified as forest is currently \$115/acre. There are 571 landowners who participate, and over 45,549 acres enrolled and managed through the program. The Forest program is managed by the Forest Stewardship Coordinator who reviews plans, inspects properties every five years, and monitors compliance.

While the FFOS program works well as a tool to defer the conversion of land by reducing the property tax burden on Rhode Island landowners, it does little in the way of encouraging long-term conservation. The RI Land Use Change Tax only applies to a property classified as forest for the first 15 years in the program and property classified as a farm for the first 10 years in the program. After that timeframe, the statute states "...no tax shall be imposed by the provisions of the law." It is also easy for a landowner to get out of the program. While a lien or legal hold is placed on properties enrolled in the program, sometimes they are overlooked.

APPENDIX C

Forest Carbon Data

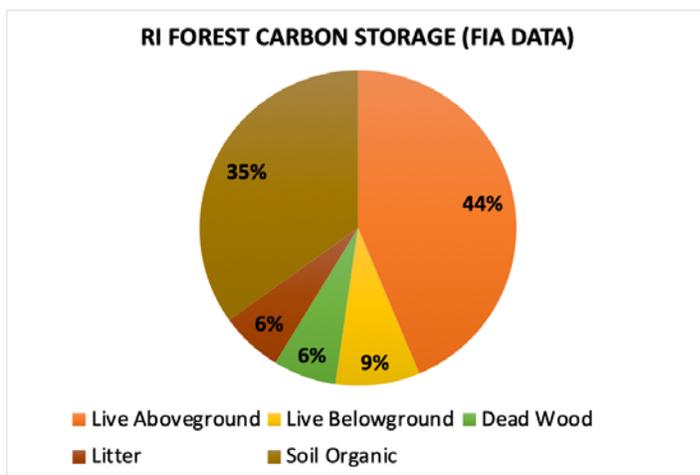
SOURCE: *The Value of RI Forests*

by the Rhode Island Forest Conservation Advisory Committee and the Rhode Island Tree Council

The USFS Forest Inventory and Analysis (FIA) program maintains a nationwide network of “continuous forest inventory” or periodic monitoring plots that provide data for an ongoing census of the nation’s forests. The forest carbon estimates provided in this section are from FIA data interpreted in consultation with experts from the US Forest Service’s Northern Research Station.

The URL data links provided through this summary are from the FIA program’s EVALIDator Version 1.8.0.00 database.

RHODE ISLAND FOREST CARBON DENSITY (STORAGE) DATA



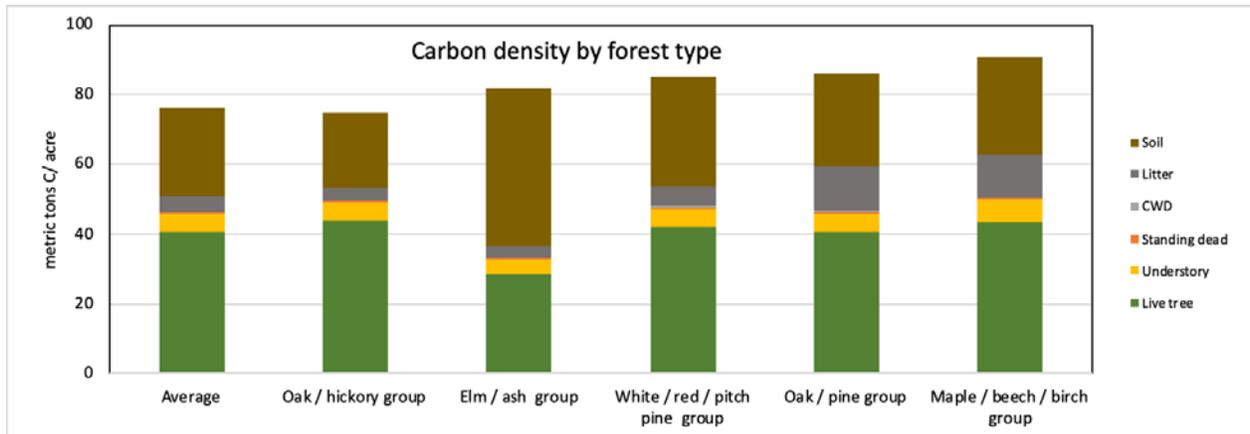
Since 2003, FIA has conducted an annual sampling inventory in Rhode Island and currently measures 14% of the sample plots each year. For the 2017 inventory, estimates of statistics such as volume and biomass were based on 222 plots sampled between 2011 and 2017 and reported in the yearly report: [Forests of Rhode Island, 2018](#).

