

# Mercer County Park Commission

## Habitat Management & Restoration

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# Mercer County Park Commission

- Invasive Species Control & Roebing Park
- Deer Management & Forest Health
- Addressing Beech Leaf Disease
- Upcoming projects at MCPC properties



# Phragmites mapping/monitoring and treatment at Roebling Park

Photo courtesy Princeton Hydro



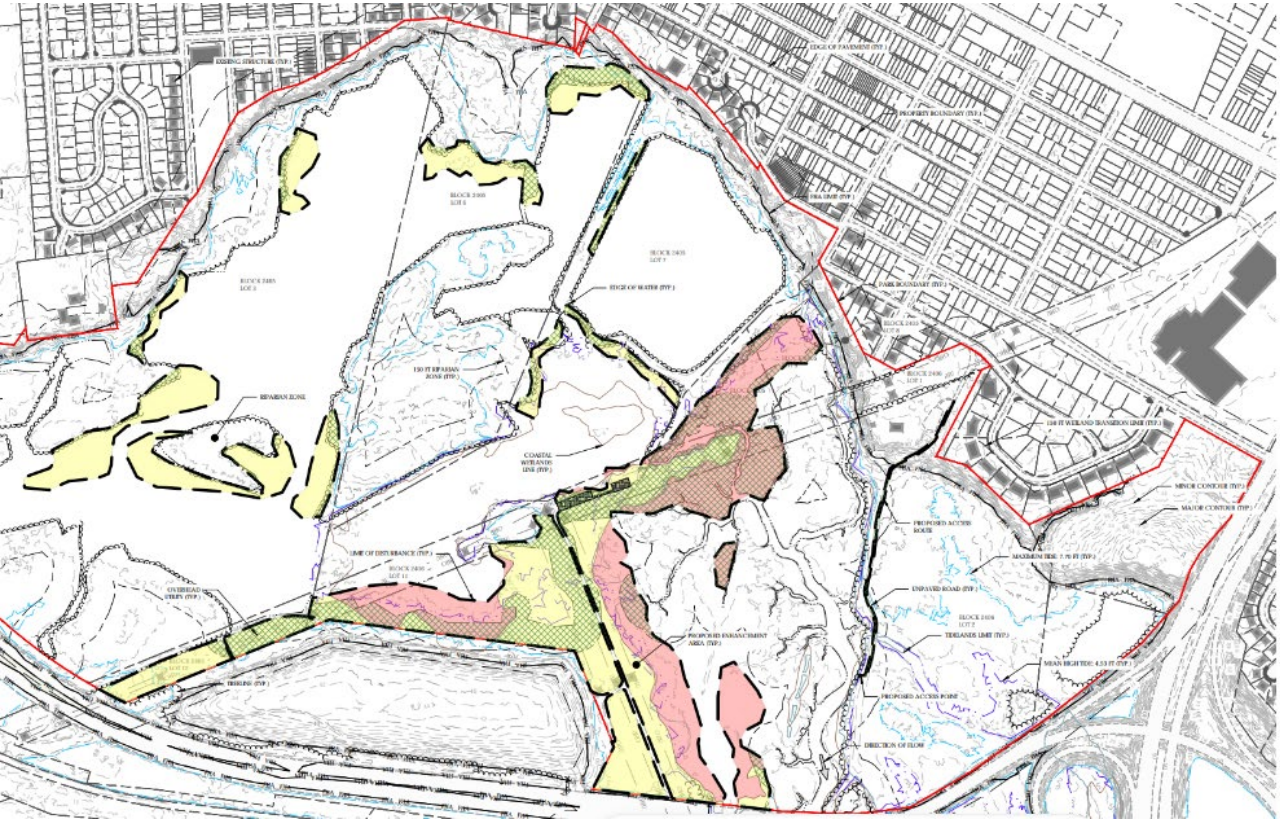
2018



2023

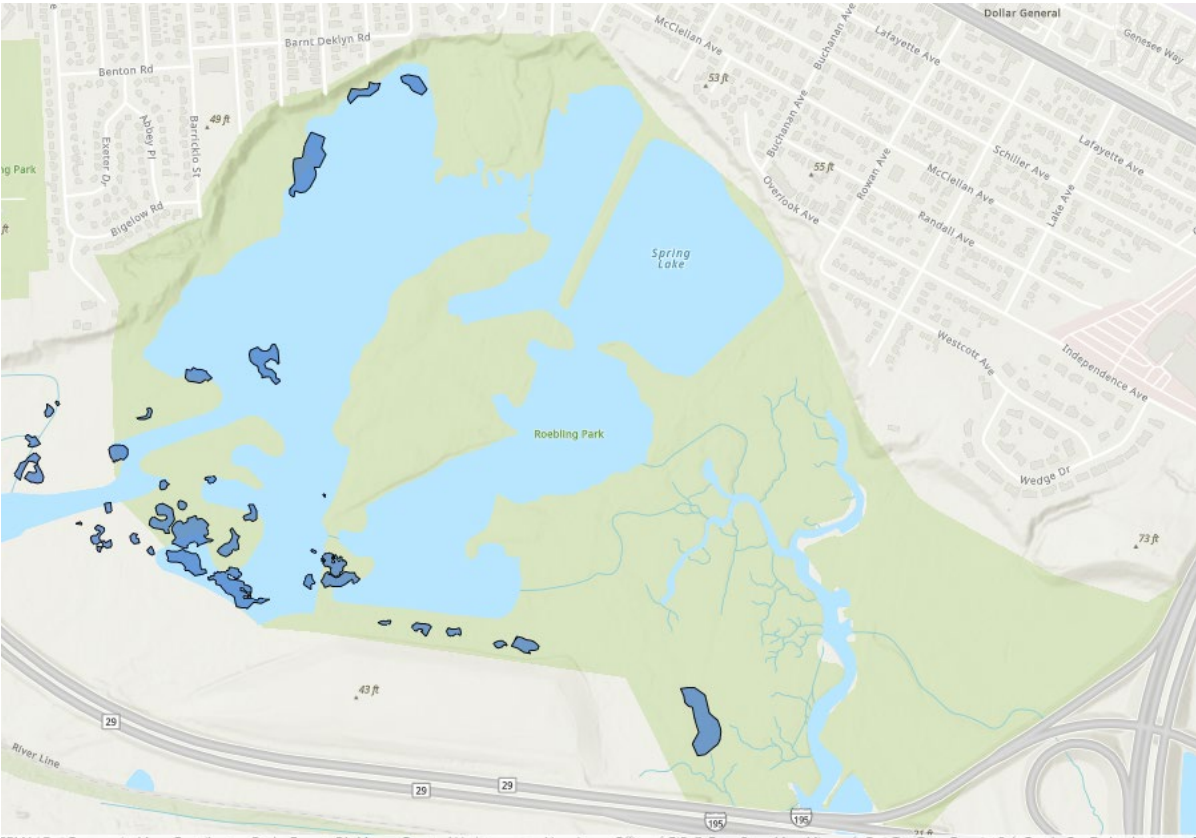
# Roebling Park Freshwater Tidal Marsh Restoration

