

Executive Summary

The Value of Rhode Island Forests has two primary goals: to outline the benefits that Rhode Island’s forests provide to the state and to recommend practical strategies to encourage forest conservation. The Rhode Island Tree Council, a non-profit organization dedicated to supporting healthy forests and trees, conceived of this project with the Rhode Island Department of Environmental Management (RIDEM). This report is intended as a tool for public engagement and a source of guidance for Rhode Island policymakers. The report’s findings can support the work of the many stakeholders who seek to pass down the essential knowledge of forest stewardship for generations of Rhode Islanders to come.*

The Current State of Rhode Island’s Forestland

While Rhode Island’s nickname “The Ocean State” captures the state’s image and best-known places, it does not reflect the fact that forests comprise more than half the state’s land area. In fact, **368,373 acres or 56% of the state’s land area is covered by forests**. Almost all of the forest has seen previous cutting and much of it has regrown on land that was once cleared for agriculture; now more than half is greater than 60 years old and maturing. **An estimated 213,000 acres, or 58% of the forested land in the state, is considered core forest**. Core forests are defined in this report as blocks of forested land greater than 250 acres in size. Such large, intact forests have high conservation value. Especially for its small size, Rhode Island is notable for its 286,000 acres of urban and community land with 52% overall tree cover. Rhode Island is in the top 5 of all U.S. states for urban and community land as a percent of total state land area.

The Majority of RI Forestland Is Privately-Owned

Rhode Island’s forests are owned and managed by a combination of federal and state agencies and institutions, national and local land trusts, other nonprofit organizations, and private landowners. **The state’s 38,000 private landowners are especially important – their individual properties are typically small, but they collectively control about 68% of the state’s forestland**. About 125,000 acres of forestland are considered permanently protected from development, with conservation and management efforts enhanced by state and federal programs and assisted by several nonprofit organizations and three conservation districts.

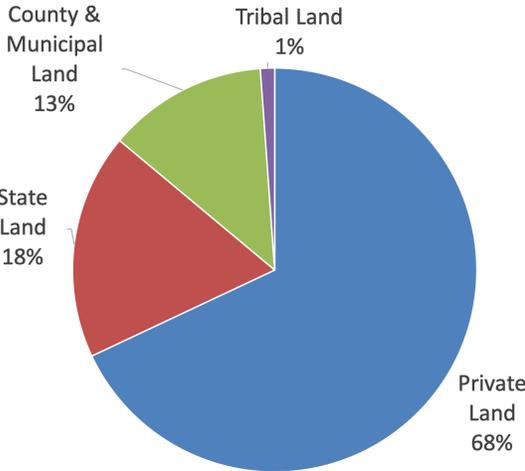


Figure ES-1: Forest Ownership in Rhode Island. Source: USFS

**The executive summary is an overview of the contents of this report. Information in the executive summary is found in detail, with reference information, in the body of the report.*

RI Forestland Is Threatened by Fragmentation

Forest fragmentation, or the breaking of contiguous forested areas into smaller ones, and conversion to other land uses is the greatest threat to forests in Rhode Island. **An analysis found that nearly 2,000 acres of core forest was converted to other land uses between 2011 and 2018.** Half of Rhode Island is within the length of a football field from a road and 90% of the state is within 4½ football fields of a road.

Invasive species, an overpopulation of white-tailed deer, and climate change also threaten forest health. Invasive species – non-native, introduced organisms that have the ability to outcompete native species – can overwhelm the forest, especially when an area is fragmented, and create negative ecological and economic impacts. High densities of white-tailed deer eating tree seedlings and saplings influence the composition of species that are able to naturally regenerate. Climate change is also exerting complex pressures on forests, including an increase in heavy precipitation, changes in growing season, and increased numbers of forest insects and pests.

