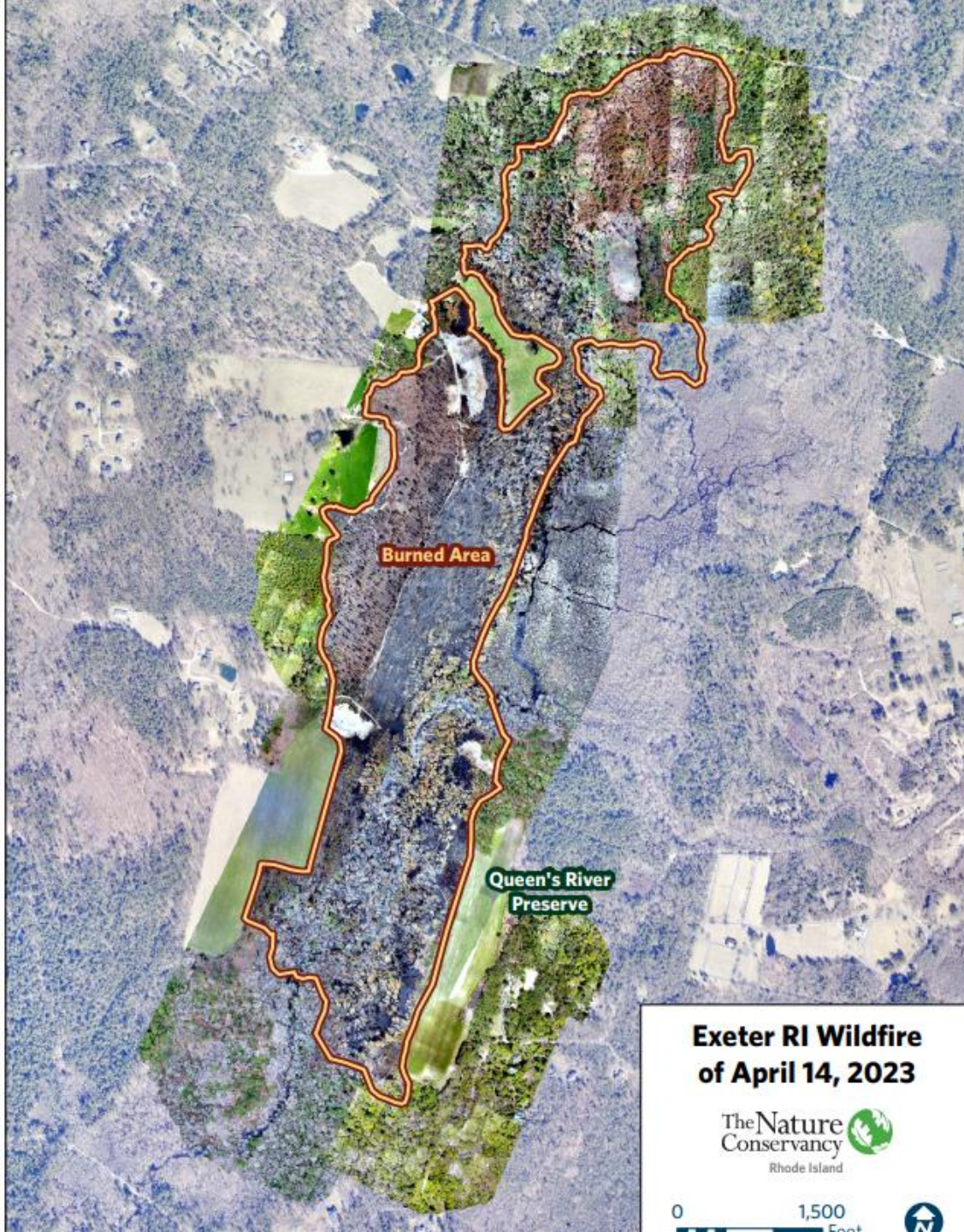


A large fire with thick black smoke rising into the sky, with a line of trees and a field of vehicles in the foreground.

How Logging Contributed to the 2023 Exeter “Brush” Fire

By Nathan Cornell
President of the Old Growth Tree Society

Exeter “Brush” Fire



- On April 14, 2023, 238 acres burned in Exeter including 45 acres in The Nature Conservancy owned Queen’s River Preserve which is where the “brush” fire started.
- This makes the Exeter “Brush” Fire the largest brush fire in almost 73 years!

[Nature Doing Its Thing at Site of Exeter Brush Fire - ecoRI News](#)

- In the afternoon, the wind was coming from the south. The daily temperature was 65.04 degrees °F with a high temperature of 87 degrees °F. The maximum wind speed was 17 mph. [Warwick, RI Weather History | Weather Underground \(wunderground.com\)](#)
- The National Weather Service stated that dry conditions and low humidity increased the fire risk. [Exeter brush fire - some residents are asked to evacuate, what to know \(providencejournal.com\)](#)

The Nature Conservancy created the conditions for a brush fire to start

- Between 2011 and 2014, The Nature Conservancy clearcut mature forest along the northwestern corner of a farm field in the Queen's River Preserve. The Natural Resources Conservation Service (NRCS) was involved in this clearcut as well.



