



*City of Bristol
Board of Park Commissioners*

INFORMATION TO ACCESS MEETING

<https://bristolct-gov.zoom.us/j/88962098471?pwd=tUIEr2YCTI5twlitd8mgsAnQheYx9p.1>

The regular Board of Park Commissioners meeting will be held on Wednesday, June 18, 2025, at 6:00 PM. in City Hall Meeting Room 1-2 111 North Main Street, Bristol, CT 06010.

AGENDA

1. Call to Order
 - a. Pledge of Allegiance
 - b. Attendance
2. Approval of Minutes
 - a. Approval of Minutes - May 21, 2025, Regular Meeting Minutes
3. Public Participation
4. Supervisor's Report
 - a. Division Supervisor's Report
 - b. Project Updates
 - c. Page Park Field Reports
 - d. Year to Date Financials
 - e. 25-27' Strategic Plan Update
5. Old Business
6. New Business
 - a. Review the Special Event Request: NexGen Trunk or Treat Car Show

- b. Place on File the CT DEEP Service Forest Reports
 - c. Presentation of the 2025 National Gold Medal Finalist Video for the Academy of Parks and Recreation Administration
- 7. Reports and Committee Reports
 - a. Fund Development & Advocacy Committee
 - b. Policy & Strategy Committee
 - c. Finance Committee
 - d. City Council Liaison Update
- 8. Adjournment

PER ORDER OF THE CHAIRPERSON
Jeff Caggiano, Mayor



*City of Bristol
Board of Park Commissioners*

INFORMATION TO ACCESS MEETING

<https://bristolct-gov.zoom.us/j/81712509452?pwd=indaPfDaVNblYNh8285k3xMCyPvRbd.1>

Agenda

Ladies and Gentlemen:

The regular meeting was held on Wednesday, May 21, 2025 at 6:00 PM in Meeting Room 1-2 in City Hall, 111 North Main Street, Bristol, CT 06010.

1. Call to Order

Mayor Jeff Caggiano called the meeting to order at 6:02 p.m.

a. Pledge of Allegiance

b. Attendance

Members Present:

Mayor Jeffrey Caggiano, Chair
Robert Fiorito, Vice Chair
Cynthia Donovan, Commissioner
Robert Lawson, Commissioner
Aaron Weber, Commissioner
Jacqueline Olsen, City Council Liaison

Absent:

Dr. Joshua Medeiros, Superintendent
Sarah Larson, Deputy Superintendent
Sandra Bogdanski, Commissioner
Marie O'Brien, Board of Finance Liaison

2. Approval of Minutes

a. Approval of Minutes - April 16, 2025, Regular Meeting Minutes

MOTION: Made by Vice Chair Fiorito to Approve the April 16, 2025, Regular Meeting Minutes.

Seconded by Commissioner Donovan; all in favor; motion carried.

3. Public Participation

None.

MOTION: Made by Vice Chair Fiorito to move up New Business 6a. and 6b.
Seconded by Commissioner Lawson; all in favor; motion carried.

a. Presentation of the 2025 All-Heart Parks Advocate of the Year Award to Brian Avery

Mayor Caggiano awarded Brian Avery with the 2025 All - Heart Parks Advocate of the Year Award; discussion followed.

4. Supervisor's Report

a. Division Supervisor's Report

Superintendent Josh Medeiros presented the Division Supervisor's Report; discussion followed.

b. Project Updates

Superintendent Josh Medeiros presented the Project Updates; Discussion followed.

c. Page Park Field Reports

Superintendent Josh Medeiros presented the Page Park Field Reports; discussion followed.

d. Year to Date Financials

Superintendent Josh Medeiros presented the Year-to-Date Financials; discussion followed.

e. 2025 - 2027 Strategic Plan Update

Superintendent Josh Medeiros presented the 2025 - 2027 Strategic Plan Updates.
Superintendent Medeiros presented the new Data Collection Tools to collect baseline data to inform our strategic plan, specifically the measures of success; discussion followed.

b. Consider a Request from the Pequabuck River Watershed Association to pursue a grant from Thomaston Savings Bank for Invasive Species Removal along the North Culvert.

Mary Rydingsward from the Pequabuck River Watershed Association requested the approval from the Board of Park Commissioners to pursue a grant from Thomaston

Savings Bank for Invasive Species removal all the North Culver at Kern Park; discussion followed.

MOTION: Made by Vice Chair Fiorito to support the pursuit of the Thomaston Savings Bank Grant for Invasive Species removal all the North Culver at Kern Park by the Pequabuck River Watershed Association.

Seconded by Commissioner Lawson; all in favor; motion carried.

5. Old Business

a. By Commissioners

Vice Chair Fiorito gave recognition to the Bristol Parks and Recreation, Youth and Community Services' Park Maintainers for their exceptional work preparing Muzzy Field for the season.

6. New Business

c. Place on File the 2025 Dennis Malone Aquatics Center Facility Survey

Superintendent Josh Medeiros presented the 2025 Dennis Malone Aquatics Center Facility Survey; discussion followed.

MOTION: Made by Vice Chair Fiorito to place the 2025 Dennis Malone Aquatics Center Facility Survey on file.

Seconded by Commissioner Weber; all in favor; motion carried.

d. Place on File the 2025 BPRYCS Employee Satisfaction Survey Report

Superintendent Joshua Medeiros presented the 2025 Bristol Parks and Recreation, Youth and Community Services Survey Report; discussion followed.

MOTION: Made by Vice Chair Fiorito to place the 2025 Bristol Parks and Recreation, Youth and Community Services Survey Report on file.

Seconded by Commissioner Donovan, all in favor, motion carried.

e. Approve the 2025 Parks Satisfaction Survey

Superintendent Joshua Medeiros presented the 2025 Parks Satisfaction Survey. The survey will be available to the public in late summer or early fall. The survey was presented to the Board of Park Commissioners for their feedback; discussion followed.

MOTION: Made by Vice Chair Fiorito to Approve the 2025 Parks Satisfaction Survey as amended.

Seconded by Commissioner Donovan, all in favor, motion carried.

f. Complete the Board Member Self - Assessment in alignment with the Strategic Plan Objective 2.3

Superintendent Joshua Medeiros presented the Board Member Self-Assessment in alignment with the Strategic Plan Objective 2.3. The Board of Park Commissioners will select all their personal and professional skills and areas of expertise following the meeting and submit them to Superintendent Medeiros; discussion followed.

g. By Commissioners

Vice Chair Fiorito presented the idea of a City of Bristol Pickleball Tournament to help benefit the Friends of Parks and Recreation Fund. It was suggested to find sponsors to help with marketing and other costs associated with running a tournament; discussion followed.

Commissioner Lamothe informed the Board of Park Commissioners about the decision that was made to not put the small flags on the graves of Bristol veterans due to cost. He also informed the board about the Stroke Awareness Walk being held at the Barnes Nature Center on Saturday May 24, 2024.

7. Reports and Committee Reports

a. Fund Development & Advocacy Committee

None.

b. Policy & Strategy Committee

None.

c. Finance Committee

None.

d. City Council Liaison Update

City Council Liaison Jacqueline Olsen recently attended a birthday party at the Dennis Malone Aquatic Center, and complimented the staff for their professionalism during the event.

8. Adjournment

MOTION: Made by Vice Chair Fiorito to adjourn at 7:16 p.m.
Seconded by Commissioner Donovan, all in favor, motion carried.

Respectfully Submitted,
Amaris Estrada
Recording Secretary
Board of Park Commissioners

DRAFT



Superintendent Report
Board of Park Commissioners
June 18, 2025

I. Parks, Grounds and Facilities Division Highlights

- The Rockwell Park Maintenance Building bathroom renovations were completed. Phase 2 improvement planning is getting.
- Muzzy Field hosted the Central Connecticut Conference post-season Baseball Tournament. This was the first year Muzzy Field was selected to host the state event.
- The Veterans Memorial Boulevard ADA improvements, Rockwell Park fitness loop were completed closing out the department's ARPA projects.

Accucom Work Order System	May 2024	May 2025
Work Orders Submitted	11	13
Work Orders Closed in May	3	6
Work Orders Still Open	Data not collected	38

II. Recreation Division Highlights

- Recreation Division concluded seasonal interviews for summer camp staff. The summer camp staff will be participating in a rigorous training regimen to prepare for a busy summer. Camp staff saw a retention rate of employees at about 85% from last year.
- Pine Lake Adventure Park had a successful May, hosting 6 programs. Each of the programs resulted in great reviews from those attending.
- Recreation division participated in many meetings regarding the Page Park Pickleball tournament. Amry and Madison have met with numerous community stakeholders in regards to partnerships for the tournament. Planning continues to occur into June.
- Madison Fostervold represented the Recreation Division at the Happy Hawks Fair taking place at Stafford Elementary. Madison provided program information and fun activities at the event.

Recreation & Event Measures	May 2024	May 2025
# of youth engaged in recreation programs	241	221*
# of adults engaged in recreation programs	223	181*#
Total # of recreation programs running	28	18

** These numbers are lower than previous years based on the program schedule and the number of programs being offered. Some of our program that traditionally started in May, are not starting until June based on the flow of the schedule.*

This number is lower than the actual because for Slowpitch Softball and Thursday Night Volleyball, only the team captain that registered is included in the figure. None of the other adults on the team are included.

III. Aquatics Division Highlights

- Aquatics Supervisor Raelynne Andrews passed the American Red Cross LGIT Academy and is now a certified Lifeguard Instructor Trainer. This is the highest certification in aquatics and allows Raelynne to certify lifeguards as lifeguard instructors.
- The Aquatics Division began their summer training programming for Lead Lifeguards, covering customer service, lifeguarding skills, and operational procedures. Training for Lead Guards and the rest of the division's staff will continue through June.

Aquatics Measures	May 2024	May 2025
# of visits to the Dennis Malone Aquatics Center	2037	1793
# of pool memberships sold	82	48
# of program participants	491	519

IV. Outreach, Marketing, and Event Highlights

- Community Engagement Coordinator, Erica Ussery completed the National Association of Park Foundation's "Establishing and Advancing a Park Foundations" training. Training notes and an overview will be presented to the Fund Development committee.
- Superintendent Josh Medeiros, Deputy Superintendent Sarah Larson, and Community Engagement Coordinator Erica Ussery met to discuss a launch plan for the 2025 Parks Satisfaction Survey (to be released in July – Parks and Recreation Month).
- Superintendent Josh Medeiros, Deputy Superintendent Sarah Larson, and Community Engagement Coordinator Erica Ussery met to discuss outreach and engagement for the release of educational geese materials and awareness of mitigation efforts.

Outreach, Marketing, and Event Measures	May 2024	May 2025
Unique # of visits to the Parks Project Portal	215	271
Total # of e-mails sent	28	34
% of emails opened	50%	57%
Email click rate	2%	3%

Upcoming Special Events - Save the Date

Event Name	Date	Time	Location
Rockin' Out at Rockwell Summer Concert Series (Week 1) – Lori and the Legends	June 24, 2025	6:30 – 8:00 PM	Rockwell Park - Amphitheater
Outdoors Pools Open (Open Daily through August 24 th)	June 28, 2025	1:00 – 7:00 PM	Rockwell Park Pool & Page Park Pool
Rockin' Out at Rockwell Summer Concert Series (Week 2) – Spirit Shaker	July 1, 2025	6:30 – 8:00 PM	Rockwell Park - Amphitheater
Rockin' Out at Rockwell Summer Concert Series (Week 3) – Latanya Farrell	July 8, 2025	6:30 – 8:00 PM	Rockwell Park - Amphitheater

Parks, Recreation, Youth & Community Services Capital Improvement Projects (Updated: 6/12/2025)

ACTIVE PROJECTS

Project Name	Description	Status	Cost Estimates	Funding Source(s)	Target Completion
Federal Hill Green Upgrades	Existing playground has reached its life expectancy. The playground will be replaced and new ADA updates will provide a more inclusive park for residents	Contract awarded to Kompan (\$127,549) in April. With anticipated lead times for playground manufacturing, we expect the new playground to be installed sometime late summer 2025.	\$127,549	\$150,000-LoCIP	Summer 2025
Perry J. Spinelli- (Structural Improvements)	Structural improvements to the foundational beams per structural engineer assessment	Specialty flashings on the beams, new fascia boards and misc. wood trim pieces will be installed followed by painting. We anticipate the project will be completed by the end of June.	\$307,993	\$307,993 CIP- Page Park (3027010)	Late Spring/early Summer 2025
Page Park Revitalization	Utilize the Page Park master plan to fully renovate the park.	Construction is underway for phase 1. See attached field reports for more information. We expect the tennis court/pickleball complex to be completed and ready for opening in July 2025. Weston & Sampson is working on bid documents for a modified phase 2 with an anticipating bid process in the fall of 2025 with the work commencing in spring 2026.	\$18.9 million	\$18.9 million- CIP (3027010)	Fall 2025 (Phase 1)
Rockwell Park Revitalization	A wholesale revitalization of Rockwell Park to include pool house renovations, new splash park, playground, lighted basketball courts, ADA trail improvements and disc golf course enhancements	CT DEEP continues to work with the federal government and hopes to have agreements in place within the next 2-3 months. Once an MOU is in place with the state, we will be able to begin engaging in construction activities. More details coming soon!	\$3.8 million	\$1.9 million- CIP \$1.9 million- matching ORLP federal grant	TBD 2026

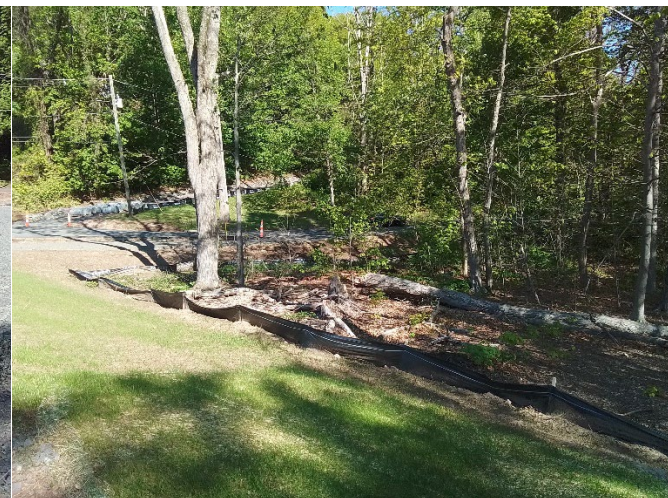
Rockwell Maintenance Building Improvements (Phase 2)	Physical improvements to maintenance building to improve working conditions for the crew.	Work was completed on the bathroom renovations. Updated quotes are being developed for phase 2 which is anticipated to include HVAC, window replacements, insulation, and new lockers. The staff led building committee is expected to meet in July.	\$95,000	\$95,000- LoCIP	Winter 2026
Dennis Malone Aquatics Center Diving Board/Starter Block Replacements	To replace the diving board and starter blocks at the indoor pool	Coordinating with the Purchasing Office to go out to bid as soon as possible. We are anticipating a 6-month lead time based on conversation with vendors.	\$100,000	\$100,000-LoCIP	Spring 2026

Client: City of Bristol: Parks, Recreation, Youth, and Community Services
Project: Page Park
Project Number: ENG22-1256
Date: 05/12/2025
Time: 8:00 AM
Location: 641 King Street, Bristol, CT
Contractor: Dayton Construction Company, Inc.
Report by: Jon Tunsky

Description of Work:

- Concrete curb ramp along King Street is being prepped and form work installed.
- Some of the areas washed out during the previous weeks' rain events have been backfilled.
- Timber shade structure has been delivered.
- Seeded areas east of tennis courts have germinated and are filling in nicely.
- Swale to the north and west of the pickleball courts has been fine graded and appears to be draining properly.
- Silt sacks need to be cleaned along Page Park Road east of pool.
- Concrete retaining wall construction is in progress. Weir wall footing has been poured. Walls to the south and north, rebar for the footing and wall connection have been installed. Concrete is being poured for the footing. Two workers are using vibrators to consolidate concrete. IMTL was on site testing and an O&G quality control inspector.
- Many areas of silt fence are down and need to be repaired. Silt sacks also need to be cleaned.
- The disc golf parking lot is being graded with process and compacted.





Client: City of Bristol: Parks, Recreation, Youth, and Community Services
Project: Page Park
Project Number: ENG22-1256
Date: 05/30/2025
Time: 5:00 PM
Location: 641 King Street, Bristol, CT
Contractor: Dayton Construction Company, Inc.
Report by: Ying Zhang

Description of Work:

- Subbase in the stairs area has been graded, precast piers are installed and precast concrete stairs installation is in progress.
- Catch basin at the east corner of Parking Area B has been installed. Concrete brick risers and steel frames and covers are being installed around three manholes in Parking Area B.
- Low flow stream bottom has been graded, and small rocks and boulders have been placed along the north bank.
- The gravel subbase for the vehicular paving above the concrete culvert has been compacted
- Formwork for the concrete weir wall is being installed. Concrete retaining wall construction is in progress, with the formwork installation in progress.
- Many areas of silt fence are down and need to be repaired. Silt sacks also need to be cleaned.





Client: City of Bristol: Parks, Recreation, Youth, and Community Services
Project: Page Park
Project Number: ENG22-1256
Date: 06/05/2025
Time: 12:00 PM
Location: 641 King Street, Bristol, CT
Contractor: Dayton Construction Company, Inc.
Report by: Ying Zhang

Description of Work:

- Precast concrete stairs and the adjacent light pole base have been installed.
- Gravel subbase for the concrete sidewalk at Parking Area B has been placed and is being compacted.
- The concrete sidewalk and berm between the proposed stream and Dewitt Page Park Road have been graded. The gravel subbase has been installed and compacted. Light pole bases along the road are installed.
- Silt sacks in the two catch basins near Parking Area B on Dewitt Page Park Road require cleaning.
- Turf Reinforcement Mats (Culex Enforcer) are stockpiled near the pool house.
- Formwork for the concrete weir wall is being installed. The concrete retaining walls have been constructed with form liner and is currently being dampproofed.





YEAR-TO-DATE BUDGET REPORT

FOR 2025 13

ACCOUNTS FOR:	ORIGINAL	REVISED					AVAILABLE	PCT
001 GENERAL FUND	APPROP	BUDGET	YTD ACTUAL	MTD ACTUAL	ENCUMBRANCES	BUDGET	USE/COL	
0017021 PARKS ADMINISTRATION								
0017021 480003 PARK TRUST FUNDS	-400,000	-400,000	-375,962.99	.00	.00	-24,037.01	94.0%*	
0017021 480004 PARK TRUST GOODSSELL	-23,330	-23,330	-27,285.00	.00	.00	3,955.00	117.0%	
0017021 514000 REGULAR WAGES & SAL	417,250	417,250	390,918.33	.00	.00	26,331.67	93.7%	
0017021 515100 OVERTIME WAGES & SA	6,000	5,676	3,177.54	.00	.00	2,498.46	56.0%	
0017021 515200 PARTTIME WAGES & SA	0	324	323.80	.00	.00	.20	99.9%	
0017021 531000 PROFESSIONAL FEES &	28,080	27,080	16,445.06	.00	523.00	10,111.94	62.7%	
0017021 541000 PUBLIC UTILITIES	11,000	11,000	15,903.14	.00	1,096.86	-6,000.00	154.5%*	
0017021 541100 WATER & SEWER CHARG	800	800	525.14	.00	274.86	.00	100.0%	
0017021 543000 REPAIRS & MAINTENAN	1,750	1,750	1,440.97	.00	.00	309.03	82.3%	
0017021 552100 LIABILITY INSURANCE	94,000	94,000	102,032.38	.00	.00	-8,032.38	108.5%*	
0017021 553000 TELEPHONE	4,250	4,250	6,020.39	.00	2,029.61	-3,800.00	189.4%*	
0017021 553100 POSTAGE	600	600	746.83	.00	.00	-146.83	124.5%*	
0017021 557700 ADVERTISING	8,000	8,000	7,242.45	.00	930.00	-172.45	102.2%*	
0017021 561800 PROGRAM SUPPLIES	2,500	2,500	2,315.58	.00	.64	183.78	92.6%	
0017021 562200 NATURAL GAS	2,500	2,500	3,768.39	.00	1,931.61	-3,200.00	228.0%*	
0017021 569000 OFFICE SUPPLIES	2,000	2,000	1,233.10	.00	500.00	266.90	86.7%	
0017021 581120 CONFERENCES & MEMBE	7,500	8,500	7,652.55	.00	.00	847.45	90.0%	
0017021 583120 ARTS & CULTURE COMM	15,000	15,000	13,040.03	.00	2,250.00	-290.03	101.9%*	
0017021 589100 MISCELLANEOUS	0	128,524	102,740.50	.00	24,071.21	1,712.12	98.7%	
TOTAL PARKS ADMINISTRATION	177,900	306,424	272,278.19	.00	33,607.79	537.85	99.8%	
TOTAL GENERAL FUND	177,900	306,424	272,278.19	.00	33,607.79	537.85	99.8%	
TOTAL REVENUES	-423,330	-423,330	-403,247.99	.00	.00	-20,082.01		
TOTAL EXPENSES	601,230	729,754	675,526.18	.00	33,607.79	20,619.86		

YEAR-TO-DATE BUDGET REPORT

FOR 2025 13

	ORIGINAL APPROP	REVISED BUDGET	YTD ACTUAL	MTD ACTUAL	ENCUMBRANCES	AVAILABLE BUDGET	PCT USE/COL
GRAND TOTAL	177,900	306,424	272,278.19	.00	33,607.79	537.85	99.8%

** END OF REPORT - Generated by Amaris Estrada **

YEAR-TO-DATE BUDGET REPORT

FOR 2025 13

ACCOUNTS FOR:	ORIGINAL	REVISED					AVAILABLE	PCT
001 GENERAL FUND	APPROP	BUDGET	YTD ACTUAL	MTD ACTUAL	ENCUMBRANCES	BUDGET	USE/COL	
0017022 PARKS GROUNDS & FACILITIES								
0017022 450311 MUZZY FIELD RENTALS	-30,000	-30,000	-34,022.50	.00	.00	4,022.50	113.4%	
0017022 450321 RENTALS	-21,000	-21,000	-12,624.08	.00	.00	-8,375.92	60.1%*	
0017022 450322 CONCESSION & MISC	-7,000	-7,000	-4,374.65	.00	.00	-2,625.35	62.5%*	
0017022 514000 REGULAR WAGES & SAL	1,246,415	1,246,415	1,160,446.57	.00	.00	85,968.43	93.1%	
0017022 515100 OVERTIME WAGES & SA	120,000	120,000	83,814.16	.00	.00	36,185.84	69.8%	
0017022 515200 PARTTIME WAGES & SA	52,000	52,000	35,098.45	.00	.00	16,901.55	67.5%	
0017022 541000 PUBLIC UTILITIES	100,000	100,000	90,087.22	.00	9,912.78	.00	100.0%	
0017022 541100 WATER & SEWER CHARG	45,000	45,000	75,617.87	.00	4,358.21	-34,976.08	177.7%*	
0017022 542140 REFUSE	17,000	17,000	7,824.03	.00	2,974.97	6,201.00	63.5%	
0017022 543000 REPAIRS & MAINTENAN	55,000	120,000	109,201.50	.00	24,321.05	-13,522.55	111.3%*	
0017022 543100 MOTOR VEHICLE SERVI	11,000	11,000	7,368.96	.00	2,125.87	1,505.17	86.3%	
0017022 561400 MAINT SUPPLIES & MA	100,000	100,000	72,607.14	.00	26,702.78	690.08	99.3%	
0017022 562100 HEATING OIL	16,500	16,500	16,175.36	.00	324.64	.00	100.0%	
0017022 562200 NATURAL GAS	1,000	1,000	2,130.65	.00	153.03	-1,283.68	228.4%*	
0017022 562600 MOTOR FUELS	37,000	37,000	30,241.80	.00	9.15	6,749.05	81.8%	
0017022 563000 MOTOR VEHICLE PARTS	25,000	25,000	10,146.07	.00	2,957.86	11,896.07	52.4%	
0017022 563100 TIRES	5,000	5,000	4,959.80	.00	135.00	-94.80	101.9%*	
0017022 570905 SMALL EQUIPMENT	10,000	10,000	2,584.43	.00	1,000.00	6,415.57	35.8%	
0017022 581120 CONFERENCES & MEMBE	6,500	6,500	10,057.14	.00	.00	-3,557.14	154.7%*	
0017022 581200 VANDALISM	4,000	4,000	331.46	.00	68.54	3,600.00	10.0%	
TOTAL PARKS GROUNDS & FACILITIES	1,793,415	1,858,415	1,667,671.38	.00	75,043.88	115,699.74	93.8%	
TOTAL GENERAL FUND	1,793,415	1,858,415	1,667,671.38	.00	75,043.88	115,699.74	93.8%	
TOTAL REVENUES	-58,000	-58,000	-51,021.23	.00	.00	-6,978.77		
TOTAL EXPENSES	1,851,415	1,916,415	1,718,692.61	.00	75,043.88	122,678.51		

YEAR-TO-DATE BUDGET REPORT

FOR 2025 13

	ORIGINAL APPROP	REVISED BUDGET	YTD ACTUAL	MTD ACTUAL	ENCUMBRANCES	AVAILABLE BUDGET	PCT USE/COL
GRAND TOTAL	1,793,415	1,858,415	1,667,671.38	.00	75,043.88	115,699.74	93.8%

** END OF REPORT - Generated by Amaris Estrada **

YEAR-TO-DATE BUDGET REPORT

FOR 2025 13

ACCOUNTS FOR:	ORIGINAL	REVISED					AVAILABLE	PCT
001 GENERAL FUND	APPROP	BUDGET	YTD ACTUAL	MTD ACTUAL	ENCUMBRANCES	BUDGET	USE/COL	
0017023 RECREATION								
0017023 450105 PROGRAM FEES	-293,000	-293,000	-302,519.07	.00	.00	9,519.07	103.2%	
0017023 514000 REGULAR WAGES & SAL	141,325	141,325	132,698.29	.00	.00	8,626.71	93.9%	
0017023 515100 OVERTIME WAGES & SA	500	500	401.46	.00	.00	98.54	80.3%	
0017023 515200 PARTTIME WAGES & SA	355,000	355,000	258,951.37	.00	.00	96,048.63	72.9%	
0017023 531000 PROFESSIONAL FEES &	130,000	129,000	113,294.78	.00	15,323.00	382.22	99.7%	
0017023 561800 PROGRAM SUPPLIES	32,000	32,000	19,260.74	.00	2,808.59	9,930.67	69.0%	
0017023 581120 CONFERENCES & MEMBE	3,000	4,000	4,008.44	.00	.00	-8.44	100.2%*	
TOTAL RECREATION	368,825	368,825	226,096.01	.00	18,131.59	124,597.40	66.2%	
TOTAL GENERAL FUND	368,825	368,825	226,096.01	.00	18,131.59	124,597.40	66.2%	
TOTAL REVENUES	-293,000	-293,000	-302,519.07	.00	.00	9,519.07		
TOTAL EXPENSES	661,825	661,825	528,615.08	.00	18,131.59	115,078.33		

YEAR-TO-DATE BUDGET REPORT

FOR 2025 13

	ORIGINAL APPROP	REVISED BUDGET	YTD ACTUAL	MTD ACTUAL	ENCUMBRANCES	AVAILABLE BUDGET	PCT USE/COL
GRAND TOTAL	368,825	368,825	226,096.01	.00	18,131.59	124,597.40	66.2%

** END OF REPORT - Generated by Amaris Estrada **

YEAR-TO-DATE BUDGET REPORT

FOR 2025 13

ACCOUNTS FOR:	ORIGINAL	REVISED				AVAILABLE	PCT
001 GENERAL FUND	APPROP	BUDGET	YTD ACTUAL	MTD ACTUAL	ENCUMBRANCES	BUDGET	USE/COL
0017024 AQUATICS							
0017024 450103 POOL CHARGES	-225,000	-225,000	-225,269.16	.00	.00	269.16	100.1%
0017024 514000 REGULAR WAGES & SAL	219,460	219,460	183,316.03	.00	.00	36,143.97	83.5%
0017024 515100 OVERTIME WAGES & SA	5,000	5,000	8,364.22	.00	.00	-3,364.22	167.3%*
0017024 515200 PARTTIME WAGES & SA	515,000	515,000	488,135.61	.00	.00	26,864.39	94.8%
0017024 531000 PROFESSIONAL FEES &	8,500	8,500	5,043.50	.00	1,272.00	2,184.50	74.3%
0017024 541000 PUBLIC UTILITIES	53,000	53,000	22,864.29	.00	34,068.25	-3,932.54	107.4%*
0017024 541100 WATER & SEWER CHARG	18,000	18,000	19,707.03	.00	2,042.97	-3,750.00	120.8%*
0017024 543000 REPAIRS & MAINTENAN	25,000	43,777	88,699.18	.00	2,537.03	-47,459.21	208.4%*
0017024 561400 MAINT SUPPLIES & MA	30,000	30,000	37,391.86	.00	9,612.76	-17,004.62	156.7%*
0017024 561800 PROGRAM SUPPLIES	15,000	15,000	9,785.14	.00	3,399.59	1,815.27	87.9%
0017024 562100 HEATING OIL	6,000	6,000	1,753.10	.00	4,246.90	.00	100.0%
0017024 562200 NATURAL GAS	35,000	35,000	25,643.41	.00	9,356.59	.00	100.0%
0017024 581120 CONFERENCES & MEMBE	3,000	3,000	2,454.20	.00	.00	545.80	81.8%
TOTAL AQUATICS	707,960	726,737	667,888.41	.00	66,536.09	-7,687.50	101.1%
TOTAL GENERAL FUND	707,960	726,737	667,888.41	.00	66,536.09	-7,687.50	101.1%
TOTAL REVENUES	-225,000	-225,000	-225,269.16	.00	.00	269.16	
TOTAL EXPENSES	932,960	951,737	893,157.57	.00	66,536.09	-7,956.66	

YEAR-TO-DATE BUDGET REPORT

FOR 2025 13

	ORIGINAL APPROP	REVISED BUDGET	YTD ACTUAL	MTD ACTUAL	ENCUMBRANCES	AVAILABLE BUDGET	PCT USE/COL
GRAND TOTAL	707,960	726,737	667,888.41	.00	66,536.09	-7,687.50	101.1%

** END OF REPORT - Generated by Amaris Estrada **

YEAR-TO-DATE BUDGET REPORT

FOR 2025 13

ACCOUNTS FOR:			ORIGINAL	REVISED				AVAILABLE	PCT
132	PINE LAKE ADVENTURE PARK FUND		APPROP	BUDGET	YTD ACTUAL	MTD ACTUAL	ENCUMBRANCES	BUDGET	USE/COL
1321032 PINE LAKE ADVENTURE PARK									
1321032 422004	CHALLENGE COURSE FE		-51,750	-51,750	-18,845.00	.00	.00	-32,905.00	36.4%*
1321032 460000	INTEREST INCOME		0	0	-647.40	.00	.00	647.40	100.0%
1321032 515300	SEASONAL WAGES		29,450	29,450	12,375.00	.00	.00	17,075.00	42.0%
1321032 531000	PROFESSIONAL FEES &		17,000	17,000	2,451.70	.00	392.49	14,155.81	16.7%
1321032 557700	ADVERTISING		1,500	1,500	1,107.63	.00	.00	392.37	73.8%
1321032 561400	MAINT SUPPLIES & MA		1,350	1,350	194.53	.00	856.97	298.50	77.9%
1321032 561800	PROGRAM SUPPLIES		950	950	.00	.00	.00	950.00	.0%
1321032 581120	CONFERENCES & MEMBE		1,500	1,500	.00	.00	.00	1,500.00	.0%
TOTAL PINE LAKE ADVENTURE PARK			0	0	-3,363.54	.00	1,249.46	2,114.08	100.0%
TOTAL PINE LAKE ADVENTURE PARK FU			0	0	-3,363.54	.00	1,249.46	2,114.08	100.0%
TOTAL REVENUES			-51,750	-51,750	-19,492.40	.00	.00	-32,257.60	
TOTAL EXPENSES			51,750	51,750	16,128.86	.00	1,249.46	34,371.68	

YEAR-TO-DATE BUDGET REPORT

FOR 2025 13

	ORIGINAL APPROP	REVISED BUDGET	YTD ACTUAL	MTD ACTUAL	ENCUMBRANCES	AVAILABLE BUDGET	PCT USE/COL
GRAND TOTAL	0	0	-3,363.54	.00	1,249.46	2,114.08	100.0%

** END OF REPORT - Generated by Amaris Estrada **



25-27' Strategic Plan (Year 1) Report

Board of Park Commissioners

June 18, 2025

Update from the Superintendent: The Board of Park Commissioners reviewed and approved the data collection tools associated with the strategic plans measures of success during the May regular meeting. Staff will engage in data collection over the summer, including the launching of the first Parks Satisfaction Survey, scheduled for July 2025. A full report of all data collected is expected to be presented to the Board of Park Commissioners in September. Based on the results of the data, staff will provide recommendations for updating the strategic plans measures of success and the plan's priority activities. We anticipate engagement in the priority activities will be launched in early 2026.

Additionally, work continues on the strategic priority to foster the creation of a 501c3 non-profit organization to support philanthropic initiatives for the department. This work is being led by the Community Engagement Coordinator via the Fund Development Committee of the Parks Board. We continue to be engaged in the research and evaluation phase to gather as much information as possible to help inform next steps. We expect this work will continue through the balance of 2025.

Finally, we will be re-engaging in policy development associated with CAPRA Accreditation objectives following the collection of data this summer. Priority policies will be included in the updated assessment expected in September.

Appendix A: Year 1 (2025) Approach

After a 10-month engagement process the 2025-2027 Strategic Plan was adopted by the Board of Park Commissioners in December of 2024. The following is the draft action plan for how we are approaching the work in year 1 with an initial focus on collecting the baseline data needed for our Measures of Success. The baseline data will allow staff to more accurately reflect on current conditions which will provide opportunity to refine the measures of success and prioritize which activities to engage in first. The baseline data will also allow us to begin tracking our progress year after year in order to measure the impact of our work.

