



New Jersey
NATURAL LANDS TRUST

AGENDA

NATURAL LANDS TRUST MEETING

March 22, 2019

Location: Office of Natural Lands Management

501 E. State Street, 5 Station Plaza

4th Floor Large Conference Room

Trenton, NJ

12:00 PM

- I. Statement of Open Public Meetings Act**
- II. General Public Comment**
- III. Financial Report**
 - Third and Fourth Quarter 2018 Financial Reports, for decision
- IV. Minutes**
 - September 14, 2018 minutes, for decision
- V. Unfinished Business**
 - Petty's Island, Pennsauken Township, Camden County, status update (no enclosure)
- VI. New Business**
 - Calendar Year 2019 Spending Authorization, for decision
 - Tennessee Gas Pipeline (TGP) Plant Fund-Calendar Year 2019 Annual Work Plan, for decision
 - Bear Creek Preserve-Stefanik/GA Land Management Assignment Offer, Allamuchy Township, Warren County, for decision
 - Sooy Place Project Area, Woodland Township, Burlington County, for decision
 - Table Mountain Pine Five-Year Restoration Plan, Abraitys Pine Stand Preserve, Hunterdon County, for discussion
 - Draft 2018 Annual Report Text, for decision (no enclosure)
 - 50th Anniversary of NJ Natural Lands Trust, for discussion
- VII. Adjourn**

THE NEW JERSEY NATURAL LANDS TRUST
STATEMENT OF FINANCIAL POSITION
SEPTEMBER 30, 2018

Statement 1

(See Accountant's Review Report)

	Unrestricted General Fund	Temporarily Restricted Funds								Permanently Restricted Funds	TOTAL
		Hypocrex	Petty's Island	Petty's Island Cultural	Shorebird	TGP Acquisition	TGP Animals	TGP Plants	Wetlands Acquisition		
ASSETS											
Current Assets											
Cash and Cash Equivalents	\$ 2,072,507	\$ 61,241	\$ 1,238,698	\$ 1,153,968	\$ 3,000	\$ 625,011	\$ 1,332,419	\$ 1,155,511	\$ 15,941	\$ 4,377,773	\$ -
Tenants Escrow	3,040	-	-	-	-	-	-	-	-	-	-
Due to Bennett Bogs Endowment	-	-	-	-	-	-	-	-	-	-	25,000
Due to Hirst Pond Endowment	-	-	-	-	-	-	-	-	-	-	25,000
Due to Hainesville Wood Endowment	-	-	-	-	-	-	-	-	-	-	25,000
Due to Moorestown Acq Endowment	-	-	-	-	-	-	-	-	-	-	168,344
Due to Stevens Endowment	-	-	-	-	-	-	-	-	-	-	5,603
Accrued Interest Receivable	-	-	-	-	-	-	-	-	-	-	0
Total Current Assets	2,075,547	61,241	1,238,698	1,153,968	3,000	625,011	1,332,419	1,155,511	15,941	4,377,773	248,947
Fixed Assets											
Land	-	-	-	-	-	-	-	-	-	-	38,079,629
Equipment	-	-	-	-	-	-	-	-	-	-	2,364
Vehicles	-	-	-	-	-	-	-	-	-	-	15,944
Accumulated Depreciation	-	-	-	-	-	-	-	-	-	-	(17,908)
Total Fixed Assets	-	-	-	-	-	-	-	-	-	-	38,079,629
Other Assets											
Investments-Long Term (FMV)	0	-	-	-	20,513	-	-	-	-	-	20,513
Due From Related Fund	444	-	81,000	-	-	-	-	-	-	-	81,444
Total Other Assets	444	-	81,000	-	20,513	-	-	-	-	-	101,957
TOTAL ASSETS	\$ 2,075,991	\$ 61,241	\$ 1,319,698	\$ 1,153,968	\$ 23,513	\$ 625,011	\$ 1,332,419	\$ 1,155,511	\$ 15,941	\$ 4,377,773	\$ 38,328,576
LIABILITIES & NET ASSETS											
Liabilities											
Due To Related Fund	\$ 81,000	\$ -	\$ 444	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 81,444.00
Due to Endowment Account	248,947	-	-	-	-	-	-	-	-	-	248,947
Security Deposits Payable	2,792	-	-	-	-	-	-	-	-	-	2,792
Total Liabilities	332,739	-	444	-	-	-	-	-	-	-	333,183
Net Assets											
Unrestricted	1,743,252	-	-	-	-	-	-	-	-	-	1,743,252
Permanently Restricted	-	-	-	-	-	-	-	-	-	-	38,328,576
Temporarily Restricted	-	61,241	1,319,254	1,153,968	23,571	625,011	1,332,419	1,155,511	15,941	4,377,773	-
Unrealized Gain/Loss	-	-	-	-	(58)	-	-	-	-	-	(58)
Total Net Assets	1,743,252	61,241	1,319,254	1,153,968	23,513	625,011	1,332,419	1,155,511	15,941	4,377,773	38,328,576
TOTAL LIABILITIES & NET ASSETS	\$ 2,075,991	\$ 61,241	\$ 1,319,698	\$ 1,153,968	\$ 23,513	\$ 625,011	\$ 1,332,419	\$ 1,155,511	\$ 15,941	\$ 4,377,773	\$ 50,469,842

The accompanying notes are an integral part of the financial statements.

THE NEW JERSEY NATURAL LANDS TRUST
STATEMENT OF ACTIVITIES AND NET ASSETS
FOR THE NINE MONTH PERIOD ENDED
SEPTEMBER 30, 2018

Statement 2

(See Accountant's Review Report)