2018 extents from the proposed enhancement plan (~40 acres)



Plans courtesy of Princeton Hydro

extents pre-treatment in 2022 (<5 acres)



# 2022 vs 2024

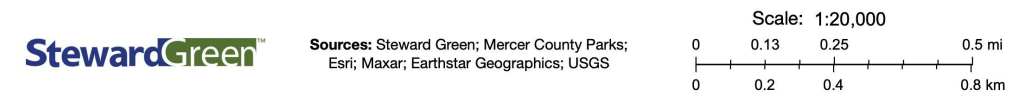
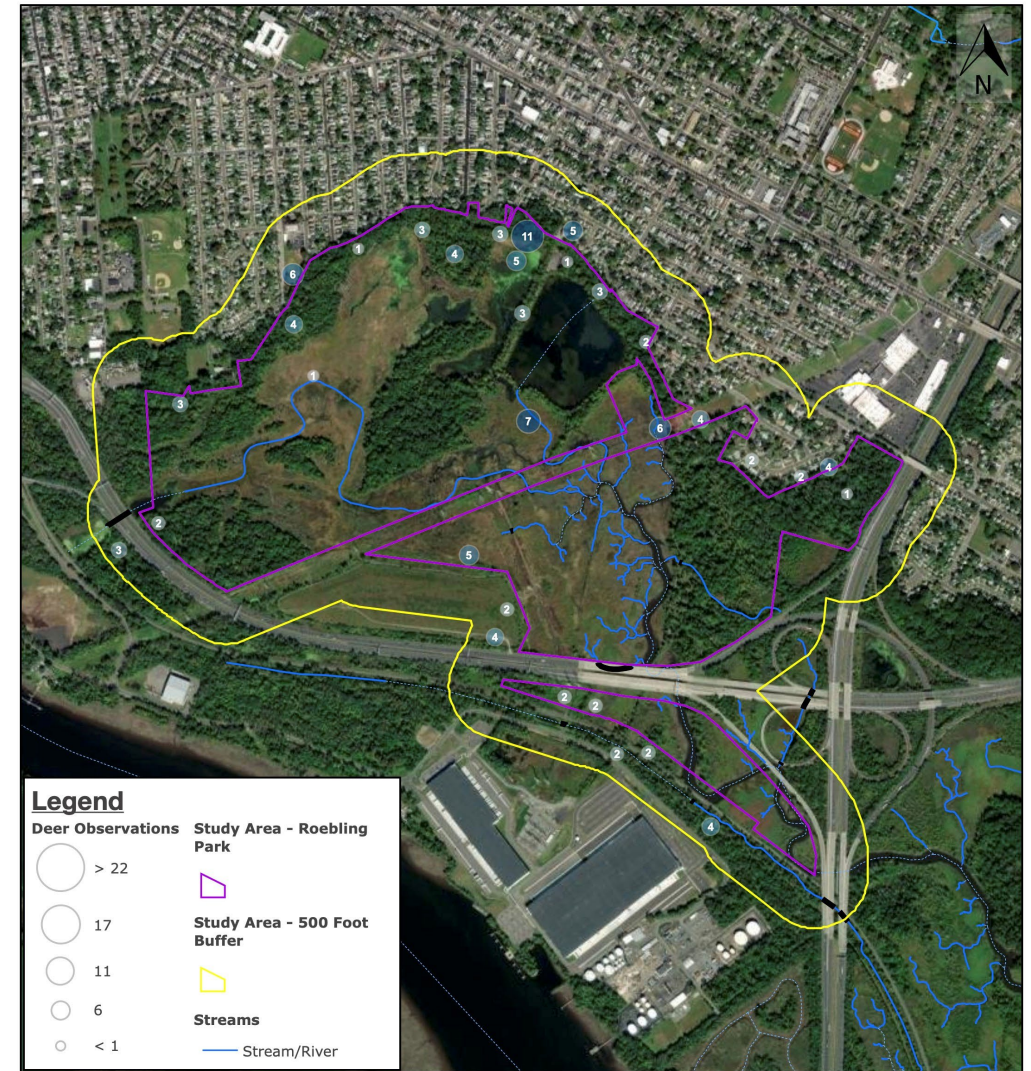


# Mercer County Deer Management

- Park property deer densities ranged from 55 – 95 deer/mi<sup>2</sup> in 2023 & 2024 (pre-fawning)
- Target density of 20 deer/mi<sup>2</sup>

“Impacts to forest regeneration, bird communities, invertebrates, and a host of other ecosystem variables tend to occur above deer densities of 15-20/mi<sup>2</sup> (McWilliams et al. 2018, Russell et al. 2017, Nuttle et al. 2011, Horsley et al. 2003, Drake et al. 2002, de Calesta 1994).”

