

EXPERIMENTING WITH “CLIMATE ADAPTATION PLANTING” AT PROVIDENCE’S SCITUATE RESERVOIR: CHALLENGES AND OPPORTUNITIES

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SWEET BIRCH
CONSULTING, LLC

PROVIDENCE WATER AND THE SCITUATE RESERVOIR WATERSHED

- Public utility developed and operated by City of Providence
- Current system established c. 1920
- Now provides water to 600,000 people or 2/3 of all Rhode Islanders
- Main Scituate Reservoir and several smaller tributary reservoirs
- 93 square mile watershed, mostly private land
- Water Resources Division manages 13,000 acres of City-owned forest surrounding reservoir system



HISTORIC MANAGEMENT CONTEXT

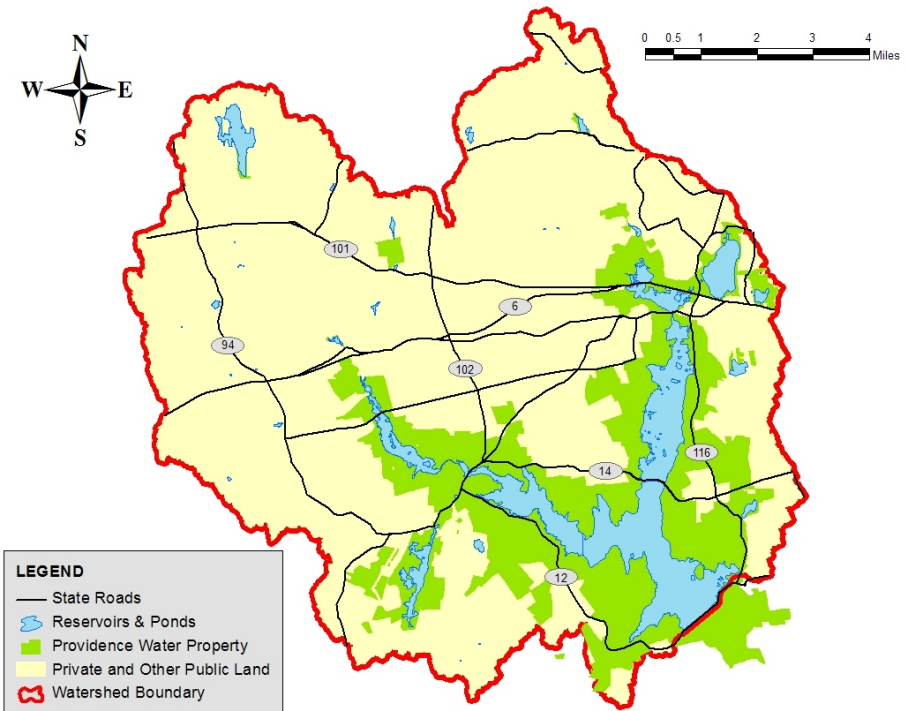
- Active management for nearly 100 years
- Planting species from elsewhere is nothing new
- 7 million seedlings planted
- Foresters used best info available at the time
- Species selection driven by forest health, markets, etc.
- Looking back, sound overall but some plans have worked out better than others



HOW DID WE COME TO PURSUE THIS PROJECT?

POTENTIAL VULNERABILITIES

- Climate change not explicitly addressed in current stewardship plan
- Forest health and regeneration
- Invasives
- Internal road system (severe storm effects)