2011 Aerial Photo



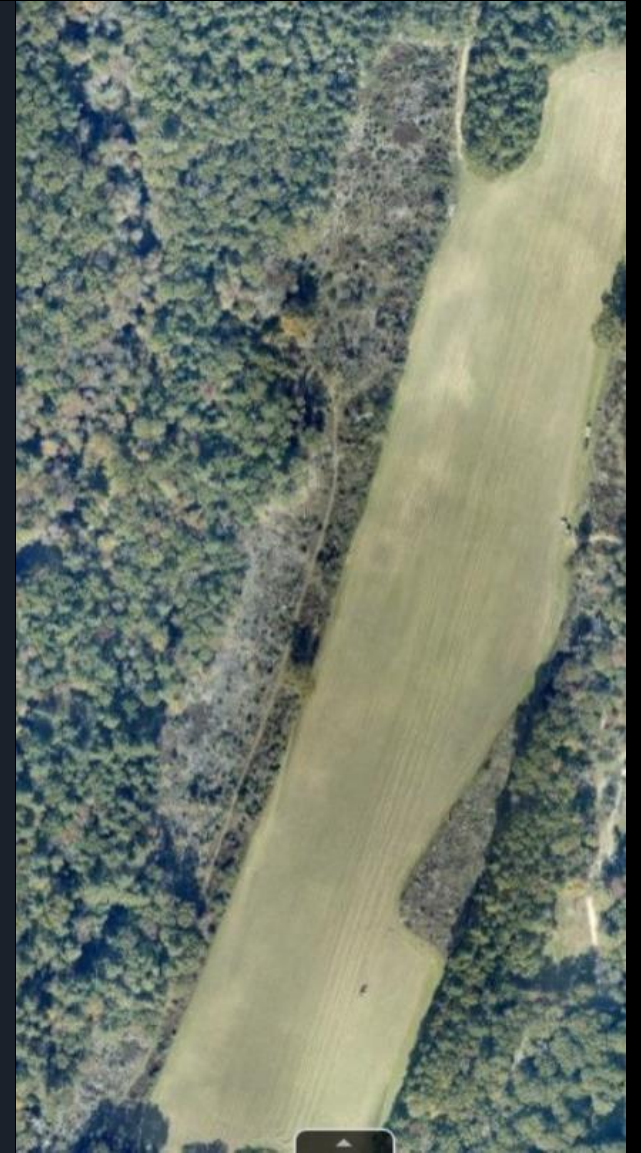
2014 Aerial Photo



2014 Aerial Photo

The Nature Conservancy created the conditions for a brush fire to start

- Between 2014 and 2018, The Nature Conservancy extended the clearcut to the south so almost all the mature forest that bordered the field to the west side was gone. The Natural Resources Conservation Service (NRCS) was involved in this clearcut as well.



2018 Aerial Photo



The Nature Conservancy created the conditions for a “brush” fire to start

- By 2023, the clearcut area along the western portion of the field was full of flammable “underbrush” which is where the fire started as seen in this photo.

The Nature Conservancy Denies they Clearcut on their Land

- At the January 23, 2024, meeting of the House Fire Commission, Sue AnderBois, the Director of Climate and Government Relations for The Nature Conservancy, stated in her public testimony which was echoed in her written testimony, “TNC does not clear cut forests, nor do we have any incentive to do so.”

[1-23-24---Anderbois Testimony.pdf \(rilegislature.gov\)](#)

- This statement is false as seen in this aerial photo and the Rhode Island Woods website.

50-acre Tillinghast Pond clearcut on land owned by The Nature Conservancy.

[Young Forest Demonstration Sites – Rhode Island Woods \(uri.edu\)](#)

Nicholas Farm Management Area

Coventry, RI

A 35 acre clearcut created in 2015 by RIDEM.

Tillinghast Pond Management Area

West Greenwich, RI

Two adjacent 25 acre clearcuts created in 2010 and 2015 by the Nature Conservancy.

Francis Carter Memorial Preserve

Charlestown, RI

Three nearby clearcuts created by the Nature Conservancy in 2008 and 2015.

Rhode Island Woods is a partnership of:



Dry Conditions and Wind Fueled the “Brush” Fire

- “Both fire chiefs agreed that what fueled this brush fire was dry conditions and wind.”
- “He went on to say that one of the reasons the Queen’s River fire had spread so quickly was because ‘it had somewhat of a start before anyone noticed it and the weather’ participated in providing the perfect breeding ground for spreading flames (Chief Robert Franklin of Exeter).”

[Brush fire burns hundreds of acres in Exeter forest | Coventry Courier | ricentral.com](#)



The “Brush” Fire was Human Caused

- “Authorities believe that the fire started at a campsite inside the Queen’s River Preserve, but John Torgan, Rhode Island director of The Nature Conservancy, said he also heard that ATVs had been in the preserve Friday and could have sparked the conflagration.”

[Exeter wildfire one of state's largest, wildfire season could be busy \(providencejournal.com\)](https://www.providencejournal.com/story/news/local/2019/08/23/exeter-wildfire-one-of-state-s-largest-wildfire-season-could-be-busy/1000000001)

- Therefore, the fire was human caused, not due to a natural disturbance.
- The human caused spark was fueled by the underbrush growing on The Nature Conservancy clearcut creating the brush fire.
- “Nationally, almost nine out of 10 wildfires are caused by humans.”

[10 Tips to Prevent Wildfires | U.S. Department of the Interior \(doi.gov\)](https://www.doi.gov/wildfire/10-tips-to-prevent-wildfires)