Source: Jay Kelly’s Results of White-Tailed Deer Surveys in Readington Township in 2019



Study Area	Total Deer	Deer per Square Mile	Area (Square Miles)*	Area (Acres)*
Roebling Park	63	104.93	0.60	384.24
500 Foot Buffer	46	84.76	0.54	347.34
<b>Total:</b>	<b>109</b>	<b>95.36</b>	<b>1.14</b>	<b>731.58</b>

\*Area figures do not include the surface area of Spring Lake (0.03 square miles/22.11 acres)

## White-tailed deer impacts to our landscape:

- Overpopulation of deer in central NJ negatively impacts forest regeneration
- Avoidance of non-native species and herbivory of native vegetation impairs native plant communities and gives an advantage to invasives

## What Mercer County is doing about it:

- Monitoring deer populations and forest health
- Installing physical deer browse deterrents
- Host deer management hunting at parks & golf courses where feasible
- Issue depredation permits to County-owned farm leases
- Participate in NJDEP's Community Based Deer Management (CBDM) Program

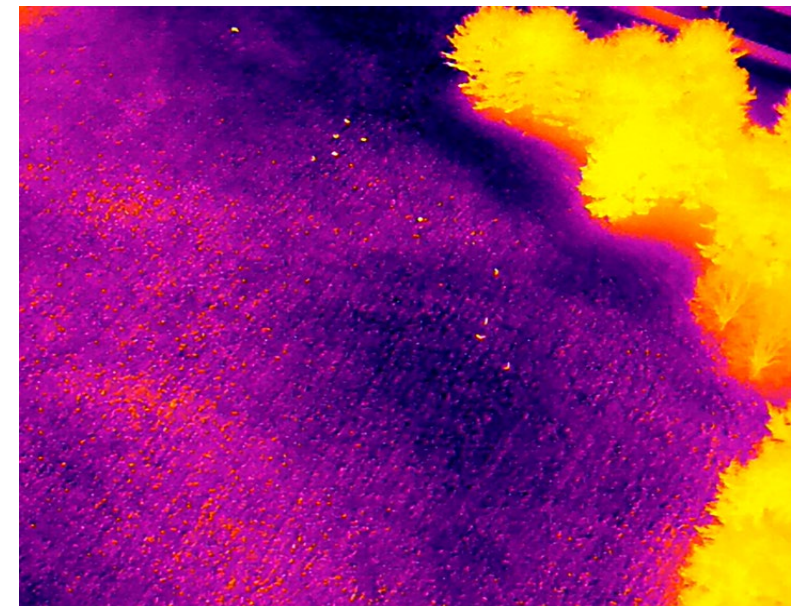


Table 2. Comparison of annual deer densities at Mercer County Parks in 2020 - 2023

Location	2020 Density (deer/mi <sup>2</sup> )	2021 Density (deer/mi <sup>2</sup> )	2022 Density (deer/mi <sup>2</sup> )	2023 Density (deer/mi <sup>2</sup> )	2020-2023 % Change
Baldpate Mountain	109	96	65	64	-41%
Mercer Meadows Complex	77	99	99	61	-21%

Thermal imaging courtesy of Steward Green

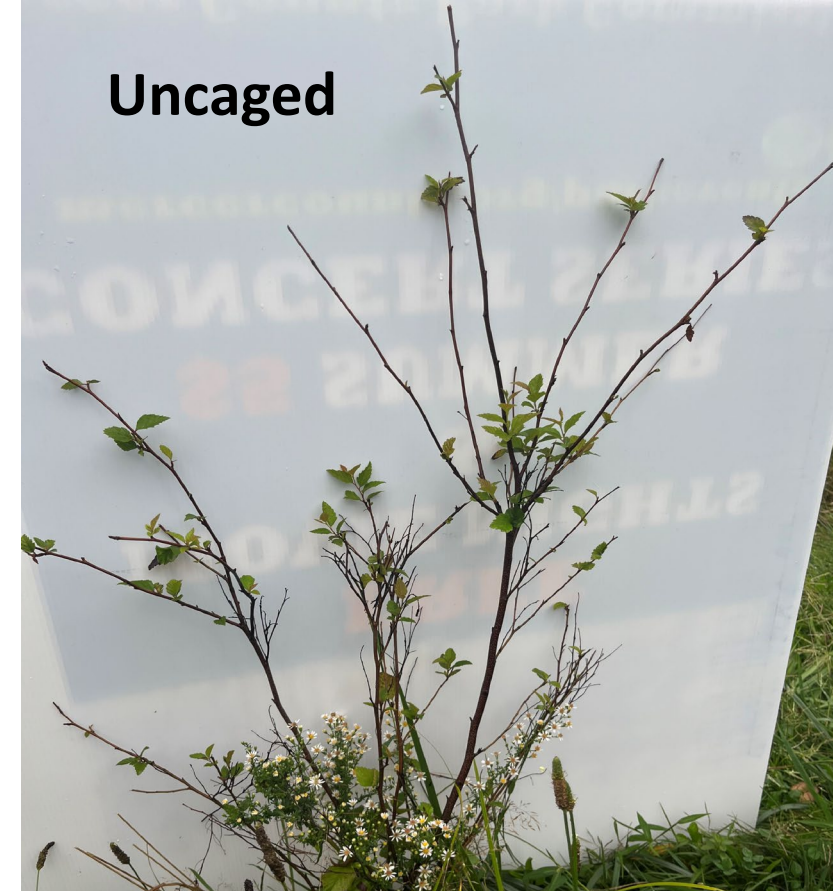
# Forest Health and Sentinel Seedling Monitoring