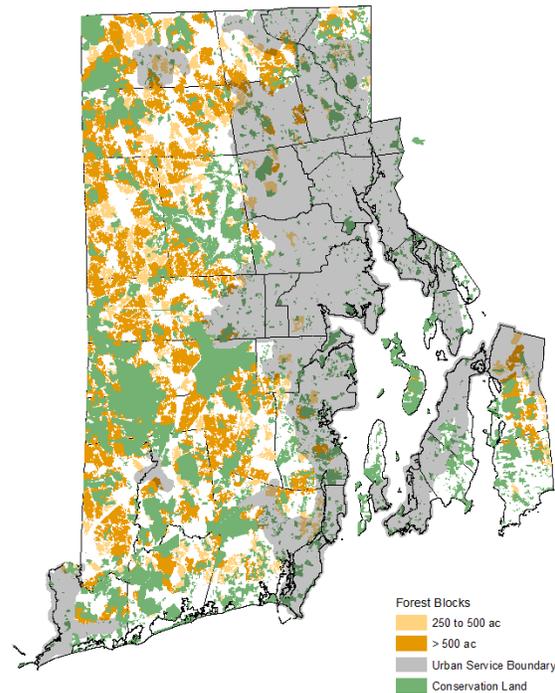


Figure ES-2: Core Forests in Rhode Island.

Source: Paul Jordan, RIDEM

The Benefits of Rhode Island’s Forests

Rhode Island’s forests and trees may seem like a green backdrop to our state landscape, but they are in fact hard at work generating a wide range of services and values. The state’s forests make the Ocean State a place where humans and native wildlife can live and thrive. Some forest benefits can be quantified, but others are most accurately explained in words. While public interest is sometimes focused on certain forest values, the holistic value of the forest is greater than the sum of any individual value.

Clean Air

- Rhode Island’s forests provide significant air quality benefits to the state by absorbing hazardous air pollution. Rhode Island’s trees provide more than \$30 million annually in pollution removal benefits.
- Across the United States, one study shows that trees’ absorption of air pollution is preventing more than 670,000 instances of acute respiratory symptoms and more than 850 human deaths each year.

Clean Water

- Clean water is essential for drinking, safe recreation, a thriving economy, and healthy wildlife habitat, and forests play an important role in keeping Rhode Island’s waterways safe and clean.

- More than 80% of Rhode Island’s population relies on surface reservoirs surrounded by mostly forested watersheds for clean drinking water. Among northeastern US watersheds, Rhode Island is ranked high for the importance of watersheds and private forests for drinking water supplies and for their ability to produce clean water. Water utilities recognize that it costs less to keep drinking water supplies clean by investing in watershed management than to clean up polluted water using engineered systems alone.

Economic Importance

- Forest conservation brings economic benefits to Rhode Island cities and towns. In the forest and wood products sector, 513 firms generated 2,496 jobs with \$408 million in gross sales in 2016.
- Forest-based recreational activities contribute an estimated \$375 million dollars in sales annually to the Rhode Island economy, in addition to 1,500 jobs with an estimated \$37 million payroll annually.
- Wildlife-related recreation plays an enormous part in Rhode Island’s forest-based economy, with an estimated 503,000 residents and non-residents participating each year, bringing \$348 million to the state’s economy through fishing, hunting and wildlife watching.

Climate Change Mitigation

- Natural lands are increasingly becoming recognized for their unrealized potential to play a much larger role in climate mitigation efforts. In 2016, the Rhode Island Greenhouse Gas Emissions Reduction Plan prepared by the Executive Climate Change Coordinating Council advised that meeting the state’s emissions goals could be compromised by continued loss of forested land and recommended exploring a “no net-loss of forests” policy. Forests contribute to climate mitigation by storing carbon as biomass and by sequestering carbon from the atmosphere.
- The more than 368,000 acres of forestland in Rhode Island sequester nearly 500,000 metric tons of carbon dioxide each year, offsetting the annual emissions of more than 100,000 passenger vehicles each year. Overall, Rhode Island forests store an estimated 26.7 million metric tons of carbon – an amount of carbon biomass with a volume equivalent to more than 3,300 Olympic-sized swimming pools. The average forested acre in the state stores 76 metric tons of carbon and absorbs an additional 1.3 metric tons of carbon from the atmosphere each year.

