

**STATE OF CONNECTICUT**  
**DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION**  
**ENVIRONMENTAL ASSESSMENT SUMMARY**

**Date:** March 14, 2016

**Municipality:** Haddam and Chester

**Staff Contact:** Emery Gluck

**Project Name:** Cockaponset State Forest Prescribed Burn

**This assessment is being conducted in conformance with the generic Environmental Classification Document for Connecticut State Agencies to determine Connecticut Environmental Policy Act (CEPA) obligations.**

**Project Description:** The proposed project is a 197 acre prescribed burn that will consume primarily leaf litter and down branches. The intent is to partially promote the regeneration of an oak forest. Oak forests are not sustaining themselves under current natural conditions. They were historically sustained after Native American fires, agricultural land abandonment, and clearcuts. The recent lack of these activities have allowed less ecologically valuable and shade-tolerant birch, beech and maple to become entrenched in oak forests. It is anticipated, given the current trajectory, that oak forests will eventually be displaced by other hardwoods in absence of forest management that often includes prescribed burns. The slow displacement of oak forests (which are extremely valuable to wildlife) throughout the east has been called an impending ecological crisis.

The burn should top-kill or weaken understory shrubs and birch, beech, and maple saplings while creating a good seedbed for acorn germination and shade sensitive oak seedling development. The larger oaks have thick bark which should minimize injury from low-intensity fires.

It is anticipated that 136 acres will be burned in 2016 and the remaining acreage in 2017 or later. Repeat burns may be scheduled if acorn crops do not develop shortly after the burns. The proposed burn window is March 15<sup>th</sup> to May 15<sup>th</sup>

**Regulations of Connecticut State Agencies (RCSA) Section 22a-1a-3 Determination of Environmental Significance (Direct/Indirect):**

1. *Impact on air and water quality or on ambient noise levels*
  - a. *Air Quality* – The entire State of Connecticut, including the project area, is currently in non-attainment for 8-hour ozone. The project area, along with the rest of the State of Connecticut, is in attainment for all other criteria air pollutants: particulate matter (<10 micrometers in diameter-PM<sub>10</sub> or < 2.5 micrometers in diameter-PM<sub>2.5</sub>); sulfur dioxide (SO<sub>2</sub>); ozone (O<sub>3</sub>); nitrogen dioxide (NO<sub>2</sub>); carbon monoxide (CO); and lead (Pb). The project is an historic land management activity that will substantially but temporarily