	Trust Funds											
	General Fund	Hyponex	Petty's Island	Petty's Island Cultural	Shorebird	TGP Acquisition	TGP Animals	TGP Plants	Wetlands Acquisition	Wetlands Mitigation	Permanently Restricted Funds	TOTAL
Revenue (Restricted)												
Contribution Income	\$ 373	\$ -	\$ 134,320	\$ -	\$ -	\$ 126,400	\$ -	\$ 505,600	\$ -	\$ 11,622	\$ -	\$ 778,315
Expense												
Materials and Supplies	443	-	-	-	-	-	-	-	-	-	-	443
Services	7,563	-	-	-	-	-	-	-	-	-	-	7,563
Maintenance	34,045	-	-	-	-	-	-	-	-	-	-	34,045
Annual Report	500	-	-	-	-	-	-	-	-	-	-	500
Capital	-	-	-	-	-	-	-	-	-	-	-	-
Educational Programming	-	-	-	-	-	-	-	-	-	-	-	-
Other Authorized Expenditures	-	-	28,507	-	58,273	-	-	12,064	-	392,770	-	491,614
Depreciation Expense	-	-	-	-	-	-	-	-	-	-	-	-
Total Expenses	42,551	-	28,507	-	58,273	-	-	12,064	-	392,770	-	534,165
Other Income												
Rent Income	19,350	-	-	-	-	-	-	-	-	-	-	19,350
Interest/Dividend Income	25,053	744	14,687	14,027	939	7,559	16,197	13,989	194	56,139	-	149,528
Miscellaneous Income	4,910	-	-	-	-	-	-	-	-	-	-	4,910
Gain or Loss on Sale	(584)	-	-	-	-	-	-	-	-	-	-	(584)
Total Other Income	48,729	744	14,687	14,027	939	7,559	16,197	13,989	194	56,139	-	173,204
Excess Revenues Over Expenses/ Excess (Expenses) Over Revenues												
\$ 6,551	\$ 744	\$ 120,500	\$ 14,027	\$ (57,334)	\$ 133,959	\$ 16,197	\$ 507,525	\$ 507,525	\$ 194	\$ (325,009)	\$ -	\$ 417,354
Net Asset Balance Dec 31, 2017												
\$ 1,965,648	\$ 60,497	\$ 1,198,754	\$ 1,139,941	\$ 82,649	\$ 491,052	\$ 1,316,222	\$ 647,986	\$ 647,986	\$ 15,747	\$ 4,702,782	\$ 38,079,629	\$ 49,720,907
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	(1,802)	-	-	-	-	-	-	-	(1,802)
(248,947)	-	-	-	-	-	-	-	-	-	-	248,947	-
\$ 1,743,252	\$ 61,241	\$ 1,319,254	\$ 1,153,968	\$ 23,513	\$ 625,011	\$ 1,332,419	\$ 1,155,511	\$ 1,155,511	\$ 15,941	\$ 4,377,773	\$ 38,328,576	\$ 50,136,459
Net Asset Balance Sept 30, 2018												

The accompanying notes are an integral part of the financial statements.

THE NEW JERSEY NATURAL LANDS TRUST
STATEMENT OF FINANCIAL POSITION
DECEMBER 31, 2018

Statement 1

(See Accountant's Review Report)

	Unrestricted General Fund	Temporarily Restricted Funds								Permanently Restricted Funds	TOTAL
		Hyponex	Petty's Island	Petty's Island Cultural	Shorebird	TGP Acquisition	TGP Animals	TGP Plants	Wetlands Acquisition	Wetlands Mitigation	
ASSETS											
Current Assets											
Cash and Cash Equivalents	\$ 2,063,995	\$ 61,574	\$ 1,223,424	\$ 1,160,243	\$ 3,017	\$ 628,410	\$ 1,339,664	\$ 1,161,795	\$ 16,028	\$ 4,399,082	\$ 12,057,232
Tenants Escrow	3,040	-	-	-	-	-	-	-	-	-	3,040
Due to Bennett Bogs Endowment	-	-	-	-	-	-	-	-	-	-	19,600
Due to Hirst Pond Endowment	-	-	-	-	-	-	-	-	-	-	25,000
Due to Hainesville Wood Endowment	-	-	-	-	-	-	-	-	-	-	25,000
Due to Moorestown Acq Endowment	-	-	-	-	-	-	-	-	-	-	168,344
Due to Stevens Endowment	-	-	-	-	-	-	-	-	-	-	5,603
Accrued Interest Receivable	-	-	-	-	-	-	-	-	-	-	0
Total Current Assets	2,067,035	61,574	1,223,424	1,160,243	3,017	628,410	1,339,664	1,161,795	16,028	4,399,082	12,303,819
Fixed Assets											
Land	-	-	-	-	-	-	-	-	-	-	38,079,629
Equipment	-	-	-	-	-	-	-	-	-	-	2,364
Vehicles	-	-	-	-	-	-	-	-	-	-	15,544
Accumulated Depreciation	-	-	-	-	-	-	-	-	-	-	(17,908)
Total Fixed Assets	-	-	-	-	-	-	-	-	-	-	38,079,629
Other Assets											
Investments-Long Term (FMV)	-	-	-	-	20,873	-	-	-	-	-	20,873
Due From Related Fund	3,343	-	81,000	-	-	-	-	-	-	-	84,343
Total Other Assets	3,343	-	81,000	-	20,873	-	-	-	-	-	105,216
TOTAL ASSETS	\$ 2,070,378	\$ 61,574	\$ 1,304,424	\$ 1,160,243	\$ 23,890	\$ 628,410	\$ 1,339,664	\$ 1,161,795	\$ 16,028	\$ 4,399,082	\$ 50,488,664
LIABILITIES & NET ASSETS											
Liabilities											
Due To Related Fund	\$ 81,000	\$ -	\$ 3,343	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 84,343.00
Due to Endowment Account	243,547	-	-	-	-	-	-	-	-	-	243,547
Security Deposits Payable	2,792	-	-	-	-	-	-	-	-	-	2,792
Total Liabilities	327,339	-	3,343	-	-	-	-	-	-	-	330,682
Net Assets											
Unrestricted	1,743,039	-	-	-	-	-	-	-	-	-	1,743,039
Permanently Restricted	-	-	-	-	-	-	-	-	-	-	38,323,176
Temporarily Restricted	-	61,574	1,301,081	1,160,243	25,607	628,410	1,339,664	1,161,795	16,028	4,399,082	10,093,484
Unrealized Gain/Loss	-	-	-	-	(1,717)	-	-	-	-	-	(1,717)
Total Net Assets	1,743,039	61,574	1,301,081	1,160,243	23,890	628,410	1,339,664	1,161,795	16,028	4,399,082	50,157,982
TOTAL LIABILITIES & NET ASSETS	\$ 2,070,378	\$ 61,574	\$ 1,304,424	\$ 1,160,243	\$ 23,890	\$ 628,410	\$ 1,339,664	\$ 1,161,795	\$ 16,028	\$ 4,399,082	\$ 50,488,664

The accompanying notes are an integral part of the financial statements.

THE NEW JERSEY NATURAL LANDS TRUST
STATEMENT OF ACTIVITIES AND NET ASSETS
FOR THE YEAR ENDED
DECEMBER 31, 2018

Statement 2

(See Accountant's Review Report)