FIA EVALIDator data links:

Total Acres	https://go.usa.gov/xy73s
All Carbon Pools	https://go.usa.gov/xyfAS
Live Aboveground	https://go.usa.gov/xyfHX
Live Belowground	https://go.usa.gov/xyfHR
Dead Wood	https://go.usa.gov/xyfHm
Leaf Litter	https://go.usa.gov/xyfHV
Soil	https://go.usa.gov/xyfH7

For greater statistical accuracy (lower standard deviation and tighter confidence intervals), estimates of forest carbon density and sequestration for different forest types include both FIA plots in Rhode Island and also plots in similar forest types in Connecticut.

STATISTICS FOR FOREST CARBON DENSITY (STORAGE) AMONG DIFFERENT FOREST TYPES



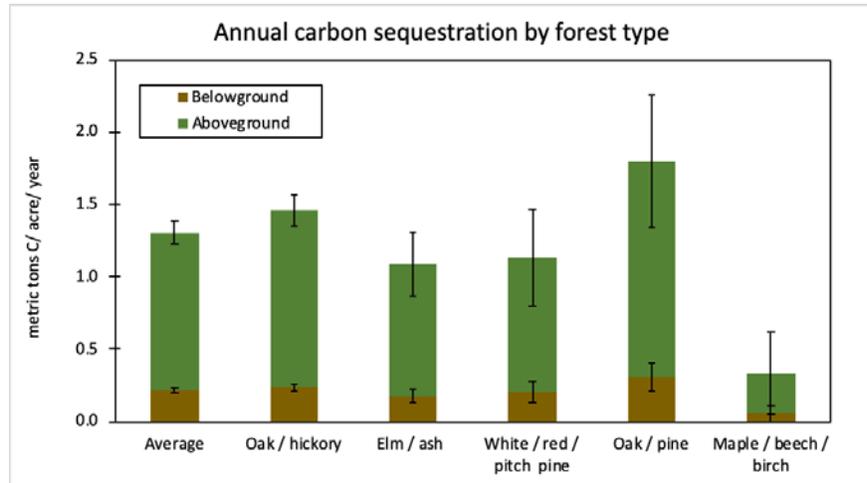
FOREST TYPE	# PLOTS	AVERAGE (mtC/ac)	STANDARD DEVIATION	95% CONFIDENCE INTERVAL (LOW) (mtC/ac)	95% CONFIDENCE INTERVAL (HIGH) (mtC/ac)
Total	443	76.2	3.2	73.0	79.4
Oak / hickory		74.8	5.7	69.1	80.5
Elm / ash		81.4	29.2	52.2	110.6
White / red / pitch pine		85.2	38.5	46.7	123.7
Oak / pine		85.8	39.7	46.1	125.5
Maple / beech / birch		90.8	38.1	52.7	128.9

mtC/ac = metric tons of carbon per acre

FIA EVALIDator data links

All Carbon Pools	https://go.usa.gov/xyfAc
Live Aboveground	https://go.usa.gov/xyfAa
Live Belowground	https://go.usa.gov/xyfAC
Dead Wood	https://go.usa.gov/xyfAY
Leaf Litter	https://go.usa.gov/xyfAg
Soil	https://go.usa.gov/xyfA4