Figure 1

# Cockaponset State Forest Prescribed Burn, Chester & Haddam

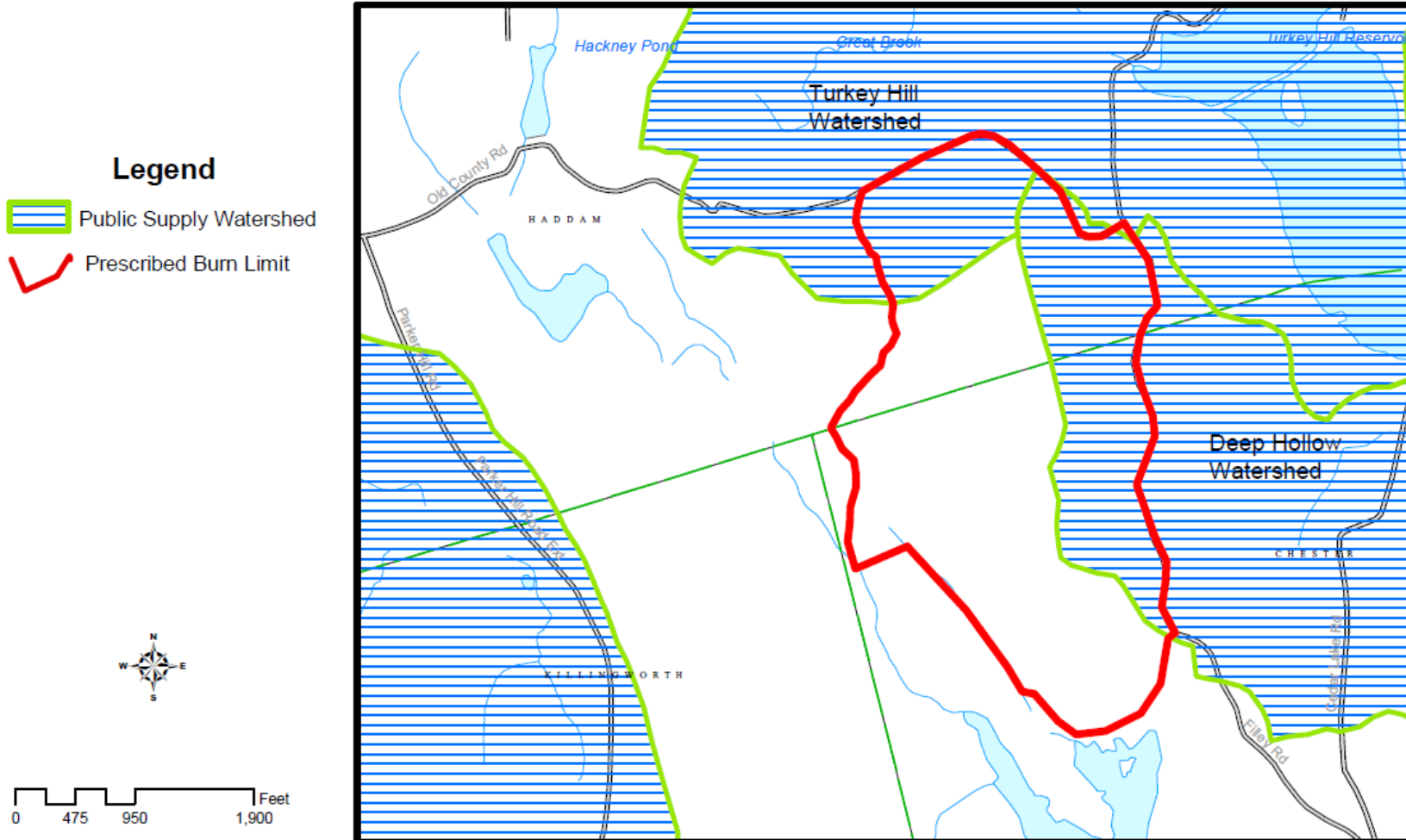
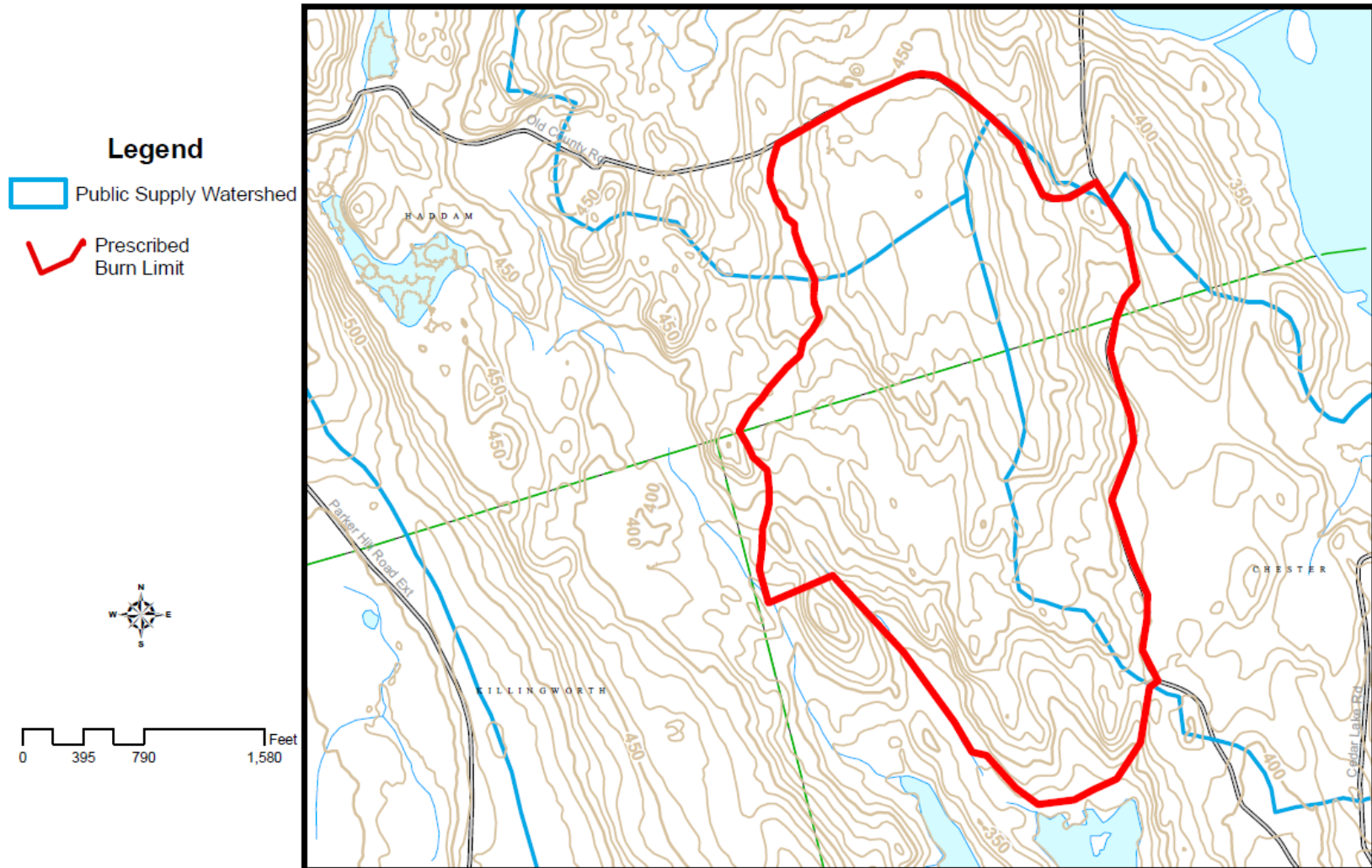