Q1 (January-March)	Q2 (April-June)	Q3 (July-September)	Q4 (October-December)
✓ Begin to develop the data collection tools needed for our strategic plan baseline data collection via a Data Development Team (see Appendix A) ✓ Initiate the work of <i>Objective 4.3</i> via the Parks Board Fund Development Committee to lay the groundwork for formation of a 501c3 foundation to serve as the philanthropic arm of BPRYCS	✓ Present the data collection tools to the Board of Park Commissioners for input and adoption • Re-initiate the work of <i>Objective 1.3</i> via the Parks Board Policy Committee to continue to advance the work towards CAPRA	• Launch the data collection process and begin to collect data throughout the summer when the parks are in peak season • Review the data and refine the measures of success in late Q3 as appropriate • Present the data findings to the Board of Park Commissioners and provide opportunity for commissioner input into priority activities based on data results	• Incorporate the priority activities into the FY27 Budget via the Parks Finance Committee as appropriate • Activate the SPOTs to engage in the work for priority activities. Develop a timeline for completion for Year 2 (2026) and begin to determine which activities are secondary priorities for Year 3 (2027).

Special Event – Permit Application

REQUESTS SHOULD BE SUBMITTED A MINIMUM OF 45 DAYS BEFORE THE EVENT

A SITE PLAN SHOWING THE LAYOUT OF THE EVENT MUST BE ATTACHED

Nexgen Trunk or treat car show

Event Name: _____

Requested Location: 70 Memorial Boulevard Entry Ticket Price: \$25.00

Date(s): October 25th 2025 Rain Date: October 26th 2025

The Following information must be provided for all applicants. Additional pages may be attached hereto.

Applicant Name: Mark Campbell

Applicant Address: 112 Gridley St

Phone Number: 860-922-4748 Email Address: Nexgenct1@gmail.com

Sponsor/Organization Name: Nexgen Car Show llc ☐ Non-Profit ☒ For Profit

Sponsor/Organization Address: 112 Gridley St

TIME OF EVENTS

	Start Date	Start Time	End Date	End Time
Setup and Prepare	October 25th	8am	October 25th	6pm
Actual Event	October 25th	1pm	October 25th	6pm
Clean up and Close	October 25th	1pm	October 25th	12

ESTIMATED ATTENDANCE FIGURES

Expected attendance:	500	Volunteers	5
Vehicles:	200	Number of Vendors/ Booths	20

Event Description: (if your description is longer than the space provided please feel free to attach a description at the end, when attachments are requested.)

Halloween trunk or treat Car Show featuring fun games and activities. Car enthusiast will be able to display their cars and compete for trophies and cash prizes. This event is free for all spectators and open to the community. Vendors will be able to setup and sell merchandise etc on memorial Boulevard.

Insurance Requirements: To hold an event on City property - a minimum of \$1,000,000 combined single limit Bodily injury, property damage per occurrence and \$2,000,000 aggregate coverage. The City of Bristol must be named as additional insured. Please attach COI with the Application. Your Application will not be processed without the COI.

Return application and COI:

City of Bristol
Public Work Department
111 North Main Street
Bristol, CT 06010
www.bristolct.gov

Special Features

Will the event include any of the following? ☒ Yes ☐ No

If yes, the event features may require an inspection and special permit/license from the Fire and/or Health Departments.

SPECIAL FEATURE	YES	NO	NOTES
Will Food or Beverage be offered	☒	☐	
Food vendors must be approved and licensed by BBHD			
Tents / Canopies (sizes)	☒	☐	
Open Flame/ Cooking	☐	☒	
Fireworks	☐	☒	
Temporary Fencing / Structures	☐	☒	
Will there be Amplified Music	☒	☐	
Will there be items for Sale	☒	☐	
First Aid area	☒	☐	
Portable Restrooms/ Waste Control	☒	☐	
Carnival/Amusement Rides	☐	☒	
Inflatables	☐	☒	
Street closure	☒	☐	112 Gridley St
Sidewalk Closure	☐	☒	
Public Parking Lot Closure	☐	☒	
Traffic Control Requested (additional Fee may apply)	☐	☒	

Police Chief may determine that Traffic Control is required even if not requested.

Public Street closure requested: ☒ Yes ☐ No Street Name: Memorial Boulevard

Closure location beginning at (Street Name) : Main st

Ending at (Street Name): Mellen Street

Who will be responsible for security/safety at the event: Security

Barricades needed to block traffic ☒ Yes ☐ No

Rubbish Disposal:

☐ Applicant will be responsible ☒ Applicant requests City of Bristol containers & disposal (additional fee may apply)

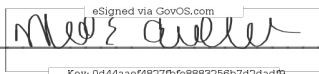
of Rubbish Barrel(s)²⁰ _____ # of Recycle Barrel(s)²⁰ _____

Alcoholic Beverages:

No alcoholic beverages will be allowed for sale or consumed at the site of the event. The applicant agrees to publicize the no alcoholic beverages restriction in their event notices, tickets and site signage.

Hold Harmless Clause:

Applicant agrees to hold the City of Bristol harmless and will indemnify the City of Bristol for damages sustained as a result of an injury or property damage for which the City of Bristol may be held responsible, resulting from the event identified in the agreement for the use of City property. I will abide by all policies, rules, regulations and conditions of use as written. I understand that the special event permit is not transferable to any other individual or group.

Signature of Applicant: 

Date: 06/09/2025

Key: 0d44aaef4827bfe8883256b7d2dad69

***** City Use Only *****

OFFICIAL	COMMENTS	Signature
Comptroller (Insurance Review) ☐ Approved ☐ Denied		
Parks & Recreation ☐ Approved ☐ Denied		
Fire Chief ☐ Approved ☐ Denied Fire Marshal (if applicable) ☐ Approved ☐ Denied		
Police Chief ☐ Approved ☐ Denied Police Traffic Control (if applicable) ☐ Approved ☐ Denied		
Health District ☐ Approved ☐ Denied		
* The Bristol Burlington Health District must approve the Food Vendors or they will not be permitted to offer food at this event. Applicant is responsible for having food vendors contact the BBHD. (860) 584-7682		
Public Works ☐ Approved ☐ Denied		

FULLY APPROVED:	DATE: 06/09/2025
Any Conditions of Approval:	

Return application and COI:
City of Bristol
Public Work Department
111 North Main Street
Bristol, CT 06010
www.bristolct.gov

1PM
TO
6PM

NEXGEN TRUNK OR TREAT CAR SHOW

OCT
25TH
2025

RAIN DATE
OCT 26TH



CAR
GENERAL
ADMISSION
TICKETS
ONSALE
\$25

DEEPEST TEAM **\$1000**

SPECTATORS FREE



OUTSIDE CARSHOW

REGISTER AND PURCHASE TICKETS @ THE FOAT
70 MEMORIAL BOULEVARD BRISTOL CT 06010

APPLE BOBBING CONTEST - COSTUME CONTEST - AX THROWING CONTEST - TUG A WAR - CASH PRIZES - TROPHIES

NEXGEN TRUNK OR TREAT CAR SHOW

OCT
25TH
2025

RAIN DATE
OCT 26TH

1PM
TO
6PM



SPECTATORS FREE

OUTSIDE CARSHOW

DEEPEST TEAM \$1000

REGISTER @ WWW.NEXGENCARSHOWS.COM

70 MEMORIAL BOULEVARD BRISTOL CT 06010



Connecticut
**Department of Energy &
Environmental Protection**

**Field Visit to the Hoppers-Birge Preserve at 54 Ambler Road Rd – City of Bristol Parks Department
Post Visit Report**

Present Parties: Sarah Larson (Deputy Superintendent of Parks), John Therriault (Parks Maintainer), Steve Shriver (Parks Landscape Gardener) and David Beers (Western District Service Forester) on 12/19/2024 from 8-12:30

Stewardship Objectives

1. Improve forest health
2. Recreation enhancement
3. Wildlife habitat improvement



PROPERTY OVERVIEW

The property has public access and parking on Ambler Road, at the south end of Birge Pond, and the intersection of Perkins Street and Pinehurst Road. It is surrounded by primarily residential development. No protected open space abuts the property. This is a mainly developed landscape, with a few small blocks of forest and farmland. This large forest is very close to downtown Bristol.

This forest is part of a small core forest block having less than 250 acres of contiguous forest. Core forests are large tracts of unbroken forest that provide a much more stable home for plant and animal species, thereby protecting biodiversity. They are forested areas surrounded by more forested areas.

The CT DEEP Natural Diversity Database (NDDDB) does have occurrences of threatened or endangered species on or near this property. Maps showing wetland and farmland soils and the NDDDB area are attached to this report. The NDDDB area is in the northwest corner of the property. This property is in the Farmington River watershed.

The attached 1934 air photo shows that most of the current forest was young brushy woods. Areas that were forested in 1934 were likely pastured over 100 years ago—the dead red cedar trees are evidence of pasturing. The 43-acre dog park was a field in 1934. A forest fire occurred about 20 years ago on the high ground south and east of the southern glacial hoppers. The dog park area and the burned area are now young forests. The American Chestnut Foundation collects chestnuts from the burn area every year.

The original property was acquired by the town in 1973. The northwest 43 acres (Roberts property) was acquired and turned into a dog park in 2003. An environmental review of the property occurred in 2003. Recently, a Friends group was formed on Facebook.

The property features a unique topographic mix of glacial eskers, kettles (aka hoppers) and kames. The entire property is forested and underlain by sand and gravel glacial outwash soils. The 14-acre Birge Pond was dammed in 1831 as an industrial water supply and power source until the mid-20th century. The pond was also the city's primary source of ice before refrigeration.

Please see the attached appendix for more information about your forest's history, future, and general recommendations. It also includes an appendix of Latin names for the tree and shrub species.



20-year-old burned area

Tree Cover

Most Common

Red Oak
Chestnut Oak

Common

White Oak
Black Oak
Scarlet Oak
Red Maple
Black Birch
Tulip Poplar

Less Common

White Pine
Pitch Pine
Hemlock

Uncommon

Hickory
Black Cherry
Sugar Maple
Aspen
Paper Birch
Yellow Birch
Sassafras
Beech

This forest has a diverse mix of tree species and sizes growing on site conditions that vary with slope position and soil type. Most of the soils are well-drained sand and gravel glacial outwash, which makes the site dry out quickly and prone to fire. Old fire scars from past ground fires can be seen on trees throughout the forest. The forest is dominated by red and chestnut oak.

A forest fire occurred about 20 years ago on the high ground south and east of the southern glacial hoppers. This ten to fifteen-acre area is densely packed with young sapling growth (oak, birch, maple, American chestnut, sassafras), with a scattering of live and dead mature trees in the overstory.

While most of the forest is mature, with full canopy closure, the burned area is an exception. There is no canopy midstory to speak of. This forest has 26 acres of forested wetlands (including the pond).

Understory

There are a few oak, red maple and black birch saplings. There are also witch hazel, mountain laurel, huckleberry, low-bush blueberry, and maple-leaf viburnum shrubs. The wetter lowlands have winterberry, high-bush blueberry and thick spicebush shrubs.

Ground Cover

There is a thick, healthy leaf litter. There is a good amount of woody material throughout the forest floor.

Forest Health

Beech leaf disease has infected the beech trees. This microscopic nematode from Asia has recently begun to spread throughout the state, and the long-term prognosis for infected beech trees is still unclear. The emerald ash borer has killed the ash trees within the past ten years.

The canopy structural diversity and the good tree and shrub species diversity make this forest more resilient to future disturbances (weather, climate, pests). The large deer herd in Connecticut makes growing certain preferred browse of deer, like oak and hickory seedlings, difficult.

Widely scattered patches of exotic invasive vegetation grow in the understory, including barberry shrubs in moist soils. Please see the appendix for more information about exotic invasives and their control.

Wildlife Habitat

The many mature oak and hickory trees in your forest are an excellent wildlife habitat asset, especially the acorns and nuts they produce. Having diverse habitat types (younger, mature, fields, wetlands) intimately mixed, as you have, is always good. Your forest lacks vertical structural diversity in the canopy. However, it provides adequate food, water, shelter, cover, and space for much of the wildlife in the area. Please see the appendix for more information about wildlife habitat.

Carbon and Climate Resilience

This mature forest stores a large amount of carbon while sequestering more. Any forest products you produce will help mitigate climate change. Some recommendations are below to make forests more resilient and adaptive to climate change. More information about forest carbon and the forest's ecological services is in the appendix.



Fire-scarred oak tree



Interpretive sign (1 of 13)

YOUNG FOREST VEGETATION (~43 ACRES)

The town acquired the Roberts property in 2003, making it a dog park. Dogs can run without leashes here, but this privilege does not extend to the other 207 acres of the park. I recommend signs letting dog owners know when they enter an area where dogs must be leashed.

This is a previously excavated site with nutrient-poor compacted gravel soils. The site is primarily flat and grows grasses, young trees and shrubs. All these vegetation elements are patchy. Some are native, and some are invasive. Trees include oaks, white pine, red cedar, locust, maple, birch, and sumac. Invasive shrubs include barberry, burning bush, honeysuckle, multi-flora rose, Russian olive and honeysuckle.



Forest Vegetation Recommendations

There are a few scattered pitch pine trees in your forest. Pitch pine is an increasingly rare tree in Connecticut because it cannot grow in shade, it needs dry sandy soils and traditionally, its young growth depends on ground fire or hot sunny ground conditions for the cones to open and seed the soil. We now keep ground fires in check for the most part, such that young pitch pine growth is rare. Like most of Connecticut, your few pitch pine trees are gradually shaded out and out-competed by the surrounding oak and white pine trees. While I do not suggest starting a fire in your woods, we can assist in the survival of pitch pine by cutting down the competing trees around each pitch pine tree to give them more room to grow and thrive in more sunlight. Such crop tree thinning work will also help prevent the southern pine beetle from attacking pitch pine trees by providing more tree crown airflow. This air flow will help prevent the beetle pheromone plumes that attract more beetles to attack pitch pine trees in mass. This thinning work around each pitch pine can be done as part of a timber harvest or non-commercially by either felling or girdling trees, which are immediately adjacent to each pitch pine tree (crown-touching trees removed).

I recommend building wildlife brush piles with the woody debris from the pitch pine tree crop tree release work described above. This is a good use of woody debris and could be done by volunteers. This practice creates cover for many songbirds, small mammals, reptiles, and amphibians. It provides areas for nesting, resting, escape from predators, and protection from harsh weather conditions. Brush pile construction specifications are attached to this report.



20-year-old burned area

CONCLUSION

Here are some possibilities for your forest:

- Contact NRCS and a private forester about doing a forest stewardship plan*
- Properly locate and mark your property boundaries (see appendix)
- An annual property inspection that includes property boundaries
- Work with the City fire department to create a wildfire control plan for the property
- Work together with the park's friends group to improve the park
 - Map the trails and the interpretive signs
 - Fix broken signs
 - Add QR codes to the signs
 - More trail markers
 - Open the trail vistas – vista restoration
 - Less dog poop on the trails
 - Add dog leashing signs at the edge of the dog park area
 - Less dirt-bike use of the park
 - General trail maintenance and erosion controls
- Crop tree release of pitch pine trees
 - Create wildlife brush piles with woody debris
- Enjoy your forest!

*Please consider hiring a forester to help you implement any of the recommendations in this report (see appendix). Cost-share monies might be collected through the Natural Resource Conservation Service (NRCS). Please get in touch with Todd Bobowick at **475-355-3864**. Please feel free to share this report.



Pitch Pine



Large tulip poplar tree in moist spicebush lowlands



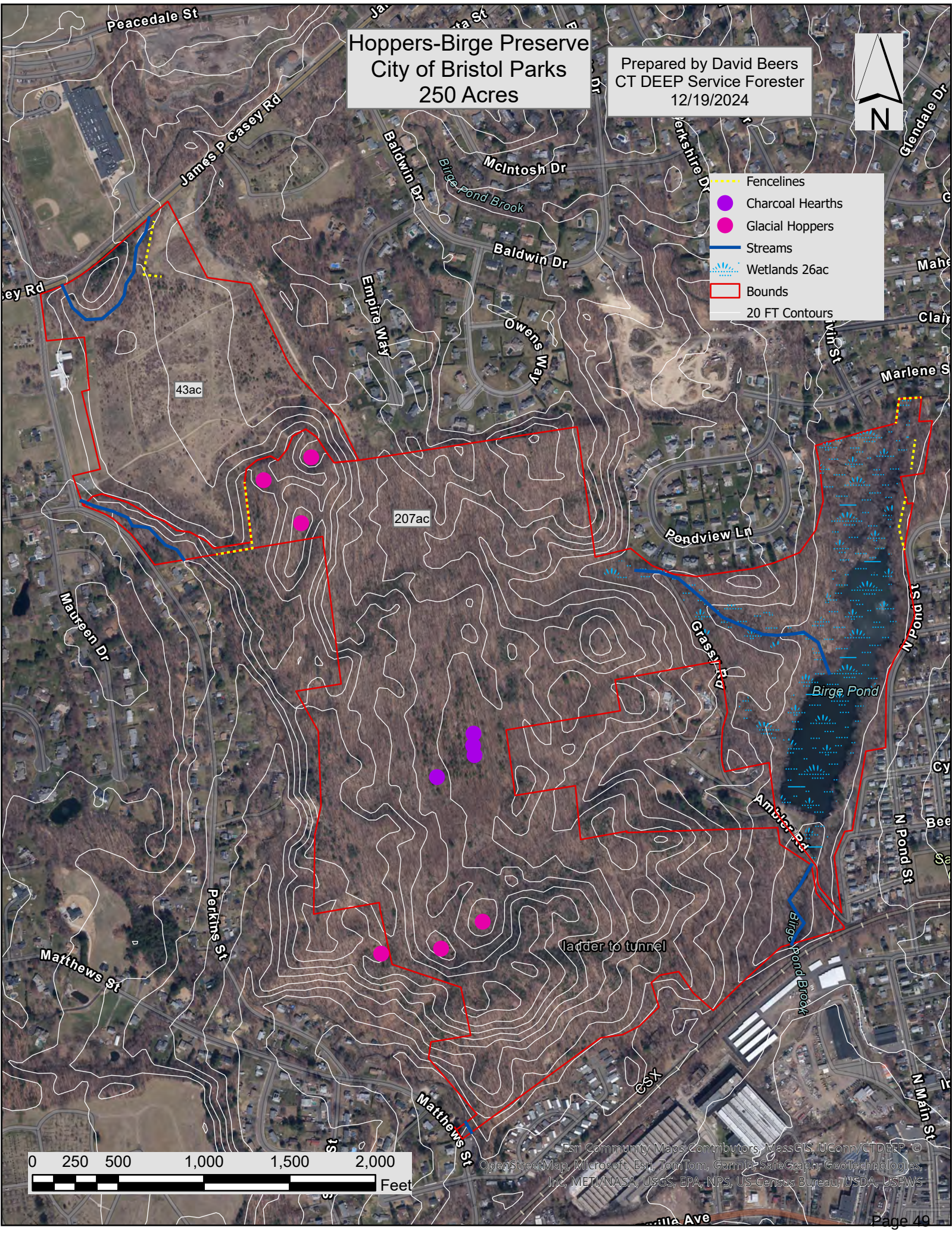
Trail along an esker, with the Great Kettle/Hopper to the right

Hoppers-Birge Preserve City of Bristol Parks 250 Acres

Prepared by David Beers
CT DEEP Service Forester
12/19/2024



- Fencelines
- Charcoal Hearths
- Glacial Hoppers
- Streams
- Wetlands 26ac
- Bounds
- 20 FT Contours

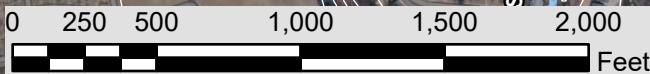
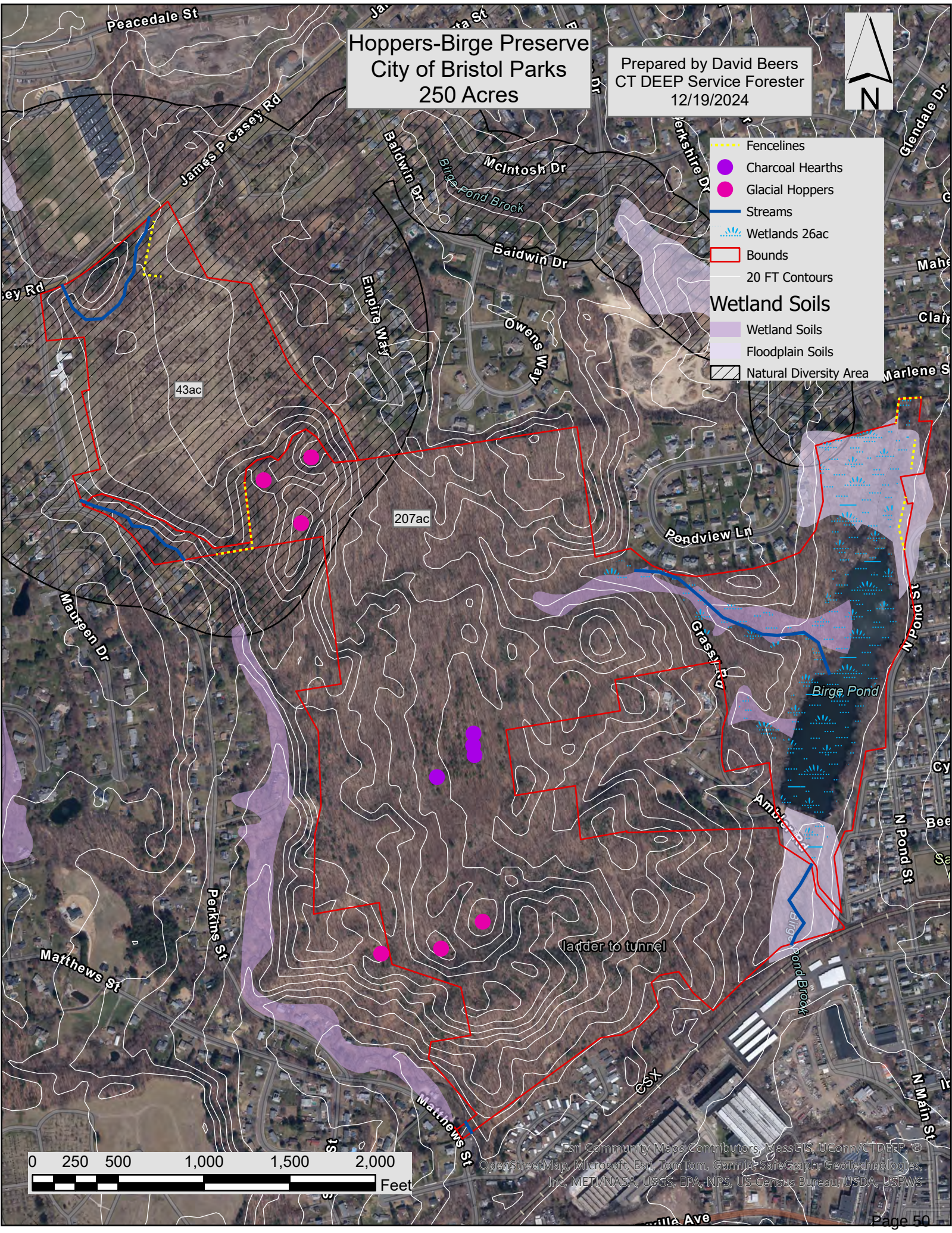


Hoppers-Birge Preserve City of Bristol Parks 250 Acres

Prepared by David Beers
CT DEEP Service Forester
12/19/2024



- Fencelines
- Charcoal Hearths
- Glacial Hoppers
- Streams
- Wetlands 26ac
- Bounds
- 20 FT Contours
- Wetland Soils**
 - Wetland Soils
 - Floodplain Soils
 - Natural Diversity Area



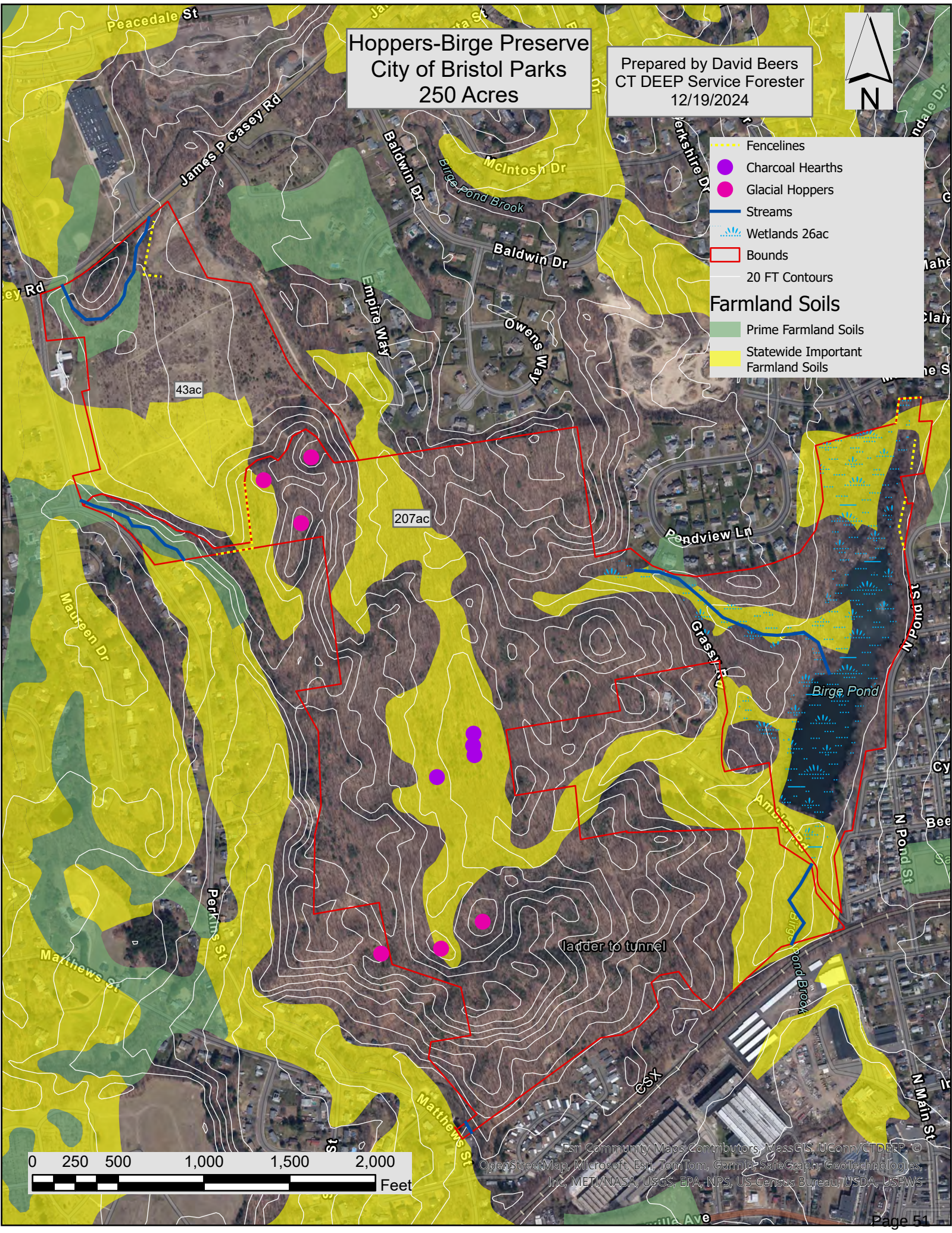
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Hoppers-Birge Preserve City of Bristol Parks 250 Acres

Prepared by David Beers
CT DEEP Service Forester
12/19/2024



- Fencelines
- Charcoal Hearths
- Glacial Hoppers
- Streams
- Wetlands 26ac
- Bounds
- 20 FT Contours
- Farmland Soils**
 - Prime Farmland Soils
 - Statewide Important Farmland Soils



Esri Community Maps Contributors, MassGIS, UConn/CTDEEP, ©
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Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau/USDA, USFWS

Hoppers-Birge Preserve
City of Bristol Parks
250 Acres

Prepared by David Beers
CT DEEP Service Forester
12/19/2024
1934 Air Photo



43ac

207ac

0 250 500 1,000 1,500 2,000
Feet

UConn MAGIC

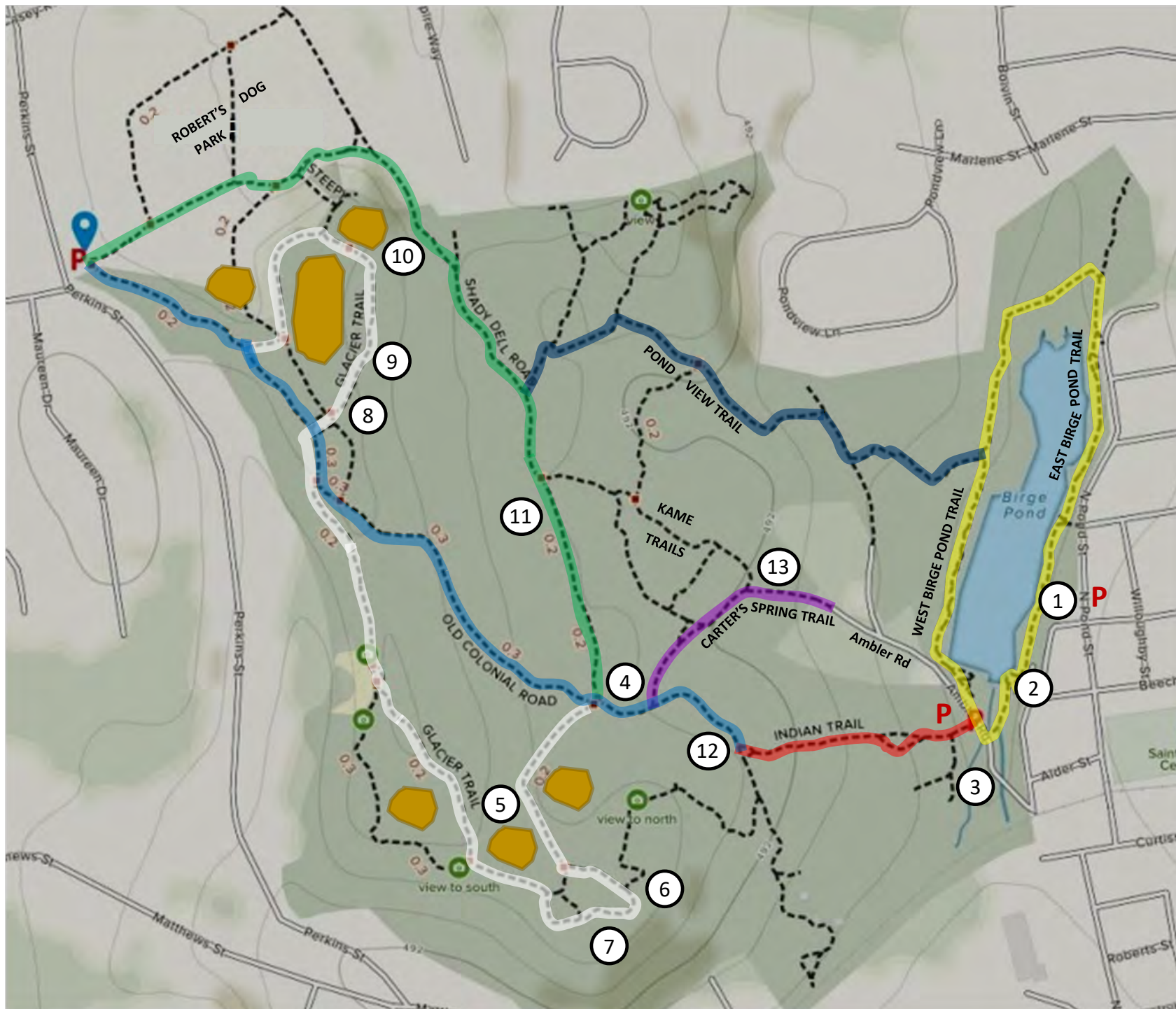
Hoppers-Birge Preserve City of Bristol Parks

Prepared by David Beers
CT DEEP Service Forester
12/19/2024



- Fencelines
- Charcoal Hearths
- Glacial Hoppers
- Streams
- Wetlands 26ac
- Bounds
- 20 FT Contours





Legend/Points of Interest

- 1) Main Parking Lot—Site of Former Ice House
- 2) Pond Look Out—Site of Former New Departure Gate House
- 3) Site of Former Industrial Raceway
- 4) Main Trail Junction
- 5) Twin Kettles
- 6) Site of Wooding's Cabin
- 7) Glacial Trail Lookout
- 8) Great Kettle
- 9) Glacial Esker
- 10) Robert's Kettle
- 11) Former Site of Colonial era Charcoal Pit
- 12) Indian Trail/Colonial Road
- 13) Carter's Spring/Kames

 Kettle/Hopper



The Hoppers-Birge Pond Nature Preserve

Trail Map



Base map courtesy of AllTrails.com



APPENDIX

FOREST HISTORY

Between eighteenth-century colonial settlement and the mid-nineteenth century, most of Connecticut was cleared for agriculture, with only a few small patches of forest remaining by the mid-nineteenth century. Only 25% of Connecticut was forested in 1830. Under these conditions, a muskrat was the largest animal in the woods. Turkeys, deer, bobcats, beavers, and bears were either rare or gone. Most of the land was used for livestock pasture, with only the best soils used for hay or tilled crops. Imagine a very open agricultural landscape.

During this farming period, the stonewalls were built to keep livestock out of crops and the neighbor's property. Most of these walls were topped off with piled wood and stumps to make them taller. Stonewalls were also a depository for rocks removed from cultivated land. A stonewall with many fist-sized rocks means that one side of that wall had tilled crops, where the winter freeze of bare ground would push rocks to the surface. After barbed wire became widely available in 1875, many of these walls were supplemented with wire. Barbed wire was used to corral cows and goats, but not sheep (barbs did not hurt the sheep). Sheep pasture used smooth-wired rectangular page fencing.

Most Connecticut hill farms were abandoned between the mid-nineteenth and early twentieth centuries. The farmers either moved west for better farming soils or headed to the cities for work. Immediately after this farm abandonment, the forest began to take over again. Much of the young forestlands were then cut down repeatedly to make charcoal, which was used to fuel industrialization. Charcoal was used in metal blast furnaces and by blacksmiths.

Small trees were cut into 4' lengths and carried by hand to make a circular pile about 30' wide and 10' high for charcoal making. A ditch was dug around the circumference of the pile, and the soil from the ditch covered the pile to limit the amount of oxygen in the smoldering pile. Once the low-oxygen burn was completed in two weeks, the almost pure carbon charcoal was removed for transport to market. Charcoal produces the hot fire needed for metalworking.