STATISTICS FOR FOREST CARBON SEQUESTRATION AMONG DIFFERENT FOREST TYPES



FOREST TYPE	# PLOTS	AVERAGE (mtC/ac/yr)	STANDARD DEVIATION	95% CONFIDENCE INTERVAL (LOW) (mtC/ac/yr)	95% CONFIDENCE INTERVAL (HIGH) (mtC/ac/yr)
Total	397	1.31	0.09	1.22	1.40
Oak / hickory	276	1.46	0.13	1.33	1.59
Elm / ash	33	1.09	0.27	0.82	1.35
White / red / pitch pine	21	1.14	0.41	0.73	1.54
Oak / pine	19	1.8	0.55	1.24	2.35
Maple / beech / birch	30	0.33	0.33	0	0.67

mtC/ac/yr = metric tons of carbon per acre per year

FIA EVALIDator data links

Total Acres:

<https://go.usa.gov/xyEgT>

Average Annual Net Growth (Aboveground)

<https://go.usa.gov/xyEgE>

Average Annual Net Growth (Belowground)

<https://go.usa.gov/xyEgS>

APPENDIX D

Correlation to the DEM Strategic Plan 2019-22

National Priority Issues

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

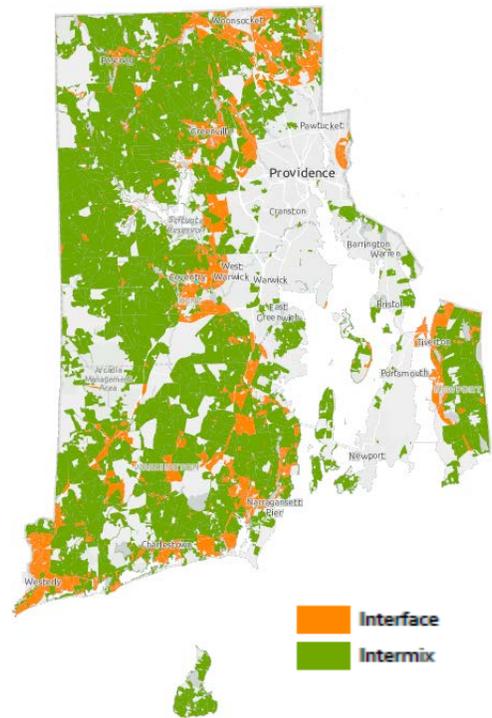
DEM Priority Issues 2019-2022

DEM Strategic Plan 2019-2022

1. Take action to counter climate change and its effects, both locally and regionally.
2. Protect and restore our environment to create greener, healthier communities.
3. Protect and improve water quality.
4. Conserve, promote, and steward our natural resources.
5. Promote and increase outdoor recreation in Rhode Island.
6. Promote and expand local food and agricultural industries.
7. Demonstrate statewide leadership in customer service and continuous improvement.

DFE Priority Issues 2020-2030

- Fragmentation
- Water quality
- Forest health
- Fire
- Climate change



DFE Priority landscapes: Wildland-Urban interface/intermix

DFE contributes to multiple DEM goals, although its impact is limited due to lack of inclusion in both the planning and delivery process, under-staffing, and no state funding for planning or delivery.

1. Take action to counter climate change and its effects, both locally and regionally.

The existence and function of DFE contributes to **DEM Goal 1**:

- Promotion and education on the value and contributions of trees and forests in urban and rural areas
- Promoting good management practices in rural and urban forests

2. Protect and restore our environment to create greener, healthier communities.

While the examples for **DEM Goal 2** refer to policies and compliance, the existence of a robust DFE, appropriately funded and staffed, would actively help deliver this goal as all cooperative program outcomes focus on greener, healthier communities.

- The crux of most DFE messaging is the promotion of rural and urban forests for their contributions to green, healthier communities.
- The American Forests Tree Equity project is engaged in developing partnerships in public health.
- Strong policy efforts should support the retention of forest lands for clean air, water, stormwater management, wildlife and pollinators, climate change mitigation, etc. DFE should be at the table for these discussions.

3. Protect and improve water quality.

Healthy forests are a prime contributor to **DEM Goal 3**. Stormwater management is increasingly tied to the mitigating effects of rural and urban forests. Compliance and legislation are only one leg of a stool for addressing water quality which should include funding the management of state forests and supporting the retention of private forests, as working lands protect the source and quality of water. The mere existence of forests helps with water quality, the presence and health of fish, invertebrates, and benthics. Healthy and well-planned management of forests, contiguous forestlands, and upstream prioritization for forestland retention would directly benefit coastal and inland water management and restoration efforts.