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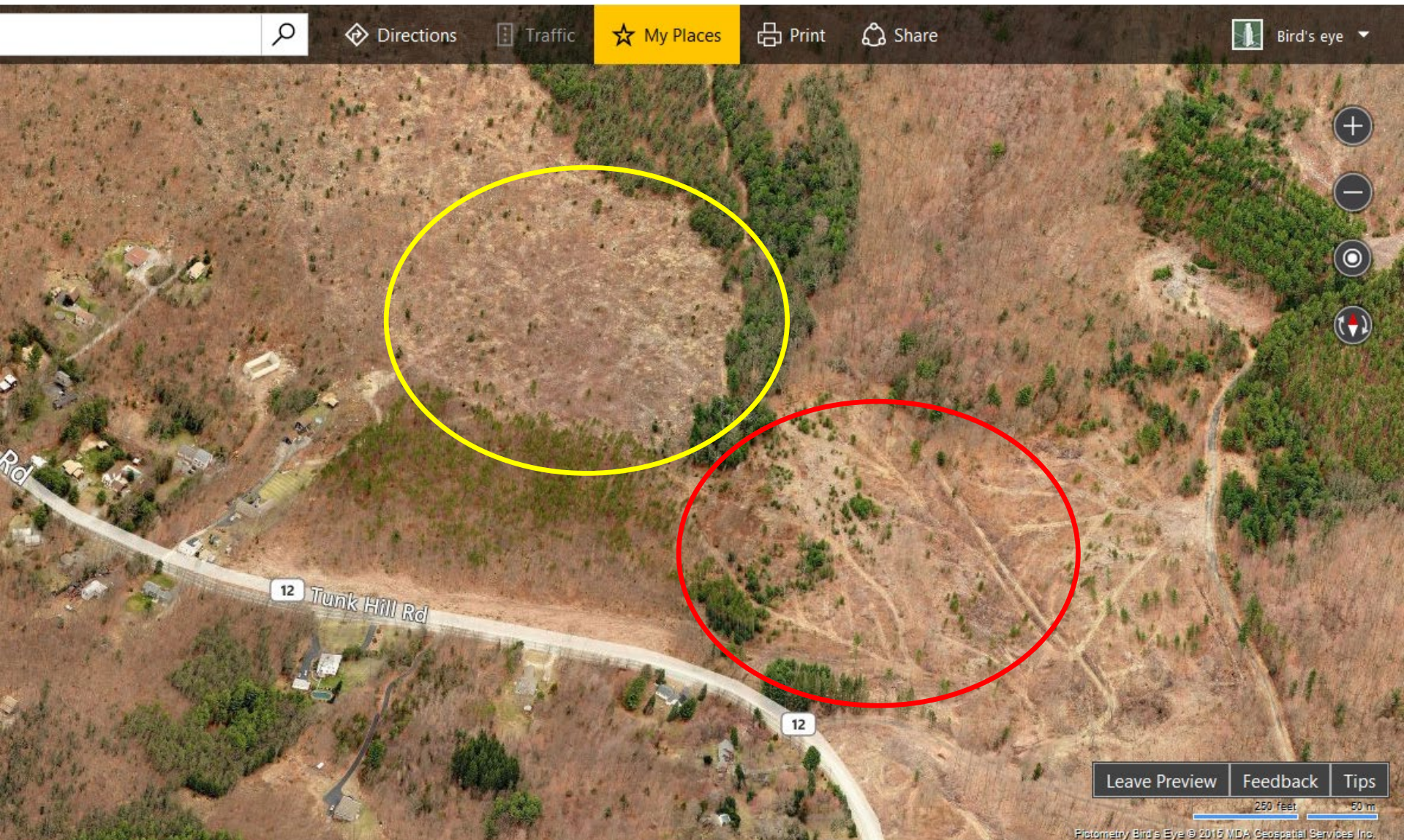


- Poor upland oak growing site with some young pine
- Land acquired recently; not historic ownership
- Death of remaining trees and regeneration failure following shelterwood timber harvest
- Drought, defoliation, deer
- “Nightmare” of what a significant acreage could come to resemble following a severe windstorm
- What to do with this site?
- Opportunity to experiment with “transition” strategy



Photo credit:
Tom Rawinski





Winter “Bird’s Eye” view from more than a decade ago (Bing Maps)

2015 PLANTING: MIX OF SPECIES DIVIDED DIVIDED EQUALLY BETWEEN TWO SITES

CONIFERS (250 each)

- Eastern red cedar
- Loblolly pine
- Pitch pine
- Shortleaf pine

Native species

Non-native with limited
presence

Not currently present

HARDWOODS (100 each)

- Black locust
- Black oak
- Persimmon
- Pin oak
- Sassafras
- Sweetgum
- White oak

Planting: May 5-7, 2015



Watering: May 8



MONITORING AND INITIAL RESULTS

- Irregular but varied species distribution by planting crew
- Significant mortality resulting from drought immediately following planting
- Survivors are doing OK
- Monitoring height growth of 10 individuals of each species in both areas
- Annual height measurements planned for at least 5 years
- **Results indicate deer browse is having a large impact**





Tunk Hill Rd

Google

Recent summer aerial view (Google Maps)

CHALLENGES & OPPORTUNITIES

- In SNE, deer take a toll on seedling survival
- Important variables:
 - seedling availability
 - planting crew experience
 - planting season weather
- Untested and not yet viable from a purely economic perspective
- Some skepticism from traditionalists
- Relatively modest cost
- Benefits from participating in community of practice and updating education
- Example of a tangible on-the-ground local action
- Opportunity to engage others on climate change
- Significant external interest in projects