While this charcoal-making process had occurred since settlement, it came to a crescendo between 1880 and 1920. At that time, much of the landscape was cut multiple times, with patches of smoke rising from active charcoal mounds across the hills. By about 1925, less expensive coal had ended charcoal making, and the forest again began growing back. The repetitive cutting of young trees for charcoal encouraged the proliferation of oak trees. Of all the tree species, oak responded best to the repetitive cutting. This, along with frequent wildfires, helped give rise to the oak-dominated forest we see today.

The 1934 map is attached. Please remember that you need to mentally adjust the map because the map scale projection does not exactly match what we use today. To see what ancestral homeland existed on your property before settlement, please visit Native-Land.ca, and type in your address.

FOREST FUTURE

Active forest management can nudge a forest in different directions by manipulating which trees continue to grow and how much the forest floor is exposed to sunlight by creating canopy openings of various sizes and shapes. For example, we can nudge the future forest towards oak by leaving oaks to grow and produce acorns, creating canopy openings of sufficient size to bring in the sunlight young oaks need to grow, and hunting the deer that eat young oak trees. Without these manipulations and significant natural disturbances (wind, ice, pests), the forest will gradually transition to shade-tolerant trees not eaten by deer (hemlock, beech, black birch and red maple).

Forest Protection

For more long-term protection, a conservation easement on part of the property could be donated to a local land trust to prevent development in perpetuity. The easement's value might be income tax deductible over many years, and there may also be estate tax benefits.

1. Please contact your local land trusts for more information using this link: [Find A Land Trust - Connecticut Land Conservation Council \(ctconservation.org\)](http://FindALandTrust.org).
2. Please contact NRCS about HFRP (Healthy Forest Reserve Program) for conservation easement funding using this link: [NRCS Accepting Applications for HFRP Program | Natural Resources Conservation Service \(usda.gov\)](http://www.nrcs.usda.gov/programs/healthyforestreserve).
3. Another good link is [Estate Planning Resources and the Forest Legacy Program \(ct.gov\)](http://www.ct.gov/estateplanning).

Diversity

A healthy forest has a large diversity of native plant species, particularly trees that support a diverse array of fungi and wildlife (animals, insects, microbes). A healthy forest also has multiple layers of native vegetation to maximize biodiversity and structural complexity. This means having trees of different ages, diameters, and heights. A healthy forest has standing dead trees (snags) and dead downed wood as essential habitat elements, and to hold moisture during droughts. A healthy forest is resilient because it can better recover from diseases, pests, and extreme weather events. Increasing species and structural diversity of this forest provides multiple recovery pathways from disturbance.

To improve forest landscape diversity, consider establishing some patches of young forest. With over 89 birds, mammals, and reptiles that need young forest habitats, the young forest is nature's pantry for wildlife due to its abundance of insects and berries. It also provides our mature woodland wildlife with important food and cover at critical times of the year. Ideally, 5-10% of our landscape should be young forest. Unfortunately, our landscape rarely has this much young forest because we prevent such forests from forming naturally via beaver activity, fires and floods. We can mimic natural disturbances with well-planned forest stewardship activities to create patches of young forest.

Invasives/vines

Invasive species are typically from another part of the world, and when established here, they have no native enemies to hold their population in check. When left uncontrolled, they out-compete what would grow naturally, including tree regeneration and other native understory vegetation. Native understory growth has many more native insects and arthropods that wildlife needs to forage on. It also provides more nutrient-rich berries for birds. Exotic invasive understory growth can provide a better habitat for ticks and associated pathogens while significantly reducing biodiversity. Please see: [Home | Connecticut Invasive Plant Working Group \(uconn.edu\)](http://www.uconn.edu/invasiveplantworkinggroup)

Control methods include mechanical and chemical processes. In a shady forest, cutting a vine is enough to kill it. Invasive shrubs are not so easy. Pulling the invasives out by the roots can be effective, but extremely difficult and labor intensive. Yearly cutting back of the aboveground stems, during the growing season, will keep the invasives under control, and perhaps kill them after a few years. The most effective control method is applying herbicide to the green foliage. You can also cut the larger invasive shrubs and immediately treat the fresh stumps with herbicides to prevent resprouting.



Lawns and fields

Fields provide an opportunity to help pollinators and native insects. Insects, pollinators (bees, butterflies, moths, beetles, flies, wasps, hummingbirds), and the many birds that depend on them, are severely declining. By delaying annual mowing until after the first hard frost in October and before the beginning of plant growth in the spring, you will allow pollinators to use your fields for food and habitat during the growing season. Another habitat management strategy is to mow one-third to one-half each year on a rotational schedule. This allows some insects to overwinter in the uncut plant stalks and provide birds with much-needed winter food. For this reason, late winter mowing is best. Please remember that healthy meadows store more than double the carbon of a mowed lawn.

There are also many opportunities to create pollinator-friendly habitats/food by adding native plantings, allowing lawn areas to go natural, and leaving leaves and needles to cover the ground. Insects will overwinter in leaf litter and uncut plant stalks. Birds will pick through the winter leaves for insects. For more information, please visit:

[Pollinator Pathway \(pollinator-pathway.org\)](https://www.audubon.org/pollinator-pathway). And here is a great link regarding native plantings:
<https://www.audubon.org/native-plants>.

Boundaries

Boundaries must be well-marked to protect the property from trespass and encroachment. Painted blazes are typically used to mark property boundaries. A blaze is a hand-sized shallow scrape in the bark. This scrape will last decades and not harm the tree if done correctly. When painted, this blaze is quite visible and long-lasting. Trees within arm's length of the boundaries are blazed, with the blazes facing the boundary line. Use only paint marks on the neighbor's side of the line, without blazes. The blazes should be given a new coat of paint at least every ten years. Custom signs can also be hung about every 100 feet. Understory vegetation and debris can be cleared from boundary lines to traverse the lines for inspection easily. Please consider hiring a forester to locate and mark property boundaries.

Wildlife

Your forest, and the State of Connecticut in general, is lucky to have a significant and diverse component of mature oak trees (mature trees have reached maximum height). Oak trees are considered a wildlife keystone species because of the large amount and diversity of life they support – more than any other tree. Acorns, especially white oak acorns, provide the most nutritious plant-based protein for almost 90 wildlife species. Oaks overwhelmingly host the most moth and butterfly caterpillars (over 500), which anchor a biodiverse food web. Oak forests have more bird abundance and diversity compared to other forest types. Oaks produce the thickest, most ecologically beneficial, and longest-lasting leaf litter with the most abundant and diverse soil biology. This top-of-the-line leaf litter can keep out invasive exotic stilt grass and jumping worms. It also purifies and holds the most water. For these reasons, preserving and encouraging oak growth and health in your forest is important.

Parts of this forest have legacy trees, also known as old field trees or wolf trees. These trees were growing in open pastures as a source of shade for livestock before the current forest started growing. They are much older than the surrounding forest. Because they used to be open-grown, they have large spreading crowns and large branches low on the trunk. When the pastures were abandoned, they became a significant seed source for the present forest. These large old trees are structurally complex, with many cavities, hollows, fat branches, and thick, rough bark. They are also prolific seed producers, including acorns and nuts. This structural complexity and prolific seed production attract an enormous number and diversity of insects, birds, and mammals. Underground, the old trees are also the hub and source of the complex fungal soil mycorrhizal growth that all trees depend on for water and nutrients. To make them healthier and more vigorous, such legacy trees could be protected and perhaps even given more sunlight by cutting some surrounding trees. These agrarian vestiges have become the ecological hubs in your forest. They are also a great source of future large snags and large dead, downed wood.

Ecological Services and Climate Change Mitigation

Forests remove carbon dioxide from the atmosphere (called sequestration), create oxygen, and remove many pollutants from the air and water. Forests absorb heavy rains and release that water to streams and underground aquifers during droughts. Forests regulate temperature and moisture levels. Your forest contributes to these valuable services with carbon stored in the below-ground roots/soil and in the above-ground vegetation, dead wood, and fallen leaves. These services are enhanced by having a diverse mix of native tree species of different sizes and varied

arrangements. Sustainable, scientifically based forest management to remove forest products and promote young forests or regeneration of desired species has no long-term adverse effect on your forest's ability to provide these vital ecological services. When trees are young and growing fast, they sequester carbon at high rates, and once they are large (over 18" in diameter and often older), they store the most carbon. Whether you choose to manage your forest actively or not, your forest does an excellent service to our planet's health just by being a healthy forest.

Forests store carbon in different pools, and the amount of carbon in these pools changes over time. The pools are the live aboveground (trees, shrubs and other plants), live belowground (roots and fungi), deadwood (standing dead trees [snags] and downed logs, litter (leaves, needles and small branches) and soil organic matter. Sequestration is the process by which forests remove carbon dioxide from the atmosphere, primarily via tree photosynthesis. A younger forest (10-60 years old) stores relatively little carbon but is likely at or near its peak sequestration rate. An older, more mature forest (60+ years old) stores more carbon, with a gradually slowing sequestration rate. A mix of sequestration and storage in multi-aged forests creates a resilient carbon profile. Please remember that using and harvesting local wood is an integral part of climate mitigation and a vital tool to improve the resiliency of our forests to climate change.

Mapping

Attached to this report is a geo-referenced map that the landowner can use with mapping apps. This digital map shows the landowner's location on the property, and the landowner can also record tracks and waypoints.

1. To get map layers and to view maps, please visit [CT ECO Home \(cteco.uconn.edu\)](http://cteco.uconn.edu).
2. To get soil maps, and associated soil descriptions, please visit [Web Soil Survey - Home \(usda.gov\)](http://websoilsurvey.sc.egov.usda.gov) and follow the instructions on the first page of this website.
3. For instruction, please see [Tutorials | Center for Land Use Education and Research \(uconn.edu\)](http://tutorials.cleru.uconn.edu).

Getting Assistance

Here is a link to a list of private foresters in the state:

<https://www.ctwoodlands.org/master-woodland/ct-forestry-services-directory>

Here is a list of every licensed forester in CT:

<https://www.depdata.ct.gov/forestry/ForestPractitioner/directry.pdf>

Also, we are looking for applicants for the Master Woodland Manager certification (MWM). Here is a link for MWM: [Connecticut Master Woodland Manager Program | Connecticut Forest & Park Association \(ctwoodlands.org\)](http://ctwoodlands.org)

To learn more about NRCS' EQIP Program, click [NRCS EQUIP Program Help](#)

To prevent erosion and water quality issues: [Best Management Practices Manual](#)



APPENDIX OF LATIN NAMES

TREES

Red Oak	<i>Quercus rubra</i>	Eastern Hemlock	<i>Tsuga canadensis</i>
Tulip-Poplar	<i>Liriodendron tulipifera</i>	Aspen	<i>Populus</i> sp.
Red Maple	<i>Acer rubrum</i>	Blackgum	<i>Nyssa sylvatica</i>
Black Birch	<i>Betula lenta</i>	Yellow Birch	<i>Betula alleghaniensis</i>
White Oak	<i>Quercus alba</i>	Chestnut Oak	<i>Quercus montana</i>
Hickory	<i>Carya</i> Sp.	Black Cherry	<i>Prunus serotina</i>
Black Oak	<i>Quercus velutina</i>	White Pine	<i>Pinus strobus</i>
Scarlet Oak	<i>Quercus coccinea</i>	Sassafras	<i>Sassafras albidum</i>
American Beech	<i>Fagus grandifolia</i>	Paper Birch	<i>Betula papyrifera</i>
Sugar Maple	<i>Acer saccharum</i>	White Ash	<i>Fraxinus americana</i>
Sycamore	<i>Platanus occidentalis</i>	Eastern Redcedar	<i>Juniperus virginiana</i>
Slippery Elm	<i>Ulmus rubra</i>	Basswood	<i>Tilia americana</i>
Pitch Pine	<i>Pinus rigida</i>	Gray Birch	<i>Betula populifolia</i>

NATIVE UNDERSTORY

Eastern Hophornbeam	<i>Ostrya virginiana</i>	Spicebush	<i>Lindera benzoin</i>
Musclewood	<i>Carpinus caroliniana</i>	Witch Hazel	<i>Hamamelis virginiana</i>
Serviceberry	<i>Amelanchier</i> Sp	Mountain Laurel	<i>Kalmia latifolia</i>
Lowbush blueberry	<i>Vaccinium angustifolium</i>	Huckleberry	<i>Gaylussacia baccata</i>
Highbush Blueberry	<i>Vaccinium corymbosum</i>	Sweet Pepperbush	<i>Clethra alnifolia</i>
Striped Maple	<i>Acer pensylvanicum</i>	Holly	<i>Smilax</i>
Hobblebush	<i>Viburnum lantanoides</i>	Greenbrier	<i>Ilex</i>
Maple-leaf Viburnum	<i>Viburnum acerifolium</i>		

EXOTIC INVASIVES

Barberry	<i>Berberis</i> Sp.	Burning Bush	<i>Euonymus alatus</i>
Multi-flora Rose	<i>Rosa multiflora</i>	Bittersweet	<i>Celastrus orbiculatus</i>
Privet	<i>Ligustrum</i> Sp	Honeysuckle	<i>Lonicera</i> Sp
Russian Olive	<i>Elaeagnus angustifolia</i>	Tree-of-Heaven	<i>Ailanthus altissima</i>

Connecticut Wildlife Brush Piles - Structures for Wildlife 649

Conservation Practice Job Sheet

Lifespan – 5 Years

Definition

A mound or pile of appropriate woody material, fashioned by piling brush and loose branches on top of a base comprised of larger logs, or other natural materials, to provide cover for wildlife where cover is limited.

Purpose

This practice is used to create cover for many songbirds, small mammals, reptiles, and amphibians when natural cover is limited; such as after clear-cutting. It provides areas for nesting, resting, escape from predators, and protection from harsh weather conditions.

Criteria, Considerations, and Specifications

Brush piles may be built to various dimensions based on the size of available material; however, the size should range between 10 to 20 feet on a side and 4 to 8 feet high.

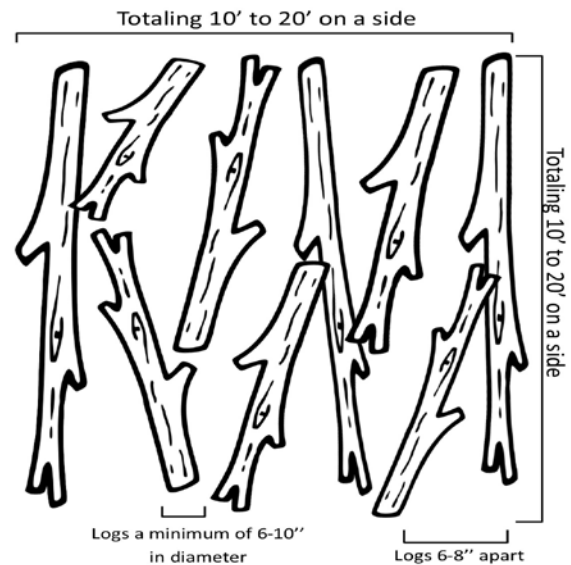
Materials

Brush piles can be constructed using a variety of materials. Commonly, materials left from timber harvesting or any tree-cutting activity are utilized. Natural features, such as rocks, boulders, and stumps may also be incorporated.

Construction

1. Base Layer:
 - a. Logs at a minimum of 6-10 inches in diameter are laid at various angles, leaving small openings (6 to 8 inches wide) between base logs for easy wildlife access. Alternate logs to create varying heights and avoid creating parallel runways through the base layer.
 - b. Logs of various lengths (that add up to 10 to 20 feet on a side) can be staggered throughout the foundation, with breaks, creating a maze-like environment.

- c. Outer logs should be closer to 20 feet in length to provide stability for the brush pile.



2. A second layer of smaller diameter logs should be laid on top and roughly perpendicular to the first base layer, in the same fashion, and repeated with increasingly smaller logs, building 1-3 additional layers.



3. The foundation should be covered with 3-6 feet of brush, using small limbs, saplings, loose brush, and pine boughs. Larger branches should cover the foundation, with smaller branches placed on top.



4. Brush should loosely drape over the edges, with openings (6 to 8 inches in diameter) left on the sides in several places for easy wildlife access and escape. Brush should cover the pile sufficiently so the base is mostly covered. If available on site, add pine boughs, as the needles will persist after deciduous leaves fall off. You should not be able to see through the brush pile even after leaves have dropped from the branches.



NOTE: When constructing brush piles using mechanized forestry equipment, it is not possible to construct piles exactly as described. It is suitable if larger logs are crisscrossed on the base and covered with increasingly smaller logs and finally brush, so long as adequate spaces are left for wildlife to enter and exit the pile.



Placement

Several considerations should be made when placing brush piles:

- Multiple brush piles are better than one large pile, providing more opportunities for cover and escape from predators.
- Good locations include adjacent to forest openings, pastures or hay fields; within shrub thickets or fencerows; in field corners; near stonewalls and wetlands.
- On lands with little natural cover, such as recently cleared areas, begin brush piles within 25 feet of woodland edges, and build in towards the center of the habitat patch, resulting in 1- 3 brush piles per acre, evenly distributed across the project site.
- Place near wildlife food sources, such as mast and fruit trees.
- Avoid placing brush piles on existing high quality food or cover sources.
- Avoid placing brush piles near homes, lawns, or gardens, to prevent situations where wildlife could become a nuisance.
- Keep away from buildings due to flammability.
- Cultural resources such as stone walls can be incorporated into a brush pile, however stones should not be moved. Review potential impacts prior to incorporating stone walls.

Variations for Brush Pile Base

- Tree stumps still in place can be incorporated into your brush pile base. Several logs (6 to 10 inches in diameter and 5 to 6 feet long) are placed on top of and around the stump.

- Small rock piles - these should be staggered about 12 inches apart with each pile about 10 inches high and 12 inches across to support next layer of limbs. Existing boulders and rocks on the landscape can be piled together to provide additional den sites; start with the largest rocks on the bottom of the stack to create hiding places between the rocks, and stack brush on top for additional cover.



Other Types of Cover *(do not meet criteria for reimbursement through NRCS program)*

- Living brush pile - in a cluster of small diameter trees, cut each tree half way through at a height of 12-18 inches above the ground; fold treetops inwards towards other trees in groups so they rest on the ground or on top of the other half-cut trees.
- Stonewalls - may be incorporated into the brush piles base; brush should be placed against the wall with similar dimensions and distribution to brush piles created in an open space.
- When harvesting trees, leave the crowns of the largest trees (e.g. an oak treetop) for wildlife cover.
- Windrowed brush piles - typically these linear brush piles can best be created

following a forestry or tree removal operation. As with other brush pile creation, larger materials should be placed on the bottom at various angles with subsequently smaller material on top. Avoid packing the logs tightly, as this will eliminate any openings for wildlife to enter and exit the linear pile. Windrows should range from 10 to 20 feet on a side and 6 to 8 feet high. Windrows should have breaks built into them every 50 to 100 feet to provide travel lanes for wildlife.

Operation and Maintenance

- Monitor condition and/or usage of the structure
- Conduct needed maintenance of the structure, such as periodically adding new material to the top of the pile

Additional Notes

- Brush piles are not permanent; new brush needs to be added over time or new piles may need to be constructed. Rot and decay is a natural process and may attract more insects, providing additional food sources.
- Do not use materials that contain toxic substances (i.e. pressure treated lumber/posts, creosote railroad ties, lead painted surfaces, tires, etc.). These substances can cause wildlife mortality either through contact, consumption, or inhalation.



Connecticut Department of Energy & Environmental Protection

Field Visit to Kern Park at 160 Ivy Drive – City of Bristol Parks Department Post Visit Report

Present Parties: David Beers (Western District Service Forester) on 3/25/2025 from 11-12:30

Stewardship Objectives

1. Improve forest health
2. Recreation enhancement
3. Wildlife habitat improvement



PROPERTY OVERVIEW

The property has minimal road frontage on Primrose Lane to the west and Sims Road to the east. The Sims Road entry is the official trail entry (see photo). There is no off-street parking. Ivy Drive Elementary School abuts the northern boundary of the park. It is surrounded by a mix of residential and commercial development. No protected open space abuts the property. This landscape is mainly developed, with Bristol Farms Shopping Plaza on the southwest corner.

The CT DEEP Natural Diversity Database (NDDDB) does **not** record occurrences of threatened or endangered species on or near this property. Maps showing wetland and farmland soils are attached to this report. Coppermine Brook runs through the property, which is in the Pequabuck River watershed.

The attached 1934 air photo shows that the property was a mix of fields and brush, with a few scattered trees. In 2023, the trail system was improved with markings, Improved trail entrance and informational signs. The four signs along the trail are about wildlife habitat, pollinator gardens, wetlands and native trees/shrubs (see attached photos). Also in 2023, the blighted tennis courts were replaced with a pollinator garden.

In addition to the roughly 23 acres of forest described below, the northern pollinator garden occupies an acre, and another acre appears to be a neighbor's fields/lawns along the south boundary. As shown on the attached map, there are paint-blazed trails in green, red, blue and yellow.

Please see the attached appendix for more information about your forest's history, future, and general recommendations. It also includes an appendix of Latin names for the tree and shrub species.



Pollinator Garden



Wildlife Brush Pile in front of interpretive sign

Tree Cover

Most Common

Red Oak
Scarlet Oak
Black Oak
White Pine
Red Maple
Beech

Less Common

White Oak
Hickory
Sugar Maple
Hemlock
Aspen
Black Cherry
Red Cedar
Slippery Elm
Black Gum

This forest has a diverse mix of tree species and sizes growing on site conditions that vary with soil type. Some of the forest is mature, with full canopy closure, and other areas are more open with younger/smaller growth. There are 4 acres of forested wetlands within this forest. The northern half has an area dominated by large white pine trees. The southern half has younger, smaller trees with more canopy openings and many more invasives.

Understory

There are a few maple, hickory, oak, beech, pine and hemlock saplings and some holly, greenbrier and musclewood shrubs.

Ground Cover

The leaf litter is degraded and thin in areas with invasives but thick and healthy in other areas. There is also a good amount of woody material throughout the forest floor.

Forest Health

Beech leaf disease has infected the beech trees. This microscopic nematode from Asia has recently begun to spread throughout the state, and the long-term prognosis for infected beech trees is still unclear. The emerald ash borer has killed the ash trees within the past ten years.

The canopy structural diversity and the good tree and shrub species diversity make this forest more resilient to future disturbances (weather, climate, pests). The large deer herd in Connecticut makes growing certain preferred browse of deer, like oak and hickory seedlings, difficult.

Patches of exotic invasive vegetation grow in the understory, including barberry shrubs, multi-flora rose shrubs, honeysuckle shrubs, Russian olive shrubs, pachysandra ground cover and bittersweet vines. Most of the southern half of the property is thick with invasive shrubs and vines. Please see the appendix for more information about exotic invasives and their control.

Wildlife Habitat

The many mature oak and hickory trees in your forest are an excellent wildlife habitat asset, especially the acorns and nuts they produce. Having diverse habitat types (younger, mature, fields, wetlands) intimately mixed, as you have, is always good. Your forest provides adequate food, water, shelter, cover, and space for much of the wildlife in the area. Please see the appendix for more information about wildlife habitat.

Carbon and Climate Resilience

This mature forest stores a large amount of carbon while sequestering more. Any forest products you produce will help mitigate climate change. Some recommendations are below to make forests more resilient and adaptive to climate

change. More information about forest carbon and the forest's ecological services is in the appendix.

Forest Vegetation Recommendations

The tree-hanging exotic bittersweet vines reduce the vigor of the mature trees by shading and choking their upper canopy, strangling stems and branches, and perhaps even pulling down tree branches. I recommend cutting these vines with a handsaw or chainsaw. This cutting could be done during the growing season when the energy stores of the vines are above ground. Two cuts should be made at least 4' apart to prevent vine reconnection and to create an open window where new vines have nothing to grab onto (eliminate laddering opportunities). The cut vines will not survive in shaded areas. To be extra sure, you can treat the freshly cut rooted end with an herbicide immediately after cutting – see photo of the buckthorn blaster in the appendix.

Some healthy red cedar trees are along the trail just south of the pine. Over time, these trees will be shaded by faster-growing overtopping hardwood trees. I suggest cutting some pole-sized trees that are crowding the red cedar trees. The additional sunlight will allow these cedars to both survive and thrive. Cedar is a valuable habitat element for birds and small mammals by providing both thermal cover in the cold months and nutritious cones to eat. Please do not cut down oak and hickory trees if it can be avoided. As explained earlier, these are also highly valuable for wildlife.



More open area along the trail with healthy red cedar trees

CONCLUSION

Here are some possibilities for your forest:

- Contact NRCS and a private forester about doing a forest stewardship plan*
- Properly locate and mark your property boundaries (see appendix)
 - An annual property inspection that includes property boundaries
- Cut tree-hanging vines (see appendix)
- Release healthy red cedar trees from shading competition
- Create a friends group to help maintain the park
 - Install a trail entrance informational kiosk
 - Create a public trail map
- Enjoy your forest!

*Please consider hiring a forester to help you implement any of the recommendations in this report (see appendix). Cost-share monies might be collected through the Natural Resource Conservation Service (NRCS). Please get in touch with Todd Bobowick at **475-355-3864**. Please feel free to share this report.

New England Forestry Foundation (NEFF) GROH Program (Grow Resilient Oak-Hickory Forests):

Link: [Smaller-Acreage Landowner Enrollment - Enroll now New England Forestry Foundation](#)

This program funds activities like those of the NRCS EQIP program, but unlike NRCS, it will fund municipalities.



Open patch with thick invasive vines and shrubs



American holly shrub under a legacy white oak tree

HABITAT CONSTRUCTION

This brush pile is made out of natural materials found here in Kern Park. It is one type of habitat structure that small animals, such as rabbits and songbirds, can use as a place for nesting, protection from predators and bad weather conditions, and refuge. This brush pile was constructed under the leadership of Chase Van Nelson on May 20, 2022, as part of a Peanubuck River Watershed Association Internship. The brush pile will last many years with periodic replacement of the top "loose" layer of pine logs and branches with leaves.

IN PARTNERSHIP WITH:

Learn more about brush piles at:
portal.ca.gov/DEEP/Wildlife/Fact-Sheets/Brush-Piles-for-Wildlife
 Obtenha mais informações sobre as pilas de mato: portal.ca.gov/DEEP/Wildlife/Fact-Sheets/Brush-Piles-for-Wildlife

How To Construct Your Own Brush Pile

Cómo construir su propia pila de cepillo

- 1 Lay her (at least 8" x 8" in diameter) in various sizes, leaving small openings.
 Coloque troncos (al menos 8" x 8" en diámetro) en varios tamaños, dejando pequeñas aberturas.
- 2 Add a second layer of smaller diameter logs on top and perpendicular to the layer. Repeat with increasing smaller logs, leaving 1 to 3 additional layers.
 Agregue una segunda capa de troncos de menor diámetro, en la dirección perpendicular a la primera capa. Repetir con troncos aún más pequeños, aumentando de 1 a 3 capas adicionales.
- 3 Lay logs (over the foundation with 6" or 8" of brush, using increasingly smaller branches on top.
 Coloque la tercera capa de troncos (sobre la base de paja o de cepillo, utilizando ramas cada vez más pequeñas) en la parte superior.
- 4 Add leafy stems or twigs to the top of the pile.
 Agregue tallos con hojas o ramitas a la parte superior de la pila.

A FOOD WEB | UNA RED TRÓFICA

Brush piles can host whole food webs that support various animals from insects and reptiles to herbivores and predators.

Insects | Insectos

Songbirds, mice, deer, and other animals find food and shelter in the brush piles. Insects, such as beetles, ants, and bees, are also found in the brush piles. These insects are used by other animals in the food web.

Rabbits | Roedores

The brush piles are used by rabbits for nesting and protection from predators. Rabbits are also used by other animals in the food web.

Predators | Depredadores

The brush piles are used by predators for hunting and protection from prey. Predators are also used by other animals in the food web.

Las pilas de mato pueden albergar redes alimentarias completas que sustentan a otros animales, desde insectos y reptiles hasta herbívoros y depredadores.

POLLINATOR GARDENS

The intent of a pollinator garden is to grow specific nectar and pollen producing plants that attract pollinators. Flowering plants use fragrance and color to attract butterflies, moths, bees, bees, hummingbirds, and other animals. Most of these pollinators come to drink nectar – the energy-packed sugary liquid flowers produce. The plant's pollen (powdery seed dust) rubs off onto the feet, wings and bodies of pollinators as they drink. The pollen is moved from flower to flower, helping the plants to reproduce. Pollinator gardens are the means to support and protect essential pollinator species.

DID YOU KNOW?

Pollinators are the engine that run healthy habitats! Three-fourths of the world's flowering plants and 35% of global food production is dependent on animal pollinators. That's one out of every three bites of food you eat!

¿SABÍAS QUE...?

Los polinizadores son el motor que hace funcionar un hábitat saludable! Tres cuartos de las plantas con flores en el mundo y el 35% de la producción mundial de alimentos dependen de polinizadores. ¡Eso equivale a uno de cada tres bocanados de comida que ingerimos!

Threats to Pollinators

The loss of habitat and the use of pesticides. Urbanization is increasing. It is also increasing the use of pesticides. The loss of pollinator gardens is a good sign that something is wrong with our ecosystem. A strong ecosystem allows plants and trees to improve air quality and help to reduce the effects of climate change.

Threats to Pollinators

El aumento de las pesticidas y el uso de pesticidas. La pérdida de hábitat y el uso de pesticidas. La pérdida de los jardines de polinizadores es una buena señal de que algo está mal en nuestro ecosistema. Un ecosistema fuerte permite a las plantas y a los árboles mejorar la calidad del aire y ayudar a reducir los efectos del cambio climático.

Planting for Pollinators

Start with native wildflowers that attract and support local pollinators, including adding native grasses to help support and structure the flowers. The main goal is to have blooms that provide a food source for as long as possible to the maximum number of pollinators. Your round blooms keep your pollinator visitors happy and your garden looking beautiful, providing a source of food, shelter, and a place to raise young pollinators throughout the year.

Siembra Para Polinizadores

Comience con flores silvestres nativas que atraigan y apoyen a los polinizadores, incluyendo la adición de hierbas nativas para ayudar a estructurar las flores. El objetivo principal es tener flores que proporcionen una fuente de alimento durante el mayor tiempo posible para el máximo número de polinizadores. Las flores con flores redondas mantienen a los visitantes de los polinizadores felices y hacen que su jardín se vea hermoso, además, con una fuente de alimento, refugio, y un lugar para criar a los polinizadores jóvenes durante todo el año.

Pollinator Friendly Plants

Plantas amigables con los polinizadores

La intención de los jardines de polinizadores es aumentar el cultivo de plantas productoras de néctar y polen que atraigan a los polinizadores. Las plantas que producen flores utilizan su fragancia y colores para atraer mariposas, abejas, moscas, murciélagos, colibríes, y otros. La mayoría de estos polinizadores vienen a beber su néctar. Los jardines de polinizadores son el medio para apoyar y proteger las especies esenciales de polinizadores.

WHAT IS A WETLAND?

Wetlands are unique, diverse, and productive habitats that emerge at the fringe of aquatic and upland land systems. The U.S. Environmental Protection Agency (EPA) defines wetlands as "areas that are regularly inundated by surface water or groundwater, characterized by a prevalence of vegetation that is adapted for life in saturated soil conditions." Wetlands naturally clean the water passing through them by trapping pollutants, filtering water, and using excess nutrients. They also act as a natural sponge and filter, soaking up excess water during wet seasons and slowly releasing it during dry seasons.

BENEFITS OF A WETLAND | BENEFICIOS DE UN HUMEDAL

- Improves Water Quality
- Provides Flood Control and Streamflow Maintenance
- Provides Fish, Wildlife and Plant Habitat
- Increases Ecosystem Productivity
- Protects Water Supply
- Supports Recreational and Educational Opportunities
- Mejora la calidad del agua
- Proporciona control de inundaciones y mantenimiento de caudales
- Proporciona hábitat para la vida silvestre y plantas
- Aumenta la productividad del ecosistema
- Protege el suministro de agua
- Apoya las oportunidades recreativas y educativas

How You Can Help

- Reduce pollutant runoff by reducing paved surfaces, keeping roadsides, lawns, and driveways free of pet waste, trash, hair chemicals, fertilizers, and motor oil, all of which can wash into storm drains and end up in wetlands.
- Reduce the amount of herbicides, herbicides, and pesticides applied to lawns and gardens to avoid nutrient pollution.
- Support your local watershed association to protect wetland habitats.

Los humedales son hábitats únicos, diversos y productivos que emergen en los márgenes de los sistemas acuáticos y de tierras altas. La Agencia de Protección Ambiental de los Estados Unidos (EPA, por sus siglas en inglés) define los humedales como "áreas que se inundan regularmente por agua superficial o subterránea y se caracterizan por una prevalencia de vegetación que está adaptada para la vida en condiciones de suelo saturado". Los humedales limpian naturalmente el agua que pasa a través de ellos atrapando contaminantes, filtrando el agua y utilizando el exceso de nutrientes. Los humedales actúan como una esponja y filtro natural, absorbiendo el exceso de agua durante las estaciones húmedas y liberándolo lentamente durante las estaciones secas.

¿CÓMO SEES UN HUMEDAL?

Wetlands are unique, diverse, and productive habitats that emerge at the fringe of aquatic and upland land systems. The U.S. Environmental Protection Agency (EPA) defines wetlands as "areas that are regularly inundated by surface water or groundwater, characterized by a prevalence of vegetation that is adapted for life in saturated soil conditions." Wetlands naturally clean the water passing through them by trapping pollutants, filtering water, and using excess nutrients. They also act as a natural sponge and filter, soaking up excess water during wet seasons and slowly releasing it during dry seasons.

Types of Wetlands | Tipos de Humedales

MARSHES | MARISMAS

Marshes are periodically saturated, or flooded, by surface water. They are found in coastal areas, river valleys, and other low-lying areas. Marshes are important for water quality, flood control, and wildlife habitat.

BOGS | HANGUAY

Bogs are freshwater wetlands characterized by sphagnum and other peat-forming plants. They are found in cool, wet climates and are important for water quality, flood control, and wildlife habitat.

SWAMPS | PANTANOS

Swamps are wetlands characterized by standing water. They are found in low-lying areas and are important for water quality, flood control, and wildlife habitat.

FENS | CENEGAS

Fens are wetlands characterized by standing water. They are found in low-lying areas and are important for water quality, flood control, and wildlife habitat.