4. Conserve, promote, and steward our natural resources.

DFE efforts are recognized specifically under **DEM Goal 4**, however, state funding to allow DFE help protect forests is not available. Supporting “terrestrial landscapes” requires staffing and financial commitments for necessary data and planning in order to identify, support and deliver meaningful programs and engagement. In addition, state agencies tend to develop and deliver their messaging in a virtual programmatic silo. Increased interaction between DEM divisions and state agencies would benefit all partners through shared external messaging and internal engagement.

5. Promote and increase outdoor recreation in Rhode Island.

Given the 40,000 acres of land under shared management with DFW, access and recreation are an important but under-funded element for passive and active recreation, resulting in under-managed, under-maintained and under-monitored management areas. DFE is an active partner in addressing **DEM Goal 5**, but lack of funding and staffing has a detrimental effect on a resource that is an important part of the recreational experience in RI.

6. Promote and expand local food and agricultural industries.

Contribution to **DEM Goal 6** is less apparent, but healthy forests are part of the working landscape. Forests also protect farmland by slowing or limiting the spread of pests or disease as a physical barrier, hosting weed-seed and insect-eating birds, providing habitat for pollinators, and providing a secondary source of income from forest products. Retention of forests as working lands benefits agriculture.

7. Demonstrate statewide leadership in customer service and continuous improvement.

With respect to **DEM Goal 7**, DFE communicates messaging on multiple aspects of its program delivery,

through the commitment of staff to deliver education and customer service to the landowners, recreational users, foresters and loggers, residents and municipalities, news and professional organizations. However, present staffing and funding levels limit improvement to responsiveness and increased program delivery, even with the committed and professional staff.

Strategies Matrix

Conserve and manage working forest landscapes for multiple values and uses.			
Objectives	S&PF Program	Partners	DEM Strategic Plan Goals
Develop and expand existing planning and hazard monitoring capacity.	FIRE (SFA)	RIEMA DEM Fire Departments NFFPC members	2, 3, 4
Increase capacity for implementation of management recommendations to achieve resiliency goals.	FIRE (SFA)	RIEMA DEM Fire Departments NFFPC members	1, 2, 3, 4
Develop and deliver information on multiple platforms that addresses the identification and management of forest insect, disease, and non-native invasive threats.	FHM	URI RI Division of Agriculture	2, 4, 7
Increase collaboration with local partners' management efforts to address forest health.	FHM	URI RI Division of Agriculture	2, 4
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	1, 3, 4
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	1, 3, 4
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 gov't	1, 2, 4
Improve technical and professional capacity of tree-care professionals and the green industry.	U&CF	RITC Local gov't	2, 4, 7
Advance community urban tree inventory and planning capabilities.	U&CF	RITC Local gov't	2, 4, 7

Protect forests from threats.			
Objectives	S&PF Programs	Partners	DEM Strategic Plan Goals
Develop in-state wildfire response (surge) capacity and specialist skills.	FIRE (SFA)	RIEMA DEM Fire Departments NFFPC members	4, 7
Improve communication between in-state partners and responders.	FIRE (SFA)	RIEMA DEM Fire Departments NFFPC members	4, 7
Maintain fire response capacity.	FIRE (SFA)	RIEMA DEM Fire Departments NFFPC members	4, 7
Survey for native and non-native forest insect and disease threats and monitor for their outbreak and spread.	FHM	URI RI Division of Agriculture	2, 4
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	2, 4
Maintain lines of contact and support structures for NIPF owners, via onsite visits, meetings, informational exchange, and site inspections.	FSP	NRCS RIFCO RIWP private	4, 6
Maintain lines of contact and support structures for NIPF owners via onsite visits, meetings, informational exchange, and site inspections.	FSP	NRCS RIFCO RIWP private	4, 6
Provide access to and information on relevant educational opportunities, current events, and funding opportunities.	FSP	NRCS RIFCO RIWP private	1, 3, 4, 6, 7
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	1, 2, 4
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	1, 2, 4