	Trust Funds											
	General Fund	Hyponex	Petty's Island	Petty's Island Cultural	Shorebird	TGP Acquisition	TGP Animals	TGP Plants	Wetlands Acquisition	Wetlands Mitigation	Permanently Restricted Funds	TOTAL
Revenue (Restricted)												
Contribution Income	\$ 373	\$ -	\$ 134,320	\$ -	\$ -	\$ 126,400	\$ -	\$ 505,600	\$ -	\$ 11,622	\$ -	\$ 778,315
Expense												
Materials and Supplies	443	-	-	-	-	-	-	-	-	-	-	443
Services	9,679	-	-	-	-	-	-	-	-	-	-	9,679
Maintenance	48,274	-	-	-	-	-	-	-	-	-	5,400	53,674
Annual Report	500	-	-	-	-	-	-	-	-	-	-	500
Capital	-	-	2,899	-	-	-	-	-	-	-	-	2,899
Educational Programming	-	-	-	-	-	-	-	-	-	-	-	-
Other Authorized Expenditures	-	-	50,488	-	58,273	-	-	12,064	-	395,254	-	516,079
Depreciation Expense	-	-	-	-	-	-	-	-	-	-	-	-
Total Expenses	58,896	-	53,387	-	58,273	-	-	12,064	-	395,254	5,400	583,274
Other Income												
Rent Income	25,000	-	-	-	-	-	-	-	-	-	-	25,000
Interest/Dividend Income	35,535	1,077	21,394	20,302	1,173	10,958	23,442	20,273	281	79,932	-	214,367
Miscellaneous Income	4,910	-	-	-	-	-	-	-	-	4,910	-	4,910
Gain or Loss on Sale	(584)	-	-	-	-	-	-	-	-	-	-	(584)
Total Other Income	64,861	1,077	21,394	20,302	1,173	10,958	23,442	20,273	281	79,932	-	243,693
Excess Revenues Over Expenses/ Excess (Expenses) Over Revenues												
\$ 6,338	\$ 1,077	\$ 102,327	\$ 20,302	\$ (57,100)	\$ 137,358	\$ 23,442	\$ 513,809	\$ 281	\$ (303,700)	\$ (5,400)	\$ 438,734	
Net Asset Balance Dec 31, 2017												
Land Acquisition	1,985,648	\$ 60,497	\$ 1,198,754	\$ 1,139,941	\$ 82,649	\$ 491,052	\$ 1,316,222	\$ 647,986	\$ 15,747	\$ 4,702,782	\$ 38,079,629	\$ 49,720,907
Unrealized Loss/Gain	-	-	-	-	-	-	-	-	-	-	-	-
Inter Fund Transfer	-	-	-	-	(1,659)	-	-	-	-	-	-	(1,659)
Net Asset Balance Dec 31, 2018												
(248,947)	\$ 1,743,039	\$ 51,574	\$ 1,301,081	\$ 1,180,243	\$ 23,890	\$ 628,410	\$ 1,339,664	\$ 1,161,795	\$ 16,028	\$ 4,399,082	\$ 38,323,176	\$ 50,157,982

The accompanying notes are an integral part of the financial statements.

**MINUTES OF THE
NATURAL LANDS TRUST MEETING
September 14, 2018**

12:00 PM

Office of Natural Lands Management, Trenton, New Jersey

Chairman Catania called the meeting to order at 12:08 PM and roll was taken. A quorum of trustees was present. At least one of the trustees was a state governmental representative.

The Open Public Meetings Act notice was read as follows: Notice of the date, time, location and agenda, to the extent known, was forwarded to three newspapers of general circulation, and provided to the Secretary of State in accordance with the Open Public Meetings Act. It was also noted that such notice was provided on the Trust's website in compliance with the Act requiring State, regional, and local authorities, boards, and commissions to establish a website providing specific information to facilitate transparency in government.

In attendance were:

Michael Catania, Chairperson
James Hall, Vice Chairperson
Theresa Lettman, Trustee/Secretary-
Treasurer
Judeth Yeany, DEP Trustee
Larry Torok, DEP Trustee
Emile DeVito, Trustee

Steve Eisenhower, Trustee
Adrienne Kreipke, alternate for Ray
Bukowski, Trustee representative for the
DEP Commissioner
Robert J. Cartica, Executive Director
Martin Rapp, Trust Staff
Cari Wild, Trust Staff

Absent were:

State House Commission representative (not appointed)
Hannah Good, Trustee representative for the State Treasurer
Thomas Gilmore, Trustee

Guests:

Amanda Dey, NJ Endangered and Nongame Species Program
David Wheeler, Conserve Wildlife Foundation

General Public Comment:

Financial Report: Mr. Cartica outlined the Financial Statements for the quarters ending March 31, 2018 and June 30, 2018. Ms. Kreipke motioned to approve the Financial Statements. Ms. Yeany seconded the motion and the Financial Statements were unanimously approved by a vote of 8 to 0.

The **March 16, 2018 minutes** were reviewed. Mr. Hall motioned to approve the minutes. Mr. DeVito seconded the motion and the minutes were unanimously approved by a vote of 8 to 0.

Unfinished Business:

Mr. Catania and Ms. Wild provided the Board with a **Petty's Island, Pennsauken Township, Camden County Status Report** which included an update on the termination of Crowley's operations on April 30, 2018. Crowley is in the process of removing the 50-acre asphalt parking lot and restoring it to native vegetation. The Board was advised that the documentary *500 Acres of Controversy: Saving Petty's Island* was screened at various locations throughout the summer. An audio history tour via TravelStorys app is available along the trail on the island. There will also be a water trail option provided in the next couple of months. We have received the rough cut of the documentary *Petty's Island: A Journey Back to Nature* about the island's many natural resources. Finally, the Trust will be participating in the Alliance for Watershed Education's (AWE) third annual River Days Festival along the Camden waterfront promenade on September 15th and is hosting four separate River Days events at Petty's Islands during the month-long event.

New Business:

Ms. Dey and Mr. Wheeler presented the **Delaware Bay Migratory Shorebird Project 2019 Budget Request for the Conserve Wildlife Foundation (CWF) and the Endangered and Nongame Species Program (ENSP)**. Ms. Wild advised the Board that the proposed 2019 shorebird budget totals \$41,000 which includes \$31,000 for CWF and \$10,000 for ENSP. In 2017, \$49,500 was budgeted. As of today, \$26,614 remains in the fund and, after final reimbursement for remaining 2018 expenses (\$9,854), the Trust's Shorebird Fund will be left with \$16,760. However, Ms. Dey and Mr. Wheeler may not seek reimbursement of remaining 2018 expenses and expect reimbursement of at least \$35,000 to the shorebird fund through a National Fish and Wildlife Foundation (NFWF) grant, bringing the expected balance to \$51,760.

Ms. Dey indicated that the peak count of the stopover population of red knots on Delaware Bay during 2018 increased from approximately 17,969 to 32,930. Mean horseshoe crab egg density increased from 2,796 eggs/m² in 2017 to 14,000 eggs/m² in 2018 (preliminary findings) and the number of surface eggs increased through the Delaware Bay stopover period creating good foraging conditions for red knot and other shorebirds.

Mr. Catania requested that, as with prior budgets, the 2019 shorebird budget should be approved with a rider authorizing a reallocation of expenses between categories subject to a limitation of the total budgeted amount. He also requested that the Board authorize a \$31,000 upfront payment to CWF to fund Delaware shorebird work to be done in May and June 2019 with receipts for such work to be provided later. However, the Board's budget approval and authorization of the \$31,000 upfront payment is subject to available funds in the shorebird account. Mr. DeVito motioned to approve the 2019 budget with the reallocation rider and upfront \$31,000 payment subject to available funds. Mr. Hall seconded the motion and the 2019 shorebird budget was unanimously approved by a vote of 8 to 0.

The Board considered the proposed **Mackenzie's Bog Preserve-The Nature Conservancy Land Donation Offer in Andover Township and Newton Town, Sussex County**. Mr. DeVito

motioned to approve this land donation offer. Mr. Hall seconded the motion and the offer was approved by a vote of 7 to 0. Ms. Yeany recused herself from the matter because her office is involved in approving the transfer.