Figure 2

# Cockaponset State Forest Prescribed Burn, Chester & Haddam







*April 2004 prescribed burn within Deep Hollow Watershed*



*April 2004 prescribed burn within Deep Hollow Watershed picture taken June 2005*



*May 5, 2000 prescribed burn Deep River, CT photo taken 5-30-2000*

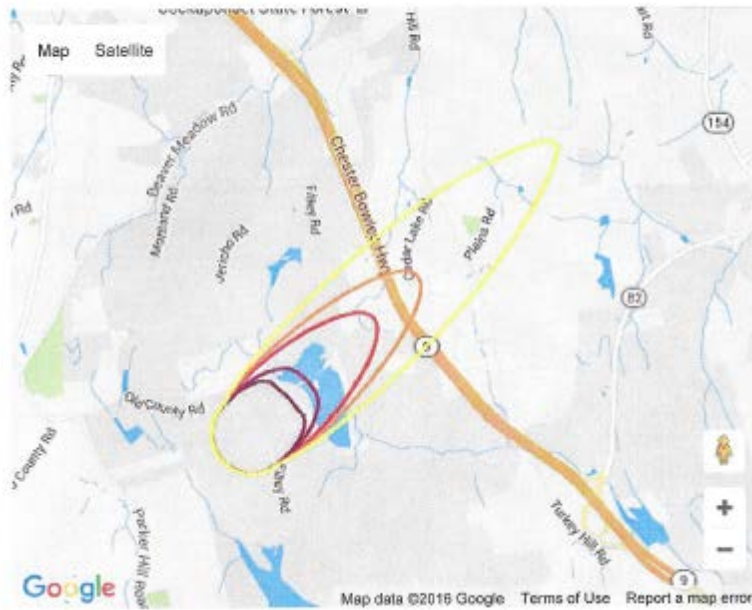


*Same May 5, 2000 prescribed burn photo taken August 2000.*

3. *Effect on natural land resources and formations, including coastal and inland wetlands, and the maintenance of in-stream flows* – No negative impacts are anticipated.
4. *Disruption or alteration of an historic, archeological, cultural, or recreational building, object, district, site, or its surroundings* – The remains of a collier's hut chimney and charcoal mounds are the only known historic remnants found to date on the site. No negative impacts are anticipated to these assets.
5. *Effect on natural communities and upon critical species of animal or plant and their habitats; interference with the movement of any resident or migratory fish or wildlife species* – A response from the DEEP Natural Diversity Database (NDDDB) request indicates that negative impacts to State-listed species indicates populations are not anticipated.
6. *Use of pesticides, toxic or hazardous materials or any other substance in such quantities as to create extensive detrimental environmental impact* –No pesticides or fire retardant foam will be used. Class A foam will not be used within public water supply watershed. Drip torch fuel that consists of a diesel and gas mixture fuel will be used for ignition. The fuel will not be stored or mixed within the public watershed. The fire will consume the drip torch fuel used. No negative impact is anticipated.

7. *Substantial aesthetic or visual effects* – The blackened ground will fade in short time and the burn will stimulate germination and sprouting of forbs and woody vegetation. No substantial negative impact will occur.
8. *Consistency with the written and/or mapped policies of the Statewide Plan of Conservation and Development and such other plans and policies developed or coordinated by the Office of Policy and Management or other agency* – Based on areas identified on the Interactive Location Guide Map for the Map for the 2013-2018 State Conservation and Development Policies Plan, the project is located within a Protected Area. The project is consistent with the policies of the 2013-2018 State Conservation and Development Policies Plan. No negative impact will occur.
9. *Disruption or division of an established community or inconsistency with adopted municipal and regional plans* – No negative impact will occur.
10. *Displacement or addition of substantial numbers of people* – It is unlikely that there will be displacement of people in the project area. The closest residents who are members of sensitive groups may not want to not be home for a few hours. They will be notified of the burn by mail.
11. *Substantial increase in the congestion (traffic, recreational, other)* – This project does not affect traffic; no negative impact will occur.
12. *A substantial increase in the type or rate of energy use as a direct or indirect result of this action* – The burn will release a substantial amount of energy in the form of heat but there will be no significant increase in use of fossil fuels.
13. *The creation of a hazard to human health or safety* – The Youth Group lean-tos and the trails in or adjoining the burn will be closed the day of the burn. If the wind is out of the southwest and the smoke does not have the fastest lift, smoke-sensitive people residing closest to the burn may want to stay indoors or be away for a few hours. Letters will be sent closest residents informing of the burn with an offer to notify them the day before the burn if they send an email request.

## Estimating Prescribed Fire Smoke Impacts



AQI

Levels of Health Concern	AQI Value	Hourly PM 2.5 Conc.	Meaning
Good	0 to 50	0 to 35	Air quality is considered satisfactory, and air pollution poses little or no risk.
Moderate	51 to 100	39 to 88	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101 to 150	89 to 138	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
Unhealthy	151 to 200	139 to 351	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	201 to 300	352 to 526	Health alert: everyone may experience more serious health effects.
Hazardous	301 to 500	> 526	Health warnings of emergency conditions. The entire population is more likely to be affected.

14. Any other substantial impact on natural, cultural, recreational or scenic resources – No negative impact is anticipated.

## **The Following Comments Were Received During the Scoping Process:**

### **Connecticut Water Company (CWC) Comments - CWC's February 25<sup>th</sup> letter states their concerns:**

1. Increased erosion and nitrate levels associated with increased runoff.
2. They recommend the storing of any fuel and use of fire retardant be prohibited on the watershed area.

### **Connecticut Dept. of Public Health (DPH) Drinking Water Section (DWS) Comments – March 4<sup>th</sup> letter with concerns:**

1. Erosion may contribute excessive nutrients and sediment from excessive erosion may reduce storage capacity of reservoir.
2. Fueling of vehicles, improper fuel storage, maintenance and repair of vehicles, flame retardants, and foams may impact water supply.