Los humedales son hábitats únicos, diversos y productivos que emergen en los márgenes de los sistemas acuáticos y de tierras altas. La Agencia de Protección Ambiental de los Estados Unidos (EPA, por sus siglas en inglés) define los humedales como "áreas que se inundan regularmente por agua superficial o subterránea y se caracterizan por una prevalencia de vegetación que está adaptada para la vida en condiciones de suelo saturado". Los humedales limpian naturalmente el agua que pasa a través de ellos atrapando contaminantes, filtrando el agua y utilizando el exceso de nutrientes. Los humedales actúan como una esponja y filtro natural, absorbiendo el exceso de agua durante las estaciones húmedas y liberándolo lentamente durante las estaciones secas.

ARBOLES Y ARBUSTOS NATIVOS

Every plant is native to some location. By their very nature, native plants have adapted to the climate of the area, making them naturally hardy. Wildlife have evolved using them for food, cover, and shelter. Proper selection, care, and placement of trees and shrubs can produce a landscape that is both visually attractive and beneficial to wildlife. The following native species can be found at Kern Park:

Native Trees and Shrubs

White-barked Redwood (Sequoia)

This white oak (Sequoia alba) is a large, evergreen tree that grows to 150 feet tall. It is found in coastal areas and is important for water quality, flood control, and wildlife habitat.

Red maple (Acer rubrum)

Red maple (Acer rubrum) is a large, deciduous tree that grows to 100 feet tall. It is found in coastal areas and is important for water quality, flood control, and wildlife habitat.

Blackberry (Rubus)

Blackberry (Rubus) is a large, deciduous shrub that grows to 10 feet tall. It is found in coastal areas and is important for water quality, flood control, and wildlife habitat.

Blackberry (Rubus)

Blackberry (Rubus) is a large, deciduous shrub that grows to 10 feet tall. It is found in coastal areas and is important for water quality, flood control, and wildlife habitat.

Todas las plantas son nativas de algún lugar. Por su propia naturaleza, las plantas nativas se han adaptado al clima de la zona, lo que las hace naturalmente resistentes. La vida silvestre ha evolucionado usando los como alimento, refugio y refugio. La selección, el cuidado y la colocación de árboles y arbustos pueden producir un paisaje que sea visualmente atractivo y beneficioso para la vida silvestre. Las especies nativas anteriores se pueden encontrar en Kern Park.

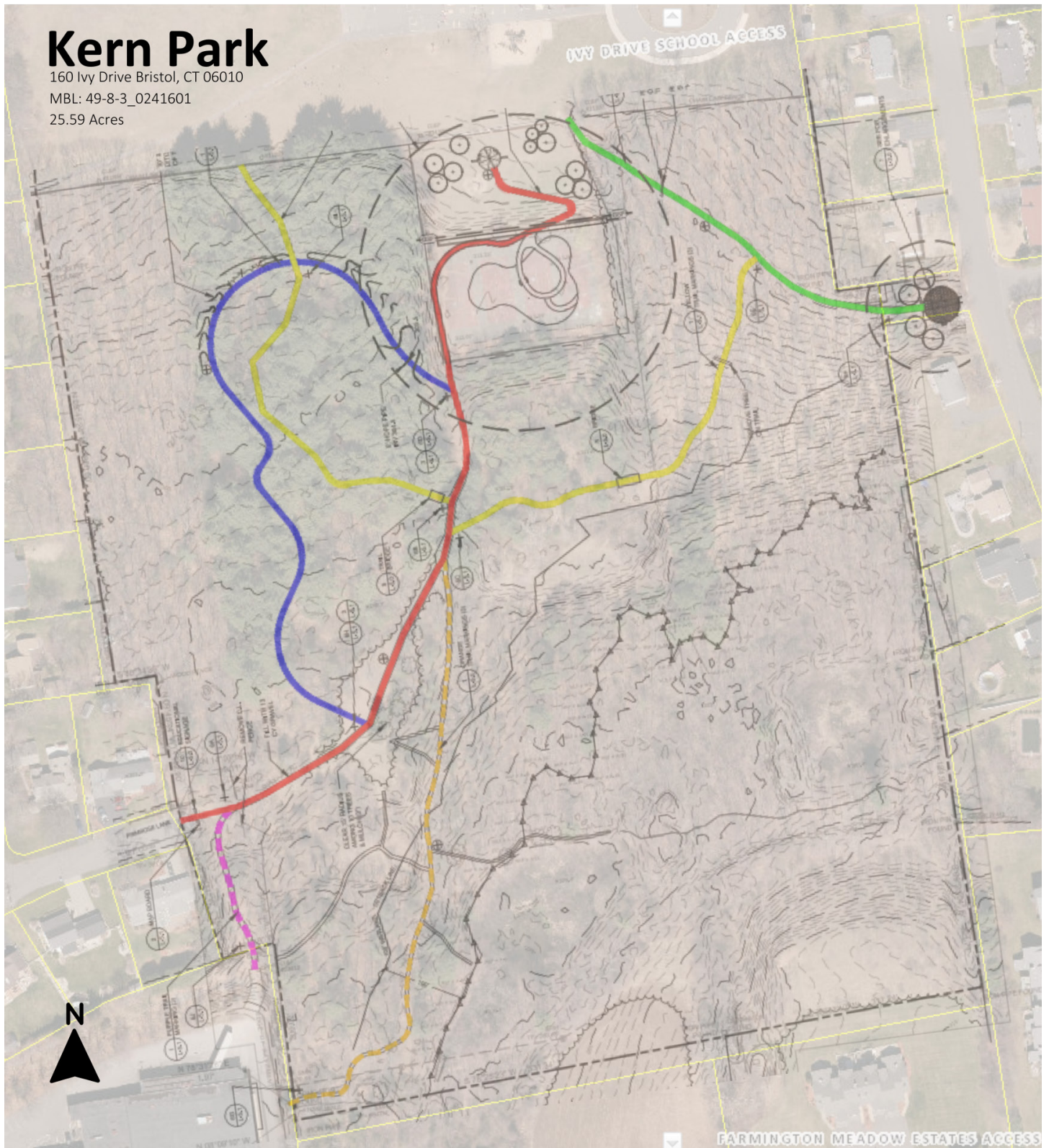
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Kern Park

160 Ivy Drive Bristol, CT 06010

MBL: 49-8-3_0241601

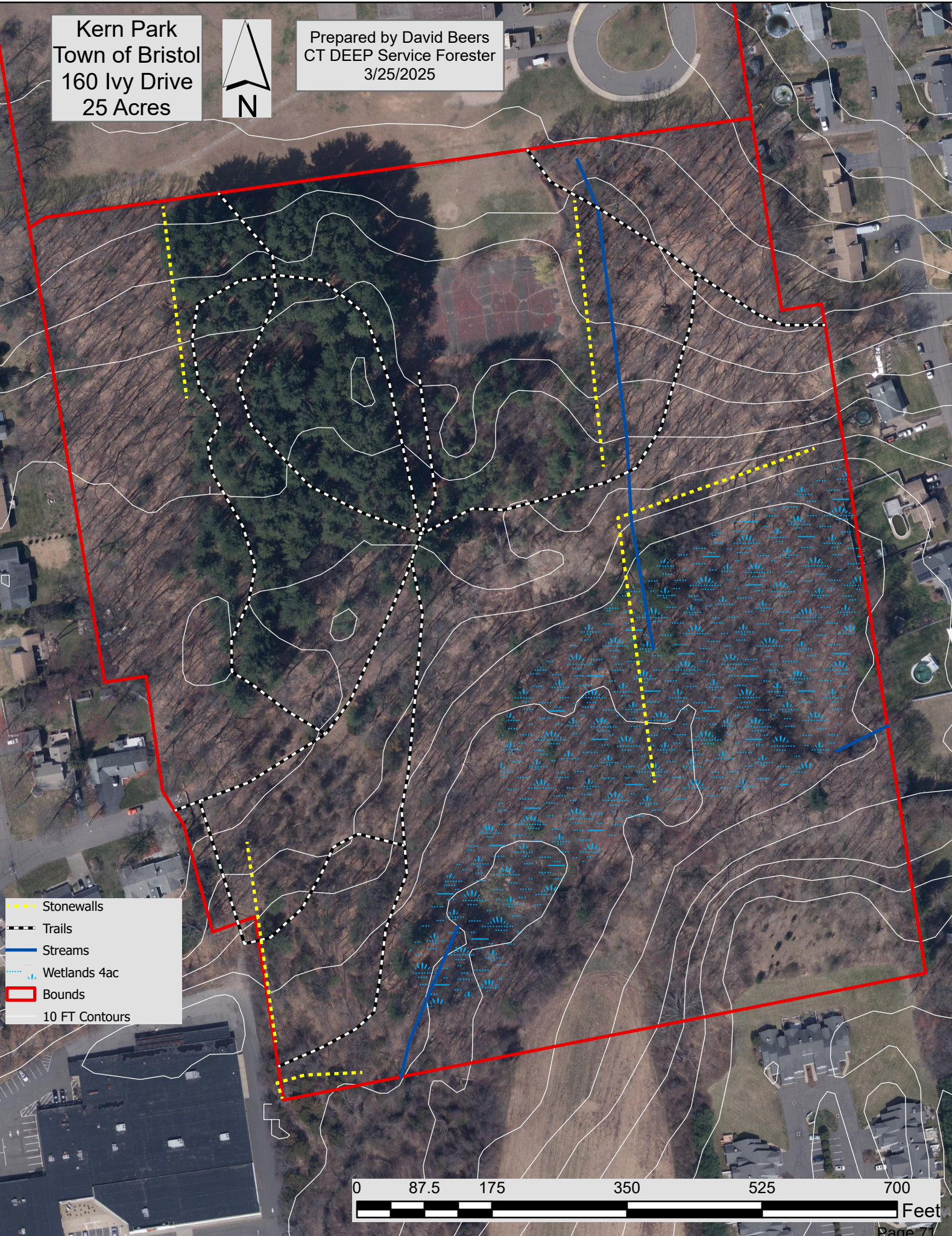
25.59 Acres



Kern Park
Town of Bristol
160 Ivy Drive
25 Acres



Prepared by David Beers
CT DEEP Service Forester
3/25/2025



- Stonewalls
- Trails
- Streams
- Wetlands 4ac
- Bounds
- 10 FT Contours

0 87.5 175 350 525 700 Feet

Kern Park
Town of Bristol
160 Ivy Drive
25 Acres



Prepared by David Beers
CT DEEP Service Forester
3/25/2025

- Stonewalls
- Trails
- Streams
- Wetlands 4ac
- Bounds
- 10 FT Contours

Wetland Soils

- Wetland Soils
- Floodplain Soils

0 87.5 175 350 525 700 Feet

Kern Park
Town of Bristol
160 Ivy Drive
25 Acres



Prepared by David Beers
CT DEEP Service Forester
3/25/2025

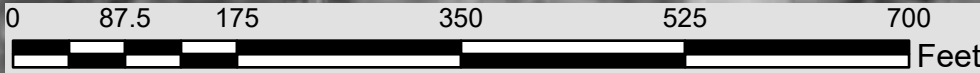
- Stonewalls
 - Trails
 - Streams
 - Wetlands 4ac
 - Bounds
 - 10 FT Contours
- Farmland Soils**
- Prime Farmland Soils
 - Statewide Important Farmland Soils
 - Locally Important Farmland Soils

0 87.5 175 350 525 700 Feet

Kern Park
Town of Bristol
160 Ivy Drive
25 Acres



Prepared by David Beers
CT DEEP Service Forester
3/25/2025
1934 Air Photo





- Stone walls
- Woods Roads
- Streams
- Wetlands
- Bounds
- 10 FT Contours



APPENDIX

FOREST HISTORY

Between eighteenth-century colonial settlement and the mid-nineteenth century, most of Connecticut was cleared for agriculture, with only a few small patches of forest remaining by the mid-nineteenth century. Only 25% of Connecticut was forested in 1830. Under these conditions, a muskrat was the largest animal in the woods. Turkeys, deer, bobcats, beavers, and bears were either rare or gone. Most of the land was used for livestock pasture, with only the best soils used for hay or tilled crops. Imagine a very open agricultural landscape.

During this farming period, the stonewalls were built to keep livestock out of crops and the neighbor's property. Most of these walls were topped off with piled wood and stumps to make them taller. Stonewalls were also a depository for rocks removed from cultivated land. A stonewall with many fist-sized rocks means that one side of that wall had tilled crops, where the winter freeze of bare ground would push rocks to the surface. After barbed wire became widely available in 1875, many of these walls were supplemented with wire. Barbed wire was used to corral cows and goats, but not sheep (barbs did not hurt the sheep). Sheep pasture used smooth-wired rectangular page fencing.

Most Connecticut hill farms were abandoned between the mid-nineteenth and early twentieth centuries. The farmers either moved west for better farming soils or headed to the cities for work. Immediately after this farm abandonment, the forest began to take over again. Much of the young forestlands were then cut down repeatedly to make charcoal, which was used to fuel industrialization. Charcoal was used in metal blast furnaces and by blacksmiths.

Small trees were cut into 4' lengths and carried by hand to make a circular pile about 30' wide and 10' high for charcoal making. A ditch was dug around the circumference of the pile, and the soil from the ditch covered the pile to limit the amount of oxygen in the smoldering pile. Once the low-oxygen burn was completed in two weeks, the almost pure carbon charcoal was removed for transport to market. Charcoal produces the hot fire needed for metalworking.

While this charcoal-making process had occurred since settlement, it came to a crescendo between 1880 and 1920. At that time, much of the landscape was cut multiple times, with patches of smoke rising from active charcoal mounds across the hills. By about 1925, less expensive coal had ended charcoal making, and the forest again began growing back. The repetitive cutting of young trees for charcoal encouraged the proliferation of oak trees. Of all the tree species, oak responded best to the repetitive cutting. This, along with frequent wildfires, helped give rise to the oak-dominated forest we see today.

The 1934 map is attached. Please remember that you need to mentally adjust the map because the map scale projection does not exactly match what we use today. To see what ancestral homeland existed on your property before settlement, please visit Native-Land.ca, and type in your address.

FOREST FUTURE

Active forest management can nudge a forest in different directions by manipulating which trees continue to grow and how much the forest floor is exposed to sunlight by creating canopy openings of various sizes and shapes. For example, we can nudge the future forest towards oak by leaving oaks to grow and produce acorns, creating canopy openings of sufficient size to bring in the sunlight young oaks need to grow, and hunting the deer that eat young oak trees. Without these manipulations and significant natural disturbances (wind, ice, pests), the forest will gradually transition to shade-tolerant trees not eaten by deer (hemlock, beech, black birch and red maple).

Forest Protection

For more long-term protection, a conservation easement on part of the property could be donated to a local land trust to prevent development in perpetuity. The easement's value might be income tax deductible over many years, and there may also be estate tax benefits.

1. Please contact your local land trusts for more information using this link: [Find A Land Trust - Connecticut Land Conservation Council \(ctconservation.org\)](https://www.ctconservation.org/).
2. Please contact NRCS about HFRP (Healthy Forest Reserve Program) for conservation easement funding using this link: [NRCS Accepting Applications for HFRP Program | Natural Resources Conservation Service \(usda.gov\)](https://www.usda.gov/nrcs/conservation/healthy-forest-reserve-program).
3. Another good link is [Estate Planning Resources and the Forest Legacy Program \(ct.gov\)](https://www.ct.gov/estateplanning).

Diversity

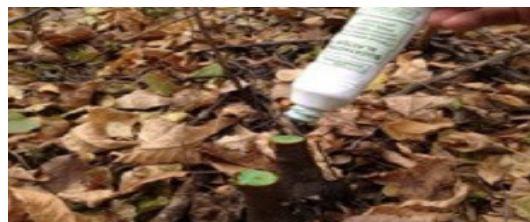
A healthy forest has a large diversity of native plant species, particularly trees that support a diverse array of fungi and wildlife (animals, insects, microbes). A healthy forest also has multiple layers of native vegetation to maximize biodiversity and structural complexity. This means having trees of different ages, diameters, and heights. A healthy forest has standing dead trees (snags) and dead downed wood as essential habitat elements, and to hold moisture during droughts. A healthy forest is resilient because it can better recover from diseases, pests, and extreme weather events. Increasing species and structural diversity of this forest provides multiple recovery pathways from disturbance.

To improve forest landscape diversity, consider establishing some patches of young forest. With over 89 birds, mammals, and reptiles that need young forest habitats, the young forest is nature's pantry for wildlife due to its abundance of insects and berries. It also provides our mature woodland wildlife with important food and cover at critical times of the year. Ideally, 5-10% of our landscape should be young forest. Unfortunately, our landscape rarely has this much young forest because we prevent such forests from forming naturally via beaver activity, fires and floods. We can mimic natural disturbances with well-planned forest stewardship activities to create patches of young forest. Please visit [YoungForest.org](https://www.YoungForest.org) | [a fresh way to create wildlife habitat](#).

Invasives/vines

Invasive species are typically from another part of the world, and when established here, they have no native enemies to hold their population in check. When left uncontrolled, they out-compete what would grow naturally, including tree regeneration and other native understory vegetation. Native understory growth has many more native insects and arthropods that wildlife needs to forage on. It also provides more nutrient-rich berries for birds. Exotic invasive understory growth can provide a better habitat for ticks and associated pathogens while significantly reducing biodiversity. Please see: [Home | Connecticut Invasive Plant Working Group \(uconn.edu\)](https://www.uconn.edu/invasive-plant-working-group/) and https://www.conservect.org/wp-content/uploads/2021/06/Invasive_guide_2020_web.pdf

Control methods include mechanical and chemical processes. In a shady forest, cutting a vine is enough to kill it. Invasive shrubs are not so easy. Pulling the invasives out by the roots can be effective, but extremely difficult and labor intensive. Yearly cutting back of the aboveground stems, during the growing season, will keep the invasives under control, and perhaps kill them after a few years. The most effective control method is applying herbicide to the green foliage. You can also cut the invasive shrubs and treat the fresh stumps with herbicides to prevent resprouting.



Buckthorn Blaster herbicide applicator for vine and invasive shrub eradication

Lawns and fields

Fields provide an opportunity to help pollinators and native insects. Insects, pollinators (bees, butterflies, moths,

beetles, flies, wasps, hummingbirds), and the many birds that depend on them, are severely declining. By delaying annual mowing until after the first hard frost in October and before the beginning of plant growth in the spring, you will allow pollinators to use your fields for food and habitat during the growing season. Another habitat management strategy is to mow one-third to one-half each year on a rotational schedule. This allows some insects to overwinter in the uncut plant stalks and provide birds with much-needed winter food. For this reason, late winter mowing is best. Please remember that healthy meadows store more than double the carbon of a mowed lawn.

There are also many opportunities to create pollinator-friendly habitats/food by adding native plantings, allowing lawn areas to go natural, and leaving leaves and needles to cover the ground. Insects will overwinter in leaf litter and uncut plant stalks. Birds will pick through the winter leaves for insects. For more information, please visit: [Pollinator Pathway \(pollinator-pathway.org\)](http://Pollinator Pathway (pollinator-pathway.org)). And here is an excellent link regarding native plantings: <https://www.audubon.org/native-plants>.

Boundaries

Boundaries must be well-marked to protect the property from trespass and encroachment. Painted blazes are typically used to mark property boundaries. A blaze is a hand-sized shallow scrape in the bark. This scrape will last decades and not harm the tree if done correctly. When painted, this blaze is quite visible and long-lasting. Trees within arm's length of the boundaries are blazed, with the blazes facing the boundary line. Use only paint marks on the neighbor's side of the line, without blazes. The blazes should be given a new coat of paint at least every ten years. Custom signs can also be hung about every 100 feet using galvanized steel or aluminum nails. Keep the nails sticking out an inch from the tree so that the tree has room to grow without pushing out the signs. Understory vegetation and debris can be cleared from boundary lines to traverse the lines for inspection easily. Please consider hiring a forester to locate and mark property boundaries.

Wildlife

Your forest, and the State of Connecticut in general, is lucky to have a significant and diverse component of mature oak trees (mature trees have reached maximum height). Oak trees are considered a wildlife keystone species because of the large amount and diversity of life they support – more than any other tree. Acorns, especially white oak acorns, provide the most nutritious plant-based protein for almost 90 wildlife species. Oaks overwhelmingly host the most moth and butterfly caterpillars (over 500), which anchor a biodiverse food web. Oak forests have more bird abundance and diversity compared to other forest types. Oaks produce the thickest, most ecologically beneficial, and longest-lasting leaf litter with the most abundant and diverse soil biology. This top-of-the-line leaf litter can keep out invasive exotic stilt grass and jumping worms. It also purifies and holds the most water. For these reasons, preserving and encouraging oak growth and health in your forest is important.

Parts of this forest have legacy trees, also known as old field trees or wolf trees. These trees were growing in open pastures as a source of shade for livestock before the current forest started growing. They are much older than the surrounding forest. Because they used to be open-grown, they have large spreading crowns and large branches low on the trunk. When the pastures were abandoned, they became a significant seed source for the present forest. These large old trees are structurally complex, with many cavities, hollows, fat branches, and thick, rough bark. They are also prolific seed producers, including acorns and nuts. This structural complexity and prolific seed production attract an enormous number and diversity of insects, birds, and mammals. Underground, the old trees are also the hub and source of the complex fungal soil mycorrhizal growth that all trees depend on for water and nutrients. To make them healthier and more vigorous, such legacy trees could be protected and perhaps even given more sunlight by cutting some surrounding trees. These agrarian vestiges have become the ecological hubs in your forest. They are also a great source of future large snags and large dead, downed wood.

Ecological Services and Climate Change Mitigation

Forests remove carbon dioxide from the atmosphere (called sequestration), create oxygen, and remove many pollutants from the air and water. Forests absorb heavy rains and release that water to streams and underground aquifers during droughts. Forests regulate temperature and moisture levels. Your forest contributes to these valuable services with carbon stored in the below-ground roots/soil and in the above-ground vegetation, dead wood, and fallen leaves. These services are enhanced by having a diverse mix of native tree species of different sizes and varied arrangements. Sustainable, scientifically based forest management to remove forest products and promote young forests or regeneration of desired species has no long-term adverse effect on your forest's ability to provide these vital ecological services. When trees are young and growing fast, they sequester carbon at high rates, and once they are large (over 18" in diameter and often older), they store the most carbon. Whether you choose to manage your forest actively or not, your forest does an excellent service to our planet's health just by being a healthy forest.

Forests store carbon in different pools, and the amount of carbon in these pools changes over time. The pools are the live aboveground (trees, shrubs and other plants), live belowground (roots and fungi), deadwood (standing dead trees [snags] and downed logs, litter (leaves, needles and small branches) and soil organic matter. Sequestration is the process by which forests remove carbon dioxide from the atmosphere, primarily via tree photosynthesis. A younger forest (10-60 years old) stores relatively little carbon but is likely at or near its peak sequestration rate. An older, more mature forest (60+ years old) stores more carbon, with a gradually slowing sequestration rate. A mix of sequestration and storage in multi-aged forests creates a resilient carbon profile. Please remember that using and harvesting local wood is an integral part of climate mitigation and a vital tool to improve the resiliency of our forests to climate change.

Mapping

Attached to this report is a geo-referenced map that the landowner can use with mapping apps. This digital map shows the landowner's location on the property, and the landowner can also record tracks and waypoints.

1. To get map layers and to view maps, please visit [CT ECO Home \(cteco.uconn.edu\)](http://cteco.uconn.edu).
2. To get soil maps, and associated soil descriptions, please visit [Web Soil Survey - Home \(usda.gov\)](http://websoilsurvey.sc.egov.usda.gov) and follow the instructions on the first page of this website.
3. For instruction, please see [Tutorials | Center for Land Use Education and Research \(uconn.edu\)](http://tutorials.cluerrc.org).

Getting Assistance

Here is a link to a list of private foresters in the state:

<https://www.ctwoodlands.org/master-woodland/ct-forestry-services-directory>

Here is a list of every licensed forester in CT: <https://www.depdata.ct.gov/forestry/ForestPractitioner/directry.pdf>

Also, we are looking for applicants for the Master Woodland Manager certification (MWM). Here is a link for MWM: [Connecticut Master Woodland Manager Program | Connecticut Forest & Park Association \(ctwoodlands.org\)](http://ctwoodlands.org/connecticut-master-woodland-manager-program)

To learn more about NRCS' EQIP funding Program, click [NRCS EQIP Program Help](#)

New England Forestry Foundation (NEFF) GROH Program (Grow Resilient Oak-Hickory Forests):

Link: [Smaller-Acreage Landowner Enrollment - Enroll now New England Forestry Foundation](#)

This program funds activities like those of the NRCS EQIP program, but unlike NRCS, it will fund municipalities.

Visit CT DEEP's grants website: [Grants and Financial Assistance](#)

Wildlife habitat projects: [Partners for Fish and Wildlife | U.S. Fish & Wildlife Service](#)

To prevent erosion and water quality issues: [Best Management Practices Manual](#)



APPENDIX OF LATIN NAMES

TREES

Red Oak	<i>Quercus rubra</i>	Eastern Hemlock	<i>Tsuga canadensis</i>
Tulip-Poplar	<i>Liriodendron tulipifera</i>	Aspen	<i>Populus</i> sp.
Red Maple	<i>Acer rubrum</i>	Blackgum	<i>Nyssa sylvatica</i>
Black Birch	<i>Betula lenta</i>	Yellow Birch	<i>Betula alleghaniensis</i>
White Oak	<i>Quercus alba</i>	Chestnut Oak	<i>Quercus montana</i>
Hickory	<i>Carya</i> Sp.	Black Cherry	<i>Prunus serotina</i>
Black Oak	<i>Quercus velutina</i>	White Pine	<i>Pinus strobus</i>
Scarlet Oak	<i>Quercus coccinea</i>	Sassafras	<i>Sassafras albidum</i>
American Beech	<i>Fagus grandifolia</i>	Paper Birch	<i>Betula papyrifera</i>
Sugar Maple	<i>Acer saccharum</i>	White Ash	<i>Fraxinus americana</i>
Sycamore	<i>Platanus occidentalis</i>	Eastern Redcedar	<i>Juniperus virginiana</i>
Slippery Elm	<i>Ulmus rubra</i>	Basswood	<i>Tilia americana</i>
Pitch Pine	<i>Pinus rigida</i>	Gray Birch	<i>Betula populifolia</i>

NATIVE UNDERSTORY

Eastern Hophornbeam	<i>Ostrya virginiana</i>	Spicebush	<i>Lindera benzoin</i>
Musclewood	<i>Carpinus caroliniana</i>	Witch Hazel	<i>Hamamelis virginiana</i>
Serviceberry	<i>Amelanchier</i> Sp	Mountain Laurel	<i>Kalmia latifolia</i>
Lowbush blueberry	<i>Vaccinium angustifolium</i>	Huckleberry	<i>Gaylussacia baccata</i>
Highbush Blueberry	<i>Vaccinium corymbosum</i>	Sweet Pepperbush	<i>Clethra alnifolia</i>
Striped Maple	<i>Acer pensylvanicum</i>	Holly	<i>Smilax</i>
Hobblebush	<i>Viburnum lantanoides</i>	Greenbrier	<i>Ilex</i>
Maple-leaf Viburnum	<i>Viburnum acerifolium</i>		

EXOTIC INVASIVES

Barberry	<i>Berberis</i> Sp.	Burning Bush	<i>Euonymus alatus</i>
Multi-flora Rose	<i>Rosa multiflora</i>	Bittersweet	<i>Celastrus orbiculatus</i>
Privet	<i>Ligustrum</i> Sp	Honeysuckle	<i>Lonicera</i> Sp
Russian Olive	<i>Elaeagnus angustifolia</i>	Tree-of-Heaven	<i>Ailanthus altissima</i>



Connecticut
**Department of Energy &
Environmental Protection**

**Field Visit to Nelson Field at 776 Burlington Ave – City of Bristol Parks Department
Post Visit Report**

Present Parties: David Beers (Western District Service Forester) on 4/28/2025 from 10-12

Stewardship Objectives

1. Improve forest health
2. Recreation enhancement
3. Wildlife habitat improvement



Eastern view from the parking lot



PROPERTY OVERVIEW

The property has extensive public road frontage on Burlington Ave (Route 69) to the west, Maple Ave to the north, and Nelson Farm Road to the east. There is a public parking area in the northwest corner. While there are no official public hiking trails, many people go to the park to recreate in the field or to enjoy the view while making a call or having lunch. The property is surrounded by primarily residential development in a suburban landscape. No protected open space abuts the property.

The CT DEEP Natural Diversity Database (NDDDB) does **not** have occurrences of threatened or endangered species on or near this property. Maps showing wetland and farmland soils and the NDDDB area are attached to this report. The property is in the water supply watershed for the City of New Britain. Polkville Brook runs through the property. This property is in the Farmington River watershed. There is no core forest.

The attached 1934 air photo shows fields and brush on the property. The property was acquired in 1988. There are unauthorized ATV trails in the dry northeastern forest block (see photo).

In addition to the 35 acres of forest described below, 14 acres are fields. The northern field has 11 acres, and the southern field has 3 acres. A local farmer mows the fields for hay.

Please see the attached appendix for more information about your forest's history, future, and general recommendations. It also includes an appendix of Latin names for the tree and shrub species.



Tree Cover

Most Common

Red Maple
Aspen
Cottonwood
Black Cherry

Common

Willow
White Pine
Red Cedar
Black Oak
Red Oak
Scarlet Oak
Hickory
Sugar Maple
Slippery Elm

Uncommon

Apple
Norway Maple (exotic)
Pitch Pine

This forest has a diverse mix of tree species and sizes growing on site conditions that vary with slope position and soil type. There are 28 acres of forested wetlands within this forest, meaning most of the forest is wet, with only 7 acres being dry. The wetlands include marsh, wet meadow, shrub swamp, treed swamp and a small dammed pond.

Understory

There are a few red maple, oak and black birch saplings. Many areas have wetland understory growth, including alder shrubs, sumac shrubs, cattails, high-bush blueberry shrubs and spicebush. Dryland shrubs include sumac, dogwood and serviceberry.

Ground Cover

There appears to be thick, healthy leaf litter, and a good amount of woody material is throughout the forest floor.

Forest Health

The emerald ash borer has killed the ash trees over the past ten years.

The canopy structural diversity and the good tree and shrub species diversity make this forest more resilient to future disturbances (weather, climate, pests). The large deer herd in Connecticut makes growing certain preferred browse of deer, like oak and hickory seedlings, difficult.

Patches of exotic invasive vegetation grow in the understory, including barberry shrubs, multiflora rose shrubs, honeysuckle, Russian olive, knotweed, Callery pear, phragmites reed and bittersweet vines. There are areas of thick phragmites reed in the eastern 5-acre block. Please see the appendix for more information about exotic invasives and their control.

Wildlife Habitat

The mature oak and hickory trees in your forest are an excellent wildlife habitat asset, especially the acorns and nuts they produce. Having diverse habitat types (younger, mature, fields, grassland marsh, wet meadow, shrub swamp, treed swamp, pond) intimately mixed, as you have, is always good. This forest provides adequate food, water, shelter, cover, and space for much of the wildlife in the area. Please see the appendix for more information about wildlife habitat.

Carbon and Climate Resilience

This mature forest stores a large amount of carbon while sequestering more. Any forest products you produce will help mitigate climate change. Some recommendations are below to make forests more resilient and adaptive to climate change. More information about forest carbon and the forest's ecological services is in the appendix.

Forest Vegetation Recommendations

The tree-hanging vines reduce the vigor of the mature trees by shading and choking their upper canopy, strangling stems and branches, and perhaps even pulling down tree branches. I recommend cutting these vines with a handsaw or chainsaw. This cutting could be done during the growing season when the energy stores of the vines are above ground. Two cuts should be made at least 4' apart to prevent vine reconnection and to create an open window where new vines have nothing to grab onto (eliminate laddering opportunities). The cut vines will not survive in shaded areas. To be extra sure, you can treat the freshly cut rooted end with an herbicide immediately after cutting – see photo of the buckthorn blaster in the appendix.



CONCLUSION

Here are some possibilities for your forest:

- Contact NRCS and a private forester about doing a forest stewardship plan*
- Properly locate and mark your property boundaries (see appendix)
 - An annual property inspection that includes property boundaries
- Clear the pond dam and 25' within the toe of the dam of all woody vegetation to meet state safety standards
- Cut the tree-hanging vines in the dry forest areas
- Investigate possible encroachment of planted fruit trees in the southern field
- Discuss options to stop ATV use in the northeast corner

*Please consider hiring a forester to help you implement any of the recommendations in this report (see appendix). Please feel free to share this report.