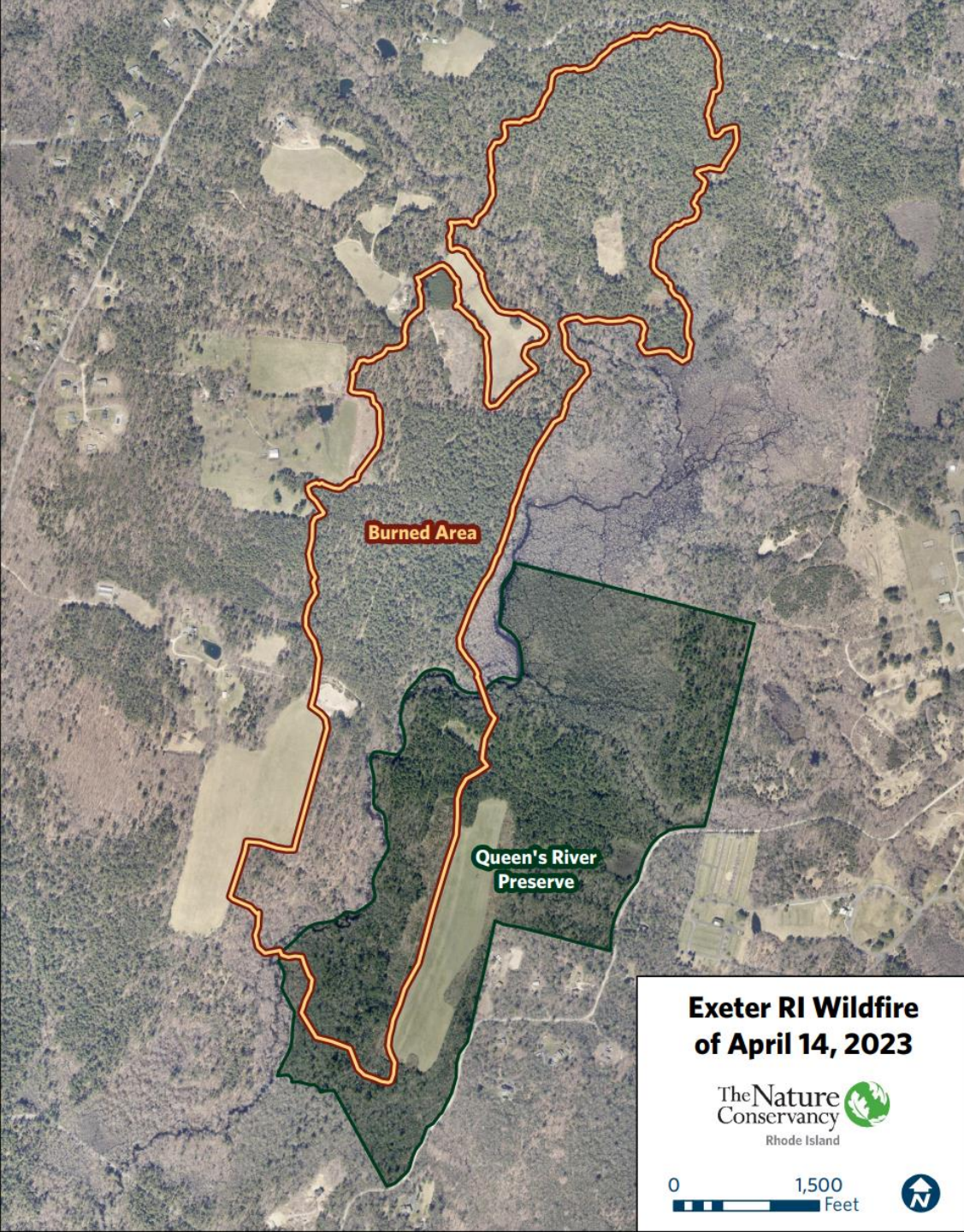
The Fire Occurred in Spring when Outdoor Burning is Prohibited.

- “Every year during the months of March 15 and May 15, there’s no outdoor burning allowed per state regulations. According to the Rhode Island State Fire Marshal’s office, this is the “busiest” time of the year. It’s this time of year when there is no leaf canopy so the sun quickly dries out grass and fallen leaves, as well as dormant brush and branches. Other factors are windy conditions and low humidity.”

[Brush fire burns hundreds of acres in Exeter forest | Coventry Courier | ricentral.com](#)

From Harvard Forest Ecologists Dr. David Foster and Dr. David Orwig's 2006 Paper on Salvage Harvesting

- "... New England forests do not commonly experience insect outbreaks that lead to large accumulations of hazardous fuels as the southern or western United States do (White et al. 1999; Foster et al. 2006)."
- "... No studies exist of the changes in fuel loading after windstorms from New England forests, and there is no good historical research that links windstorm events and fire. Most cutting is predicated on the intuitive notion that downed woody debris enhances long-term fire hazard. Although blowdowns in New England conifer stands may produce a short-lived increase in hazard (Patterson & Foster 1990), data from the hurricane experiment suggest that fine fuels, which are the main fire concern, are unevenly distributed and highly transient due to the rapid decay of fine material and the gradual mortality of the trees. The decomposition of fine fuels and the rapid growth of hardwood sprouts and understory plants quickly reduce the fire hazard. As a consequence, overall fire hazard was only slightly increased in the experimental study and for a relatively short time (Foster et al. 2006)." [cbi_495.tex \(harvard.edu\)](#)



Most of the Burned Forests were Pine Forests filled with living trees

- The claim that forests filled with dead trees from insect defoliation fueled the fires is not supported by the fact that over 60% of the burned area was in living pine forests!
- Tim Mooney from The Nature Conservancy even agreed that the forest that burned was not filled with dead trees before the fire in a December 11, 2023, Providence Journal article.
- For this PowerPoint, we will analyze the forests in the burned area before the fire in three sections, the southern section, the middle section, and the northern section.

Picture taken before fire in winter/spring 2022. The green forests are pine forests.



Southern Burn Area Part 1

- While the northern and middle burn areas are dominated by pine forest, the southern burn area is dominated by deciduous oak forest.
- However, where the fire entered the forest was in a pine dominated forest growing along the underbrush from The Nature Conservancy clearcut where the “brush” fire started. This is outlined in blue. Where the fire spread is represented by orange arrows. The fire burn boundary is outlined in red.
- The fire jumped the Queen’s River to the west and was following the river on the west side.
- Due to winds coming from the south, the fire raged northward as exemplified by the orange arrows.