The Board considered the proposed **Bennett Bogs Preserve-New Jersey Audubon Society Land Donation Offer in Lower Township, Cape May County**. Mr. DeVito motioned to approve this land donation offer. Mr. Torok seconded the motion and the offer was unanimously approved by a vote of 8 to 0.

The Board considered the proposed **Hagedorn Preserve-Clemson/GA Land Management Assignment Offer in Lebanon Township, Hunterdon County**. Mr. DeVito motioned to approve this land management assignment. Ms. Lettman seconded the motion and the land management assignment was approved by a vote of 7 to 0. Ms. Yeany recused herself from the matter based on the advice from the NJ Attorney General's Office that her vote may present an appearance of conflict notwithstanding that she has no personal or financial stake in Trust management assignments.

The Board considered the proposed **Clarks Landing Preserve-Lakew & Teferra/GA Land Management Assignment Offer in Galloway Township, Atlantic County**. Mr. DeVito motioned to approve this land management assignment. Ms. Lettman seconded the motion and the land management assignment was approved by a vote of 7 to 0. Ms. Yeany recused herself from the matter based on the advice from the NJ Attorney General's Office that her vote may present an appearance of conflict notwithstanding that she has no personal or financial stake in Trust management assignments.

The Board discussed potential activities and events to commemorate the Trust's 50th Anniversary in 2019.

- Trust website will be updated so that the home page highlights the 50th Anniversary and may include a timeline of accomplishments in Trust's first 50 years.
- The June meeting to be hosted at a Trust preserve where former trustees and others are invited. Maybe a 50th Anniversary banner for this meeting and other Trust events?
- Press releases/events regarding the Trust's anniversary and maybe some big Trust announcements?

The remaining 2018 Board meeting date is December 7th, 2018

Ms. Kreipke motioned for the meeting to be adjourned. Mr. Hall seconded the motion, and the meeting was adjourned at 1:54 PM by a unanimous vote of 8 to 0.

Respectfully submitted,

Theresa Lettman
Secretary/Treasurer



**NEW JERSEY NATURAL LANDS TRUST
SPENDING AUTHORIZATION FOR
CALENDAR YEAR 2019**

	<u>2018 Authorization</u>	<u>2018 Expenditure</u>	<u>2019 Authorization</u>
MATERIALS AND SUPPLIES	\$2,000	\$443	\$2,000

General Printing, Office Supplies and Mail Services - \$2,000

Includes routine office supplies, photocopying, reference materials and publications, maps and reproduction of maps, creating signage, and similar expenses. Production and printing of the Annual Report is not included under this category. If needed, this item will fund additional functions for outreach and volunteers for management and acquisition.

SERVICES	\$36,700	\$9,679	\$23,700
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Travel - \$700

Includes funds for refreshments for Board meetings, travel and parking reimbursement for meetings of Board of Trustees, and staff reimbursement for occasional use of personal vehicles.

Information Processing - \$1,000

Includes computer repairs and purchase of software.

DAG Expenses – \$7,000

Includes charges assessed to the Trust for professional services provided by staff of the Attorney General's office.

Other Professional Services - \$15,000

Includes cost of professional accounting services, maintenance of the Trust's website, title searches and filing fees for land donations, legal advertisement of Board of Trustees meeting dates, membership fees and bank service charges. Also includes routine professional service contracts for surveys and preparation of deeds. Minimal back taxes are included as part of this line; however, substantial tax payments will be included in each offering brought to the Board.

	<u>2018 Authorization</u>	<u>2018 Expenditure</u>	<u>2019 Authorization</u>
MAINTENANCE AND FIXED CHARGES	\$104,000	\$48,274	\$91,000

General Maintenance of Buildings, Grounds, Equipment and Vehicle - \$30,000

Includes funds for maintenance of rental units (including furnace or roof replacement, road regrading, power restoration, and other emergency measures), gates and access, safety/stabilization needs, tree trimming and removal, dumpster rental, encroachment surveys, etc., as needed. Major planned maintenance and capital improvement projects are not included within this authorization and would be submitted individually, together with a recommended funding source, to the Board for consideration.

Conservation/Preserve Management Projects - \$61,000

The following planned projects are relevant to the Trust's mission of preservation of biodiversity. The costs for each project are gross estimates and quotes have not yet been sought.

Sooy Place Preserve: Biodiversity Inventory - **\$23,000**

Wallkill Preserve: Biodiversity Inventory - **\$23,000**

Bennett Bogs Preserve Management¹ - **\$5,000**

Other directed preserve surveys - **\$10,000**

ANNUAL REPORT	\$500	\$500	\$500
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2018 Annual Report - \$500

The requested authorization includes the cost of graphic layout and development of the annual report for posting on the Trust's website.

CAPITAL	\$2,500	\$0	\$2,500
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Miscellaneous Equipment Purchase and Replacement - \$8,000

This budget allows for miscellaneous small equipment and supply purchases used for land management and office function.


TOTAL 2019 SPENDING AUTHORIZATION	\$145,700	\$58,896	\$119,700
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¹ To be funded using Bennett Bogs endowment.



The New Jersey
NATURAL LANDS TRUST

To: Olivia Glenn, Director
Division of Parks and Forestry

Through: John Sacco, Director/State Forester 
New Jersey Forest Service

From: Robert J. Cartica, Executive Director 
New Jersey Natural Lands Trust

Date: March 12, 2019

Subject: TGP Plant Fund - Annual Work Plan for Calendar Year 2019

A 2015 Memorandum of Agreement (MOA) between the Division of State Forestry Services, now Division of Parks and Forestry (Division), and the New Jersey Natural Lands Trust (Trust) outlines procedures for the transfer and management of mitigation funds received by the Division from the Tennessee Gas Pipeline Company, LLC and transferred from the Division to the Trust (TGP Plant Fund).

The MOA requires that no later than March 1 of each year the Division shall provide to the Trust an Annual Work Plan and a certification signed by the Division Director for disbursements from the TGP Plant Fund during the calendar year. Enclosed for your review and approval is a 2019 Annual Work Plan and certification form authorizing TGP Plant Fund expenditures totaling \$104,380 which will be presented to the Board of Trustees of the Trust at its annual financial meeting scheduled for March 22, 2019.

Proposed expenditures during 2018 are to be used to maintain employment for Jason Hafstad under the Office of Natural Lands Management's hourly employee blanket to perform diverse functions in support of Division and other DEP properties under the Natural Heritage Program, including but not limited to botanical field survey and data collection, database entry, and project/activity review. Per the enclosed CY 19 Annual Work Plan, the ONLM anticipates expenditures from the TGP Plant Fund for Jason Hafstad in the amount of \$31,380.

In addition, in 2018 the ONLM, NJFS launched a new initiative aimed at recovery of endangered and rare plant species. The Rare Plant Species Five-year Recover Planning initiative aims to take a comprehensive science-based approach to guide management and recovery of selected priority plant species on lands managed by the DEP. The intent for each species selected for this initiative is to perform research, develop planning, seek funding, implement annual activities, and monitor and adaptively manage results within an initial five-year time horizon. Per the enclosed CY 19 Annual Work Plan, the ONLM anticipates expenditures from the TGP Plant Fund for recovery plan development and management activities in the amount of \$73,000.