ATV trail in the northeastern woods

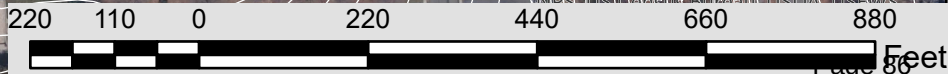
Nelson Field
Town of Bristol
776 Burlington Ave

Prepared by David Beers
CT DEEP Service Forester
4/28/2025



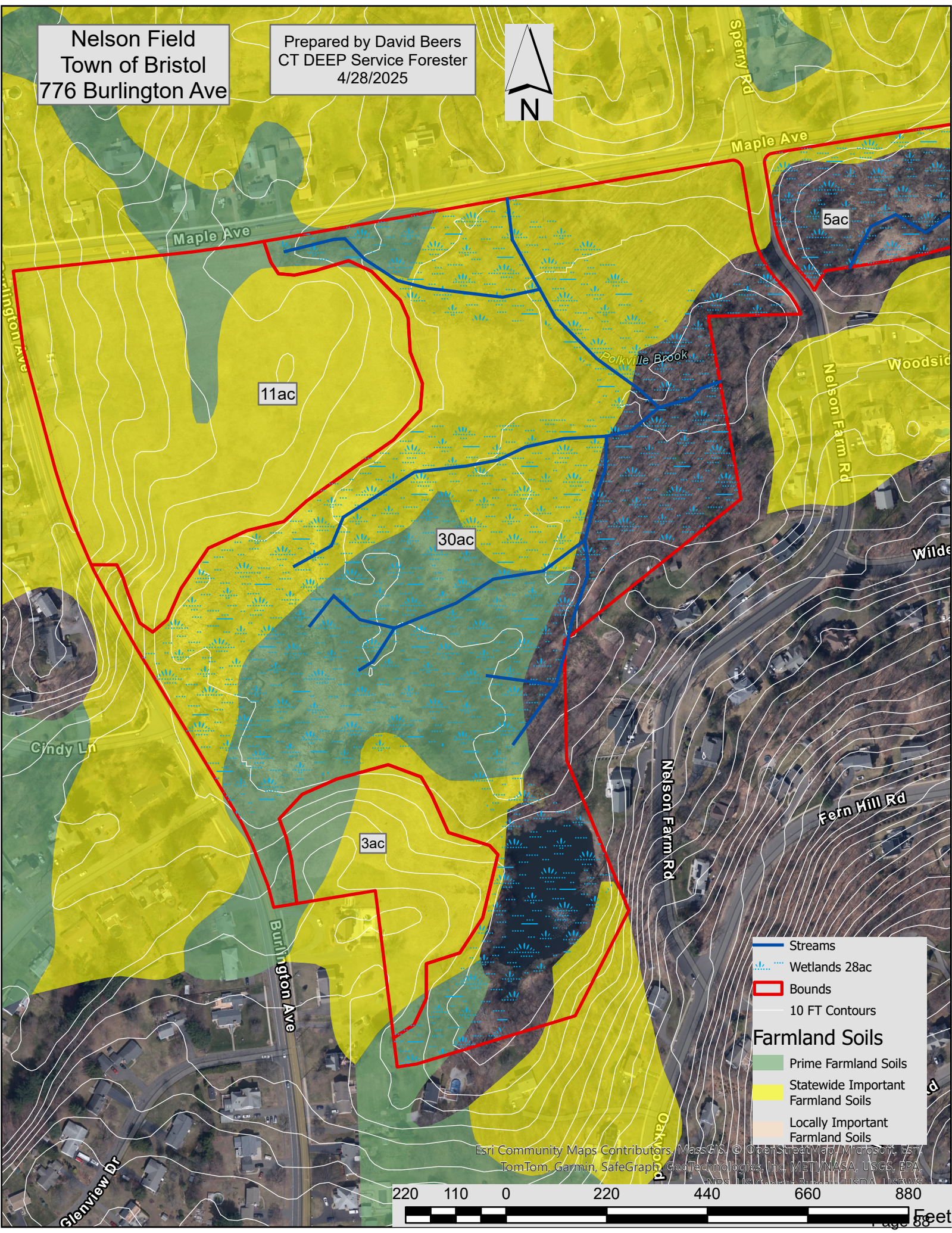
- Streams
- Wetlands 28ac
- Bounds
- 10 FT Contours

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Nelson Field
Town of Bristol
776 Burlington Ave

Prepared by David Beers
CT DEEP Service Forester
4/28/2025



- Streams
- Wetlands 28ac
- Bounds
- 10 FT Contours
- Farmland Soils**
 - Prime Farmland Soils
 - Statewide Important Farmland Soils
 - Locally Important Farmland Soils

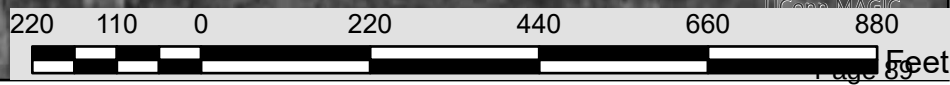
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Nelson Field
Town of Bristol
776 Burlington Ave

Prepared by David Beers
CT DEEP Service Forester
4/28/2025
1934 Air Photo







APPENDIX

FOREST HISTORY

Between eighteenth-century colonial settlement and the mid-nineteenth century, most of Connecticut was cleared for agriculture, with only a few small patches of forest remaining by the mid-nineteenth century. Only 25% of Connecticut was forested in 1830. Under these conditions, a muskrat was the largest animal in the woods. Turkeys, deer, bobcats, beavers, and bears were either rare or gone. Most of the land was used for livestock pasture, with only the best soils used for hay or tilled crops. Imagine a very open agricultural landscape.

During this farming period, the stonewalls were built to keep livestock out of crops and the neighbor's property. Most of these walls were topped off with piled wood and stumps to make them taller. Stonewalls were also a depository for rocks removed from cultivated land. A stonewall with many fist-sized rocks means that one side of that wall had tilled crops, where the winter freeze of bare ground would push rocks to the surface. After barbed wire became widely available in 1875, many of these walls were supplemented with wire. Barbed wire was used to corral cows and goats, but not sheep (barbs did not hurt the sheep). Sheep pasture used smooth-wired rectangular page fencing.

Most Connecticut hill farms were abandoned between the mid-nineteenth and early twentieth centuries. The farmers either moved west for better farming soils or headed to the cities for work. Immediately after this farm abandonment, the forest began to take over again. Much of the young forestlands were then cut down repeatedly to make charcoal, which was used to fuel industrialization. Charcoal was used in metal blast furnaces and by blacksmiths.

Small trees were cut into 4' lengths and carried by hand to make a circular pile about 30' wide and 10' high for charcoal making. A ditch was dug around the circumference of the pile, and the soil from the ditch covered the pile to limit the amount of oxygen in the smoldering pile. Once the low-oxygen burn was completed in two weeks, the almost pure carbon charcoal was removed for transport to market. Charcoal produces the hot fire needed for metalworking.

While this charcoal-making process had occurred since settlement, it came to a crescendo between 1880 and 1920. At that time, much of the landscape was cut multiple times, with patches of smoke rising from active charcoal mounds across the hills. By about 1925, less expensive coal had ended charcoal making, and the forest again began growing back. The repetitive cutting of young trees for charcoal encouraged the proliferation of oak trees. Of all the tree species, oak responded best to the repetitive cutting. This, along with frequent wildfires, helped give rise to the oak-dominated forest we see today.

The 1934 map is attached. Please remember that you need to mentally adjust the map because the map scale projection does not exactly match what we use today. To see what ancestral homeland existed on your property before settlement, please visit Native-Land.ca, and type in your address.

FOREST FUTURE

Active forest management can nudge a forest in different directions by manipulating which trees continue to grow and how much the forest floor is exposed to sunlight by creating canopy openings of various sizes and shapes. For example, we can nudge the future forest towards oak by leaving oaks to grow and produce acorns, creating canopy openings of sufficient size to bring in the sunlight young oaks need to grow, and hunting the deer that eat young oak trees. Without these manipulations and significant natural disturbances (wind, ice, pests), the forest will gradually transition to shade-tolerant trees not eaten by deer (hemlock, beech, black birch and red maple).

Forest Protection

For more long-term protection, a conservation easement on part of the property could be donated to a local land trust to prevent development in perpetuity. The easement's value might be income tax deductible over many years, and there may also be estate tax benefits.

1. Please contact your local land trusts for more information using this link: [Find A Land Trust - Connecticut Land Conservation Council \(ctconservation.org\)](https://www.ctconservation.org/).
2. Please contact NRCS about HFRP (Healthy Forest Reserve Program) for conservation easement funding using this link: [NRCS Accepting Applications for HFRP Program | Natural Resources Conservation Service \(usda.gov\)](https://www.nrcs.usda.gov/).
3. Another good link is [Estate Planning Resources and the Forest Legacy Program \(ct.gov\)](https://www.ct.gov/estateplanning/).

Diversity

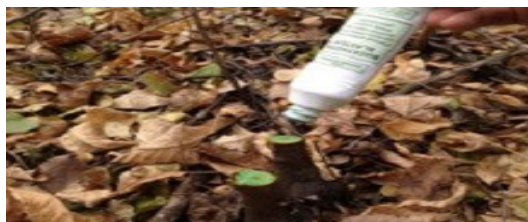
A healthy forest has a large diversity of native plant species, particularly trees that support a diverse array of fungi and wildlife (animals, insects, microbes). A healthy forest also has multiple layers of native vegetation to maximize biodiversity and structural complexity. This means having trees of different ages, diameters, and heights. A healthy forest has standing dead trees (snags) and dead downed wood as essential habitat elements, and to hold moisture during droughts. A healthy forest is resilient because it can better recover from diseases, pests, and extreme weather events. Increasing species and structural diversity of this forest provides multiple recovery pathways from disturbance.

To improve forest landscape diversity, consider establishing some patches of young forest. With over 89 birds, mammals, and reptiles that need young forest habitats, the young forest is nature's pantry for wildlife due to its abundance of insects and berries. It also provides our mature woodland wildlife with important food and cover at critical times of the year. Ideally, 5-10% of our landscape should be young forest. Unfortunately, our landscape rarely has this much young forest because we prevent such forests from forming naturally via beaver activity, fires and floods. We can mimic natural disturbances with well-planned forest stewardship activities to create patches of young forest. Please visit [YoungForest.org](https://www.YoungForest.org/) | [a fresh way to create wildlife habitat](#).

Invasives/vines

Invasive species are typically from another part of the world, and when established here, they have no native enemies to hold their population in check. When left uncontrolled, they out-compete what would grow naturally, including tree regeneration and other native understory vegetation. Native understory growth has many more native insects and arthropods that wildlife needs to forage on. It also provides more nutrient-rich berries for birds. Exotic invasive understory growth can provide a better habitat for ticks and associated pathogens while significantly reducing biodiversity. Please see: [Home | Connecticut Invasive Plant Working Group \(uconn.edu\)](https://www.uconn.edu/invasive-plant-working-group/) and https://www.conservect.org/wp-content/uploads/2021/06/Invasive_guide_2020_web.pdf

Control methods include mechanical and chemical processes. In a shady forest, cutting a vine is enough to kill it. Invasive shrubs are not so easy. Pulling the invasives out by the roots can be effective, but extremely difficult and labor intensive. Yearly cutting back of the aboveground stems, during the growing season, will keep the invasives under control, and perhaps kill them after a few years. The most effective control method is applying herbicide to the green foliage. You can also cut the invasive shrubs and treat the fresh stumps with herbicides to prevent resprouting.



Buckthorn Blaster herbicide applicator for vine and invasive shrub eradication

Lawns and fields

Fields provide an opportunity to help pollinators and native insects. Insects, pollinators (bees, butterflies, moths,

beetles, flies, wasps, hummingbirds), and the many birds that depend on them, are severely declining. By delaying annual mowing until after the first hard frost in October and before the beginning of plant growth in the spring, you will allow pollinators to use your fields for food and habitat during the growing season. Another habitat management strategy is to mow one-third to one-half each year on a rotational schedule. This allows some insects to overwinter in the uncut plant stalks and provide birds with much-needed winter food. For this reason, late winter mowing is best. Please remember that healthy meadows store more than double the carbon of a mowed lawn.

There are also many opportunities to create pollinator-friendly habitats/food by adding native plantings, allowing lawn areas to go natural, and leaving leaves and needles to cover the ground. Insects will overwinter in leaf litter and uncut plant stalks. Birds will pick through the winter leaves for insects. For more information, please visit: [Pollinator Pathway \(pollinator-pathway.org\)](http://Pollinator Pathway (pollinator-pathway.org)). And here is an excellent link regarding native plantings: <https://www.audubon.org/native-plants>.

Boundaries

Boundaries must be well-marked to protect the property from trespass and encroachment. Painted blazes are typically used to mark property boundaries. A blaze is a hand-sized shallow scrape in the bark. This scrape will last decades and not harm the tree if done correctly. When painted, this blaze is quite visible and long-lasting. Trees within arm's length of the boundaries are blazed, with the blazes facing the boundary line. Use only paint marks on the neighbor's side of the line, without blazes. The blazes should be given a new coat of paint at least every ten years. Custom signs can also be hung about every 100 feet using galvanized steel or aluminum nails. Keep the nails sticking out an inch from the tree so that the tree has room to grow without pushing out the signs. Understory vegetation and debris can be cleared from boundary lines to traverse the lines for inspection easily. Please consider hiring a forester to locate and mark property boundaries.

Wildlife

Your forest, and the State of Connecticut in general, is lucky to have a significant and diverse component of mature oak trees (mature trees have reached maximum height). Oak trees are considered a wildlife keystone species because of the large amount and diversity of life they support – more than any other tree. Acorns, especially white oak acorns, provide the most nutritious plant-based protein for almost 90 wildlife species. Oaks overwhelmingly host the most moth and butterfly caterpillars (over 500), which anchor a biodiverse food web. Oak forests have more bird abundance and diversity compared to other forest types. Oaks produce the thickest, most ecologically beneficial, and longest-lasting leaf litter with the most abundant and diverse soil biology. This top-of-the-line leaf litter can keep out invasive exotic stilt grass and jumping worms. It also purifies and holds the most water. For these reasons, preserving and encouraging oak growth and health in your forest is important.

Parts of this forest have legacy trees, also known as old field trees or wolf trees. These trees were growing in open pastures as a source of shade for livestock before the current forest started growing. They are much older than the surrounding forest. Because they used to be open-grown, they have large spreading crowns and large branches low on the trunk. When the pastures were abandoned, they became a significant seed source for the present forest. These large old trees are structurally complex, with many cavities, hollows, fat branches, and thick, rough bark. They are also prolific seed producers, including acorns and nuts. This structural complexity and prolific seed production attract an enormous number and diversity of insects, birds, and mammals. Underground, the old trees are also the hub and source of the complex fungal soil mycorrhizal growth that all trees depend on for water and nutrients. To make them healthier and more vigorous, such legacy trees could be protected and perhaps even given more sunlight by cutting some surrounding trees. These agrarian vestiges have become the ecological hubs in your forest. They are also a great source of future large snags and large dead, downed wood.

Ecological Services and Climate Change Mitigation

Forests remove carbon dioxide from the atmosphere (called sequestration), create oxygen, and remove many pollutants from the air and water. Forests absorb heavy rains and release that water to streams and underground aquifers during droughts. Forests regulate temperature and moisture levels. Your forest contributes to these valuable services with carbon stored in the below-ground roots/soil and in the above-ground vegetation, dead wood, and fallen leaves. These services are enhanced by having a diverse mix of native tree species of different sizes and varied arrangements. Sustainable, scientifically based forest management to remove forest products and promote young forests or regeneration of desired species has no long-term adverse effect on your forest's ability to provide these vital ecological services. When trees are young and growing fast, they sequester carbon at high rates, and once they are large (over 18" in diameter and often older), they store the most carbon. Whether you choose to manage your forest actively or not, your forest does an excellent service to our planet's health just by being a healthy forest.

Forests store carbon in different pools, and the amount of carbon in these pools changes over time. The pools are the live aboveground (trees, shrubs and other plants), live belowground (roots and fungi), deadwood (standing dead trees [snags] and downed logs, litter (leaves, needles and small branches) and soil organic matter. Sequestration is the process by which forests remove carbon dioxide from the atmosphere, primarily via tree photosynthesis. A younger forest (10-60 years old) stores relatively little carbon but is likely at or near its peak sequestration rate. An older, more mature forest (60+ years old) stores more carbon, with a gradually slowing sequestration rate. A mix of sequestration and storage in multi-aged forests creates a resilient carbon profile. Please remember that using and harvesting local wood is an integral part of climate mitigation and a vital tool to improve the resiliency of our forests to climate change.

Mapping

Attached to this report is a geo-referenced map that the landowner can use with mapping apps. This digital map shows the landowner's location on the property, and the landowner can also record tracks and waypoints.

1. To get map layers and to view maps, please visit [CT ECO Home \(cteco.uconn.edu\)](http://cteco.uconn.edu).
2. To get soil maps, and associated soil descriptions, please visit [Web Soil Survey - Home \(usda.gov\)](http://websoilsurvey.sc.egov.usda.gov) and follow the instructions on the first page of this website.
3. For instruction, please see [Tutorials | Center for Land Use Education and Research \(uconn.edu\)](http://tutorials.cluerrc.org).

Getting Assistance

Here is a link to a list of private foresters in the state:

<https://www.ctwoodlands.org/master-woodland/ct-forestry-services-directory>

Here is a list of every licensed forester in CT: <https://www.depdata.ct.gov/forestry/ForestPractitioner/directry.pdf>

Also, we are looking for applicants for the Master Woodland Manager certification (MWM). Here is a link for MWM: [Connecticut Master Woodland Manager Program | Connecticut Forest & Park Association \(ctwoodlands.org\)](http://ctwoodlands.org/connecticut-master-woodland-manager-program)

To learn more about NRCS' EQIP funding Program, click [NRCS EQIP Program Help](#)

New England Forestry Foundation (NEFF) GROH Program (Grow Resilient Oak-Hickory Forests):

Link: [Smaller-Acreage Landowner Enrollment - Enroll now New England Forestry Foundation](#)

This program funds activities like those of the NRCS EQIP program, but unlike NRCS, it will fund municipalities.

Visit CT DEEP's grants website: [Grants and Financial Assistance](#)

Wildlife habitat projects: [Partners for Fish and Wildlife | U.S. Fish & Wildlife Service](#)

To prevent erosion and water quality issues: [Best Management Practices Manual](#)



APPENDIX OF LATIN NAMES

TREES

Red Oak	Quercus rubra	Eastern Hemlock	Tsuga canadensis
Tulip-Poplar	Liriodendron tulipifera	Aspen	Populus sp.
Red Maple	Acer rubrum	Blackgum	Nyssa sylvatica
Black Birch	Betula lenta	Yellow Birch	Betula alleghaniensis
White Oak	Quercus alba	Chestnut Oak	Quercus montana
Hickory	Carya Sp.	Black Cherry	Prunus serotina
Black Oak	Quercus velutina	White Pine	Pinus strobus
Scarlet Oak	Quercus coccinea	Sassafras	Sassafras albidum
American Beech	Fagus grandifolia	Paper Birch	Betula papyrifera
Sugar Maple	Acer saccharum	White Ash	Fraxinus americana
Sycamore	Platanus occidentalis	Eastern Redcedar	Juniperus virginiana
Slippery Elm	Ulmus rubra	Basswood	Tilia americana
Pitch Pine	Pinus rigida	Gray Birch	Betula populifolia

NATIVE UNDERSTORY

Eastern Hophornbeam	Ostrya virginiana	Spicebush	Lindera benzoin
Musclewood	Carpinus caroliniana	Witch Hazel	Hamamelis virginiana
Serviceberry	Amelanchier Sp	Mountain Laurel	Kalmia latifolia
Lowbush blueberry	Vaccinium angustifolium	Huckleberry	Gaylussacia baccata
Highbush Blueberry	Vaccinium corymbosum	Sweet Pepperbush	Clethra alnifolia
Striped Maple	Acer pensylvanicum	Holly	Smilax
Hobblebush	Viburnum lantanoides	Greenbrier	Ilex
Maple-leaf Viburnum	Viburnum acerifolium		

EXOTIC INVASIVES

Barberry	Berberis Sp.	Burning Bush	Euonymus alatus
Multi-flora Rose	Rosa multiflora	Bittersweet	Celastrus orbiculatus
Privet	Ligustrum Sp	Honeysuckle	Lonicera Sp
Russian Olive	Elaeagnus angustifolia	Tree-of-Heaven	Ailanthus altissima



Connecticut
**Department of Energy &
Environmental Protection**

**Field Visit to Page Park at 651 King Street – City of Bristol Parks Department
Post Visit Report**

Present Parties: David Beers (Western District Service Forester) on 3/25/2025 from 9:30-11

Stewardship Objectives

1. Improve forest health
2. Recreation enhancement
3. Wildlife habitat improvement



Disk golf basket on sledding hill (old expert downhill ski run)

PROPERTY OVERVIEW

The property has extensive public road frontage on Page Ave, Westminster Road, Dewitt Drive, Woodland Street, Moody Street and King Street (Route 229). It also has its own interior park road system (see map). A mix of residential and commercial development surrounds it. No protected open space abuts the property; this is a developed landscape. Bristol High School abuts the park to the east.

This forest is part of a small core forest block having less than 250 acres of contiguous forest. Core forests are large tracts of unbroken forest that provide a much more stable home for plant and animal species, thereby protecting biodiversity. They are forested areas surrounded by more forested areas.

The CT DEEP Natural Diversity Database (NDDDB) does **not** have occurrences of threatened or endangered species on or near this property. Maps showing wetland and farmland soils are attached to this report. The southeast quadrant of the property is in the Bristol Water Aquifer Protection Area. This property is in the Pequabuck River watershed.

In the attached 1934 air photo, most of the current forest is forested. Areas that were forested in 1934 were likely pastured over 100 years ago. The property was donated to the town in 1933.

The town ran Page Park downhill skiing in the 50s, 60s, and 70s. The upper remains of the rope town are attached to a pole (see photo). There were two runs from this pole: a northern expert run and a southern main trail. Both are currently maintained open by the town as sledding hills ('Winter Runs' on the attached map). The main run is lined with planted Norway spruce trees that were likely planted to provide cooling shade to keep the snow cover longer. For more information, see the Lost Ski Areas of New England website: <http://www.nelsap.org/ct/pagepark.html>

Connecticut's most popular disc golf course is within the wooded portion of the park (see attached map). It is an 18-basket course with a rating of 4.2 out of 5 stars. In 2023, the 3-acre southeast field was converted to a low-mow naturalized field.

In addition to the 42 acres of forest described below, the property includes 29 acres of developed recreational facilities and 7 acres of fields.

Please see the attached appendix for more information about your forest's history, future, and general recommendations. It also includes an appendix of Latin names for the tree and shrub species.



Top pole of the abandoned rope tow



The old main ski run is now kept open as a sledding hill.

Tree Cover

Most Common

Red Oak

White Oak

Scarlet Oak

Black Oak

Black Birch

Red Maple

Less Common

Hickory

Yellow Birch

Sugar Maple

Hemlock

White Pine

Beech

Tulip Poplar

Sassafras

Norway Spruce (planted)

This forest has a diverse mix of tree species and sizes growing on site conditions that vary with slope position and soil type. The forest is mature, with full canopy closure. There is no canopy midstory to speak of. Within this forest, there are 3 acres of forested wetlands. The far western forest block has the largest trees.

Understory

There are a few maple, beech, birch, oak, hemlock and pine saplings. There are also some high-bush blueberry, low-bush blueberry, huckleberry and mountain laurel shrubs.

Ground Cover

Most areas appear to have thick, healthy leaf litter. There is a good amount of woody material throughout the forest floor. See the Forest Health section below regarding the impact of disc golf.

Forest Health

Beech leaf disease has infected the beech trees. This microscopic nematode from Asia has recently begun to spread throughout the state, and the long-term prognosis for infected beech trees is still unclear. The emerald ash borer has killed the ash trees within the past ten years.

The good tree and shrub species diversity makes this forest more resilient to future disturbances (weather, climate, pests). However, the large deer herd in Connecticut makes growing certain preferred browse of deer, like oak and hickory seedlings, difficult.

A few scattered patches of exotic invasive vegetation grow in the understory along the streams and wetlands, including barberry shrubs and burning bush. Overall, the invasives are minor. Please see the appendix for more information about exotic invasives and their control.

The biggest forest health concern is the large areas of bare soil caused by the many footfalls of disc golf players. This heavy use is causing soil degradation and sheet erosion. The solution is either less foot traffic or covering the heavily used areas with soil-protecting mulch (wood chips, leaves, etc.).

Wildlife Habitat

The many mature oak and hickory trees in your forest are an excellent wildlife habitat asset, especially the acorns and nuts they produce. Having diverse habitat types (forests, fields, wetlands, ponds) that are intimately mixed, as you have, is always good. This forest provides adequate food, water, shelter, cover, and space for much of the wildlife in the area. Please see the appendix for more information about wildlife habitat.

Carbon and Climate Resilience

This mature forest stores a large amount of carbon while sequestering more. Any forest products you produce will help mitigate climate change. Some recommendations are below to make forests more resilient and adaptive to climate change. More information about forest carbon and the forest's ecological services is in the appendix.

Forest Vegetation Recommendations

None



Low-mow naturalized 3-acre southeastern field

CONCLUSION

Here are some possibilities for your forest:

- Contact NRCS and a private forester about doing a forest stewardship plan*
- Properly locate and mark your property boundaries (see appendix)
 - An annual property inspection that includes property boundaries
 - Investigate possible yard encroachment on Page Ave
- Determine and implement a solution for disc golf erosion (see forest health section)
- Enjoy your forest!

*Please consider hiring a forester to help you implement any of the recommendations in this report (see appendix). Cost-share monies might be collected through the Natural Resource Conservation Service (NRCS). Please get in touch with Todd Bobowick at **475-355-3864**. Please feel free to share this report.

New England Forestry Foundation (NEFF) GROH Program (Grow Resilient Oak-Hickory Forests):

Link: [Smaller-Acreage Landowner Enrollment - Enroll now New England Forestry Foundation](#)

This program funds activities like those of the NRCS EQIP program, but unlike NRCS, it will fund municipalities.



Disc golf erosion



WHY IS THE GRASS LONGER HERE?

This area has been designated as a low-mow zone by the Board of Park Commissioners. Low mow zones are intentionally managed areas enhanced with native wildflower seeds, plugs, or blubs to create a natural pollinator meadow. Low Mow Zones have many benefits to the community, including:

Improved habitat for native species of plants and animals, including birds, bees, insects, and butterflies.



Hábitat mejorado para especies nativas de plantas y animales, incluidas las aves, abejas, insectos, y mariposas.

Slow storm-water run-off, improving soil health and hydrology.



Mejora en la salud del suelo y la hidrología a causa del escurrimiento lento de las aguas pluviales

Cooler temperatures in the air benefiting visitors.



Temperaturas más frescas que benefician a los visitantes.

Reduction of carbon emissions during maintenance.



Reducción de emisiones de carbono durante el mantenimiento.

More diverse and naturalized park landscapes for people to enjoy.



Paisajes de parques más diversos y naturalizados para el disfrute de todos.

HOW YOU CAN HELP

If you have a lawn, eliminate or reduce mowing until June.

By allowing grass and native plants to grow, habitat is created for early-season bees and other pollinators, while flower resources are limited.

Replace existing turf lawn with native plant species.

By replacing grass with native species, additional habitat is created for wildlife, water consumption is reduced, and carbon emissions from mowing are decreased.

CÓMO PUEDES AYUDAR

Si tiene césped, elimine o reduzca la frecuencia de cortarlo hasta junio.

Al permitir que crezcan el pasto y las plantas nativas, se crea un hábitat para las abejas de temporada temprana y otros polinizadores, mientras que los recursos de flores son limitados.

Reducir el césped existente con especies de plantas nativas.

Al reemplazar el pasto con especies nativas, se crea un hábitat adicional para la vida silvestre, se reduce el consumo de agua, y se disminuyen las emisiones de carbono causadas por el corte del césped.

Esta área ha sido designada como una zona de corte bajo por la Junta de Comisionados del Parque. Las zonas de corte bajo son intencionales y administradas con el propósito de ser mejoradas con semillas nativas de flores silvestres, tapón de plantas, o plantas bulbosas para crear un prado polinizador.

¿POR QUÉ LA HIERBA ES MÁS LARGA AQUÍ?

Bristol Parks, Recreation, Youth and Community Services | 51 High St. Bristol, CT 06010 | 860-584-6160 | www.bristolrec.com



Interpretive sign at the recently naturalized southeastern field

Page Park
Town of Bristol
651 King Street

Prepared by David Beers
CT DEEP Service Forester
3/25/2025



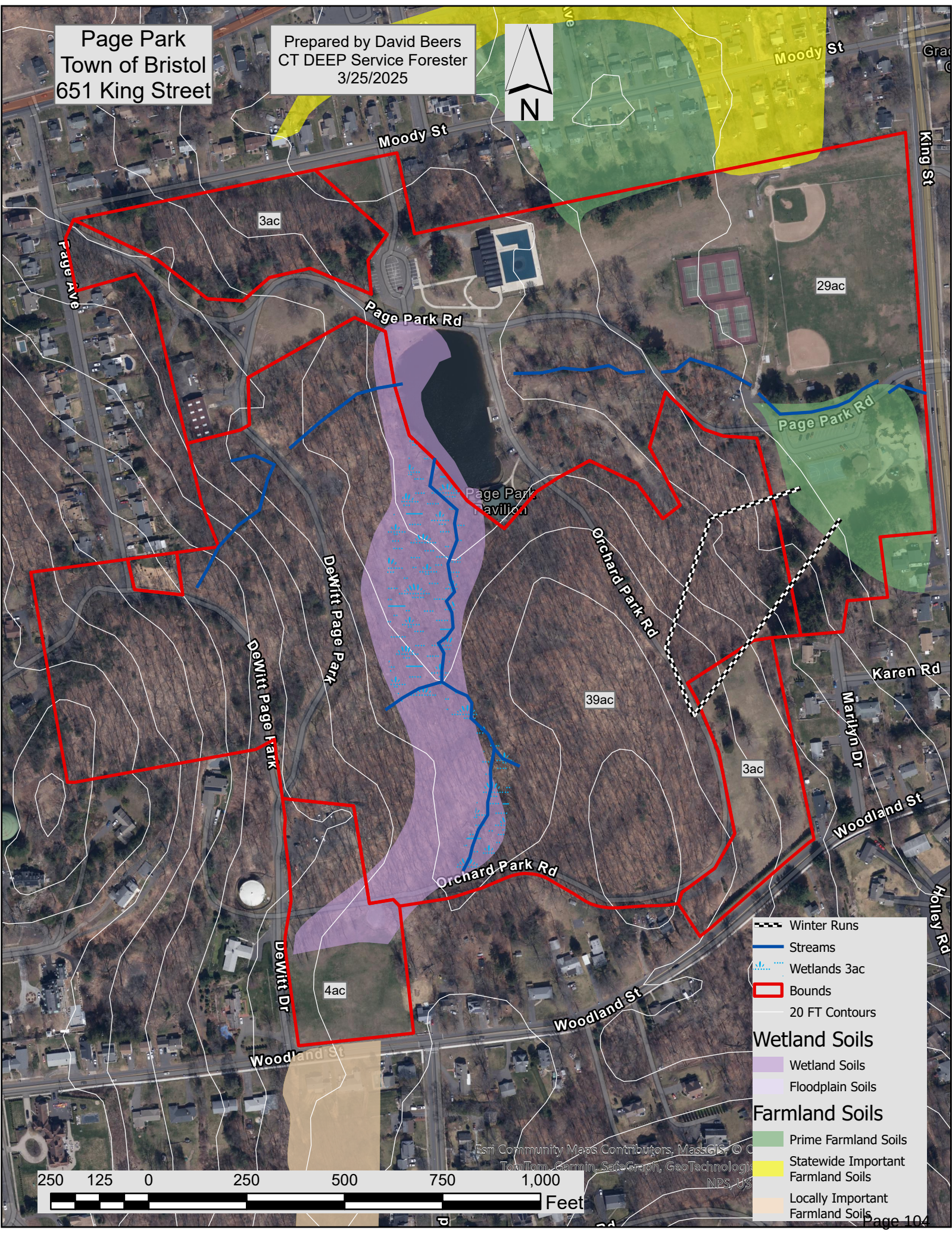
- Winter Runs
- Streams
- Wetlands 3ac
- Bounds
- 20 FT Contours

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250 125 0 250 500 750 1,000 Feet

Page Park
Town of Bristol
651 King Street

Prepared by David Beers
CT DEEP Service Forester
3/25/2025



- Winter Runs
- Streams
- Wetlands 3ac
- Bounds
- 20 FT Contours

Wetland Soils

- Wetland Soils
- Floodplain Soils

Farmland Soils

- Prime Farmland Soils
- Statewide Important Farmland Soils
- Locally Important Farmland Soils

250 125 0 250 500 750 1,000 Feet

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TomTom, Garmin, SafeGraph, GeoTechnology
NPS, US

Page Park
Town of Bristol
651 King Street

Prepared by David Beers
CT DEEP Service Forester
3/25/2025
1934 Air Photo



3ac

29ac

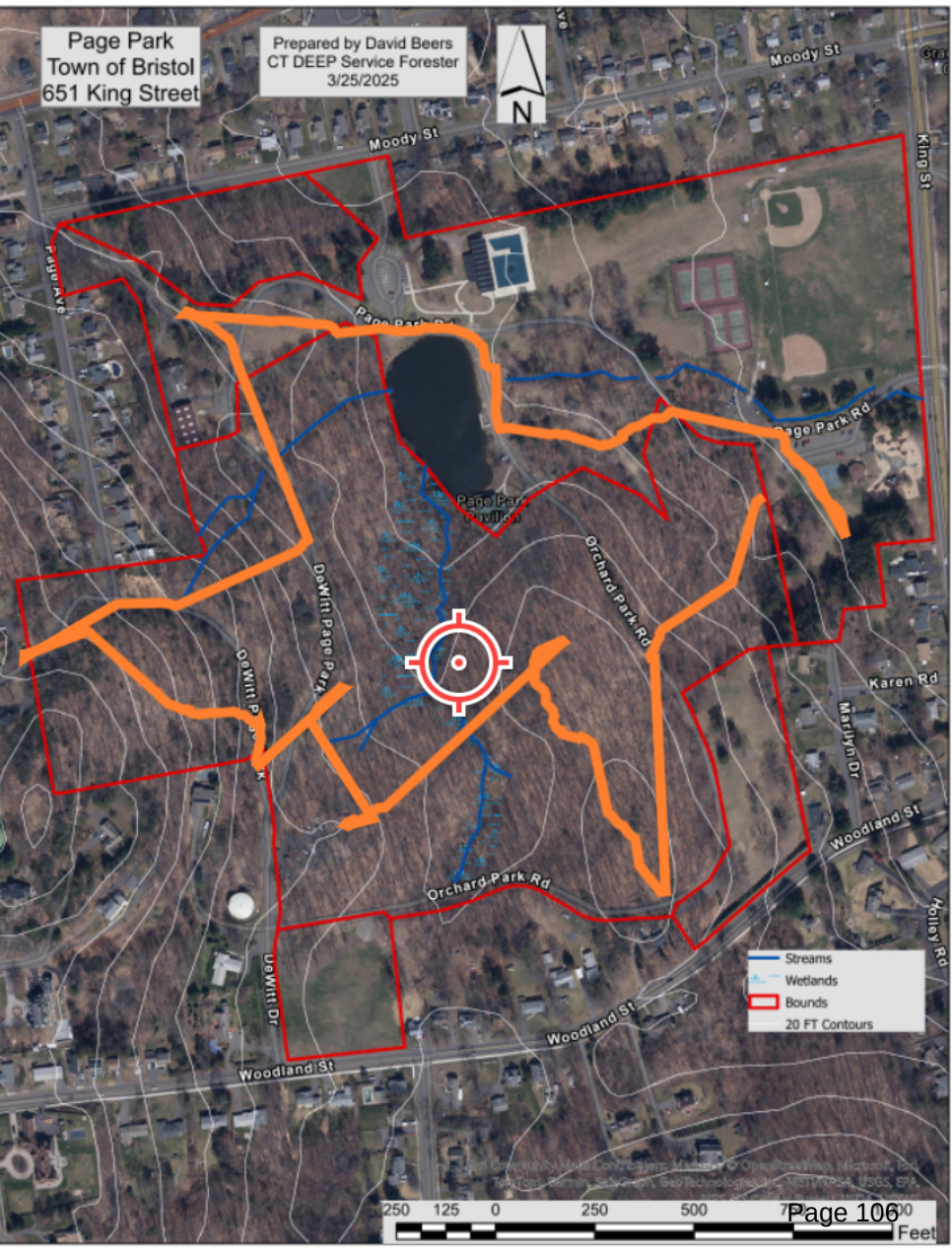
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250 125 0 250 500 750 1,000
Feet

UConn MAGIC



- Streams
- Wetlands
- Bounds
- 20 FT Contours





APPENDIX

FOREST HISTORY

Between eighteenth-century colonial settlement and the mid-nineteenth century, most of Connecticut was cleared for agriculture, with only a few small patches of forest remaining by the mid-nineteenth century. Only 25% of Connecticut was forested in 1830. Under these conditions, a muskrat was the largest animal in the woods. Turkeys, deer, bobcats, beavers, and bears were either rare or gone. Most of the land was used for livestock pasture, with only the best soils used for hay or tilled crops. Imagine a very open agricultural landscape.