# Forest Health Study Data

	Total Woody Cover Within Browse Zone	Native Woody Cover Within Browse Zone	Non-Native Woody Cover Within Browse Zone	Total Canopy Cover	% Deer Browse
Target Threshold Value	>70	>70	<10	>60	<15
Curlis Woods_2014	9.4	6.1	3.8	97.1	19.0%
Curlis Woods_2018	19.7	13.6	5.5	86.0	97.5%
Curlis Woods_2022	29.5	23.3	7.3	90.1	47.8%
Dam Site 21_2020	56.3	39.8	16.4	92.1	65.8%
HBP_2021	58.8	15.9	41.9	88.3	61.5%
Mercer County Park_2018	49.1	42.5	15.9	79.0	71.5%
Mercer County Park_2020	47.2	34.8	12.4	91.0	53.0%
Mercer County Park_2022	49.5	33.8	21.7	95.2	36.5%
Pole Farm_2019	35.2	27.3	7.5	90.0	84.3%
Pole Farm_2023	42.7	32.3	14.6	91.8	36.7%
Roebing Park_2019	85.7	78.3	11.8	90.0	86.7%
Roebing Park_2023	84.1	79.1	25.3	92.7	58.0%
Rosedale Park_2019	59.4	31.6	39.2	85.2	74.0%
Rosedale Park_2023	55.7	29.2	46.4	85.8	63.3%
Sommer Park_2021	34.3	13.3	20.2	85.9	17.9%



# Mercer Meadows Forest Stewardship Plan & Beech Leaf Disease

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- Forest inventory was performed in 2023 surveying 850-acres
- Created a 10-year management plan for the park woodlands
- Prioritized management activities and provided a timeline



Photo of long-tailed salamander at Mercer Meadows courtesy of Bob Zappalorti



# MERCER MEADOWS

Bristol Myers Squibb

MERCER COUNTY



**LEGEND**

**MERCER MEADOWS TRAILS**

- Lawrence Hopewell Trail, 4.2 miles
- Curle's Trail, 1.4 miles
- Meadenhead Trail, 2.5 miles
- Farm History Trail, 0.7 miles
- Twin Pines Trail, 1.0 miles

Equestrian Center	Fishing
Historic Site	Boating
Observation Area	Playground
Information Area	Parking
Grassland Area	Restrooms
Wooded Area	Picnic Area