Please sign and date the enclosed expenditure certification if you approve of the CY 19 Annual Work Plan and TGP Plant Fund disbursement.

Enclosure

c: Robin Madden
John Sacco

TGP Plant Fund - Annual Work Plan for Calendar Year 2019

**Division of Parks and Forestry
March 12, 2019**

The Division of Parks and Forestry (Division) authorizes the following expenditures from the New Jersey Natural Lands Trust's TGP Plant Fund during Calendar Year 2018:

Summary: Continued funding for hourly Field Botanist/Data Manager under the Office of Natural Lands Management's hourly blanket #804143 to perform duties in support of the New Jersey Natural Heritage Program, including but not limited to botanical field survey and data collection, database entry, project/activity review. First year of Rare Plant Species Five-year Recovery Planning initiative. Activities to include research on species and Recovery Plan development, in-house and contractual, field and greenhouse activities

Estimated Budget:

Salary and Fringe: Jason Hafstad

Salary: 26.5 pay periods, 50 hours/pay period ¹ @ \$22.00/hour	\$29,150
Fringe (only) @ 7.65	\$2,230
Subtotal Salary and Fringe	\$31,380

Rare Plant Species Five-year Recovery Planning

Species	Activity	Estimated Cost
American Chaffseed	Habitat preparation; propagation	\$5,000
Table Mountain Pine	Habitat preparation; planting	\$5,000
Broom Crowberry	Habitat management	\$15,000
Bog Asphodel	Habitat management; research	\$8,000
Pickering's Morning-glory	Contract for recovery plan	\$17,500
Hirst Brothers' Panic Grass	Field surveys	\$5,000
Pine Barren Gentian	Contract for recovery plan	\$17,500
Appalachian Mtn. Boltonia	Field surveys	\$5,000
Subtotal Recovery Planning		\$73,000

Total 2019 Budget: \$104,380

¹ Estimated hours exceed hourly employee maximum of 900 hours per fiscal year. Hours in excess of this limit as a temporary contract employee would be subject to approval by DEP Budget & Financial Operations.



NEW JERSEY NATURAL LANDS TRUST
CERTIFICATION FOR TRUST EXPENSES

VENDOR NAME: Treasurer, State of NJ

INVOICE NUMBER: N/A

GENERAL FUND:

Materials and Supplies

General Printing/Office Supplies []
Clothing/Volunteer Materials []

Maintenance and Fixed Charges

General Maintenance []
Major Project []

Services Other Than Personnel

Travel []
Information Processing []
DAG Charges []
Professional Services []

Annual Report []

Capital []

OTHER FUND:

[]

Shorebird Fund

ENSP []
Conserve Wildlife []
Wetlands Mitigation Fund []

Wetlands Mit. Acq. Fund []
Real Property []
Acquisition Cost []

Other Fund: TGP Plant Fund

ITEM

COST

Calendar Year 2019 funding for Rare Plant Species Recovery Planning materials, activities and services	\$73,000.00
	\$73,000.00

I certify that the goods or services described above have been received or rendered as stated. A vendor's receipt is attached.

Signature

Date

3/12/19

AUTHORIZATION NUMBER: _____

CHECK NUMBER: _____ CREDIT CARD: ☐

DISBURSEMENT APPROVAL: _____

DATE OF DISBURSEMENT: _____

DATE OF COMPUTER ENTRY: _____

DATE CHECK MAILED: _____



NEW JERSEY NATURAL LANDS TRUST
CERTIFICATION FOR TRUST EXPENSES

VENDOR NAME: Treasurer, State of NJ

INVOICE NUMBER: N/A

GENERAL FUND:

Materials and Supplies

General Printing/Office Supplies []
Clothing/Volunteer Materials []

Maintenance and Fixed Charges

General Maintenance []
Major Project []

Services Other Than Personnel

Travel []
Information Processing []
DAG Charges []
Professional Services []

Annual Report []

Capital []

OTHER FUND:

[]

Shorebird Fund

ENSP []
Conserve Wildlife []
Wetlands Mitigation Fund []

Wetlands Mit. Acq. Fund []

Real Property []
Acquisition Cost []

Other Fund: TGP Plant Fund

ITEM

COST

Calendar Year 2019 salary and operating expenses for Field Botanist/Data Manager hourly employee under ONLM blanket #804143	\$31,380.00
	\$31,380.00

I certify that the goods or services described above have been received or rendered as stated. A vendor's receipt is attached.

Signature

Date

3/12/19

AUTHORIZATION NUMBER: _____

CHECK NUMBER: _____ CREDIT CARD: ☐

DISBURSEMENT APPROVAL: _____

DATE OF DISBURSEMENT: _____

DATE OF COMPUTER ENTRY: _____

DATE CHECK MAILED: _____



**The New Jersey Natural Lands Trust
LAND OFFERING FORM**

Site Name: Bear Creek-Andrew & Stefanik/GA
ID#: 042-11

Donor(s): Green Acres
Address: 501 East State Street
City, State, Zip: Trenton, NJ 08625
Phone: 609-984-0500
Agent/Contact: Rich Osborn

Municipality: Allamuchy Township
County: Warren
Quad Name:
Frontage: Shades of Death Road
Block: 201
Lots: 7

Acreage/dimensions: Approximately 7.5 acres
Assessed value: \$11,300

Improvements: None
Offer restrictions: None
Offer contingencies: None
ROWS or easements: None

Type of Acquisition: Land Management Assignment

Property taxes paid through end of year transfer: Yes
Property taxes paid by: Green Acres

Farmland assessed: No

Estimated annual management costs: Nominal
Land management fund donation: None

Deed Preparation: Green Acres
Intended date of closing:
Property survey & monuments: Yes

Description of Offering

This approximately 7.5-acre Land Management Assignment Offer is in Allamuchy Township, Warren County. The property is adjacent to the Trust's Bear Creek Preserve but is outside of the Bear Creek Project Area. The property has road frontage on Shades of Death Road.

Ecological Description

This property is located within the glaciated Ridge and Valley region of northwestern New Jersey and is almost completely forested with approximately 50 percent being forested wetlands. The property also includes two small ponds and a small patch of old field, which has succeeded to scrub brush. The bulk of the property is mapped as Landscape 4 which is habitat for the state endangered bobcat and blue spotted salamander and the state threatened barred owl as well as several other wildlife species of concern. The two ponds are mapped as Landscape 2 and include habitat for great blue heron.

The property generally can be considered important habitat based on its adjacency to the Bear Creek Project Area, which includes confirmed critical habitat for the federally endangered, state endangered dwarf wedgemussel, the federally threatened, state endangered bog turtle, and several state endangered plant species such as spreading globe flower, water sedge, few-flower spike-rush, Labrador marsh bedstraw, and small bedstraw.