During this farming period, the stonewalls were built to keep livestock out of crops and the neighbor's property. Most of these walls were topped off with piled wood and stumps to make them taller. Stonewalls were also a depository for rocks removed from cultivated land. A stonewall with many fist-sized rocks means that one side of that wall had tilled crops, where the winter freeze of bare ground would push rocks to the surface. After barbed wire became widely available in 1875, many of these walls were supplemented with wire. Barbed wire was used to corral cows and goats, but not sheep (barbs did not hurt the sheep). Sheep pasture used smooth-wired rectangular page fencing.

Most Connecticut hill farms were abandoned between the mid-nineteenth and early twentieth centuries. The farmers either moved west for better farming soils or headed to the cities for work. Immediately after this farm abandonment, the forest began to take over again. Much of the young forestlands were then cut down repeatedly to make charcoal, which was used to fuel industrialization. Charcoal was used in metal blast furnaces and by blacksmiths.

Small trees were cut into 4' lengths and carried by hand to make a circular pile about 30' wide and 10' high for charcoal making. A ditch was dug around the circumference of the pile, and the soil from the ditch covered the pile to limit the amount of oxygen in the smoldering pile. Once the low-oxygen burn was completed in two weeks, the almost pure carbon charcoal was removed for transport to market. Charcoal produces the hot fire needed for metalworking.

While this charcoal-making process had occurred since settlement, it came to a crescendo between 1880 and 1920. At that time, much of the landscape was cut multiple times, with patches of smoke rising from active charcoal mounds across the hills. By about 1925, less expensive coal had ended charcoal making, and the forest again began growing back. The repetitive cutting of young trees for charcoal encouraged the proliferation of oak trees. Of all the tree species, oak responded best to the repetitive cutting. This, along with frequent wildfires, helped give rise to the oak-dominated forest we see today.

The 1934 map is attached. Please remember that you need to mentally adjust the map because the map scale projection does not exactly match what we use today. To see what ancestral homeland existed on your property before settlement, please visit Native-Land.ca, and type in your address.

FOREST FUTURE

Active forest management can nudge a forest in different directions by manipulating which trees continue to grow and how much the forest floor is exposed to sunlight by creating canopy openings of various sizes and shapes. For example, we can nudge the future forest towards oak by leaving oaks to grow and produce acorns, creating canopy openings of sufficient size to bring in the sunlight young oaks need to grow, and hunting the deer that eat young oak trees. Without these manipulations and significant natural disturbances (wind, ice, pests), the forest will gradually transition to shade-tolerant trees not eaten by deer (hemlock, beech, black birch and red maple).

Forest Protection

For more long-term protection, a conservation easement on part of the property could be donated to a local land trust to prevent development in perpetuity. The easement's value might be income tax deductible over many years, and there may also be estate tax benefits.

1. Please contact your local land trusts for more information using this link: [Find A Land Trust - Connecticut Land Conservation Council \(ctconservation.org\)](https://www.ctconservation.org/).
2. Please contact NRCS about HFRP (Healthy Forest Reserve Program) for conservation easement funding using this link: [NRCS Accepting Applications for HFRP Program | Natural Resources Conservation Service \(usda.gov\)](https://www.usda.gov/nrcs/accepting-applications-for-hfrp-program).
3. Another good link is [Estate Planning Resources and the Forest Legacy Program \(ct.gov\)](https://www.ct.gov/estateplanning).

Diversity

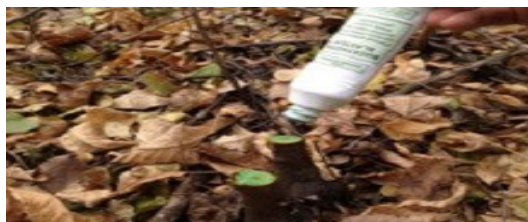
A healthy forest has a large diversity of native plant species, particularly trees that support a diverse array of fungi and wildlife (animals, insects, microbes). A healthy forest also has multiple layers of native vegetation to maximize biodiversity and structural complexity. This means having trees of different ages, diameters, and heights. A healthy forest has standing dead trees (snags) and dead downed wood as essential habitat elements, and to hold moisture during droughts. A healthy forest is resilient because it can better recover from diseases, pests, and extreme weather events. Increasing species and structural diversity of this forest provides multiple recovery pathways from disturbance.

To improve forest landscape diversity, consider establishing some patches of young forest. With over 89 birds, mammals, and reptiles that need young forest habitats, the young forest is nature's pantry for wildlife due to its abundance of insects and berries. It also provides our mature woodland wildlife with important food and cover at critical times of the year. Ideally, 5-10% of our landscape should be young forest. Unfortunately, our landscape rarely has this much young forest because we prevent such forests from forming naturally via beaver activity, fires and floods. We can mimic natural disturbances with well-planned forest stewardship activities to create patches of young forest. Please visit [YoungForest.org](https://www.YoungForest.org) | [a fresh way to create wildlife habitat](#).

Invasives/vines

Invasive species are typically from another part of the world, and when established here, they have no native enemies to hold their population in check. When left uncontrolled, they out-compete what would grow naturally, including tree regeneration and other native understory vegetation. Native understory growth has many more native insects and arthropods that wildlife needs to forage on. It also provides more nutrient-rich berries for birds. Exotic invasive understory growth can provide a better habitat for ticks and associated pathogens while significantly reducing biodiversity. Please see: [Home | Connecticut Invasive Plant Working Group \(uconn.edu\)](https://www.uconn.edu/invasive-plant-working-group/) and https://www.conservect.org/wp-content/uploads/2021/06/Invasive_guide_2020_web.pdf

Control methods include mechanical and chemical processes. In a shady forest, cutting a vine is enough to kill it. Invasive shrubs are not so easy. Pulling the invasives out by the roots can be effective, but extremely difficult and labor intensive. Yearly cutting back of the aboveground stems, during the growing season, will keep the invasives under control, and perhaps kill them after a few years. The most effective control method is applying herbicide to the green foliage. You can also cut the invasive shrubs and treat the fresh stumps with herbicides to prevent resprouting.



Buckthorn Blaster herbicide applicator for vine and invasive shrub eradication

Lawns and fields

Fields provide an opportunity to help pollinators and native insects. Insects, pollinators (bees, butterflies, moths,

beetles, flies, wasps, hummingbirds), and the many birds that depend on them, are severely declining. By delaying annual mowing until after the first hard frost in October and before the beginning of plant growth in the spring, you will allow pollinators to use your fields for food and habitat during the growing season. Another habitat management strategy is to mow one-third to one-half each year on a rotational schedule. This allows some insects to overwinter in the uncut plant stalks and provide birds with much-needed winter food. For this reason, late winter mowing is best. Please remember that healthy meadows store more than double the carbon of a mowed lawn.

There are also many opportunities to create pollinator-friendly habitats/food by adding native plantings, allowing lawn areas to go natural, and leaving leaves and needles to cover the ground. Insects will overwinter in leaf litter and uncut plant stalks. Birds will pick through the winter leaves for insects. For more information, please visit: [Pollinator Pathway \(pollinator-pathway.org\)](http://Pollinator Pathway (pollinator-pathway.org)). And here is an excellent link regarding native plantings: <https://www.audubon.org/native-plants>.

Boundaries

Boundaries must be well-marked to protect the property from trespass and encroachment. Painted blazes are typically used to mark property boundaries. A blaze is a hand-sized shallow scrape in the bark. This scrape will last decades and not harm the tree if done correctly. When painted, this blaze is quite visible and long-lasting. Trees within arm's length of the boundaries are blazed, with the blazes facing the boundary line. Use only paint marks on the neighbor's side of the line, without blazes. The blazes should be given a new coat of paint at least every ten years. Custom signs can also be hung about every 100 feet using galvanized steel or aluminum nails. Keep the nails sticking out an inch from the tree so that the tree has room to grow without pushing out the signs. Understory vegetation and debris can be cleared from boundary lines to traverse the lines for inspection easily. Please consider hiring a forester to locate and mark property boundaries.

Wildlife

Your forest, and the State of Connecticut in general, is lucky to have a significant and diverse component of mature oak trees (mature trees have reached maximum height). Oak trees are considered a wildlife keystone species because of the large amount and diversity of life they support – more than any other tree. Acorns, especially white oak acorns, provide the most nutritious plant-based protein for almost 90 wildlife species. Oaks overwhelmingly host the most moth and butterfly caterpillars (over 500), which anchor a biodiverse food web. Oak forests have more bird abundance and diversity compared to other forest types. Oaks produce the thickest, most ecologically beneficial, and longest-lasting leaf litter with the most abundant and diverse soil biology. This top-of-the-line leaf litter can keep out invasive exotic stilt grass and jumping worms. It also purifies and holds the most water. For these reasons, preserving and encouraging oak growth and health in your forest is important.

Parts of this forest have legacy trees, also known as old field trees or wolf trees. These trees were growing in open pastures as a source of shade for livestock before the current forest started growing. They are much older than the surrounding forest. Because they used to be open-grown, they have large spreading crowns and large branches low on the trunk. When the pastures were abandoned, they became a significant seed source for the present forest. These large old trees are structurally complex, with many cavities, hollows, fat branches, and thick, rough bark. They are also prolific seed producers, including acorns and nuts. This structural complexity and prolific seed production attract an enormous number and diversity of insects, birds, and mammals. Underground, the old trees are also the hub and source of the complex fungal soil mycorrhizal growth that all trees depend on for water and nutrients. To make them healthier and more vigorous, such legacy trees could be protected and perhaps even given more sunlight by cutting some surrounding trees. These agrarian vestiges have become the ecological hubs in your forest. They are also a great source of future large snags and large dead, downed wood.

Ecological Services and Climate Change Mitigation

Forests remove carbon dioxide from the atmosphere (called sequestration), create oxygen, and remove many pollutants from the air and water. Forests absorb heavy rains and release that water to streams and underground aquifers during droughts. Forests regulate temperature and moisture levels. Your forest contributes to these valuable services with carbon stored in the below-ground roots/soil and in the above-ground vegetation, dead wood, and fallen leaves. These services are enhanced by having a diverse mix of native tree species of different sizes and varied arrangements. Sustainable, scientifically based forest management to remove forest products and promote young forests or regeneration of desired species has no long-term adverse effect on your forest's ability to provide these vital ecological services. When trees are young and growing fast, they sequester carbon at high rates, and once they are large (over 18" in diameter and often older), they store the most carbon. Whether you choose to manage your forest actively or not, your forest does an excellent service to our planet's health just by being a healthy forest.

Forests store carbon in different pools, and the amount of carbon in these pools changes over time. The pools are the live aboveground (trees, shrubs and other plants), live belowground (roots and fungi), deadwood (standing dead trees [snags] and downed logs, litter (leaves, needles and small branches) and soil organic matter. Sequestration is the process by which forests remove carbon dioxide from the atmosphere, primarily via tree photosynthesis. A younger forest (10-60 years old) stores relatively little carbon but is likely at or near its peak sequestration rate. An older, more mature forest (60+ years old) stores more carbon, with a gradually slowing sequestration rate. A mix of sequestration and storage in multi-aged forests creates a resilient carbon profile. Please remember that using and harvesting local wood is an integral part of climate mitigation and a vital tool to improve the resiliency of our forests to climate change.

Mapping

Attached to this report is a geo-referenced map that the landowner can use with mapping apps. This digital map shows the landowner's location on the property, and the landowner can also record tracks and waypoints.

1. To get map layers and to view maps, please visit [CT ECO Home \(cteco.uconn.edu\)](http://cteco.uconn.edu).
2. To get soil maps, and associated soil descriptions, please visit [Web Soil Survey - Home \(usda.gov\)](http://websoilsurvey.sc.egov.usda.gov) and follow the instructions on the first page of this website.
3. For instruction, please see [Tutorials | Center for Land Use Education and Research \(uconn.edu\)](http://tutorials.cluor.uconn.edu).

Getting Assistance

Here is a link to a list of private foresters in the state:

<https://www.ctwoodlands.org/master-woodland/ct-forestry-services-directory>

Here is a list of every licensed forester in CT: <https://www.depdata.ct.gov/forestry/ForestPractitioner/directry.pdf>

Also, we are looking for applicants for the Master Woodland Manager certification (MWM). Here is a link for MWM: [Connecticut Master Woodland Manager Program | Connecticut Forest & Park Association \(ctwoodlands.org\)](http://ctwoodlands.org/connecticut-master-woodland-manager-program)

To learn more about NRCS' EQIP funding Program, click [NRCS EQIP Program Help](#)

New England Forestry Foundation (NEFF) GROH Program (Grow Resilient Oak-Hickory Forests):

Link: [Smaller-Acreage Landowner Enrollment - Enroll now New England Forestry Foundation](#)

This program funds activities like those of the NRCS EQIP program, but unlike NRCS, it will fund municipalities.

Visit CT DEEP's grants website: [Grants and Financial Assistance](#)

Wildlife habitat projects: [Partners for Fish and Wildlife | U.S. Fish & Wildlife Service](#)

To prevent erosion and water quality issues: [Best Management Practices Manual](#)



APPENDIX OF LATIN NAMES

TREES

Red Oak	<i>Quercus rubra</i>	Eastern Hemlock	<i>Tsuga canadensis</i>
Tulip-Poplar	<i>Liriodendron tulipifera</i>	Aspen	<i>Populus</i> sp.
Red Maple	<i>Acer rubrum</i>	Blackgum	<i>Nyssa sylvatica</i>
Black Birch	<i>Betula lenta</i>	Yellow Birch	<i>Betula alleghaniensis</i>
White Oak	<i>Quercus alba</i>	Chestnut Oak	<i>Quercus montana</i>
Hickory	<i>Carya</i> Sp.	Black Cherry	<i>Prunus serotina</i>
Black Oak	<i>Quercus velutina</i>	White Pine	<i>Pinus strobus</i>
Scarlet Oak	<i>Quercus coccinea</i>	Sassafras	<i>Sassafras albidum</i>
American Beech	<i>Fagus grandifolia</i>	Paper Birch	<i>Betula papyrifera</i>
Sugar Maple	<i>Acer saccharum</i>	White Ash	<i>Fraxinus americana</i>
Sycamore	<i>Platanus occidentalis</i>	Eastern Redcedar	<i>Juniperus virginiana</i>
Slippery Elm	<i>Ulmus rubra</i>	Basswood	<i>Tilia americana</i>
Pitch Pine	<i>Pinus rigida</i>	Gray Birch	<i>Betula populifolia</i>

NATIVE UNDERSTORY

Eastern Hophornbeam	<i>Ostrya virginiana</i>	Spicebush	<i>Lindera benzoin</i>
Musclewood	<i>Carpinus caroliniana</i>	Witch Hazel	<i>Hamamelis virginiana</i>
Serviceberry	<i>Amelanchier</i> Sp	Mountain Laurel	<i>Kalmia latifolia</i>
Lowbush blueberry	<i>Vaccinium angustifolium</i>	Huckleberry	<i>Gaylussacia baccata</i>
Highbush Blueberry	<i>Vaccinium corymbosum</i>	Sweet Pepperbush	<i>Clethra alnifolia</i>
Striped Maple	<i>Acer pensylvanicum</i>	Holly	<i>Smilax</i>
Hobblebush	<i>Viburnum lantanoides</i>	Greenbrier	<i>Ilex</i>
Maple-leaf Viburnum	<i>Viburnum acerifolium</i>		

EXOTIC INVASIVES

Barberry	<i>Berberis</i> Sp.	Burning Bush	<i>Euonymus alatus</i>
Multi-flora Rose	<i>Rosa multiflora</i>	Bittersweet	<i>Celastrus orbiculatus</i>
Privet	<i>Ligustrum</i> Sp	Honeysuckle	<i>Lonicera</i> Sp
Russian Olive	<i>Elaeagnus angustifolia</i>	Tree-of-Heaven	<i>Ailanthus altissima</i>



Connecticut
**Department of Energy &
Environmental Protection**

**Field Visit to Pine Lake at 100 Birch Street – City of Bristol Parks Department
Post Visit Report**

Present Parties: David Beers (Western District Service Forester) on 4/28/2025 from 12-2

Stewardship Objectives

1. Improve forest health
2. Recreation enhancement
3. Wildlife habitat improvement



East Entrance



North Fishing

PROPERTY OVERVIEW

The property has public road frontage on Birch Street to the east, Emmett Street to the west and Pine Street to the north. Public access for hiking and the adventure park is at a new parking lot along Birch Street. There are more hiking trails than are shown on the map. The park is surrounded primarily by residential and commercial development in an urban/suburban landscape. No protected open space abuts the property.

This forest is part of a small core forest block having less than 250 acres of contiguous forest. Core forests are large tracts of unbroken forest that provide a much more stable home for plant and animal species, thereby protecting biodiversity. They are forested areas surrounded by more forested areas.

The CT DEEP Natural Diversity Database (NDDDB) does have occurrences of threatened or endangered species on or near this property. Maps showing wetland and farmland soils and the NDDDB area are attached to this report. The NDDDB area is at the northern end of the property. This property is in the Farmington River watershed.

The attached 1934 air photo shows the property as a mix of fields, forests and brush. Areas that were forested in 1934 were likely pastured over 100 years ago. The town acquired the property in the late 1960s.

In addition to the 48 acres of open space described below, the property includes 12 acres of soccer fields and associated parking. Public trails are throughout the property. Malone's Pond (aka Pine Lake) and its associated wetlands are the central feature of the property and occupy 24 acres. A public fishing area is on Pine Street, on the north edge of the pond. The central pine forest along the west shore of the pond has a high ropes course called Pine Lake Adventure Park.

Please see the attached appendix for more information about your forest's history, future, and general recommendations. It also includes an appendix of Latin names for the tree and shrub species.



Tree Cover

Most Common

Scarlet Oak
White Oak
White Pine
Pitch Pine
Red Maple

Common

Red Oak
Black Oak
Black Cherry
Yellow Birch

Uncommon

Norway Maple (exotic)
Cottonwood
Black Gum
Aspen
Black Birch
Paper Birch
Grey Birch
Hemlock

This forest has a diverse mix of tree species and sizes growing on site conditions that vary with soil type. While most of the forest is mature, with full canopy closure, a few open brushy areas exist in the wetlands and west of the pine forest. Within this forest are 24 acres of lake, marsh, shrub swamp and red maple swamp wetlands, so about 24 acres of dry forest.

The central white pine forest has impressive trees, with many trees over 20" in diameter and well over 100' tall. The high ropes course occupies most of the pine forest. While most of the pines appear healthy, given the area's high use, an arborist should inspect the trees annually to determine if any health or structural issues (rot) need to be addressed.

Understory

A few red maple, pine, oak and black birch saplings exist. There are also some serviceberry shrubs, high-bush blueberry shrubs, low-bush blueberry shrubs, and huckleberry shrubs, with some areas of thick spicebush shrubs in the wetter lowlands.

Ground Cover

In areas with thick invasives, the leaf litter is degraded and thin. Areas free of invasives appear to have thick, healthy leaf litter. There is a good amount of woody material throughout the forest floor.

Forest Health

Beech leaf disease has infected the beech trees. This microscopic nematode from Asia has recently begun to spread throughout the state, and the long-term prognosis for infected beech trees is still unclear. The emerald ash borer has killed the ash trees over the past ten years.

The canopy structural diversity and the good tree and shrub species diversity make this forest more resilient to future disturbances (weather, climate, pests). The large deer herd in Connecticut makes growing certain preferred browse of deer, like oak and hickory seedlings, difficult.

Patches of exotic invasive vegetation grow in the understory, including barberry shrubs, multiflora rose shrubs, burning bush, Russian olive shrub, knotweed, and bittersweet vines. Vines and invasives are thick in the ~4 acres of moist brushy forest just west of the pine and north of the soccer fields. A patch of thick burning bush is north of the new parking area. Invasives are also thick along sunny edges. Please see the appendix for more information about exotic invasives and their control.

Wildlife Habitat

Your forest's many mature oak trees are an excellent wildlife habitat asset, especially the acorns and nuts they produce. Having diverse habitat types (brushy, mature, lake, marsh, shrub swamp, red maple swamp, pine) intimately mixed, as you have, is always good. Your forest provides adequate food, water, shelter, cover, and space for much of the wildlife in

the area. Please see the appendix for more information about wildlife habitat.

Carbon and Climate Resilience

This mature forest stores a large amount of carbon while sequestering more. Any forest products you produce will help mitigate climate change. Some recommendations are below to make forests more resilient and adaptive to climate change. More information about forest carbon and the forest's ecological services is in the appendix.

Forest Vegetation Recommendations

West of the pine forest: The tree-hanging vines reduce the vigor of the mature trees by shading and choking their upper canopy, strangling stems and branches, and perhaps even pulling down tree branches. I recommend cutting these vines with a handsaw or chainsaw. This cutting could be done during the growing season when the energy stores of the vines are above ground. Two cuts should be made at least 4' apart to prevent vine reconnection and to create an open window where new vines have nothing to grab onto (eliminate laddering opportunities). The cut vines will not survive in shaded areas. To be extra sure, you can treat the freshly cut rooted end with an herbicide immediately after cutting – see photo of the buckthorn blaster in the appendix.

There are some pitch pine trees in your forest. Pitch pine is an increasingly rare tree in Connecticut because it cannot grow in shade, it needs dry sandy soils and traditionally, its young growth depends on ground fire or hot sunny ground conditions for the cones to open and seed the soil. We now keep ground fires in check for the most part, such that young pitch pine growth is rare. Like most of Connecticut, your few pitch pine trees are gradually shaded and outcompeted by the surrounding oak and white pine trees. While I do not suggest starting a fire in your woods, we can assist in the survival of pitch pine by cutting down the competing trees around each pitch pine tree to give them more room to grow and thrive in more sunlight. Such crop tree thinning work will also help prevent the southern pine beetle from attacking pitch pine trees by providing more tree crown airflow. This air flow will help prevent the beetle pheromone plumes that attract more beetles to attack pitch pine trees in mass. This thinning work around each pitch pine can be done as part of a timber harvest or non-commercially by either felling or girdling trees, which are immediately adjacent to each pitch pine tree (crown-touching trees removed).

I recommend building wildlife brush piles with the woody debris from the pitch pine tree crop tree release work described above. This is a good use of woody debris and could be done by volunteers. This practice creates cover for many songbirds, small mammals, reptiles, and amphibians. It provides areas for nesting, resting, escape from predators, and protection from harsh weather conditions. Brush pile construction specifications are attached to this report.



CONCLUSION

Here are some possibilities for your forest:

- Contact NRCS and a private forester about doing a forest stewardship plan*
- Properly locate and mark your property boundaries (see appendix)
 - An annual property inspection that includes property boundaries
- Cut tree-hanging vines west of the pine forest (see appendix)
- Crop tree release of pitch pine trees
 - Create wildlife brush piles with woody debris
- Annual arborist inspection of trees in the high ropes course
- Address illegal dumping in the soccer parking lot
 - Add boulders to either side of the gate to prevent vehicle access

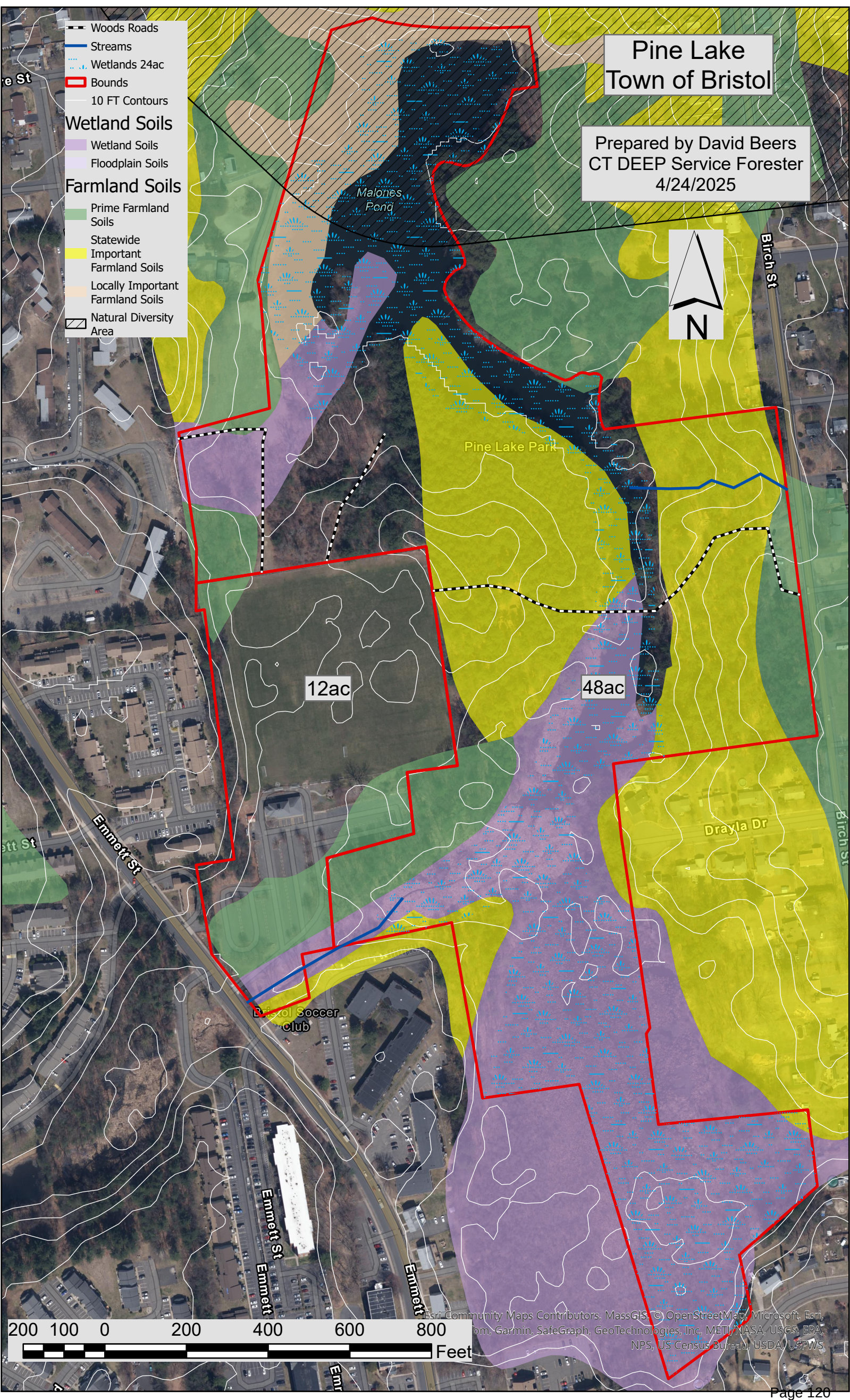
*Please consider hiring a forester to help you implement any of the recommendations in this report (see appendix). Please feel free to share this report.



A patch of pitch pine trees







Pine Lake
Town of Bristol

Prepared by David Beers
CT DEEP Service Forester
4/24/2025



- Woods Roads
- Streams
- Wetlands 24ac
- Bounds
- 10 FT Contours
- Wetland Soils**
 - Wetland Soils
 - Floodplain Soils
- Farmland Soils**
 - Prime Farmland Soils
 - Statewide Important Farmland Soils
 - Locally Important Farmland Soils
 - Natural Diversity Area

Pine Lake Park

Malones Pond

12ac

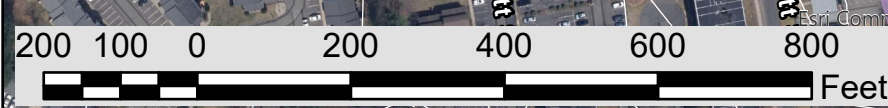
48ac

Drayla Dr

Bristol Soccer Club

Emmett St

Emmett



Esri, Community Maps Contributors, MassGIS, © OpenStreetMap, Microsoft, Esri, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA/USFWS

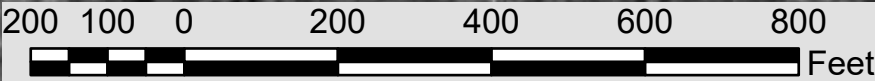
Pine Lake
Town of Bristol

Prepared by David Beers
CT DEEP Service Forester
4/24/2025
1934 Air Photo



12ac

48ac



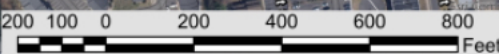
Pine Lake
Town of Bristol
55 Acres



Prepared by David Beers
CT DEEP Service Forester
4/24/2025



- Stonewalls
- Trails
- Streams
- Wetlands 24ac
- Bounds
- 10 FT Contours





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Black Oak	<i>Quercus velutina</i>	White Pine	<i>Pinus strobus</i>
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NATIVE UNDERSTORY

Eastern Hophornbeam	<i>Ostrya virginiana</i>	Spicebush	<i>Lindera benzoin</i>
Musclewood	<i>Carpinus caroliniana</i>	Witch Hazel	<i>Hamamelis virginiana</i>
Serviceberry	<i>Amelanchier</i> Sp	Mountain Laurel	<i>Kalmia latifolia</i>
Lowbush blueberry	<i>Vaccinium angustifolium</i>	Huckleberry	<i>Gaylussacia baccata</i>
Highbush Blueberry	<i>Vaccinium corymbosum</i>	Sweet Pepperbush	<i>Clethra alnifolia</i>
Striped Maple	<i>Acer pensylvanicum</i>	Holly	<i>Smilax</i>
Hobblebush	<i>Viburnum lantanoides</i>	Greenbrier	<i>Ilex</i>
Maple-leaf Viburnum	<i>Viburnum acerifolium</i>		

EXOTIC INVASIVES

Barberry	<i>Berberis</i> Sp.	Burning Bush	<i>Euonymus alatus</i>
Multi-flora Rose	<i>Rosa multiflora</i>	Bittersweet	<i>Celastrus orbiculatus</i>
Privet	<i>Ligustrum</i> Sp	Honeysuckle	<i>Lonicera</i> Sp
Russian Olive	<i>Elaeagnus angustifolia</i>	Tree-of-Heaven	<i>Ailanthus altissima</i>



APPENDIX

FOREST HISTORY

Between eighteenth-century colonial settlement and the mid-nineteenth century, most of Connecticut was cleared for agriculture, with only a few small patches of forest remaining by the mid-nineteenth century. Only 25% of Connecticut was forested in 1830. Under these conditions, a muskrat was the largest animal in the woods. Turkeys, deer, bobcats, beavers, and bears were either rare or gone. Most of the land was used for livestock pasture, with only the best soils used for hay or tilled crops. Imagine a very open agricultural landscape.

During this farming period, the stonewalls were built to keep livestock out of crops and the neighbor's property. Most of these walls were topped off with piled wood and stumps to make them taller. Stonewalls were also a depository for rocks removed from cultivated land. A stonewall with many fist-sized rocks means that one side of that wall had tilled crops, where the winter freeze of bare ground would push rocks to the surface. After barbed wire became widely available in 1875, many of these walls were supplemented with wire. Barbed wire was used to corral cows and goats, but not sheep (barbs did not hurt the sheep). Sheep pasture used smooth-wired rectangular page fencing.

Most Connecticut hill farms were abandoned between the mid-nineteenth and early twentieth centuries. The farmers either moved west for better farming soils or headed to the cities for work. Immediately after this farm abandonment, the forest began to take over again. Much of the young forestlands were then cut down repeatedly to make charcoal, which was used to fuel industrialization. Charcoal was used in metal blast furnaces and by blacksmiths.

Small trees were cut into 4' lengths and carried by hand to make a circular pile about 30' wide and 10' high for charcoal making. A ditch was dug around the circumference of the pile, and the soil from the ditch covered the pile to limit the amount of oxygen in the smoldering pile. Once the low-oxygen burn was completed in two weeks, the almost pure carbon charcoal was removed for transport to market. Charcoal produces the hot fire needed for metalworking.

While this charcoal-making process had occurred since settlement, it came to a crescendo between 1880 and 1920. At that time, much of the landscape was cut multiple times, with patches of smoke rising from active charcoal mounds across the hills. By about 1925, less expensive coal had ended charcoal making, and the forest again began growing back. The repetitive cutting of young trees for charcoal encouraged the proliferation of oak trees. Of all the tree species, oak responded best to the repetitive cutting. This, along with frequent wildfires, helped give rise to the oak-dominated forest we see today.

The 1934 map is attached. Please remember that you need to mentally adjust the map because the map scale projection does not exactly match what we use today. To see what ancestral homeland existed on your property before settlement, please visit Native-Land.ca, and type in your address.

FOREST FUTURE

Active forest management can nudge a forest in different directions by manipulating which trees continue to grow and how much the forest floor is exposed to sunlight by creating canopy openings of various sizes and shapes. For example, we can nudge the future forest towards oak by leaving oaks to grow and produce acorns, creating canopy openings of sufficient size to bring in the sunlight young oaks need to grow, and hunting the deer that eat young oak trees. Without these manipulations and significant natural disturbances (wind, ice, pests), the forest will gradually transition to shade-tolerant trees not eaten by deer (hemlock, beech, black birch and red maple).