Human Health and Well-Being

- Numerous research studies have connected access to trees and other natural environments with better physical and mental health. Providing access to green spaces to all Rhode Islanders is necessary to ensure these benefits are distributed equitably – numerous studies have shown that it is more difficult for communities marginalized by racial and socioeconomic conditions to access green spaces.
- Forests support many of the recreational activities that Rhode Islanders engage in and 75% of residents consider state parks to be “very important.”
- Trees and forests protect human communities from dangerous urban heat, flooding concerns, and the frontline impacts of climate change. Green infrastructure, including tree plantings, is a vital part of keeping Rhode Island communities safe.

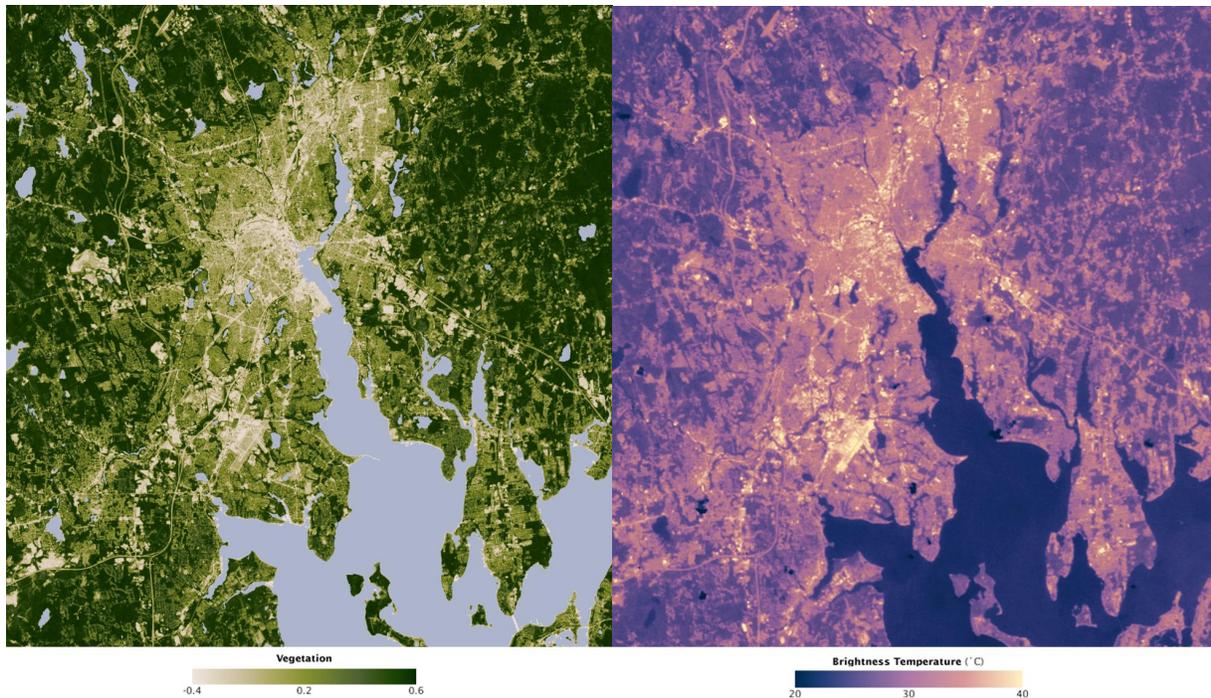


Figure ES-3: Satellite Images of Vegetation and Temperature in Providence, Rhode Island. *Source: NASA* (Left Image: Vegetation in Providence. Right Image: Temperature in Providence.)