Management Issues and Concerns

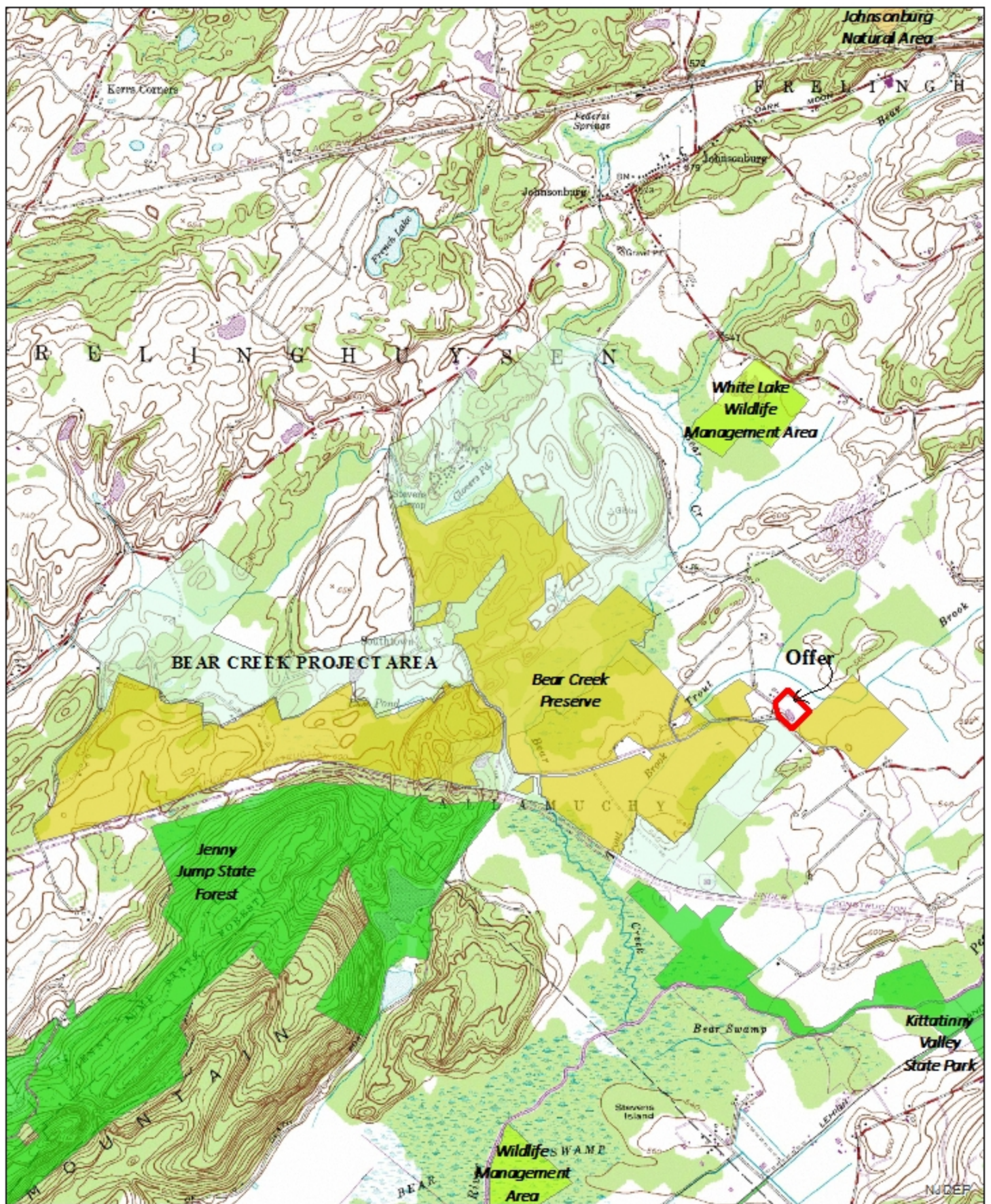
Based on its inspection and proximity to the existing Bear Creek Preserve, staff does not expect this additional property to pose management concerns.

Acquisition Criteria

The property meets the Board's acquisition criteria for Endangered Species Habitat since it includes suitable habitat for state or federally listed plant or animal species.

Staff Recommendations

Staff recommends the approval of this Land Management Assignment as an addition to the Trust's Bear Creek Preserve.