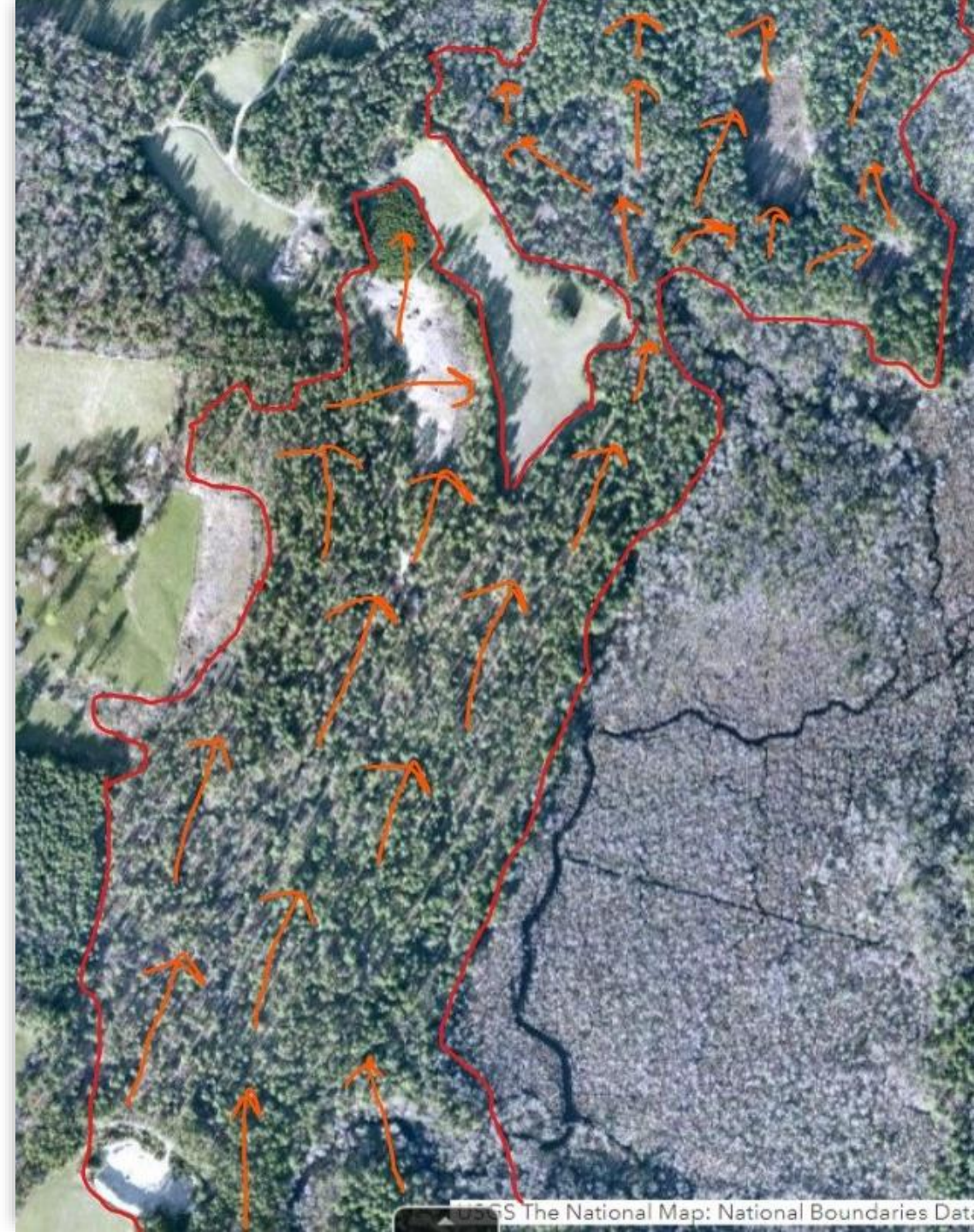
Southern Burn Area Part 2

- Since the fire took place in spring before the leaves grew on the trees, it doesn't really matter if the forest was filled with living trees or dead trees from insect defoliation. While there were some dead trees, most of the trees in the forest were living at the time the fire started as seen in this aerial photo taken in summer 2022. There appears to be minimal blowdowns in the forest which puts to question whether there was excessive wood debris on the forest floor at the time of the fire.



Middle Burn Area

- As seen from this winter 2022/2023 aerial photo, almost all of the forest in the middle burn area consisted of coniferous pine forest.
- Apart from the logged pines in the western section of the middle burn area which we will get to shortly, these pine forests appear to have been healthy with living trees before the fire.
- Since pine trees don't lose their needles in winter and most of the trees were living, these forests had an intact tree canopy by the time of the fire.
- The fire moved north through the middle section. The wetlands appear to have stopped the fire to the east and the fields with green grass stopped the fire to the west. However, the fire jumped a gravel pit which is the white clearing in the northwestern part which was pine forest up to 2020.
- The fire also jumped a clearcut in the northeast.
- It is possible that these clearings having underbrush caused them to catch fire.

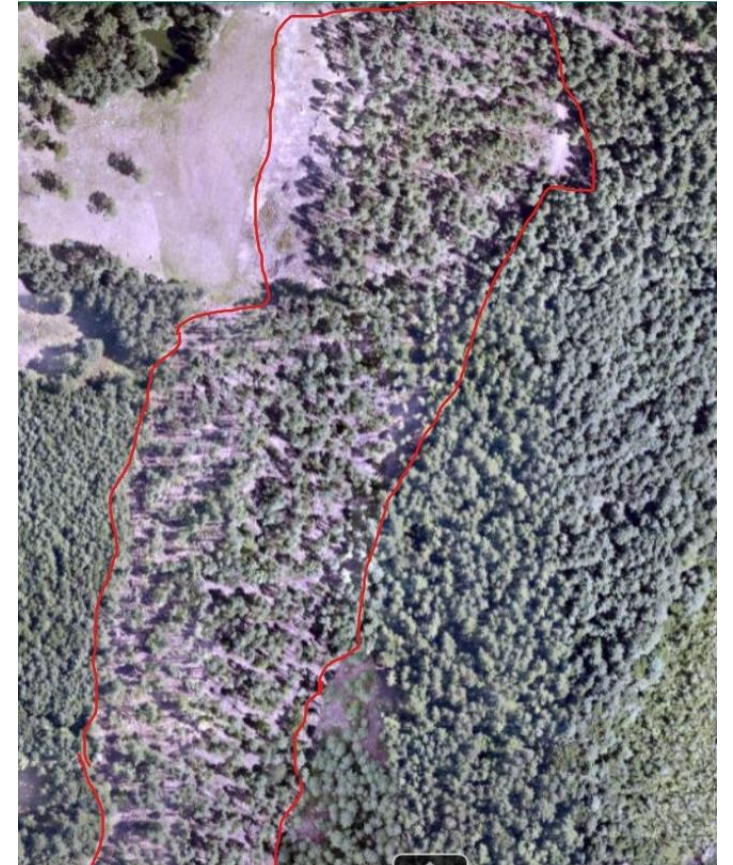


Forest Management (Logging) Does **NOT** Stop Fires

- Between the summer of 2021 and Spring 2022, over 30 acres of pine forest were managed (logged) in the western half of the middle burn area.
- Despite this tree “thinning”, all of this managed area was burned proving that forest management (logging) does not stop fires.
- On the contrary, it is possible this management might have helped fuel the fire due to underbrush that grew, or saw dust, wood chips, and wood slash piles left behind following the logging operation.