Forest Protection

For more long-term protection, a conservation easement on part of the property could be donated to a local land trust to prevent development in perpetuity. The easement's value might be income tax deductible over many years, and there may also be estate tax benefits.

1. Please contact your local land trusts for more information using this link: [Find A Land Trust - Connecticut Land Conservation Council \(ctconservation.org\)](https://www.ctconservation.org/).
2. Please contact NRCS about HFRP (Healthy Forest Reserve Program) for conservation easement funding using this link: [NRCS Accepting Applications for HFRP Program | Natural Resources Conservation Service \(usda.gov\)](https://www.usda.gov/nrcs/conservation/healthy-forest-reserve-program).
3. Another good link is [Estate Planning Resources and the Forest Legacy Program \(ct.gov\)](https://www.ct.gov/estateplanning).

Diversity

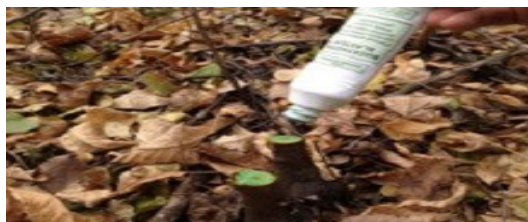
A healthy forest has a large diversity of native plant species, particularly trees that support a diverse array of fungi and wildlife (animals, insects, microbes). A healthy forest also has multiple layers of native vegetation to maximize biodiversity and structural complexity. This means having trees of different ages, diameters, and heights. A healthy forest has standing dead trees (snags) and dead downed wood as essential habitat elements, and to hold moisture during droughts. A healthy forest is resilient because it can better recover from diseases, pests, and extreme weather events. Increasing species and structural diversity of this forest provides multiple recovery pathways from disturbance.

To improve forest landscape diversity, consider establishing some patches of young forest. With over 89 birds, mammals, and reptiles that need young forest habitats, the young forest is nature's pantry for wildlife due to its abundance of insects and berries. It also provides our mature woodland wildlife with important food and cover at critical times of the year. Ideally, 5-10% of our landscape should be young forest. Unfortunately, our landscape rarely has this much young forest because we prevent such forests from forming naturally via beaver activity, fires and floods. We can mimic natural disturbances with well-planned forest stewardship activities to create patches of young forest. Please visit [YoungForest.org](https://www.YoungForest.org) | [a fresh way to create wildlife habitat](#).

Invasives/vines

Invasive species are typically from another part of the world, and when established here, they have no native enemies to hold their population in check. When left uncontrolled, they out-compete what would grow naturally, including tree regeneration and other native understory vegetation. Native understory growth has many more native insects and arthropods that wildlife needs to forage on. It also provides more nutrient-rich berries for birds. Exotic invasive understory growth can provide a better habitat for ticks and associated pathogens while significantly reducing biodiversity. Please see: [Home | Connecticut Invasive Plant Working Group \(uconn.edu\)](https://www.uconn.edu/invasive-plant-working-group/) and https://www.conservect.org/wp-content/uploads/2021/06/Invasive_guide_2020_web.pdf

Control methods include mechanical and chemical processes. In a shady forest, cutting a vine is enough to kill it. Invasive shrubs are not so easy. Pulling the invasives out by the roots can be effective, but extremely difficult and labor intensive. Yearly cutting back of the aboveground stems, during the growing season, will keep the invasives under control, and perhaps kill them after a few years. The most effective control method is applying herbicide to the green foliage. You can also cut the invasive shrubs and treat the fresh stumps with herbicides to prevent resprouting.



Buckthorn Blaster herbicide applicator for vine and invasive shrub eradication

Lawns and fields

Fields provide an opportunity to help pollinators and native insects. Insects, pollinators (bees, butterflies, moths,

beetles, flies, wasps, hummingbirds), and the many birds that depend on them, are severely declining. By delaying annual mowing until after the first hard frost in October and before the beginning of plant growth in the spring, you will allow pollinators to use your fields for food and habitat during the growing season. Another habitat management strategy is to mow one-third to one-half each year on a rotational schedule. This allows some insects to overwinter in the uncut plant stalks and provide birds with much-needed winter food. For this reason, late winter mowing is best. Please remember that healthy meadows store more than double the carbon of a mowed lawn.

There are also many opportunities to create pollinator-friendly habitats/food by adding native plantings, allowing lawn areas to go natural, and leaving leaves and needles to cover the ground. Insects will overwinter in leaf litter and uncut plant stalks. Birds will pick through the winter leaves for insects. For more information, please visit: [Pollinator Pathway \(pollinator-pathway.org\)](http://Pollinator Pathway (pollinator-pathway.org)). And here is an excellent link regarding native plantings: <https://www.audubon.org/native-plants>.

Boundaries

Boundaries must be well-marked to protect the property from trespass and encroachment. Painted blazes are typically used to mark property boundaries. A blaze is a hand-sized shallow scrape in the bark. This scrape will last decades and not harm the tree if done correctly. When painted, this blaze is quite visible and long-lasting. Trees within arm's length of the boundaries are blazed, with the blazes facing the boundary line. Use only paint marks on the neighbor's side of the line, without blazes. The blazes should be given a new coat of paint at least every ten years. Custom signs can also be hung about every 100 feet using galvanized steel or aluminum nails. Keep the nails sticking out an inch from the tree so that the tree has room to grow without pushing out the signs. Understory vegetation and debris can be cleared from boundary lines to traverse the lines for inspection easily. Please consider hiring a forester to locate and mark property boundaries.

Wildlife

Your forest, and the State of Connecticut in general, is lucky to have a significant and diverse component of mature oak trees (mature trees have reached maximum height). Oak trees are considered a wildlife keystone species because of the large amount and diversity of life they support – more than any other tree. Acorns, especially white oak acorns, provide the most nutritious plant-based protein for almost 90 wildlife species. Oaks overwhelmingly host the most moth and butterfly caterpillars (over 500), which anchor a biodiverse food web. Oak forests have more bird abundance and diversity compared to other forest types. Oaks produce the thickest, most ecologically beneficial, and longest-lasting leaf litter with the most abundant and diverse soil biology. This top-of-the-line leaf litter can keep out invasive exotic stilt grass and jumping worms. It also purifies and holds the most water. For these reasons, preserving and encouraging oak growth and health in your forest is important.

Parts of this forest have legacy trees, also known as old field trees or wolf trees. These trees were growing in open pastures as a source of shade for livestock before the current forest started growing. They are much older than the surrounding forest. Because they used to be open-grown, they have large spreading crowns and large branches low on the trunk. When the pastures were abandoned, they became a significant seed source for the present forest. These large old trees are structurally complex, with many cavities, hollows, fat branches, and thick, rough bark. They are also prolific seed producers, including acorns and nuts. This structural complexity and prolific seed production attract an enormous number and diversity of insects, birds, and mammals. Underground, the old trees are also the hub and source of the complex fungal soil mycorrhizal growth that all trees depend on for water and nutrients. To make them healthier and more vigorous, such legacy trees could be protected and perhaps even given more sunlight by cutting some surrounding trees. These agrarian vestiges have become the ecological hubs in your forest. They are also a great source of future large snags and large dead, downed wood.

Ecological Services and Climate Change Mitigation

Forests remove carbon dioxide from the atmosphere (called sequestration), create oxygen, and remove many pollutants from the air and water. Forests absorb heavy rains and release that water to streams and underground aquifers during droughts. Forests regulate temperature and moisture levels. Your forest contributes to these valuable services with carbon stored in the below-ground roots/soil and in the above-ground vegetation, dead wood, and fallen leaves. These services are enhanced by having a diverse mix of native tree species of different sizes and varied arrangements. Sustainable, scientifically based forest management to remove forest products and promote young forests or regeneration of desired species has no long-term adverse effect on your forest's ability to provide these vital ecological services. When trees are young and growing fast, they sequester carbon at high rates, and once they are large (over 18" in diameter and often older), they store the most carbon. Whether you choose to manage your forest actively or not, your forest does an excellent service to our planet's health just by being a healthy forest.

Forests store carbon in different pools, and the amount of carbon in these pools changes over time. The pools are the live aboveground (trees, shrubs and other plants), live belowground (roots and fungi), deadwood (standing dead trees [snags] and downed logs, litter (leaves, needles and small branches) and soil organic matter. Sequestration is the process by which forests remove carbon dioxide from the atmosphere, primarily via tree photosynthesis. A younger forest (10-60 years old) stores relatively little carbon but is likely at or near its peak sequestration rate. An older, more mature forest (60+ years old) stores more carbon, with a gradually slowing sequestration rate. A mix of sequestration and storage in multi-aged forests creates a resilient carbon profile. Please remember that using and harvesting local wood is an integral part of climate mitigation and a vital tool to improve the resiliency of our forests to climate change.

Mapping

Attached to this report is a geo-referenced map that the landowner can use with mapping apps. This digital map shows the landowner's location on the property, and the landowner can also record tracks and waypoints.

1. To get map layers and to view maps, please visit [CT ECO Home \(cteco.uconn.edu\)](http://cteco.uconn.edu).
2. To get soil maps, and associated soil descriptions, please visit [Web Soil Survey - Home \(usda.gov\)](http://websoilsurvey.sc.egov.usda.gov) and follow the instructions on the first page of this website.
3. For instruction, please see [Tutorials | Center for Land Use Education and Research \(uconn.edu\)](http://tutorials.cluor.uconn.edu).

Getting Assistance

Here is a link to a list of private foresters in the state:

<https://www.ctwoodlands.org/master-woodland/ct-forestry-services-directory>

Here is a list of every licensed forester in CT: <https://www.depdata.ct.gov/forestry/ForestPractitioner/directry.pdf>

Also, we are looking for applicants for the Master Woodland Manager certification (MWM). Here is a link for MWM: [Connecticut Master Woodland Manager Program | Connecticut Forest & Park Association \(ctwoodlands.org\)](http://ctwoodlands.org/connecticut-master-woodland-manager-program)

To learn more about NRCS' EQIP funding Program, click [NRCS EQIP Program Help](#)

New England Forestry Foundation (NEFF) GROH Program (Grow Resilient Oak-Hickory Forests):

Link: [Smaller-Acreage Landowner Enrollment - Enroll now New England Forestry Foundation](#)

This program funds activities like those of the NRCS EQIP program, but unlike NRCS, it will fund municipalities.

Visit CT DEEP's grants website: [Grants and Financial Assistance](#)

Wildlife habitat projects: [Partners for Fish and Wildlife | U.S. Fish & Wildlife Service](#)

To prevent erosion and water quality issues: [Best Management Practices Manual](#)

Connecticut Wildlife Brush Piles - Structures for Wildlife 649

Conservation Practice Job Sheet

Lifespan – 5 Years

Definition

A mound or pile of appropriate woody material, fashioned by piling brush and loose branches on top of a base comprised of larger logs, or other natural materials, to provide cover for wildlife where cover is limited.

Purpose

This practice is used to create cover for many songbirds, small mammals, reptiles, and amphibians when natural cover is limited; such as after clear-cutting. It provides areas for nesting, resting, escape from predators, and protection from harsh weather conditions.

Criteria, Considerations, and Specifications

Brush piles may be built to various dimensions based on the size of available material; however, the size should range between 10 to 20 feet on a side and 4 to 8 feet high.

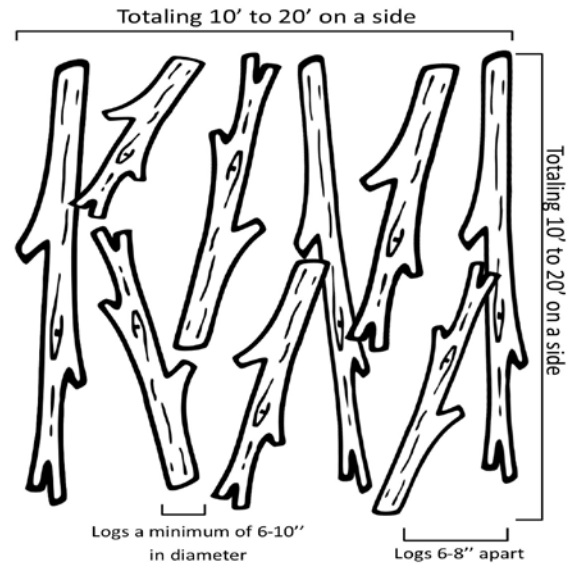
Materials

Brush piles can be constructed using a variety of materials. Commonly, materials left from timber harvesting or any tree-cutting activity are utilized. Natural features, such as rocks, boulders, and stumps may also be incorporated.

Construction

1. Base Layer:
 - a. Logs at a minimum of 6-10 inches in diameter are laid at various angles, leaving small openings (6 to 8 inches wide) between base logs for easy wildlife access. Alternate logs to create varying heights and avoid creating parallel runways through the base layer.
 - b. Logs of various lengths (that add up to 10 to 20 feet on a side) can be staggered throughout the foundation, with breaks, creating a maze-like environment.

- c. Outer logs should be closer to 20 feet in length to provide stability for the brush pile.



2. A second layer of smaller diameter logs should be laid on top and roughly perpendicular to the first base layer, in the same fashion, and repeated with increasingly smaller logs, building 1-3 additional layers.



3. The foundation should be covered with 3-6 feet of brush, using small limbs, saplings, loose brush, and pine boughs. Larger branches should cover the foundation, with smaller branches placed on top.



4. Brush should loosely drape over the edges, with openings (6 to 8 inches in diameter) left on the sides in several places for easy wildlife access and escape. Brush should cover the pile sufficiently so the base is mostly covered. If available on site, add pine boughs, as the needles will persist after deciduous leaves fall off. You should not be able to see through the brush pile even after leaves have dropped from the branches.



NOTE: When constructing brush piles using mechanized forestry equipment, it is not possible to construct piles exactly as described. It is suitable if larger logs are crisscrossed on the base and covered with increasingly smaller logs and finally brush, so long as adequate spaces are left for wildlife to enter and exit the pile.



Placement

Several considerations should be made when placing brush piles:

- Multiple brush piles are better than one large pile, providing more opportunities for cover and escape from predators.
- Good locations include adjacent to forest openings, pastures or hay fields; within shrub thickets or fencerows; in field corners; near stonewalls and wetlands.
- On lands with little natural cover, such as recently cleared areas, begin brush piles within 25 feet of woodland edges, and build in towards the center of the habitat patch, resulting in 1- 3 brush piles per acre, evenly distributed across the project site.
- Place near wildlife food sources, such as mast and fruit trees.
- Avoid placing brush piles on existing high quality food or cover sources.
- Avoid placing brush piles near homes, lawns, or gardens, to prevent situations where wildlife could become a nuisance.
- Keep away from buildings due to flammability.
- Cultural resources such as stone walls can be incorporated into a brush pile, however stones should not be moved. Review potential impacts prior to incorporating stone walls.

Variations for Brush Pile Base

- Tree stumps still in place can be incorporated into your brush pile base. Several logs (6 to 10 inches in diameter and 5 to 6 feet long) are placed on top of and around the stump.

- Small rock piles - these should be staggered about 12 inches apart with each pile about 10 inches high and 12 inches across to support next layer of limbs. Existing boulders and rocks on the landscape can be piled together to provide additional den sites; start with the largest rocks on the bottom of the stack to create hiding places between the rocks, and stack brush on top for additional cover.



Other Types of Cover *(do not meet criteria for reimbursement through NRCS program)*

- Living brush pile - in a cluster of small diameter trees, cut each tree half way through at a height of 12-18 inches above the ground; fold treetops inwards towards other trees in groups so they rest on the ground or on top of the other half-cut trees.
- Stonewalls - may be incorporated into the brush piles base; brush should be placed against the wall with similar dimensions and distribution to brush piles created in an open space.
- When harvesting trees, leave the crowns of the largest trees (e.g. an oak treetop) for wildlife cover.
- Windrowed brush piles - typically these linear brush piles can best be created

following a forestry or tree removal operation. As with other brush pile creation, larger materials should be placed on the bottom at various angles with subsequently smaller material on top. Avoid packing the logs tightly, as this will eliminate any openings for wildlife to enter and exit the linear pile. Windrows should range from 10 to 20 feet on a side and 6 to 8 feet high. Windrows should have breaks built into them every 50 to 100 feet to provide travel lanes for wildlife.

Operation and Maintenance

- Monitor condition and/or usage of the structure
- Conduct needed maintenance of the structure, such as periodically adding new material to the top of the pile

Additional Notes

- Brush piles are not permanent; new brush needs to be added over time or new piles may need to be constructed. Rot and decay is a natural process and may attract more insects, providing additional food sources.
- Do not use materials that contain toxic substances (i.e. pressure treated lumber/posts, creosote railroad ties, lead painted surfaces, tires, etc.). These substances can cause wildlife mortality either through contact, consumption, or inhalation.



Connecticut
**Department of Energy &
Environmental Protection**

**Field Visit to Rockwell Park at 238 Jacobs Street – City of Bristol Parks Department
Post Visit Report**

Present Parties: Sarah Larson (Deputy Superintendent of Parks) and David Beers (Western District Service Forester) on 1/8/2025 from 8-10:30

Stewardship Objectives

1. Improve forest health
2. Recreation enhancement
3. Wildlife habitat improvement



PROPERTY OVERVIEW

This report is for the 57 wooded acres of Rockwell Park. The other 48 acres have developed recreational facilities that are not addressed in this report. The developed and landscaped portion of the park is directly south of the forested area, as shown on the attached recreation map.

The forest has public access and two parking areas on North Park Road, which runs east-west through the park's entire length. It also has frontage on Farrell Ave, Putnam Street, Brightwood Road and Steele Road. The forest is surrounded by primarily residential development. No protected open space abuts the property. This is a mainly developed landscape near the city center.

This forest is part of a small core forest block having less than 250 acres of contiguous forest. Core forests are large tracts of unbroken forest that provide a much more stable home for plant and animal species, thereby protecting biodiversity. They are forested areas surrounded by more forested areas.

The CT DEEP Natural Diversity Database (NDDDB) does have occurrences of threatened or endangered species on or near this property. Maps showing wetland and farmland soils and the NDDDB area are attached to this report. The Pequabuck River runs through the property. This property is in the Farmington River watershed.

The attached 1934 air photo shows this area forested in 1934. This forest was likely pastured over 100 years ago. In 1914, the land was donated to the City and made into a park. In 1987, the park was added to the National Registry of Historic Places.

The public uses the forest for recreation (please see the attached recreation map). This includes mountain bike trails in the northwest, a fenced dog park in the southeast, hiking/skiing trails and an eighteen-hole disk golf course.

Please see the attached appendix for more information about your forest's history, future, and general recommendations. It also includes an appendix of Latin names for the tree and shrub species.



Dirt Bike Trail Erosion

Tree Cover

Most Common

Red Oak

Black Oak

Scarlet Oak

Black Birch

Red Maple

Common

White Oak

Chestnut Oak

Hickory

Hemlock

White Pine

Pitch Pine

Beech

Uncommon

Yellow Birch

Sugar Maple

Black Locust

Sassafras

Sycamore

White Ash

Paper Birch

This forest has a diverse mix of tree species and sizes growing on site conditions that vary with slope position. Most soils are well-drained sand and gravel glacial outwash, making the site dry out quickly and prone to fire. There is no canopy midstory to speak of.

Understory

There are a few red maple, black birch, American Chestnut and hemlock saplings. There are also witch hazel and mountain laurel shrubs. A few areas are thick with understory mountain laurel. Due to the ever-present chestnut blight fungus, the chestnut trees never go beyond the sapling stage before dying and resprouting.

Ground Cover

There is a thick, healthy leaf litter. There is a good amount of woody material throughout the forest floor.

Forest Health

Beech leaf disease has infected the beech trees. This microscopic nematode from Asia has recently begun to spread throughout the state, and the long-term prognosis for infected beech trees is still unclear. The emerald ash borer has killed the ash trees within the past ten years. The hemlock woolly adelgid is on the underside of the hemlock needles, making their crowns thin and sickly.

The good tree and shrub species diversity makes this forest more resilient to future disturbances (weather, climate, pests). However, the large deer herd in Connecticut makes growing certain preferred browse of deer, like oak and hickory seedlings, difficult.

Regarding exotic invasive growth, there are a few widely scattered barberry shrubs and bittersweet vine sprouts on the forest edges—nothing to be concerned about. What I did find concerning was a thick patch of knotweed growth in the stream valley next to the dog park parking lot. Please see the appendix for more information about exotic invasives and their control.

Wildlife Habitat

The many mature oak and hickory trees in your forest are an excellent wildlife habitat asset, especially the acorns and nuts they produce. Having diverse habitat types (younger, mature, fields, wetlands) intimately mixed, as you have, is always good. Your forest lacks vertical structural diversity in the canopy. However, it provides adequate food, water, shelter, cover, and space for much of the wildlife in the area. Please see the appendix for more information about wildlife habitat.

Carbon and Climate Resilience

This mature forest stores a large amount of carbon while sequestering more. Any forest products you produce will help mitigate climate change. Some recommendations are below to make forests more resilient and adaptive to climate

change. More information about forest carbon and the forest's ecological services is in the appendix.

Forest Vegetation Recommendations

There are a few scattered pitch pine trees in your forest. Pitch pine is an increasingly rare tree in Connecticut because it cannot grow in shade, it needs dry sandy soils and traditionally, its young growth depends on ground fire or hot sunny ground conditions for the cones to open and seed the soil. We now keep ground fires in check for the most part, such that young pitch pine growth is rare. Like most of Connecticut, your few pitch pine trees are gradually shaded out and out-competed by the surrounding oak and white pine trees. While I do not suggest starting a fire in your woods, we can assist in the survival of pitch pine by cutting down the competing trees around each pitch pine tree to give them more room to grow and thrive in more sunlight. Such crop tree thinning work will also help prevent the southern pine beetle from attacking pitch pine trees by providing more tree crown airflow. This air flow will help prevent the beetle pheromone plumes that attract more beetles to attack pitch pine trees in mass. This thinning work around each pitch pine can be done as part of a timber harvest or non-commercially by either felling or girdling trees, which are immediately adjacent to each pitch pine tree (crown-touching trees removed).

I recommend building wildlife brush piles with the woody debris from the pitch pine tree crop tree release work described above. This is a good use of woody debris and could be done by volunteers. This practice creates cover for many songbirds, small mammals, reptiles, and amphibians. It provides areas for nesting, resting, escape from predators, and protection from harsh weather conditions. Brush pile construction specifications are attached to this report.

The CT Agricultural Experiment Station has successfully controlled hemlock woolly adelgid by releasing beetles that feed exclusively on the adelgid as biological controls. Controlling the adelgid gives the hemlock trees more chance to survive other adverse conditions such as drought and scale insects. For more information, visit --[Hemlock Woolly Adelgid \(ct.gov\)](#). Dr. Carole Cheah is in charge of this program: carole.cheah@ct.gov. The beetle release work could be done by volunteers, which can be viewed as a publicity opportunity.



Three Pitch Pine Trees

CONCLUSION

Here are some possibilities for your forest:

- Contact NRCS and a private forester about doing a forest stewardship plan*
- Properly locate and mark your property boundaries in the northeast (see appendix)
 - This is the only boundary that abuts houses and likely the only one worth locating and marking
 - It looks like there might be some dumping by the neighbors here
 - An annual property inspection that includes property boundaries
- Less dirt-bike use of the park to prevent more trail erosion
 - Luckily, the sandy soils are very resilient to disturbance
- Crop tree release of pitch pine trees
 - Create wildlife brush piles with woody debris
- Beetle release to control the hemlock woolly adelgid
- Enjoy your forest!

*Please consider hiring a forester to help you implement any of the recommendations in this report (see appendix). Cost-share monies might be collected through the Natural Resource Conservation Service (NRCS). Please get in touch with Todd Bobowick at **475-355-3864**. Please feel free to share this report.

New England Forestry Foundation (NEFF) GROH Program (Grow Resilient Oak-Hickory Forests):

Link: [Smaller-Acreage Landowner Enrollment - Enroll now New England Forestry Foundation](#)

This program funds activities like those of the NRCS EQIP program, but unlike NRCS, it will fund municipalities.





Disk Golf Tee



Disk Golf Target Basket



Mountain Bike Trail Feature (Log Ride)

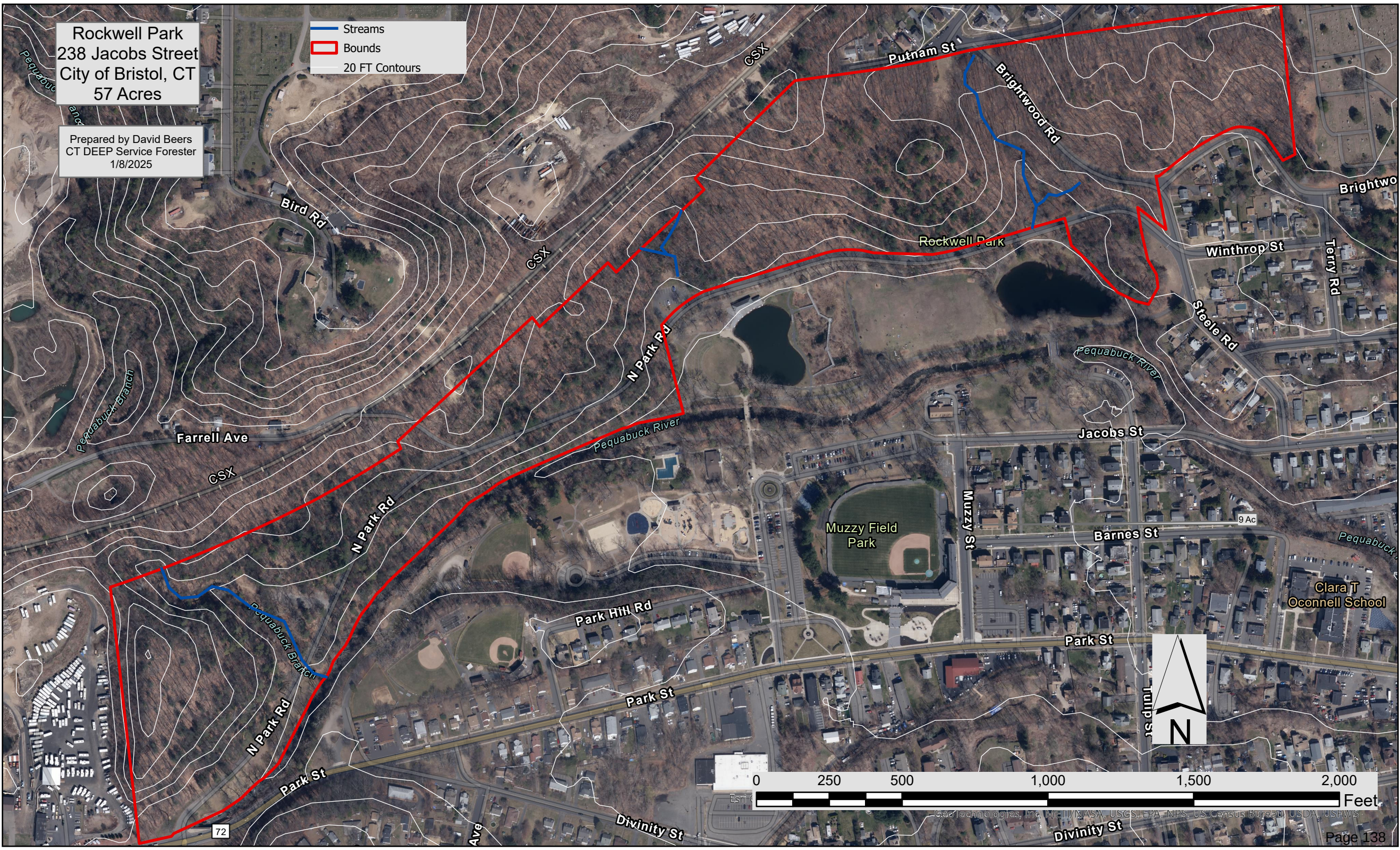


Dog Park

Rockwell Park
238 Jacobs Street
City of Bristol, CT
57 Acres

Prepared by David Beers
CT DEEP Service Forester
1/8/2025

- Streams
- Bounds
- 20 FT Contours



GeoTechnologies, Inc. MITI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS

Rockwell Park
238 Jacobs Street
City of Bristol, CT
57 Acres

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1/8/2025

Streams

Bounds

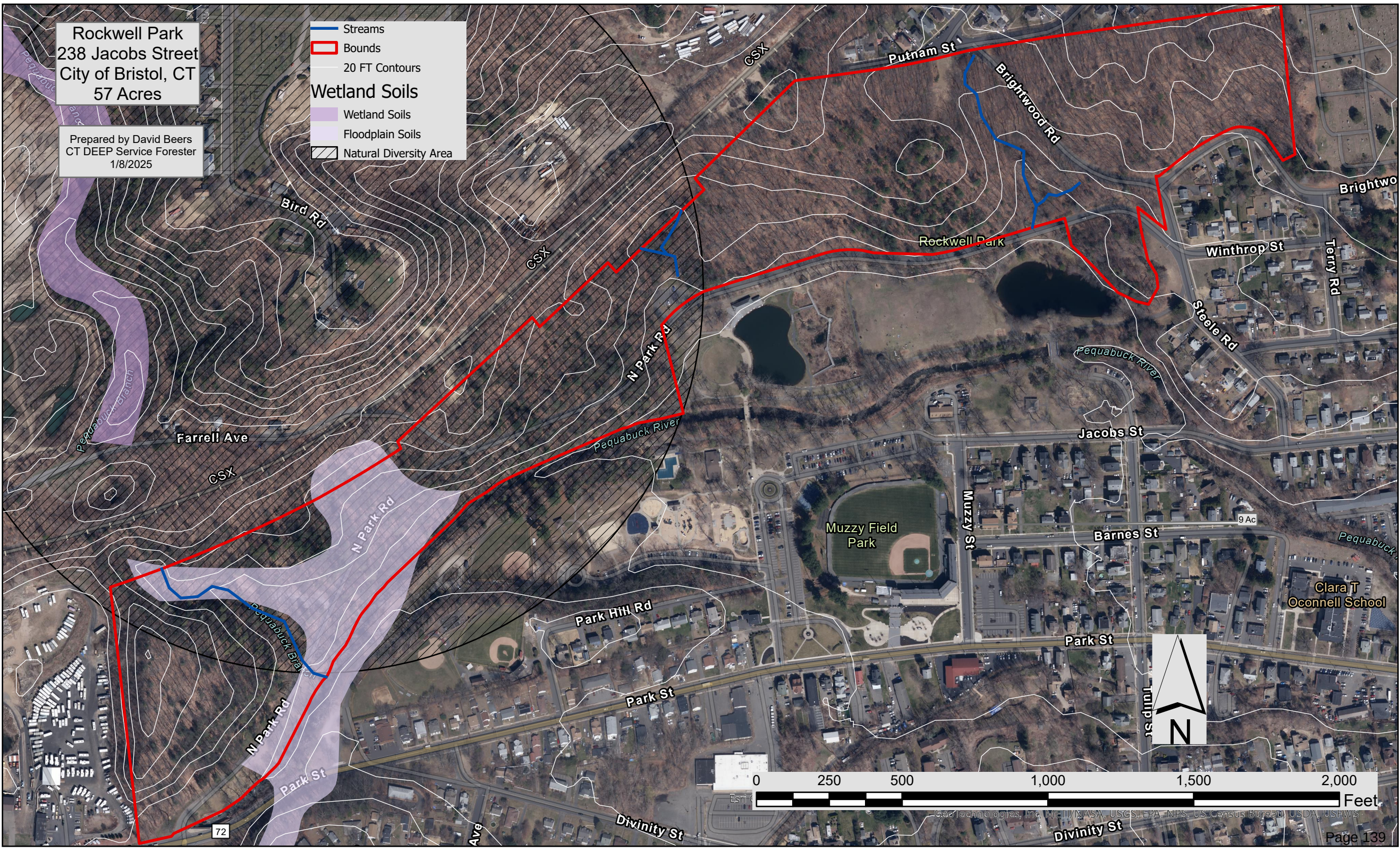
20 FT Contours

Wetland Soils

Wetland Soils

Floodplain Soils

Natural Diversity Area

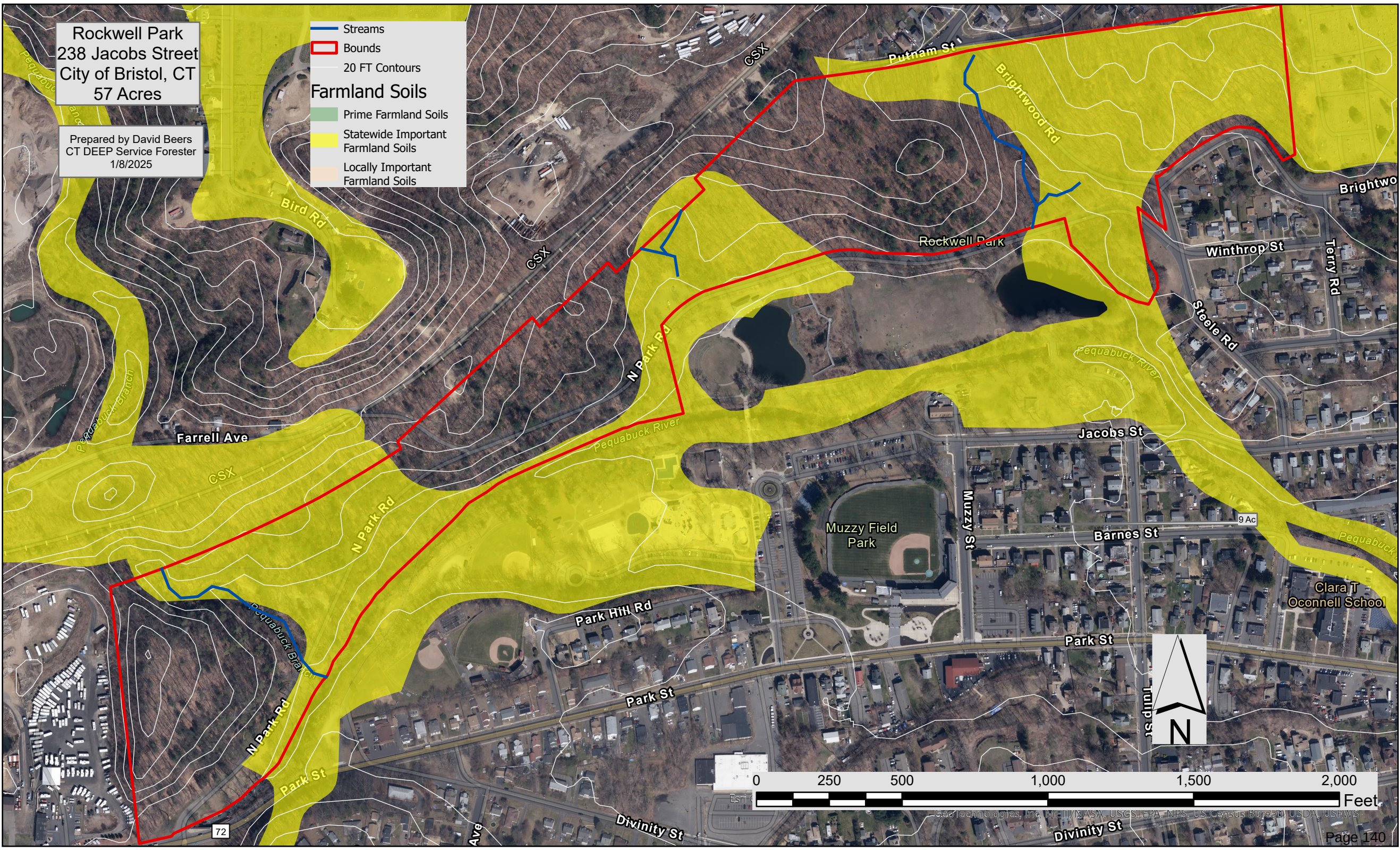


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CT DEEP Service Forester
1/8/2025