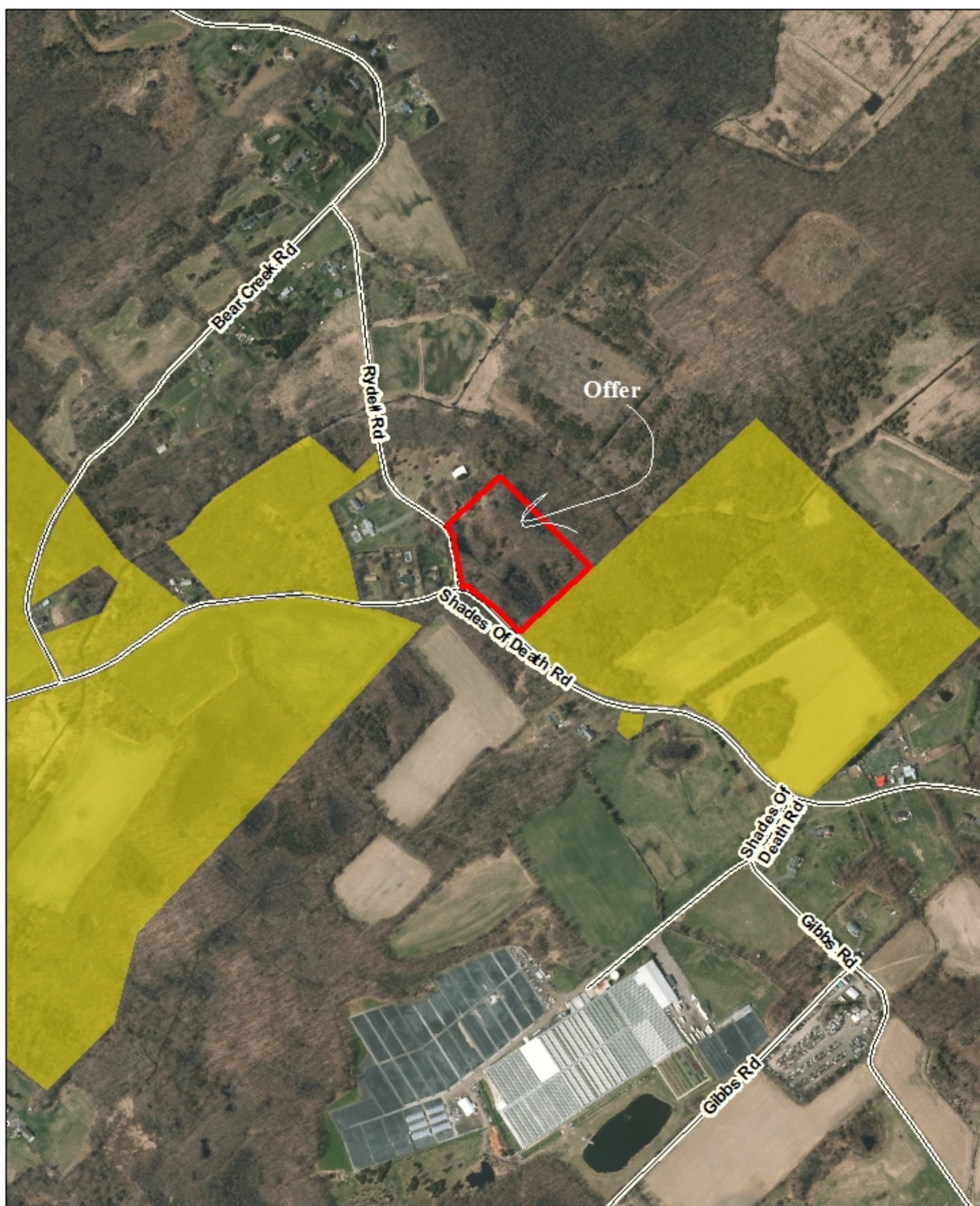
New Jersey Natural Lands Trust

Bear Creek Andrew & Stefanik/GA

Allamuchy Township, Warren County, New Jersey

0 0.25 0.5 7.5 Acres 1.5 Miles





New Jersey Natural Lands Trust
Bear Creek Andrew & Stefanik/GA
Allamuchy Township, Warren County, New Jersey
7.5 Acres





SOOY PLACE PROJECT AREA
Woodland Township, Burlington County
March 22, 2019

Description of Project Area

The proposed Sooy Place Project Area in Woodland Township, Burlington County encompasses two recent offerings to Green Acres. One is an offer of donation of several small lots totaling approximately 12 acres. The other is an offer of sale of three parcels totaling approximately 15 acres.

Currently the Trust does not have a project area for Sooy Place Preserve and has been bringing offerings to the Board on a case by case basis. Since the land holdings that comprise Sooy Place Preserve are dispersed, as are the two new offers to Green Acres, a project area seems appropriate. The Sooy Place Project Area boundary has been drawn to include the existing preserve land holdings and prior land offerings approved by the Board, such as the 733-acre Cranwood Associates offer, as well as areas offering opportunities to connect portions of the existing preserve or where expansion of the preserve seems most appropriate.

The proposed boundary follows roads, streams, and the boundary of prior approved offerings. At its northern point, the project area boundary starts along Route 72 and follows it easterly while excluding three developed areas. The boundary then turns south along Route 563, until it turns west onto Panama Road. After Panama Road dead ends, the boundary pretty much follows the property boundaries of Cranwood Associates and the New Jersey Conservation Foundation's Michael Huber Prairie Warbler Preserve and then follows the Burnt Bridge Branch back out to its point of beginning at Route 72. The project area intentionally is limited to the west side of Route 563. The Trust does not intend to assume management of the numerous small properties on the eastern side of Route 563, some of which are currently owned by the Division of Parks and Forestry.

Ecological Description

The project area is mostly forested with a mix of community types including wooded wetlands, Atlantic white cedar wetlands, pitch pine lowlands and pine-oak forest. The Burrs Mill Brook traverses the project area at numerous places as do its tributaries such as the Burnt Bridge Branch and Slab Causeway Branch.

The entire project area is ranked 4 under the Landscape Project as habitat for animal species such as the state endangered timber rattlesnake and the state threatened barred owl, red-headed woodpecker and northern pine snake. Portions of the project area also include habitat for rare plants species such as Pine Barren gentian and pale beaked-rush.

Management Issues and Concerns

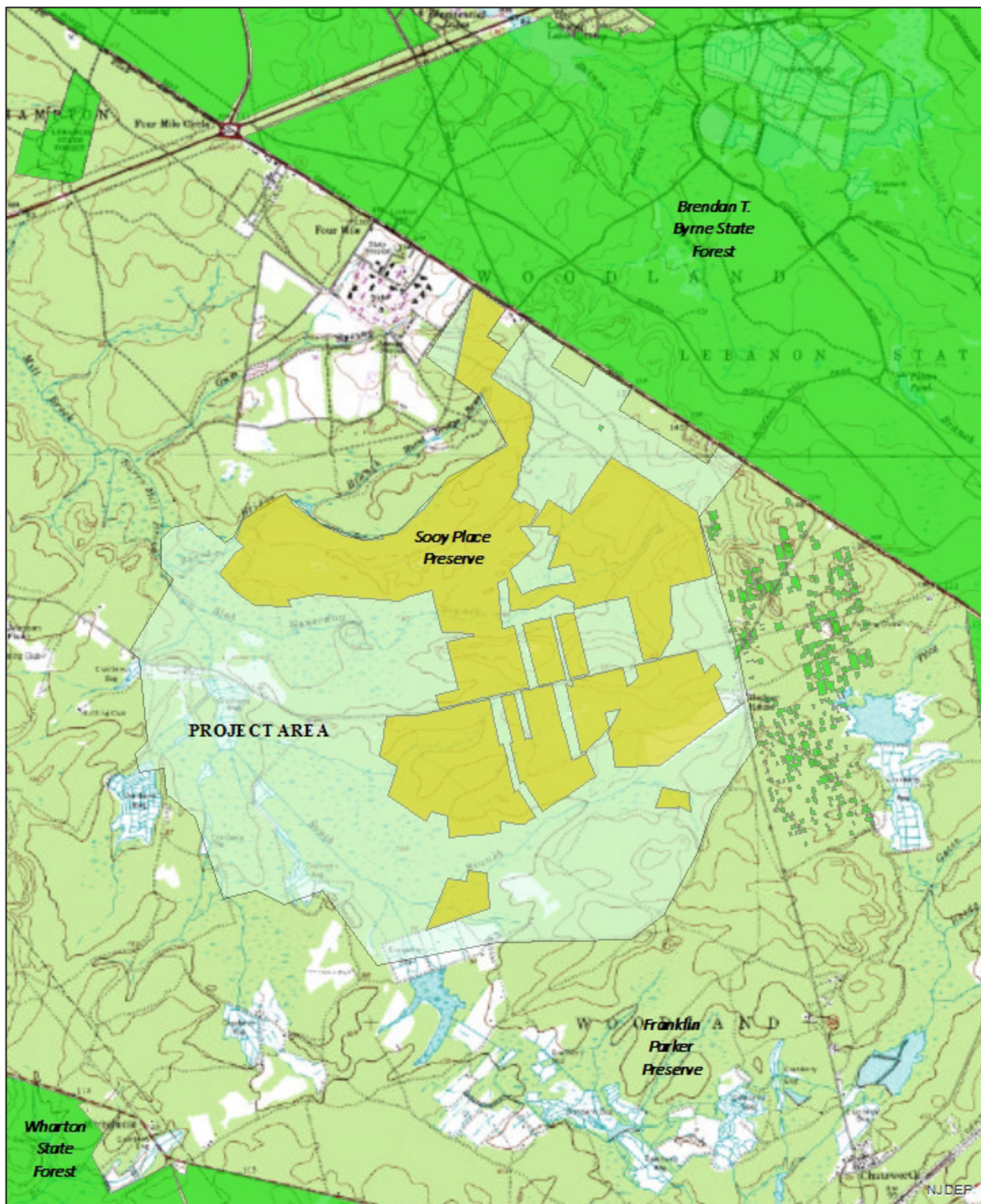
The project area expands and connects portions of the existing Sooy Place Preserve. Since the Trust already managing land in the area, managing additional lands in this area will not require new resources. Staff is familiar with this area and does not anticipate new management issues or concerns.