FEDERAL CITY ROAD

REINHARTSON BRICKY TRAIL ROAD  
GOLD WALK ROAD

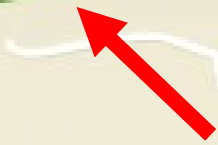
ELM RIDGE ROAD

COLD SPRING ROAD

BLACKWELL ROAD

BLACKWELL ROAD

MERCER



Ecological District

Rosedale Park District  
472 acres  
Acquired in the 1960s

Equestrian District

Farm History District

Curle's Woods  
117 acres  
Acquired in 1911

Curle's Trail  
1.4 miles

Lawrence Hopewell Trail  
4.2 miles

Meadenhead Trail  
2.5 miles

Lawrence Hopewell Trail  
4.2 miles

Farm History Trail  
0.7 miles

Land Bank  
100 acres

North Meadow  
100 acres

Shade Shelter

Boat/Kayak Launch

Fishing Dock

Observation Area

Playground

Parking

Restrooms

Picnic Area

Equestrian Center

Historic Site

Information Area

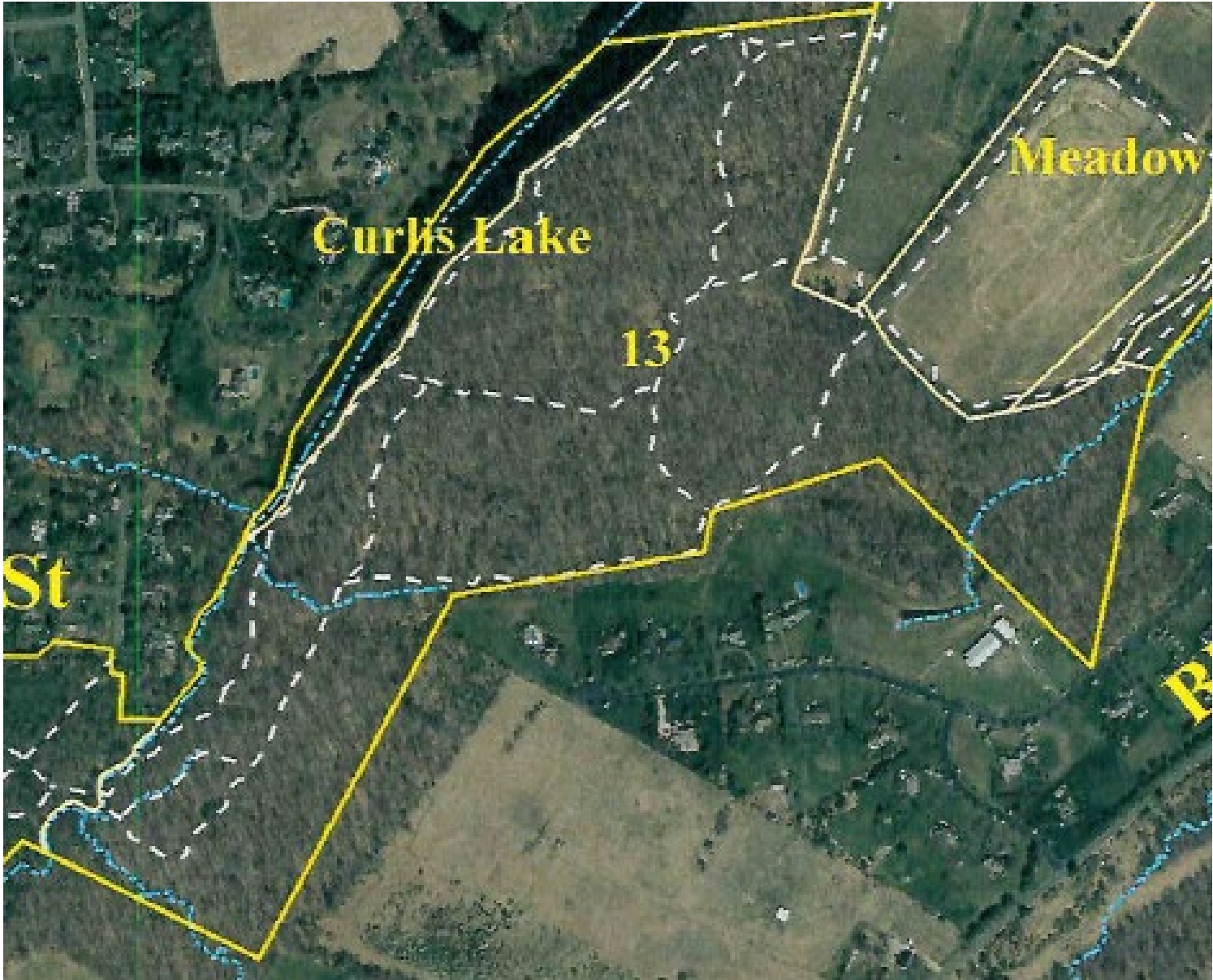
Grassland Area

Wooded Area