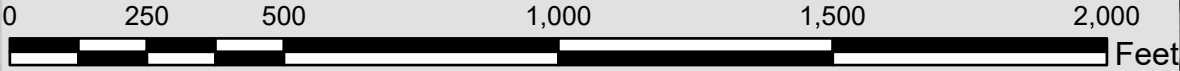
- Streams
- Bounds
- 20 FT Contours
- Farmland Soils**
 - Prime Farmland Soils
 - Statewide Important Farmland Soils
 - Locally Important Farmland Soils



Rockwell Park
238 Jacobs Street
City of Bristol, CT
57 Acres

Prepared by David Beers
CT DEEP Service Forester
1/8/2025
1934 Air Photo

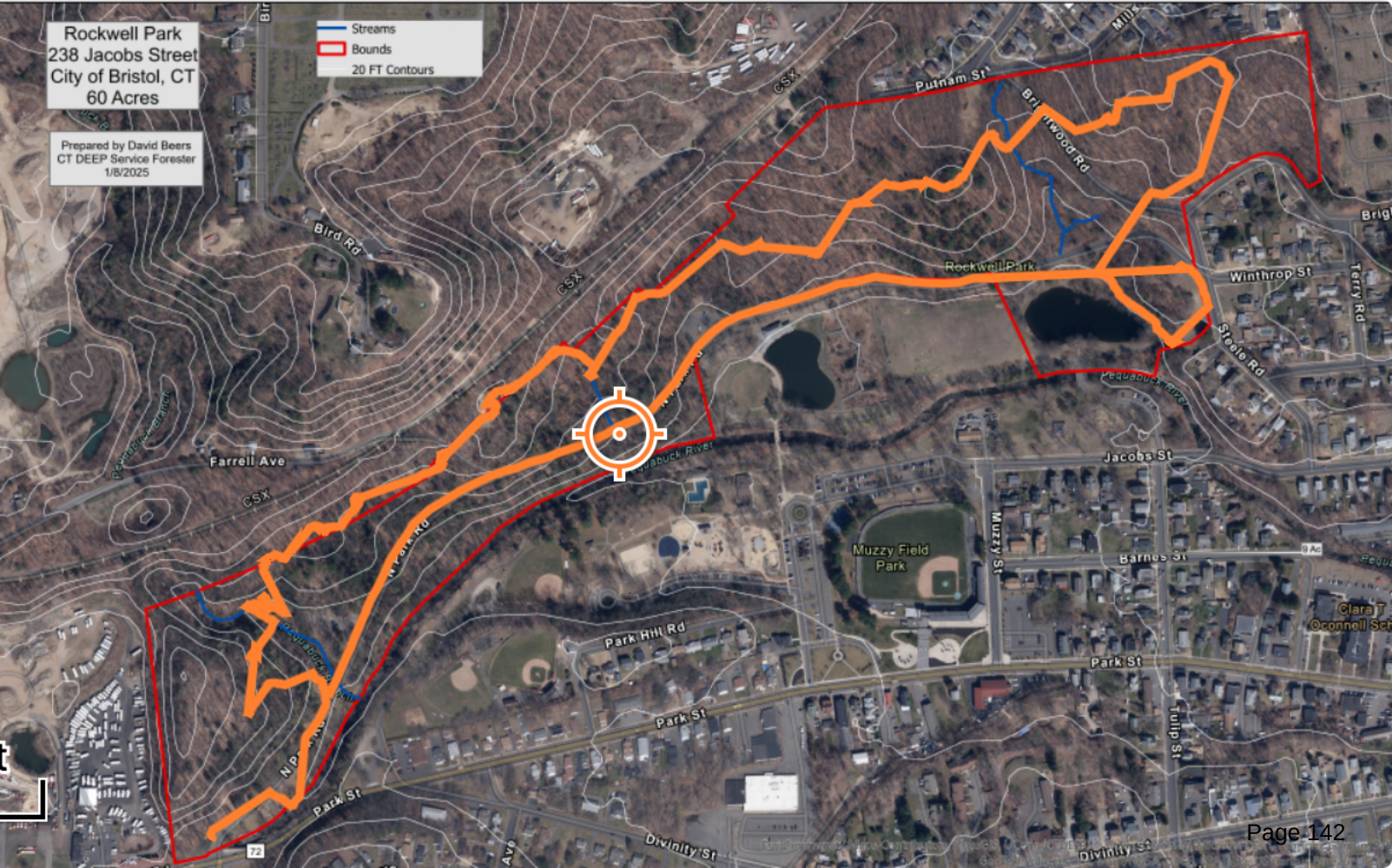
9 Ac



Rockwell Park
238 Jacobs Street
City of Bristol, CT
60 Acres

Prepared by David Beers
CT DEEP Service Forester
1/8/2025

Streams
Bounds
20 FT Contours

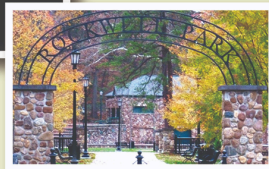
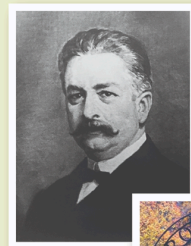


History of Bristol's Parks

Since Albert and Nettie Rockwell first donated Rockwell Park to the City of Bristol in 1914, the City has acquired over seven hundred and thirty acres of land dedicated to active and passive recreation.

During the first half of the twentieth century, a family feud between the Rockwells and the Page family led to the donation of Rockwell and Page Park, as well as Memorial Boulevard - thirty percent of our total acreage - as they tried to out donate each other.

Between the period of 1954 and 1975, part-time Parks Superintendent Joseph "Sarge" Riley acquired Birge Pond and the Hoppers, our largest park, Seymour Park, and Stocks Playground. Upon Riley's retirement, the City created a full-time department of Parks and Recreation. The department's vision to be at the forefront of problem-solving to address challenges of the twenty-first century has led to the realignment of Parks, Recreation, Youth and Community Services under a single department, with a focus on inclusivity and stewardship.



Our All Heart Parks!

ROCKWELL PARK

238 Jacobs Street

Area: 105 Acres

Opened: 1914



Hoppers / Birge Pond

Nature Preserve (270 acres)

Acquired in 1973 from Bristol Savings Bank.

Amenities: Nature Preserve, non-motorized boating, hiking trails, glacial kettles & fishing.

Hours: Dawn to dusk

Location: Beech Street

Brackett Park

(2 acres)

Purchased from Carlyle F. Barnes in 1917, later named for Dr. A. S. Brackett who was instrumental in securing the purchase.

Amenities: Basketball court, regular playground, Goodsell toddler playground, gazebo rentals.

Hours: Dawn to dusk

Location: Entrances on School & North Main St

Casey Field / Stocks Playground

(9 acres) Transferred from the Sewer Dept in 1950, and later named for former Mayor James P. Casey.

Amenities: Features a lighted softball field

Location: Lake Avenue

Dennis Malone Aquatics Center

Built in 1995 and named after Superintendent Dennis Malone. Our indoor aquatic facility operates year-round providing numerous swimming activities that the whole family can enjoy. Offers swim lessons, water exercise classes, open swim & splash swim teams. Annual member-

ship period runs from Sept 1-Aug 31 each year.

Amenities: A 187,000 gallon indoor pool that is kept at 82-84 degrees year-round with air temp.

2-4 degrees warmer than the pool temp.

Hours: M-F, 7am-9pm, Sat & Sun 1pm-6pm

Location: 325 Mix Street

Federal Hill Green

(2 acres)

Federal Hill Green was placed under the control of the park board at its formation in 1913.

Amenities: Passive recreation area with nature trails connecting the school grounds to surrounding neighborhoods, wetlands and upland habitats.

Hours: Dawn to dusk

Location: Federal Hill Green

Hours: Dawn to dusk

Location: Located off Ivy Drive / Primrose Lane

Kern Park

(22 acres)

Acquired as part of the Ivy Drive School site.

Amenities: Passive recreation area with nature trails connecting the school grounds to surrounding neighborhoods, wetlands and upland habitats.

Hours: Dawn to dusk

Location: Located off Ivy Drive / Primrose Lane

Muzzy Field

(8.5 acres)

Given in 1912 by Commissioner Adrian Muzzy in memory of his two sons.

Amenities: Lighted baseball, football and soccer stadium complex with a seating capacity for baseball: 4,900 and football/soccer: 5,800.

Location: Muzzy Street

Nelson's Field

(50 acres)

Acquired in 1988 under the Recreation & National Heritage Trust Program and the State of CT D.E.P.

Amenities: Parking, passive recreation area, sledding hill, and bird watching.

Hours: Dawn to dusk

Location: Corner of Burlington Ave and Maple Ave

Page Park

(86 acres)

Given by DeWitt and May Rockwell Page in 1933.

Amenities: Inclusive playground, splash pad (open seasonally from 11am-6pm), disc golf course, Page Park lagoon, five lighted tennis courts, hardball diamond, lighted softball field, Ski Lodge, Page Park Pavilion, picnic areas and Ingraham Field.

Upper playground shelter is available to rent.

Hours: Dawn to dusk

Location: King Street, Moody Street, Page Ave

Peck Park

(8 acres)

Land for the park was transferred from the Board of Ed to the city in 1976.

Amenities: Four tennis courts, regular and toddler playground equipment.

Hours: Dawn to dusk

Pine Lake

(54 acres)

Acquired May 27, 1968 by the city then given to the Park Commission in 1982.

Amenities: Fishing pond, accessible fishing pier,

parking lot and ropes adventure park.

Location: Pine St, Birch St, and Emmett St

Rockwell Park

(105 acres)

Given by Albert and Nettie Rockwell in 1911.

Amenities: Amphitheatre, lagoon, fishing pond, outdoor swimming pool, basketball court, off-leash dog park (small and large dog areas), hiking trails, 18 hole disc golf course, para-fitness course, lighted sand volleyball courts, picnic areas, playground, skate park, splash pad, toddler playground mountain bike trails, Stone/Summer House, Mrs. Rockwell's Recreation Center, open field, Stone/Summer House, T-Shelter, Back Playground Shelter & Gazebo are available to rent.

Hours: Dawn to dusk

Entrances: On Jacob St, Dutton Ave, and Steel St

Hours: Dawn to dusk

Location: King Street, Moody Street, Page Ave

Hours: Dawn to dusk

Location: Located off Ivy Drive / Primrose Lane

Hours: Dawn to dusk

Location: King Street, Moody Street, Page Ave

Roberts Property

(17 acres)

Acquired by City Council on Aug 10, 2004.

Amenities: Off-leash dog park & walking trail

Hours: Dawn to dusk

Seymour Park

(5 acres)

Acquired through the estate of George Dudley Seymour in 1971.

Amenities: Hardball diamond (Riley Field), basketball court, two modified pickleball courts, picnic area, and regular playground

Hours: Dawn to dusk

Location: Shrub Road

Veterans Memorial Boulevard

(25 acres) Given in 1921 by Albert Rockwell.

Amenities: Passive recreation parallel to the Pequot River with benches, two fishing ponds, memorial monuments, multi-use athletic field & walking path with mile markers.

Hours: Dawn to dusk

Location: Memorial Boulevard

Wilson Field

(2 acres)

Given by Bristol Brass company in honor of Albert Wilson in 1950.

Amenities: Regular playground, youth softball field, and a basketball court.

Hours: Dawn to Dusk

Location: King Street

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BristolRec.com



APPENDIX

FOREST HISTORY

Between eighteenth-century colonial settlement and the mid-nineteenth century, most of Connecticut was cleared for agriculture, with only a few small patches of forest remaining by the mid-nineteenth century. Only 25% of Connecticut was forested in 1830. Under these conditions, a muskrat was the largest animal in the woods. Turkeys, deer, bobcats, beavers, and bears were either rare or gone. Most of the land was used for livestock pasture, with only the best soils used for hay or tilled crops. Imagine a very open agricultural landscape.

During this farming period, the stonewalls were built to keep livestock out of crops and the neighbor's property. Most of these walls were topped off with piled wood and stumps to make them taller. Stonewalls were also a depository for rocks removed from cultivated land. A stonewall with many fist-sized rocks means that one side of that wall had tilled crops, where the winter freeze of bare ground would push rocks to the surface. After barbed wire became widely available in 1875, many of these walls were supplemented with wire. Barbed wire was used to corral cows and goats, but not sheep (barbs did not hurt the sheep). Sheep pasture used smooth-wired rectangular page fencing.

Most Connecticut hill farms were abandoned between the mid-nineteenth and early twentieth centuries. The farmers either moved west for better farming soils or headed to the cities for work. Immediately after this farm abandonment, the forest began to take over again. Much of the young forestlands were then cut down repeatedly to make charcoal, which was used to fuel industrialization. Charcoal was used in metal blast furnaces and by blacksmiths.

Small trees were cut into 4' lengths and carried by hand to make a circular pile about 30' wide and 10' high for charcoal making. A ditch was dug around the circumference of the pile, and the soil from the ditch covered the pile to limit the amount of oxygen in the smoldering pile. Once the low-oxygen burn was completed in two weeks, the almost pure carbon charcoal was removed for transport to market. Charcoal produces the hot fire needed for metalworking.

While this charcoal-making process had occurred since settlement, it came to a crescendo between 1880 and 1920. At that time, much of the landscape was cut multiple times, with patches of smoke rising from active charcoal mounds across the hills. By about 1925, less expensive coal had ended charcoal making, and the forest again began growing back. The repetitive cutting of young trees for charcoal encouraged the proliferation of oak trees. Of all the tree species, oak responded best to the repetitive cutting. This, along with frequent wildfires, helped give rise to the oak-dominated forest we see today.

The 1934 map is attached. Please remember that you need to mentally adjust the map because the map scale projection does not exactly match what we use today. To see what ancestral homeland existed on your property before settlement, please visit Native-Land.ca, and type in your address.

FOREST FUTURE

Active forest management can nudge a forest in different directions by manipulating which trees continue to grow and how much the forest floor is exposed to sunlight by creating canopy openings of various sizes and shapes. For example, we can nudge the future forest towards oak by leaving oaks to grow and produce acorns, creating canopy openings of sufficient size to bring in the sunlight young oaks need to grow, and hunting the deer that eat young oak trees. Without these manipulations and significant natural disturbances (wind, ice, pests), the forest will gradually transition to shade-tolerant trees not eaten by deer (hemlock, beech, black birch and red maple).

Forest Protection

For more long-term protection, a conservation easement on part of the property could be donated to a local land trust to prevent development in perpetuity. The easement's value might be income tax deductible over many years, and there may also be estate tax benefits.

1. Please contact your local land trusts for more information using this link: [Find A Land Trust - Connecticut Land Conservation Council \(ctconservation.org\)](http://FindALandTrust-ConnecticutLandConservationCouncil.ctconservation.org).
2. Please contact NRCS about HFRP (Healthy Forest Reserve Program) for conservation easement funding using this link: [NRCS Accepting Applications for HFRP Program | Natural Resources Conservation Service \(usda.gov\)](http://NRCSAcceptingApplicationsforHFRPProgram|NaturalResourcesConservationService.usda.gov).
3. Another good link is [Estate Planning Resources and the Forest Legacy Program \(ct.gov\)](http://EstatePlanningResourcesandtheForestLegacyProgram.ct.gov).

Diversity

A healthy forest has a large diversity of native plant species, particularly trees that support a diverse array of fungi and wildlife (animals, insects, microbes). A healthy forest also has multiple layers of native vegetation to maximize biodiversity and structural complexity. This means having trees of different ages, diameters, and heights. A healthy forest has standing dead trees (snags) and dead downed wood as essential habitat elements, and to hold moisture during droughts. A healthy forest is resilient because it can better recover from diseases, pests, and extreme weather events. Increasing species and structural diversity of this forest provides multiple recovery pathways from disturbance.

To improve forest landscape diversity, consider establishing some patches of young forest. With over 89 birds, mammals, and reptiles that need young forest habitats, the young forest is nature's pantry for wildlife due to its abundance of insects and berries. It also provides our mature woodland wildlife with important food and cover at critical times of the year. Ideally, 5-10% of our landscape should be young forest. Unfortunately, our landscape rarely has this much young forest because we prevent such forests from forming naturally via beaver activity, fires and floods. We can mimic natural disturbances with well-planned forest stewardship activities to create patches of young forest.

Invasives/vines

Invasive species are typically from another part of the world, and when established here, they have no native enemies to hold their population in check. When left uncontrolled, they out-compete what would grow naturally, including tree regeneration and other native understory vegetation. Native understory growth has many more native insects and arthropods that wildlife needs to forage on. It also provides more nutrient-rich berries for birds. Exotic invasive understory growth can provide a better habitat for ticks and associated pathogens while significantly reducing biodiversity. Please see: [Home | Connecticut Invasive Plant Working Group \(uconn.edu\)](http://Home|ConnecticutInvasivePlantWorkingGroup.uconn.edu)

Control methods include mechanical and chemical processes. In a shady forest, cutting a vine is enough to kill it. Invasive shrubs are not so easy. Pulling the invasives out by the roots can be effective, but extremely difficult and labor intensive. Yearly cutting back of the aboveground stems, during the growing season, will keep the invasives under control, and perhaps kill them after a few years. The most effective control method is applying herbicide to the green foliage. You can also cut the invasive shrubs and treat the fresh stumps with herbicides to prevent resprouting.



Buckthorn Blaster herbicide applicator for vine and invasive shrub eradication

Lawns and fields

Fields provide an opportunity to help pollinators and native insects. Insects, pollinators (bees, butterflies, moths, beetles, flies, wasps, hummingbirds), and the many birds that depend on them, are severely declining. By delaying

annual mowing until after the first hard frost in October and before the beginning of plant growth in the spring, you will allow pollinators to use your fields for food and habitat during the growing season. Another habitat management strategy is to mow one-third to one-half each year on a rotational schedule. This allows some insects to overwinter in the uncut plant stalks and provide birds with much-needed winter food. For this reason, late winter mowing is best. Please remember that healthy meadows store more than double the carbon of a mowed lawn.

There are also many opportunities to create pollinator-friendly habitats/food by adding native plantings, allowing lawn areas to go natural, and leaving leaves and needles to cover the ground. Insects will overwinter in leaf litter and uncut plant stalks. Birds will pick through the winter leaves for insects. For more information, please visit: [Pollinator Pathway \(pollinator-pathway.org\)](https://www.audubon.org/pollinator-pathway). And here is an excellent link regarding native plantings: <https://www.audubon.org/native-plants>.

Boundaries

Boundaries must be well-marked to protect the property from trespass and encroachment. Painted blazes are typically used to mark property boundaries. A blaze is a hand-sized shallow scrape in the bark. This scrape will last decades and not harm the tree if done correctly. When painted, this blaze is quite visible and long-lasting. Trees within arm's length of the boundaries are blazed, with the blazes facing the boundary line. Use only paint marks on the neighbor's side of the line, without blazes. The blazes should be given a new coat of paint at least every ten years. Custom signs can also be hung about every 100 feet using galvanized steel or aluminum nails. Keep the nails sticking out an inch from the tree so that the tree has room to grow without pushing out the signs. Understory vegetation and debris can be cleared from boundary lines to traverse the lines for inspection easily. Please consider hiring a forester to locate and mark property boundaries.

Wildlife

Your forest, and the State of Connecticut in general, is lucky to have a significant and diverse component of mature oak trees (mature trees have reached maximum height). Oak trees are considered a wildlife keystone species because of the large amount and diversity of life they support – more than any other tree. Acorns, especially white oak acorns, provide the most nutritious plant-based protein for almost 90 wildlife species. Oaks overwhelmingly host the most moth and butterfly caterpillars (over 500), which anchor a biodiverse food web. Oak forests have more bird abundance and diversity compared to other forest types. Oaks produce the thickest, most ecologically beneficial, and longest-lasting leaf litter with the most abundant and diverse soil biology. This top-of-the-line leaf litter can keep out invasive exotic stilt grass and jumping worms. It also purifies and holds the most water. For these reasons, preserving and encouraging oak growth and health in your forest is important.

Parts of this forest have legacy trees, also known as old field trees or wolf trees. These trees were growing in open pastures as a source of shade for livestock before the current forest started growing. They are much older than the surrounding forest. Because they used to be open-grown, they have large spreading crowns and large branches low on the trunk. When the pastures were abandoned, they became a significant seed source for the present forest. These large old trees are structurally complex, with many cavities, hollows, fat branches, and thick, rough bark. They are also prolific seed producers, including acorns and nuts. This structural complexity and prolific seed production attract an enormous number and diversity of insects, birds, and mammals. Underground, the old trees are also the hub and source of the complex fungal soil mycorrhizal growth that all trees depend on for water and nutrients. To make them healthier and more vigorous, such legacy trees could be protected and perhaps even given more sunlight by cutting some surrounding trees. These agrarian vestiges have become the ecological hubs in your forest. They are also a great source of future large snags and large dead, downed wood.

Ecological Services and Climate Change Mitigation

Forests remove carbon dioxide from the atmosphere (called sequestration), create oxygen, and remove many pollutants from the air and water. Forests absorb heavy rains and release that water to streams and underground aquifers during droughts. Forests regulate temperature and moisture levels. Your forest contributes to these valuable services with carbon stored in the below-ground roots/soil and in the above-ground vegetation, dead wood, and fallen leaves. These services are enhanced by having a diverse mix of native tree species of different sizes and varied arrangements. Sustainable, scientifically based forest management to remove forest products and promote young forests or regeneration of desired species has no long-term adverse effect on your forest's ability to provide these vital ecological services. When trees are young and growing fast, they sequester carbon at high rates, and once they are large (over 18" in diameter and often older), they store the most carbon. Whether you choose to manage your forest actively or not, your forest does an excellent service to our planet's health just by being a healthy forest.

Forests store carbon in different pools, and the amount of carbon in these pools changes over time. The pools are the live aboveground (trees, shrubs and other plants), live belowground (roots and fungi), deadwood (standing dead trees [snags] and downed logs, litter (leaves, needles and small branches) and soil organic matter. Sequestration is the process by which forests remove carbon dioxide from the atmosphere, primarily via tree photosynthesis. A younger forest (10-60 years old) stores relatively little carbon but is likely at or near its peak sequestration rate. An older, more mature forest (60+ years old) stores more carbon, with a gradually slowing sequestration rate. A mix of sequestration and storage in multi-aged forests creates a resilient carbon profile. Please remember that using and harvesting local wood is an integral part of climate mitigation and a vital tool to improve the resiliency of our forests to climate change.

Mapping

Attached to this report is a geo-referenced map that the landowner can use with mapping apps. This digital map shows the landowner's location on the property, and the landowner can also record tracks and waypoints.

1. To get map layers and to view maps, please visit [CT ECO Home \(cteco.uconn.edu\)](http://cteco.uconn.edu).
2. To get soil maps, and associated soil descriptions, please visit [Web Soil Survey - Home \(usda.gov\)](http://usda.gov) and follow the instructions on the first page of this website.
3. For instruction, please see [Tutorials | Center for Land Use Education and Research \(uconn.edu\)](http://uconn.edu).

Getting Assistance

Here is a link to a list of private foresters in the state:

<https://www.ctwoodlands.org/master-woodland/ct-forestry-services-directory>

Here is a list of every licensed forester in CT:

<https://www.depdata.ct.gov/forestry/ForestPractitioner/directry.pdf>

Also, we are looking for applicants for the Master Woodland Manager certification (MWM). Here is a link for MWM: [Connecticut Master Woodland Manager Program | Connecticut Forest & Park Association \(ctwoodlands.org\)](http://ctwoodlands.org)

To learn more about NRCS' EQIP funding Program, click [NRCS EQIP Program Help](#)

New England Forestry Foundation (NEFF) GROH Program (Grow Resilient Oak-Hickory Forests):

Link: [Smaller-Acreage Landowner Enrollment - Enroll now New England Forestry Foundation](#)

This program funds activities like those of the NRCS EQIP program, but unlike NRCS, it will fund municipalities.

Visit CT DEEP's grants website: [Grants and Financial Assistance](#)

To prevent erosion and water quality issues: [Best Management Practices Manual](#)

Connecticut Wildlife Brush Piles - Structures for Wildlife 649

Conservation Practice Job Sheet

Lifespan – 5 Years

Definition

A mound or pile of appropriate woody material, fashioned by piling brush and loose branches on top of a base comprised of larger logs, or other natural materials, to provide cover for wildlife where cover is limited.

Purpose

This practice is used to create cover for many songbirds, small mammals, reptiles, and amphibians when natural cover is limited; such as after clear-cutting. It provides areas for nesting, resting, escape from predators, and protection from harsh weather conditions.

Criteria, Considerations, and Specifications

Brush piles may be built to various dimensions based on the size of available material; however, the size should range between 10 to 20 feet on a side and 4 to 8 feet high.

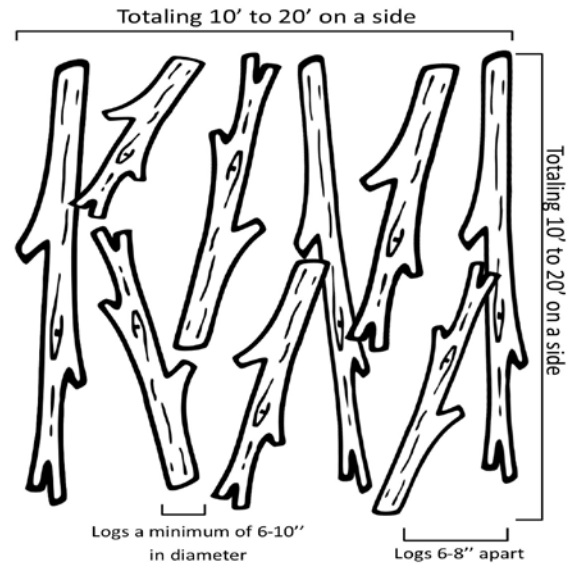
Materials

Brush piles can be constructed using a variety of materials. Commonly, materials left from timber harvesting or any tree-cutting activity are utilized. Natural features, such as rocks, boulders, and stumps may also be incorporated.

Construction

1. Base Layer:
 - a. Logs at a minimum of 6-10 inches in diameter are laid at various angles, leaving small openings (6 to 8 inches wide) between base logs for easy wildlife access. Alternate logs to create varying heights and avoid creating parallel runways through the base layer.
 - b. Logs of various lengths (that add up to 10 to 20 feet on a side) can be staggered throughout the foundation, with breaks, creating a maze-like environment.

- c. Outer logs should be closer to 20 feet in length to provide stability for the brush pile.



2. A second layer of smaller diameter logs should be laid on top and roughly perpendicular to the first base layer, in the same fashion, and repeated with increasingly smaller logs, building 1-3 additional layers.



3. The foundation should be covered with 3-6 feet of brush, using small limbs, saplings, loose brush, and pine boughs. Larger branches should cover the foundation, with smaller branches placed on top.



4. Brush should loosely drape over the edges, with openings (6 to 8 inches in diameter) left on the sides in several places for easy wildlife access and escape. Brush should cover the pile sufficiently so the base is mostly covered. If available on site, add pine boughs, as the needles will persist after deciduous leaves fall off. You should not be able to see through the brush pile even after leaves have dropped from the branches.



NOTE: When constructing brush piles using mechanized forestry equipment, it is not possible to construct piles exactly as described. It is suitable if larger logs are crisscrossed on the base and covered with increasingly smaller logs and finally brush, so long as adequate spaces are left for wildlife to enter and exit the pile.



Placement

Several considerations should be made when placing brush piles:

- Multiple brush piles are better than one large pile, providing more opportunities for cover and escape from predators.
- Good locations include adjacent to forest openings, pastures or hay fields; within shrub thickets or fencerows; in field corners; near stonewalls and wetlands.
- On lands with little natural cover, such as recently cleared areas, begin brush piles within 25 feet of woodland edges, and build in towards the center of the habitat patch, resulting in 1- 3 brush piles per acre, evenly distributed across the project site.
- Place near wildlife food sources, such as mast and fruit trees.
- Avoid placing brush piles on existing high quality food or cover sources.
- Avoid placing brush piles near homes, lawns, or gardens, to prevent situations where wildlife could become a nuisance.
- Keep away from buildings due to flammability.
- Cultural resources such as stone walls can be incorporated into a brush pile, however stones should not be moved. Review potential impacts prior to incorporating stone walls.

Variations for Brush Pile Base

- Tree stumps still in place can be incorporated into your brush pile base. Several logs (6 to 10 inches in diameter and 5 to 6 feet long) are placed on top of and around the stump.

- Small rock piles - these should be staggered about 12 inches apart with each pile about 10 inches high and 12 inches across to support next layer of limbs. Existing boulders and rocks on the landscape can be piled together to provide additional den sites; start with the largest rocks on the bottom of the stack to create hiding places between the rocks, and stack brush on top for additional cover.



Other Types of Cover *(do not meet criteria for reimbursement through NRCS program)*

- Living brush pile - in a cluster of small diameter trees, cut each tree half way through at a height of 12-18 inches above the ground; fold treetops inwards towards other trees in groups so they rest on the ground or on top of the other half-cut trees.
- Stonewalls - may be incorporated into the brush piles base; brush should be placed against the wall with similar dimensions and distribution to brush piles created in an open space.
- When harvesting trees, leave the crowns of the largest trees (e.g. an oak treetop) for wildlife cover.
- Windrowed brush piles - typically these linear brush piles can best be created

following a forestry or tree removal operation. As with other brush pile creation, larger materials should be placed on the bottom at various angles with subsequently smaller material on top. Avoid packing the logs tightly, as this will eliminate any openings for wildlife to enter and exit the linear pile. Windrows should range from 10 to 20 feet on a side and 6 to 8 feet high. Windrows should have breaks built into them every 50 to 100 feet to provide travel lanes for wildlife.

Operation and Maintenance

- Monitor condition and/or usage of the structure
- Conduct needed maintenance of the structure, such as periodically adding new material to the top of the pile

Additional Notes

- Brush piles are not permanent; new brush needs to be added over time or new piles may need to be constructed. Rot and decay is a natural process and may attract more insects, providing additional food sources.
- Do not use materials that contain toxic substances (i.e. pressure treated lumber/posts, creosote railroad ties, lead painted surfaces, tires, etc.). These substances can cause wildlife mortality either through contact, consumption, or inhalation.



APPENDIX OF LATIN NAMES

TREES

Red Oak	<i>Quercus rubra</i>	Eastern Hemlock	<i>Tsuga canadensis</i>
Tulip-Poplar	<i>Liriodendron tulipifera</i>	Aspen	<i>Populus</i> sp.
Red Maple	<i>Acer rubrum</i>	Blackgum	<i>Nyssa sylvatica</i>
Black Birch	<i>Betula lenta</i>	Yellow Birch	<i>Betula alleghaniensis</i>
White Oak	<i>Quercus alba</i>	Chestnut Oak	<i>Quercus montana</i>
Hickory	<i>Carya</i> Sp.	Black Cherry	<i>Prunus serotina</i>
Black Oak	<i>Quercus velutina</i>	White Pine	<i>Pinus strobus</i>
Scarlet Oak	<i>Quercus coccinea</i>	Sassafras	<i>Sassafras albidum</i>
American Beech	<i>Fagus grandifolia</i>	Paper Birch	<i>Betula papyrifera</i>
Sugar Maple	<i>Acer saccharum</i>	White Ash	<i>Fraxinus americana</i>
Sycamore	<i>Platanus occidentalis</i>	Eastern Redcedar	<i>Juniperus virginiana</i>
Slippery Elm	<i>Ulmus rubra</i>	Basswood	<i>Tilia americana</i>
Pitch Pine	<i>Pinus rigida</i>	Black Locust	<i>Robinia pseudoacacia</i>

NATIVE UNDERSTORY

Eastern Hophornbeam	<i>Ostrya virginiana</i>	Spicebush	<i>Lindera benzoin</i>
Musclewood	<i>Carpinus caroliniana</i>	Witch Hazel	<i>Hamamelis virginiana</i>
Serviceberry	<i>Amelanchier</i> Sp	Mountain Laurel	<i>Kalmia latifolia</i>
Lowbush blueberry	<i>Vaccinium angustifolium</i>	Huckleberry	<i>Gaylussacia baccata</i>
Highbush Blueberry	<i>Vaccinium corymbosum</i>	Sweet Pepperbush	<i>Clethra alnifolia</i>
Striped Maple	<i>Acer pensylvanicum</i>	Holly	<i>Smilax</i>
Hobblebush	<i>Viburnum lantanoides</i>	Greenbrier	<i>Ilex</i>
Maple-leaf Viburnum	<i>Viburnum acerifolium</i>		

EXOTIC INVASIVES

Barberry	<i>Berberis</i> Sp.	Burning Bush	<i>Euonymus alatus</i>
Multi-flora Rose	<i>Rosa multiflora</i>	Bittersweet	<i>Celastrus orbiculatus</i>
Privet	<i>Ligustrum</i> Sp	Honeysuckle	<i>Lonicera</i> Sp
Knotweed	<i>Polygonum</i> Sp	Tree-of-Heaven	<i>Ailanthus altissima</i>