Cultural Value

- Rhode Island’s forests continue to be used by indigenous people as places to gather resources used for food, medicine, and culturally-significant ceremonies. The forest as a whole, and many resources within the forest, have cultural value to members of the Narragansett Tribe, the federally-recognized tribe in Rhode Island.
- Traditional ecological knowledge – a term used to describe knowledge of the environment that has been passed down within indigenous communities – has proven to promote positive health, biodiversity, and conservation outcomes on landscapes in the United States and around the world.
- Many of Rhode Island’s rural communities are fundamentally characterized by surrounding forestland. Forests bring a “sense of place” to these communities – a meaning and connection between people and their physical environment.

Wildlife Habitat

- Rhode Island’s forests provide unique habitats that support thousands of wildlife species of mammals, birds, reptiles, amphibians, fish, and invertebrates, and close to 2,900 plants. Many species are forest interior dependent and rely on core forests for their habitat requirements.
- Wildlife species play a direct role in sustaining healthy forest ecosystem function that delivers value to humans and the landscape. Studies have shown that wildlife can improve mental health, and that outdoor recreation including wildlife viewing can alleviate symptoms of stress, anxiety, and depression.

Strategies for Promoting Forest Conservation

Conserving forestland is an investment in the future. A suite of adaptable strategies can be used to incorporate conservation principles into decision-making that impacts forestland.

1) Dedicate Funding to Forest Conservation and Management

Strengthening or creating federal, state, and local sources of funding for forest conservation will allow more effective forest conservation programs and policies to be implemented. At the federal level, the Forest Legacy Program managed by the USDA Forest Service (USFS) has acquired the development rights for 3,583 acres on 22 forest tracts in Rhode Island. Through a number of programs dedicated to assisting private forest landowners, the Natural Resources Conservation Service (NRCS) has assisted with conserving over 420 acres on 20 properties. States and local municipalities have used thoughtful and creative approaches to dedicate funding to forest and open space conservation across the United States, including: bond funding for forest conservation; real estate transfer tax programs to increase dedicated funds for conservation; dedicated sales taxes to provide continuous funding for land conservation; a commitment of state matching funds to be used as an incentive for communities to adopt local property tax surcharges for forest conservation; funds from enforcement actions by both settlement and mitigation programs; funds for watershed protection; and philanthropic contributions for forest conservation.

2) Support Forest Acquisition for Conservation

Forest acquisition is the most clear and direct way of retaining forestland and preventing its conversion to other land uses. While funding is limited and often competitive, many sources and mechanisms are available. Part of the challenge can be identifying the most promising approach for a land conservation transaction involving a particular landowner or property. Two important tools are:

- Conservation easements are transactions in which the landowner transfers some of the rights on all or part of their property to conserve the land and prohibit development, while still retaining ownership. This can be an effective tool for forest acquisition and conservation.
- Regional Conservation Partnerships (RCPs) are coalitions that have emerged as effective structures in recent years to help increase the scale and pace of forestland conservation throughout New England and beyond.

3) Incentivize Forest Conservation Assistance & Stewardship

Rhode Island has a tax program known as “Farm, Forest, and Open Space” (FFOS) that allows private forests, farms and open land to be assessed at current use values rather than higher values appropriate for developed land. FFOS has been effective in deferring forestland conversion, but the program has shortcomings that prevent it from appealing to more landowners and encouraging permanent land protection. Successful provisions from Massachusetts’ current use program could be adapted to Rhode Island.