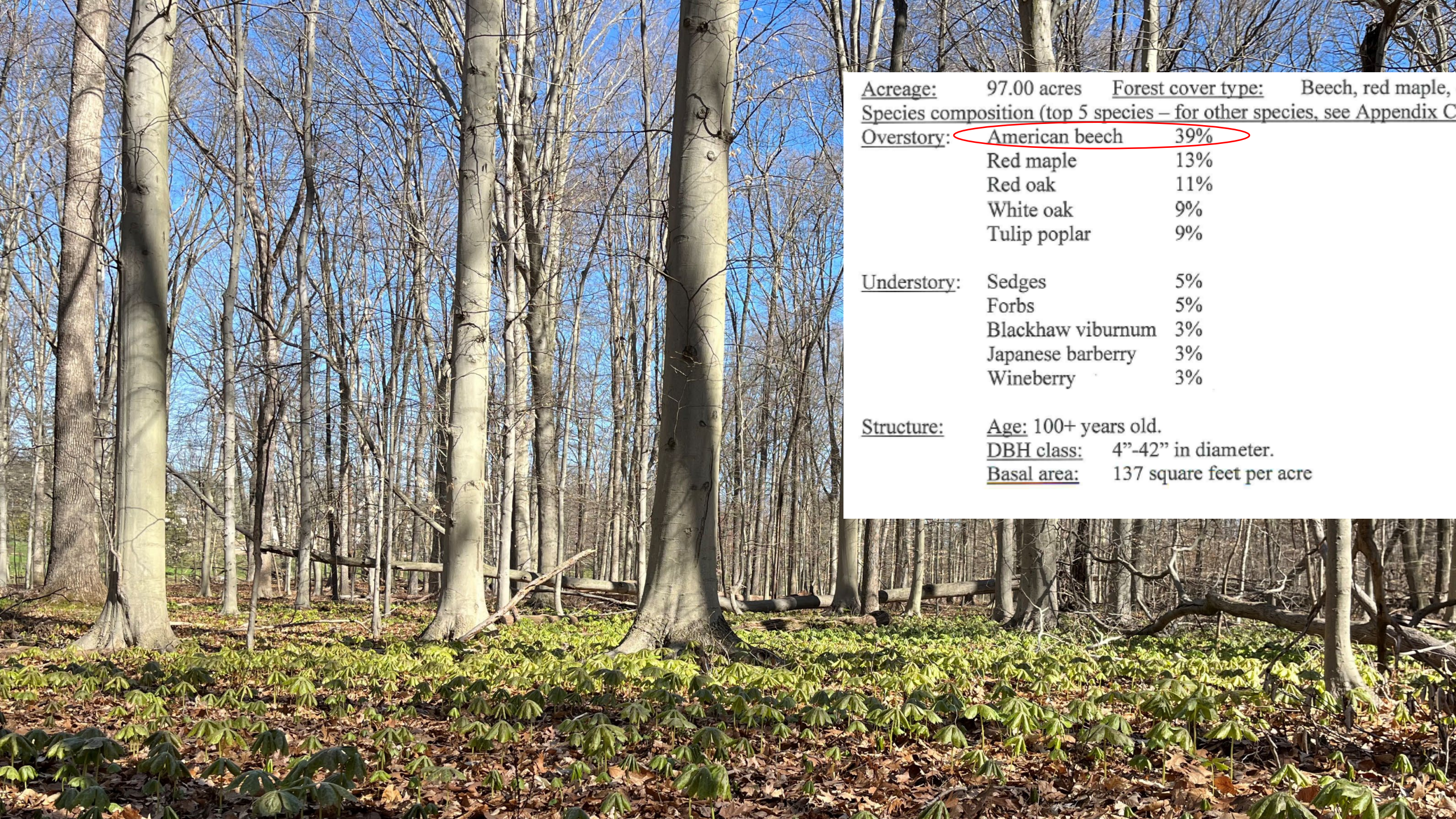
Ecological District

Rosedale Park District

Farm History District



Mapping courtesy of Gracie & Harrigan Consulting Foresters



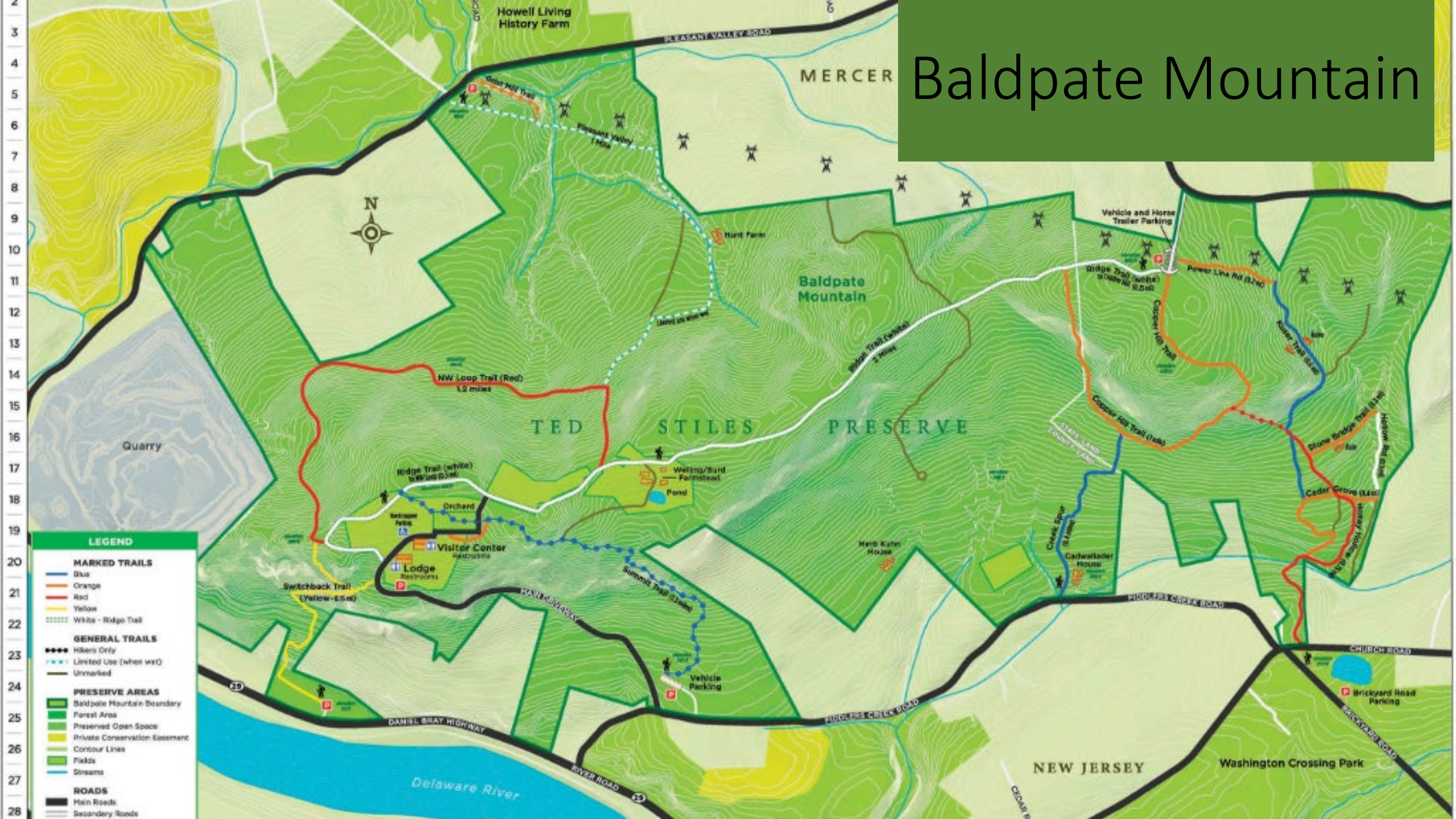
Acreage: 97.00 acres    Forest cover type: Beech, red maple,  
Species composition (top 5 species – for other species, see Appendix C

Overstory: American beech 39%  
Red maple 13%  
Red oak 11%  
White oak 9%  
Tulip poplar 9%

Understory: Sedges 5%  
Forbs 5%  
Blackhaw viburnum 3%  
Japanese barberry 3%  
Wineberry 3%

Structure: Age: 100+ years old.  
DBH class: 4"-42" in diameter.  
Basal area: 137 square feet per acre

# Baldpate Mountain



# Drone Survey



# Grant funded restoration

- USFS Ash Tree Congressional Earmark
  - \$625,000 Federal Funding
  - 1:1 MCPC match