Summer 2021 Aerial Photo



Summer 2022 Aerial Photo

Northern Burn Area Part 1

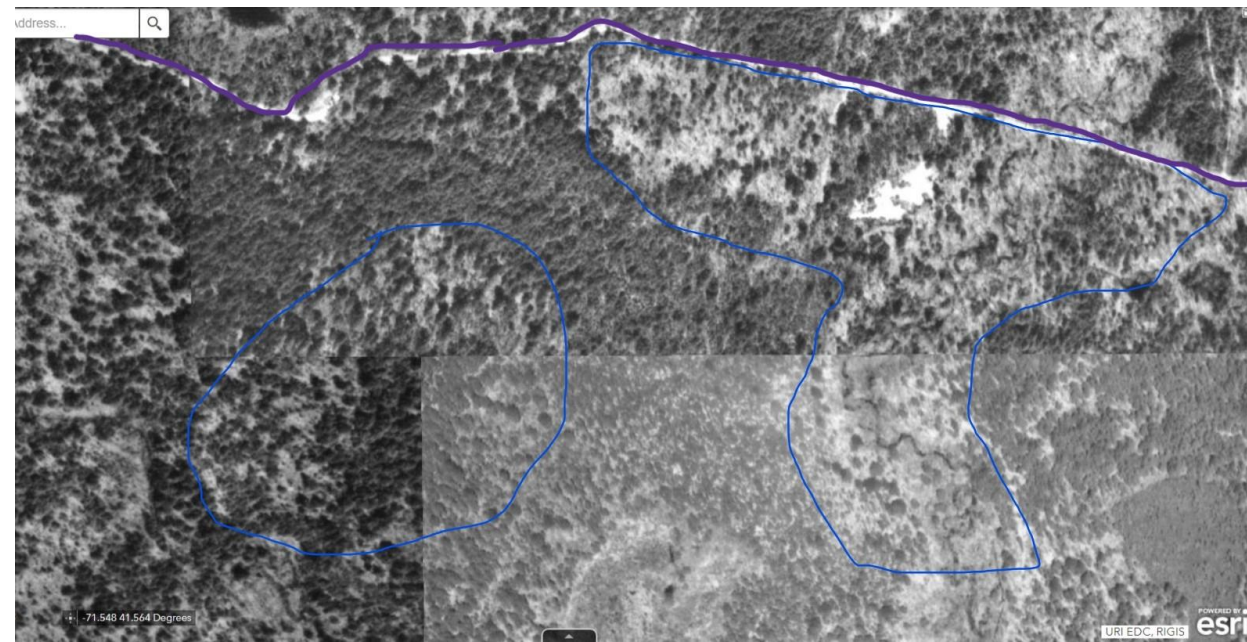
- As was the case in the middle burn area, the vast majority of the forest in the northern burn area was pine forest, so there was an existing leafed tree canopy at the time of the fire.
- Winds from the south caused the fire to move north with wetlands on the east and fields with green grass on the west hindering the fire's spread in those directions.
- The fire continued north until firefighters stopped it at William Reynolds Road which is highlighted in purple.