4) Incorporate Forest Conservation into Land Use Planning & Permitting

One of the greatest threats to Rhode Island’s forests is improperly managed human development. According to a study from the Society of American Foresters, if Rhode Island continues along its current trajectory of urban expansion, 52% of the state’s land area will be urbanized by 2050 and more than 70% by 2060. Rhode Island communities must plan how they will accommodate a growing population while preserving the natural resources that residents rely on. An essential part of protecting forests is creating

community centers where people want to live and development can be concentrated, thereby reducing forest loss. Using “smart growth” principles, planners at the state and municipal levels can create communities that exist sustainably within their landscapes, are healthy and vibrant, and are accessible to everyone. In addition to commercial and residential development, smart planning for transportation, energy, and other supporting infrastructure is critical to conserving forestland. A number of planning tools have been used in Rhode Island and around the country to promote sustainable development patterns that account for forest conservation. Some of the most impactful land use planning tools are:

- “Conservation development” – an approach to land use planning that combines real estate development with permanent green space protection. As of 2011, conservation development projects have conserved an estimated 9.8 million acres of land in the United States and accounted for a quarter of all private-land conservation activities in the country. The Maryland Forest Conservation Act (FCA) is a premier example of incorporating forest conservation into all development activities.
- Transfer of development rights (TDR) programs, which help communities develop in areas targeted for growth and limit development in areas with important natural resources.

5) Support Market-Based Incentives for Forest Conservation

Funding from individuals and businesses in the private sector is essential to the work of protecting important ecosystems, including forests. A number of conservation programs target private funding, like the Nature Conservancy “NatureVest” program that aims to bring \$1 billion in private capital into conservation projects by 2021. The Rhode Island Infrastructure Bank (RIIB) has already established a revolving fund structure for leveraging private funds in important environmental projects. This could be expanded to include more funding for forest conservation.

Carbon offsets are an emerging finance tool that provides an opportunity for forest landowners to be compensated for making long-term commitments to storing carbon on their lands. A number of conservation organizations are exploring or experimenting with strategies to enable more small landowners to access these markets. RI Office of Energy Resources (OER) and the RI Department of Environmental Management (RIDEM) will be managing the completion of a report on carbon pricing in Rhode Island in 2019 and 2020.

6) Actively Manage Rural and Urban Forestland to Maximize Forest Value

Active stewardship by public and private forest managers is an important component of forest conservation. Engaging landowners and other groups in active forest management practices can simultaneously build understanding of forests, support forest health, and support land conservation. Management activities in rural, urban, and urban edge forests typically address and support multiple forest values at the same time.

7) Provide Education & Technical Assistance to Forest Landowners

Limited access to education, technical expertise, and financial resources have proven to be challenges to managing Rhode Island’s forests. Rhode Island is the only state in New England that does not have an extension forestry program operated by a state university. Forestry extension programs are able to provide educational opportunities and on-the-ground technical assistance to landowners, while also researching management and resources issues and providing continuing education and training to natural resources

professionals. Because private landowners control 68% of Rhode Island's forestland, estate planning is an essential consideration when it comes to future land use and conservation.

Policy Recommendations to Promote Forest Conservation

The following changes and additions to Rhode Island policies and programs could support more accurate accounting for the value of the state's forest resources and subsequent conservation of key forest resources:

1. Develop and Implement a Rhode Island Forest Conservation Act
2. Devote More Public Funding to Forest Conservation
3. Leverage Private Funding for Forest Conservation
4. Encourage Long-Term Conservation through the Farm, Forest, and Open Space Program
5. Increase Landowner Benefits from Conservation Easements
6. Incorporate Forest Conservation Into Land Use Planning
7. Avoid Forest Loss from State or Municipal Incentive Programs that Encourage Development
8. Implement Forest Management Best Practices at the State and Local Level
9. Support the Cultural Value of the State's Forestland
10. Improve Private Landowner Education and Outreach on the Importance of Forest Conservation

Conserving the state's forests is a forward-looking and wise investment in Rhode Island's future. Rhode Island stakeholders have an exciting opportunity to steward existing rural and urban forest resources and pass down the benefits of this work. There is much more to do to ensure that Rhode Island's forests are conserved, and it is time for policymakers and those with authority over forest resources to fully recognize forests for their contributions to the state.