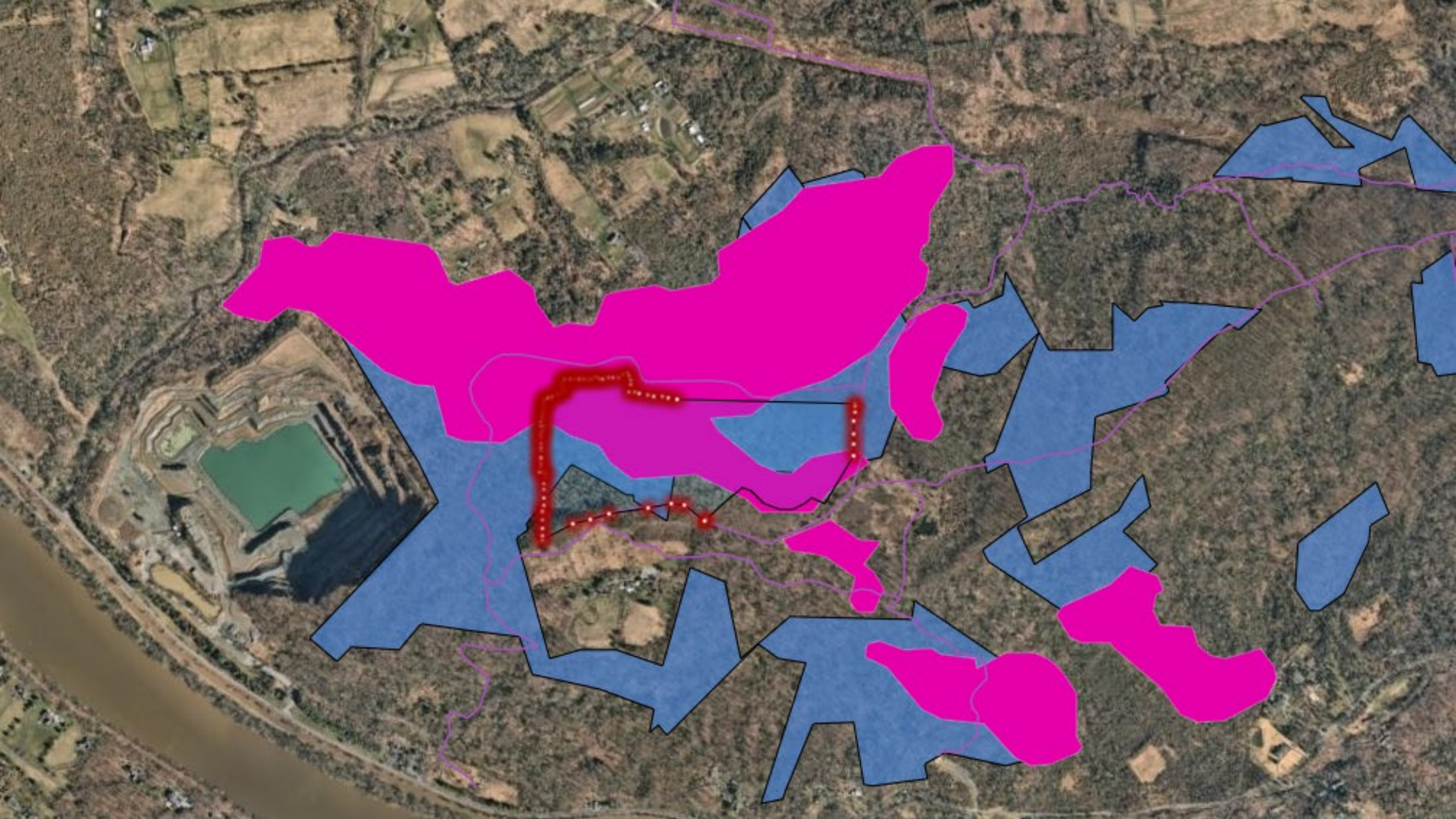






Perfect Storm







# Tricky Conditions

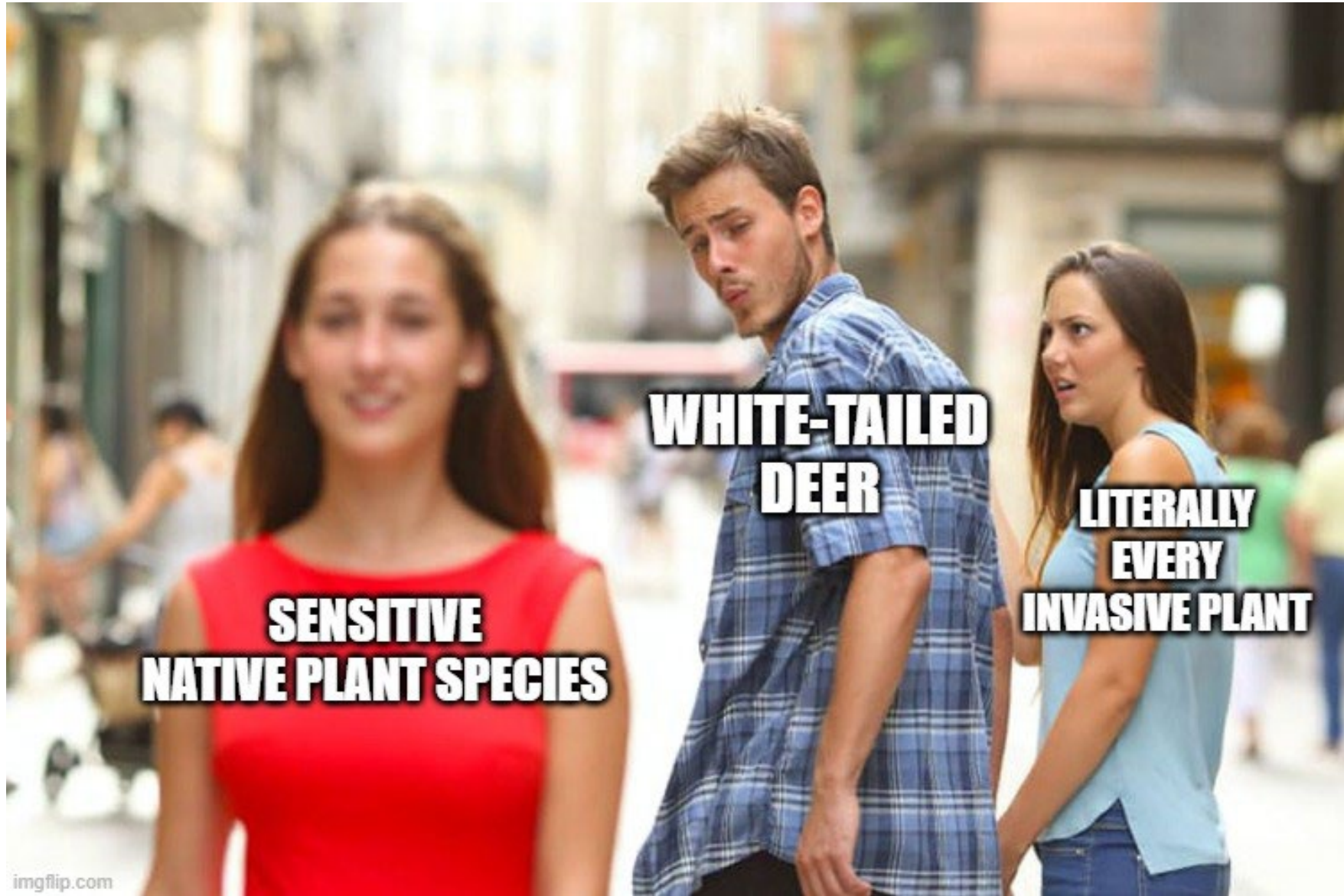


- Thorny plants
- Tree bridges
- Uneven terrain

# Building Resiliency

- Natural regeneration
- Reduced deer browse
- Reduced buck rub





**SENSITIVE  
NATIVE PLANT SPECIES**

**WHITE-TAILED  
DEER**

**LITERALLY  
EVERY  
INVASIVE PLANT**

# Rare Species

- Hooded warbler
- Kentucky warbler
- Worm-eating warbler
- Other good critters
- Lots of rare plants