Winter 2022/2023 Aerial Photo

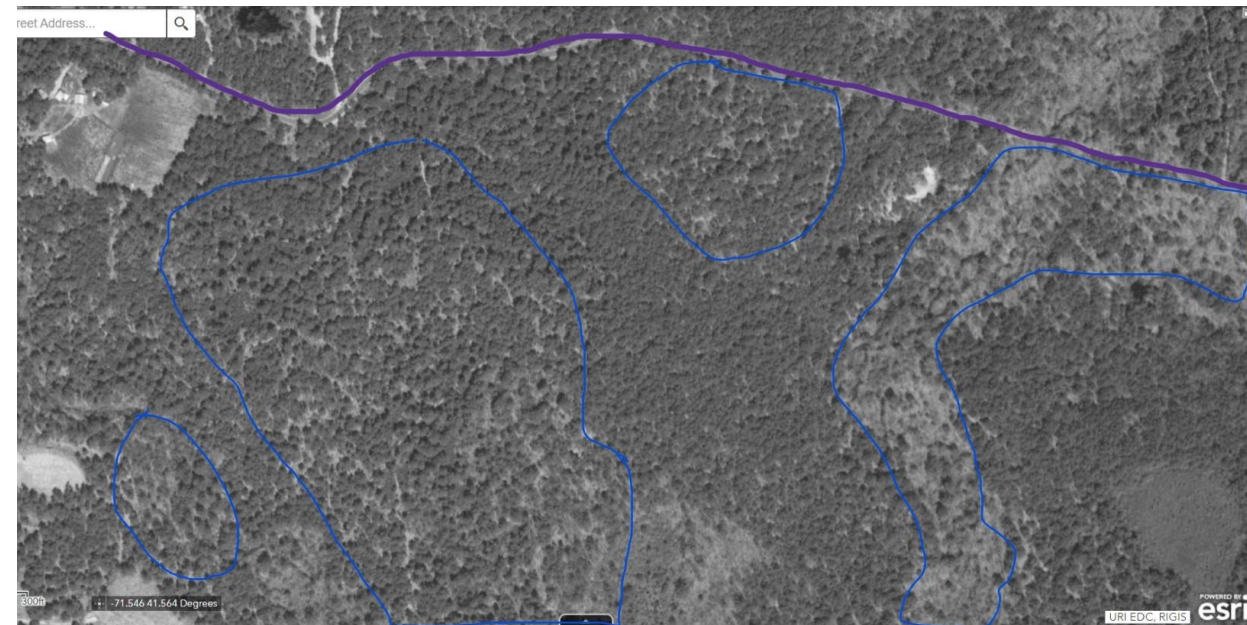


Northern Burn Area Management History

- While the pine forest may have been mature by the time of the fire, the claims that the fire spread so rapidly due to lack of management is unsupported.
- As indicated in the 1972 and 1997 aerial maps, much of the forest in the northern burn area was managed through logging which some may call “thinning.”
- The logged areas are circled in blue and William Reynolds Road where the fire stopped is highlighted in purple.
- Therefore, lack of management was not a cause of this forest burning.
- On the contrary, this management might have led to the forest being more likely to catch fire.

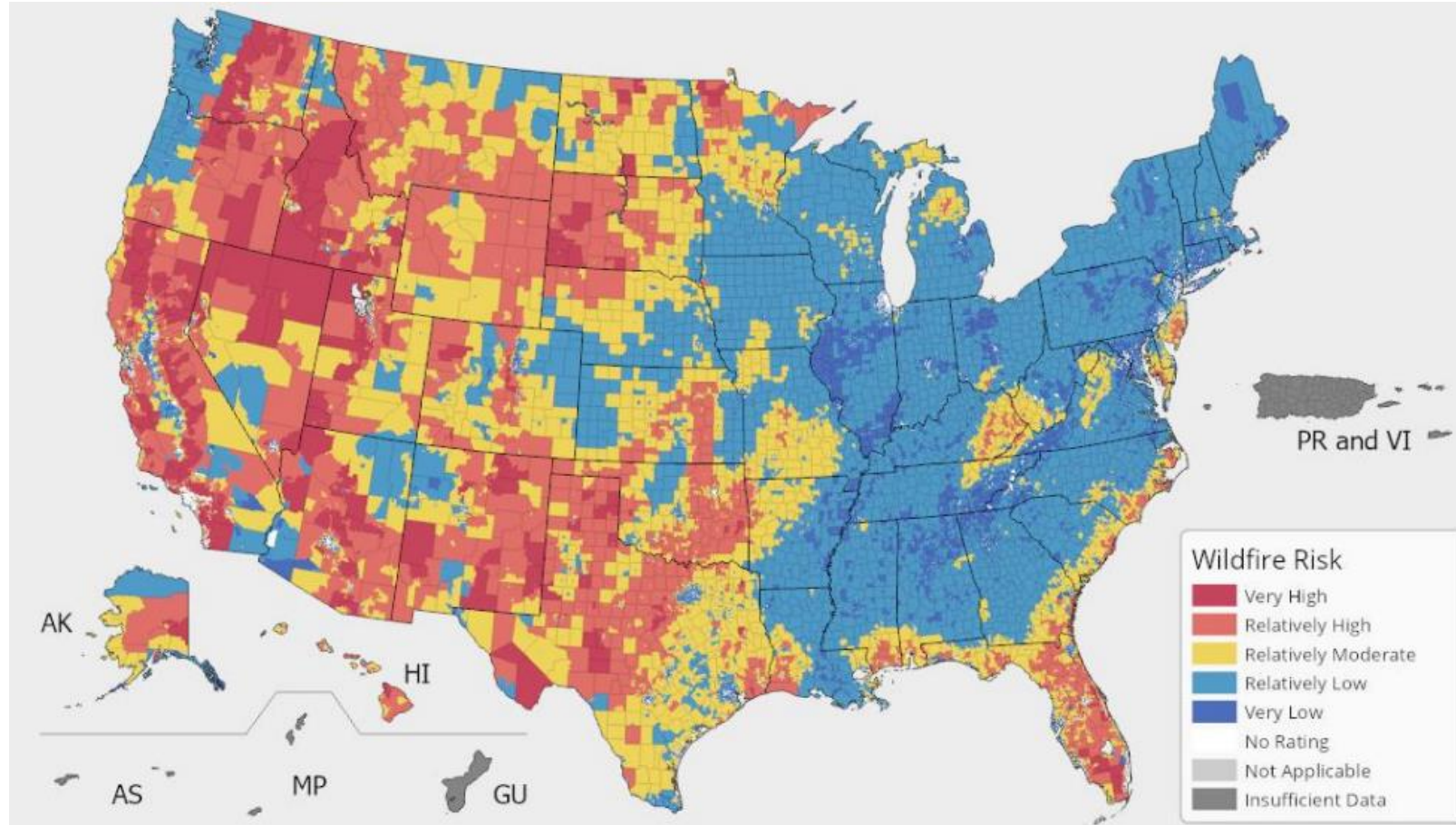


1972 Aerial Photo



1997 Aerial Photo

Rhode Island is one of the Lowest Wildfire Risk States in the Country



Fire History of the Northeast

- “Historical data and pollen studies indicate that before European settlement, forests were mainly characterized by long-lived shade tolerant and moderately shade tolerant species, not fast growing, early-successional and weedy species that would indicate widespread Native burning (Russell, 1983; Foster et al., 2002; Motzkin and Foster, 2002; Parshall and Foster, 2002; Parshall et al., 2003; Faison et al., 2006; Shuman et al., 2019; Oswald et al., 2020b; Kellett et al. 2023).”
- “Available evidence does not support the hypothesis of widespread, intensive, ongoing burning and other land management over millennia by Native people (Cachat-Schilling, 2021). Instead, the evidence points to human use before European colonization limited to areas near settlements and ultimately constrained by a regional human population that is estimated to be less than 1% of the present population (Milner and Chaplin, 2010; Kellett et al. 2023).” [Frontiers | Forest-clearing to create early-successional habitats: Questionable benefits, significant costs \(frontiersin.org\)](https://www.frontiersin.org/articles/10.3389/fgene.2023.1121111/full)