Enhance public benefits from trees and forests.			
Objectives	S&PF Programs	Partners	DEM Strategic Plan Goals
Increase public awareness of wildfire and the need for preparedness.	FIRE (SFA)	RIEMA DEM Fire Departments NFFPC members	2, 4, 7
Incorporate a Firewise approach to wildland urban interface areas.	FIRE (SFA)	RIEMA DEM Fire Departments NFFPC members	2, 4, 7
Expand stakeholder engagement in collecting forest health information and disseminating forest health messaging.	FHM	URI RI Division of Agriculture	4, 7
Maximize messaging effectiveness by increased coordination with partners for responses regarding threats to RI's forests.	FHM	URI RI Division of Agriculture	4, 7
Promote active, sustainable forest management supporting wildlife habitat diversity, structural diversity, and understory health to landowners.	FSP	NRCS RIFCO RIWP private	2, 3, 4
Promote active, sustainable forest management supporting wildlife habitat diversity, structural diversity, and understory health to landowners.	FSP	NRCS RIFCO RIWP private	2, 3, 4
Promote good silvicultural practices to support forest health, ecosystem resiliency, wetland conservation, wildlife habitat, and carbon storage.	FSP	NRCS RIFCO RIWP private	1, 2, 3, 4, 6, 7
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	1, 2, 4
Maximize program delivery and messaging effectiveness through partnerships and coordination with local, regional and federal partners.	U&CF	RITC Local government	1, 2, 4

APPENDIX E

URLS for Referenced Links within the Forest Action Plan

URLs associated with graphs and other visuals are bolded; repeated links per page not included

Pages 1-62 ASSESSMENT

Page 1

- Cooperative Forestry Assistance Act <https://legcounsel.house.gov/Comps/Cooperative%20Forestry%20Assistance%20Act%20Of%201978.pdf>
- Food, Conservation, and Energy Act of 2008 www.agriculture.senate.gov/imo/media/doc/110-246%20-%20Food,%20Conservation,%20And%20Energy%20Act%20Of%202008.pdf
- State and Private Forestry www.fs.usda.gov/about-agency/state-private-forestry

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- **RI Wildlife Action Plan** www.dem.ri.gov/programs/fish-wildlife/wildlifehuntered/swap15.php
- **Forests of Rhode Island, 2018** www.fs.fed.us/nrs/pubs/ru/ru_fs211.pdf
- 67% [Rhode Island Land Use Trends and Analysis (Including Land Use Surveys for the Period 1970-1995) Technical Paper 149] www.planning.ri.gov/documents/tp/TP%20149.PDF
- **New England Forest Cover and Human Population** www.wildlandsandwoodlands.org/sites/default/files/Figure1_0.pdf
- **Wildlands and Woodlands, Farmlands and Communities: Broadening the Vision for New England** www.wildlandsandwoodlands.org/sites/default/files/Wildlands%20and%20Woodlands%202017%20Report.pdf

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- RI Department of Administration Division of Statewide Planning www.planning.ri.gov/publications/state-guide-plan.php
- increasing since the 1960s [Rhode Island Land Use Trends and Analysis (Including Land Use Surveys for the Period 1970-1995) Technical Paper 149] www.planning.ri.gov/documents/tp/TP%20149.PDF
- 9% yearly since 2011 [HUD PD&R Housing Market Profiles: RI] www.huduser.gov/portal/periodicals/USHMC/reg/RhodeIsland-HMP-May18.pdf
- 6,027 miles of permanent roads www.fhwa.dot.gov/policyinformation/statistics/2017/hm10.cfm
- **HUD PD&R Housing Market Profiles: RI** www.huduser.gov/portal/periodicals/USHMC/reg/RhodeIsland-HMP-May18.pdf

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- USDA Forest Service www.fs.usda.gov/
- Forest Inventory Analysis www.fia.fs.fed.us/
- Department of Environmental Management www.dem.ri.gov/
- Wildlife Action Plan www.dem.ri.gov/programs/fish-wildlife/wildlifehuntered/swap15.php
- annualized forest census www.fia.fs.fed.us/
- Forests of Rhode Island, 2018 www.fs.fed.us/nrs/pubs/ru/ru_fs211.pdf
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