Photo: Sean Graesser

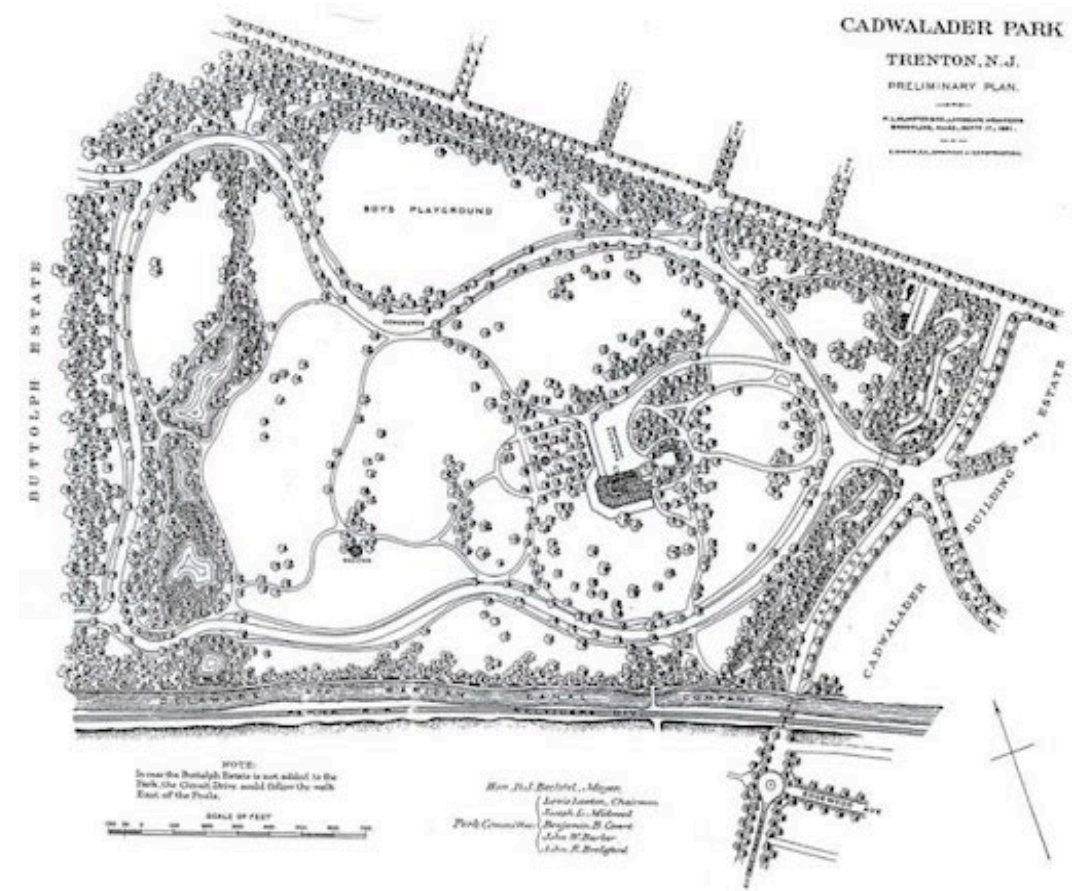


# Unknowns and questions

- Getting deer out of such a large area
- Bid specs handed off to purchasing dept week of 4/8/24
- Big fence in tough conditions
  - Fence damage and repairs
  - Terrain difficult for install and upkeep

# Cadwalader Park (Trenton, NJ)

- Project area
  - Small steep slope and stream corridor
  - Barberry and Norway maple to be removed
  - 2 small fences one on each side of the stream
- Oldest Park in Trenton NJ
  - Olmstead designed





Delaware and Raritan Canal Tributary

Cadwalader Park

Cadwalader Park

Raritan Canal



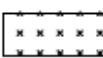
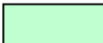
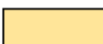
Delaware



# Moore's Station Quarry



LEGEND:

-  LAKE
-  POND
-  PROTECTED NATURAL AREA
-  SOIL REPLACEMENT AREA
-  NO SOIL REPLACEMENT AREA

NOTES:

1. RECLAMATION SOIL PLACEMENT THICKNESS WILL VARY DEPENDING ON GRADING AND DRAINAGE DESIGN AND IN CONSIDERATION OF PROPOSED END USE AND SAFETY. MINIMUM SOIL THICKNESS THRESHOLD IS TWO FEET.
2. ALL OVERBURDEN SLOPES WILL BE CONFIGURED TO A 1:1 SLOPE OR LESS AND MIXED COMPOSITION SLOPES WILL BE ADDRESSED INDIVIDUALLY.
3. REVEGETATION REQUIREMENTS TO BE DETERMINED IN CONSULTATION WITH MERCER COUNTY. NATIVE SPECIES TO BE USED.
4. COUNTY TO PROVIDE DESIGNS FOR MIDDLE AND UPPER PONDS AND CONTROL WATER SURFACE ELEVATIONS.
5. PROPOSED MASTER PLAN DETAILS PROVIDED BY SIMONE COLLINS LANDSCAPE ARCHITECTS (2022).

STOCKPILE (TO BE DISTRIBUTED FOR RECLAMATION AND AREA REVEGETATED)

CURRENTLY FORESTED

CURRENTLY FORESTED

OVERLOOK INTERPRETIVE CENTER

EXISTING FORESTED BERM

PROPERTY LINE

SETBACK LINE (150')

PROTECTED NATURAL AREA

CURRENTLY FORESTED

EXISTING FORESTED BERM



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