Fire History of the Northeast

- “... the period of greatest Native population, shortly before the time of European colonization, was one of relatively low fire activity. At smaller spatial scales, particularly near the coast, some pollen records do show relatively high fire activity just prior to European settlement in areas of higher human population densities (Stevens, 1996; Lorimer and White, 2003; Parshall et al., 2003; Kellet et al. 2023).”
- “Overall fire activity spiked after forest-clearing by European settlers created dry and flammable early-successional habitats, spiked again in the late 19th and early 20th centuries with the expansion of fire-prone abandoned farmlands and cutover forests, and has dramatically declined in the last century (Irland, 2013, 2014; Frelich et al., 2021; Kellett et al. 2023).” [Frontiers | Forest-clearing to create early-successional habitats: Questionable benefits, significant costs \(frontiersin.org\)](https://www.frontiersin.org/articles/10.3389/ffr.2023.11212/full)

Underbrush

- It is a well accepted fact that underbrush under dry conditions is prone to fire. That is why they call fires that start in underbrush, “brush” fires.
- “Clearing established forests can also introduce and spread invasive and non-native species that ultimately reduce biodiversity (McDonald et al., 2008; Eschtruth and Battles, 2009; LeDoux and Martin, 2013; Coyle et al., 2017). Managed forests have been found to have as much as three times more invasives than fully protected national parks or wilderness (Riitters et al., 2018; Kellett et al., 2023).”
- “Following logging, however, there was a much greater increase in shade-intolerant seedlings, herbs, and shrubs (Fig. 5), red maple (*Acer rubrum* L.) sprouts, and invasive species (Brooks 2004; Foster et al. 2006).”
- “... Care must be taken not to encourage invasive and equally undesirable early successional species by creating large forest openings and exposing mineral soil (Foster et al. 2006).”

Underbrush from DEM Clearcutting

Nicholas Farm 2015 DEM Clearcut, 35 acres.



George Washington 2010 DEM Clearcut, 22 acres.



“Due to its young age, understory in the cut contains both herbaceous species and concentrations of woody shrub species characteristic to the earliest stages of forest succession (DEM).”

“Heavy undergrowth occurs throughout the cut, dominated by blueberry and huckleberry (DEM) “
[Young Forest Demonstration Sites – Rhode Island Woods \(uri.edu\)](http://uri.edu)

Sample Aerial Photos of DEM Clearcuts

- The first aerial in the top right is the 2020 Arcadia Management Area clearcut by DEM which consisted of 195 acres.
- The second aerial on the bottom right is the 35-acre 2015 Nicholas Farm DEM clearcut mentioned on the previous slide.

[State Land Stewardship: Forest Thinning and Timber Harvests | Rhode Island Department of Environmental Management \(ri.gov\)](#)

[Aerial Photography | Rhode Island Division of Statewide Planning](#)

[Young Forest Demonstration Sites – Rhode Island Woods \(uri.edu\)](#)



Nicholas Farm 2015 DEM Clearcut, 35 acres.

Wood Slash

- According to the U.S. Forest Service, "Some of the most disastrous forest fires in North American history burned in slash left from logging and land clearing."
- "Over much of the West logging slash is now the most hazardous forest fuel, and it threatens to remain so for an indefinite period."
- "Slash is the residue left in the woods after timber has been harvested. It consists of foliage, twigs, branchwood, bark, rotten wood, and cull or otherwise unusable material. Most of this debris once comprised parts of the harvested crop trees, but sizable quantities are sometimes broken from the residual stand in logging. Leaving slash after the harvest of forest products is as inevitable as leaving the core after eating an apple. An apple core must be picked up because garbage is an eyesore and a public nuisance. Slash also is unsightly, but it requires treatment primarily because it is highly flammable."

[Logging slash flammability \(usda.gov\)](http://usda.gov)



"High concentrations of slash, snags and residual tree stumps are left standing throughout the site (DEM.)"
[Young Forest Demonstration Sites – Rhode Island Woods \(uri.edu\)](http://uri.edu)



Carter Preserve Clearcuts

“Residual stumps slash and snags as well as preserved mast trees are abundant in this cut (The Nature Conservancy).”

[Young Forest Demonstration Sites – Rhode Island Woods \(uri.edu\)](http://uri.edu)



Tillinghast Pond Clearcuts

“Slash was left throughout the cut, and now is mostly covered in the pine and berry producing understory (The Nature Conservancy).”

[Young Forest Demonstration Sites – Rhode Island Woods \(uri.edu\)](http://uri.edu)

Wood Slash on The Nature Conservancy clearcuts



Wood Slash from NRCS Logging Operations

- In 2018, the YMCA Forest, which was one of, if not the largest, Old Growth Forest in Rhode Island, was logged through a grant with NRCS.
- Up to this day, there is still flammable wood slash and underbrush in this forest from the logging operation creating a Fire Hazard right in the heart of Warwick, Rhode Island.
- NRCS through their grants are making Rhode Island's private forests more prone to wildfires from the wood slash and underbrush resulting from the logging operations.