### **DPH DWS also requested the following:**

3. Indicate whether alternative practices were considered to achieve the management goal and provide justification of why the prescribed burn alternative was selected.
4. Indicate if locations not located in a drinking water watershed were considered that achieve the same ecological benefit.
5. Develop an emergency contingency plan in the event that the fire escapes from the target area. CWC and DPH DWS should be notified in case of emergency.
6. Ensure that erosion controls are in place prior to conducting the burn and the controls are monitored for effectiveness and repaired as needed after the burn.
7. Prohibit the fueling of vehicles, storage, and use of accelerants in the public drinking water supply watershed area.
8. Prohibit the use of chemical flame retardant and foams within the public drinking water supply area.
9. Notify the Connecticut Water Company prior to conducting the prescribed fire.

### **Staff response to the above comments:**

1. A review of the literature states that few water quality issues have been observed on prescribed fires in the east. Since the burn should not affect the infiltration rate of the forest floor, the roots remain intact (at least for the interim), the forest re-vegetates quickly, there is an absence of perennial and significant intermittent streams in the public watershed part of the burn, and there was lack of problems on other burns within the watershed that had flowing streams in the burn area, it is unlikely that there will be erosion problems.

Adjacent to the Deep Hollow Reservoir Watershed, stream flow from a research whole-tree clearcut (a treatment that is exponentially more severe than the proposed burn) did not exceed 8 Jackson Turbidimeter Units (JTU) even though the clearcut came right up to a first order intermittent stream (see pictures below). JTU measures turbidity, an indicator for erosion and sedimentation. A value of 10 JTU or less usually is considered desirable for drinking water. Nitrate increased for three years, peaking at 6 mg/Liter. The National Primary Drinking Water Regulations place a limit of 10 mg/L. One hundred yards below the clearcut, no nutrient impact was found. The burn area is more than 1000' from Turkey Reservoir and more than 10,000' from Deep Hollow Reservoir. The study can be found at:

[http://www.fs.fed.us/ne/newtown\\_square/publications/technical\\_reports/pdfs/scanned/OCR/ne\\_gtr172.pdf](http://www.fs.fed.us/ne/newtown_square/publications/technical_reports/pdfs/scanned/OCR/ne_gtr172.pdf)





1981 Research whole tree clearcut - outside Deep Hollow Watershed Chester, CT. Note: Other than for research, The Connecticut DEEP Division of Forestry does not allow whole tree harvesting due to the need to leave some down woody material for ecological purposes.

2. No pesticides or fire retardant foam will be used. Class A foam will not be used within public water supply watershed. Drip torch fuel that consists of a diesel and gas mixture fuel will be used for ignition. The fuel will not be stored or mixed within the public watershed. The fire will consume the drip torch fuel used.

3. Management alternatives to achieve the goals could include:
  - a. Broadcast understory herbicide application – Not viable due to safety and ecological concerns
  - b. Clearcutting – Though a legitimate management practice, it would not leave the desired ecological complexity and unlikely to sustain oak ecosystem because of the low stump sprouting rate of mature oak.
4. Numerous forest stands (areas of forest) inside and outside public water supply watershed have been identified for treatment by the 2012- 2022 Cockaponset State Forest Resource Management Plan to achieve the plan's management goals including the stand with the proposed prescribed burn. Since a substantial amount of Cockaponset State Forest and most of all the other state forests are within public water supply watersheds, limiting management activities to outside of these area would have a profound negative effects on the diversity of the forests.
5. A contingency plan has been developed as part of burn plan for the prescribed burn. CWC and DPH DWS will be notified in case of emergency.
6. The site will be monitored for erosion until adequate vegetation is re-established. The roads that border the burn area to the north and east separate the burn area from the reservoirs and will serve as a fire break and also allow easy access to install erosion controls in the unlikely event that erosion is observed.
7. The fueling of vehicles and fuel storage will be not be allowed within the public drinking water supply watershed during the prescribed burn.
8. The use of chemical flame retardants and foams will not be used within the public drinking water supply watershed during the prescribed burn.
9. The CWC will be notified before conducting the prescribed burn.

**Conclusion:**

After examining potential environmental impacts and reviewing the comments received from CWC and DPH DWS, the DEEP Division of Forestry has determined that an Environmental Impact Evaluation (EIE) is not warranted.