2018 NRCS YMCA Logging Operation- On the left, wood slash can be seen, on the right, underbrush can be observed.

Mature Forests

- Mature forests have larger tree canopies which keeps the forest floor cool and wet. This allows fungi and native plants to thrive while keeping out invasive underbrush which thrives in managed (logged) forests where the canopy is opened allowing more sunlight to reach the forest floor.
- The increased sunlight from artificial openings in the canopy from logging dries the forest floor, especially in clearcuts where the entire canopy is removed.
- Unlogged mature forests with intact tree canopies are humid.
- Trees in older mature forests are spaced farther apart from each other than in managed forests.
- Any wood debris on the forest floor of mature forests is often damp due to the tree canopy.
- The large tree canopy in mature forests mitigates wind flowing through it.
- As indicated by the fire history of the northeast, fires were at a low point when the land was dominated by mature forests, mostly Old Growth Forest, before European settlement.
- Fires became much more prominent after European settlement when the land was clearcut and there was an increase in early successional habitat.
- “For thousands of years before European settlement, vast “primary” forests were inhabited by a thriving Native human population and harbored many exceptionally large trees, and ecosystems that would be characterized as “old-growth” today (Lorimer, 1977; Whitney, 1994; Lorimer and White, 2003). Up to 90% of the Northeast was covered by such forests, and dominated by shade-tolerant and moderately shade-tolerant species (Foster, 1995; Cogbill, 2000; Cogbill et al., 2002; Shuman et al., 2004; Thompson et al., 2013; Foster et al., 2017; Oswald et al., 2020b; Kellett et al. 2023).”
- “Openland and early-successional habitats were not common before the arrival of Europeans in the Northeast or Upper Great Lakes (Cooper-Ellis et al., 1999; Foster et al., 2002; Faison et al., 2006; Anderson et al., 2018; Oswald et al., 2020b; Frelich et al., 2021; Kellett et al. 2023).”
- Therefore, by allowing the state’s forests to mature and eventually become old growth to reflect the pre-colonial landscape, fire activity should go down.

Mature Forests



Route 1 RI Audubon Society Old Growth American Beech Forest.

DEM's Forest Management Policies are making our State Forests **More Prone to "Brush" Fires**

- DEM's logging practices which often include clearcutting causes Flammable Underbrush and Wood Slash to develop which creates a **Fire Hazard!**
- If DEM left the state's mature forests alone to be shaped by nature, this underbrush and wood slash would be less likely to develop.
- For decades, DEM has been making the state's forests **more prone to fires** through their forest management practices which is **logging.**

Slash in Buck Hill 2008 DEM Clearcut, 21 acres.

[Young Forest Demonstration Sites – Rhode Island Woods \(uri.edu\)](http://uri.edu)



Prescribed Burns

- As cautioned by Chief Robert Franklin of Exeter, prescribed burns carry a liability that they could get out of control and that there may not be enough people to contain the fire if this occurs. [10-12-2023 Special Legislative Commission to Evaluate and Provide Recommendations on Proper Forest Management for Fire Prevention \(devosvideo.com\)](https://www.devosvideo.com/10-12-2023-Special-Legislative-Commission-to-Evaluate-and-Provide-Recommendations-on-Proper-Forest-Management-for-Fire-Prevention)
- Since underbrush and wood slash are flammable, prescribed burns could certainly get out of control.
- There is no need for prescribed burns in mature forests since mature forests often lack underbrush from the tree canopy and the trees are spaced farther apart than in a managed forest.



Legal penalties for Unlawful Human caused Wildfires are Outdated and Weak

- The state's forest fire laws have weak provisions regarding the penalties for human caused wildfires.
- § 2-12-7 "Whoever sets or maintains any attended fire shall totally extinguish the attended fire before leaving it and failure to do so shall make the person, upon conviction, liable to a fine not exceeding one hundred dollars (\$100) or less than ten dollars (\$10.00) or to imprisonment not exceeding thirty (30) days nor less than ten (10) days or both, and further they shall be liable in a civil action for the payment to the state or fire company for the expenses incurred by the fire chief or senior officer or any other authorized forest fire official in attending or suppressing fire or fires as result from that burning."

webserver.rilin.state.ri.us/Statutes/TITLE2/2-12/INDEX.htm

Conclusions

- The 2023 Exeter “Brush” Fire was human caused. It started from a spark from either a campfire or ATV on The Nature Conservancy owned Queen’s River Preserve property along the western edge of the field there. This is not surprising since nine out of ten wildfires are started by humans.
- The spark became a fire due to the underbrush that grew at the site after the tree canopy was removed from a 2011-2018 clearcut by The Nature Conservancy and NRCS.
- The fire spread to the pine forests bordering the clearcut to the west. The fire then started spreading to the surrounding forest areas because of the dry conditions heading north due to the winds coming from the south.
- The wetlands to the east and the green fields to the west helped contain the fire in those directions.
- Most of the trees in the forests that burned were alive at the time the fire started.
- The managed (logged) forest in the middle burn area not only burned but spread the fire north. It did not stop the fire.
- At least two openings, a gravel pit from a recent clearcut and an older clearcut to the northeast, were in the burn area of the fire.
- The fire was eventually put out by firefighters just south of William Reynolds Road.
- DEM is making the state’s forests more prone to wildfires through the flammable wood slash and underbrush resulting from their logging operations.
- The state’s forest fire laws are weak and need to be updated.
- Rhode Island has one of the lowest Wildfire Risks in the country.

Recommendations

- More funding to fix existing infrastructure to allow firefighters to reach fires. This includes road repair and removing underbrush from existing fire breaks.
- Cut staff or completely dissolve DEM's Division of Forest Environment which has been for decades putting the state's forests at risk of being burned through their archaic forest management (logging) practices. The Division of Agriculture would continue to exist devoting all its efforts to agriculture.
- Create a Natural Heritage Program in Rhode Island as its own state agency with experts including a Forest Ecologist, an ISA Certified Arborist, and a scientist who has knowledge of the region's natural history and fire history. This Natural Heritage Program would conduct environmental review and approve all logging operations on state land to make sure it doesn't create a fire hazard or threatens biodiversity.
- Reduce logging on state land.
- Stop all clearcutting on state land including oak salvage operations.
- Stop all prescribed burning on state land.
- Update the state's forest fire laws.
- Protect Old Growth Forests and create the Natural Areas Preserve system to protect second growth forests so they can develop into Old Growth Forests since Old Growth Forests are naturally more resistant to wildfires.
- Remove underbrush (not through burning) from forests previously logged by DEM.
- Investigate the circumstances regarding The Nature Conservancy clearcut, who started the fire, and why the activity that caused the fire was allowed to happen in the Queen's River Preserve. DEM should not be involved in this investigation.
- Investigate management history of past fires on state land under the jurisdiction of DEM. DEM should not be involved in this investigation.

Thank you

By

Nathan Cornell