Acquisition Criteria

Properties within the project area meet the acquisition criteria for Endangered Species Habitat since they include habitat for a state or federally listed plant or animal species or suitable buffers to protect such species.

Staff Recommendations

Staff recommends the approval of the Sooy Place Project Area to facilitate Green Acres and/or Trust acquisitions in this area. As required by the Trust's Guidelines for Land Acquisition, lands within the project area that would present management concerns, such as structures, improvements or contamination or that would require the expenditure of Trust funds, would be brought to the Board for specific approval before acquisition.



New Jersey Natural Lands Trust

Sooy Place Project Area

Woodland Township, Burlington County, New Jersey

0 0.25 0.5 1 1.5 2 Miles



Table Mountain Pine Five-Year Restoration Plan Abraitys Pine Stand Preserve, Hunterdon County

October 31, 2018

**New Jersey Department of Environmental Protection
New Jersey Forest Service
And
New Jersey Natural Lands Trust**

Objective

The New Jersey Natural Lands Trust and the New Jersey Forest Service seek to restore a viable population of New Jersey's only known occurrence of the State Endangered *Pinus pungens* (Table Mountain pine) at the Trust's Abraitys Pine Stand Preserve, Hunterdon County.

Background

Pinus pungens (Table Mountain pine (TMP); *Pinaceae*) occurs in upland woods of the central and southern Appalachian Mountains of the eastern United States. Although typically found on thin, rocky soils from northern Georgia to Pennsylvania, several outlier populations exist outside of this main range, including the sole population documented from New Jersey. This population of TMP has been known to exist in the Sergeantsville area of Delaware Township, Hunterdon County, since the early 1800s. Recorded information dates to an 1886 entry in the Bulletin of the Torrey Botanical Club in which G.N. Best describes a field trip to the one-acre site of an abandoned old field on June 14, 1886 (Best, 1886). The stand was rediscovered decades later by local botanist Vincent Abraitys, after whom the site is now named.

Preserve Description

The Abraitys Pine Stand Preserve is 59 acres located in the village of Sergeantsville, Delaware Township, Hunterdon County. Beginning in 2003, with the help of the New Jersey Green Acres Program, 30 acres containing some live but very old individuals of TMP came under ownership of the New Jersey Natural Lands Trust (Trust), a non-profit government agency whose mission is to preserve land in its natural state for enjoyment by the public and to protect natural diversity through the acquisition of open space. A second 29-acre parcel was acquired by the Trust in 2006, where as few as two surviving TMP trees currently exist.

Although formerly an upland field, habitat conditions have completely reverted to forest, with former field boundaries now indicated only by remnants of old stone walls. See Figure 1. The existing forest canopy is dominated by red maple (*Acer rubrum*), tulip poplar (*Liriodendron tulipifera*), ash (*Fraxinus* spp.), and pitch pine (*Pinus rigida*). Shrub and herbaceous layers are almost completely dominated by nonindigenous and invasive species. The closed canopy conditions have greatly reduced successful reproduction in the TMP population, with low cone production and limited to no seedling recruitment. Today, only two mature trees are believed to

remain approximately 50 yards apart on an eastern slope, with an increment bore dating one of the trees to approximately 75 years.

Species Description

TMP is a slow growing, limby conifer. While the tallest individual recorded was well over 90 feet, most do not exceed 66 feet (Zobel, 1969). The diameter at breast height of TMP is usually about 16 inches; the maximum recorded DBH was 34 inches (Zobel, 1969). The trunk of a mature TMP is usually crooked and gnarled. Older trees display a flat crown while younger trees can take on a variety of forms, from bushy individuals in open habitat to tall and slender when found in crowded stands. Long, thick limbs often remain alive for extended periods of time on over half of the bole, even in denser stands (Zobel, 1969). Branch stubs are also retained for lengthy periods. The bark is broken up into smooth, sometimes flaky plates and thickness increases linearly with diameter (Zobel, 1970). Needles are borne two per fascicle; size averages 2.7 inches across its range, the smallest being 1.3 inches and the largest 4.1 inches. Some fascicles may contain three needles, but they are rare. Needles are retained for 2-3 years.

TMP is monoecious and wind pollinated, with male cones 0.6 inches in length and female cones ranging from 1.7 to 4.1 inches and are borne in whorls of two to seven. Cones are typically serotinous and trees mature and produce cones 5-7 years after germination (Welch et al., 2000). Cones can persist on the stem for a decade or more whether they open or remain closed (Barden, 1979). Cones are thought to open following fire, but a population in North Carolina maintained continuous reproduction in the complete absence of fire for nearly a century, suggesting that fire may not be crucial to reproduction in this species (Barden, 1977).

TMP is commonly found in upland pine/oak communities, occurring alongside chestnut oak (*Quercus montana*), pitch pine (*Pinus rigida*), white pine (*P. strobus*), and Virginia pine (*P. virginiana*). It is often found in pure stands, where it dominates the canopy (Golden, 1981). Other codominant and understory associates include eastern hemlock (*Tsuga canadensis*), black oak (*Quercus velutina*), bear oak (*Quercus ilicifolia*), eastern white oak (*Quercus alba*), hickory (*Carya* spp.), black gum (*Nyssa sylvatica*), black birch (*Betula lenta*), as well as various ericaceous shrubs such as mountain laurel (*Kalmia latifolia*), lowbush blueberry (*Vaccinium pallidum*), huckleberries (*Gaylussacia* spp.), and rhododendrons (*Rhododendron* spp.) (Brose and Waldrop, 2000).

TMP is placed in the pine family subsection *Australes* (Eastern North American, Central American and Caribbean pines) and is very closely related to pitch pine, loblolly pine (*P. taeda*), and pond pine (*P. serotina*) (Gernandt et al., 2005). TMP has been shown to possess a substantial amount of genetic diversity when compared to other coniferous species and even other woody species, with higher levels of genetic diversity being found in the northern and southern termini of its range (Gibson and Hamrick, 1991). Additionally, inter-population genetic analyses show a 13.6% difference between TMP populations, twice that of most conifer species (Gibson and Hamrick, 1991). Studies on genetic diversity suggest collecting seeds from 10-20 mother trees with at least 328 feet between each tree in sampled populations, but also recognize that this may not be feasible in extremely small populations (Jetton et al., 2015).

While a seemingly rare occurrence, there is evidence suggesting that TMP can hybridize with several other pine species. Several individuals in North Carolina displayed characteristics intermediate between TMP and pitch pine (Zobel, 1969). There is also evidence of natural hybridization between TMP and shortleaf pine (*P. echinata*) (Dorman, 1976).

Previous Management

On several occasions the Trust has collected cones as a seed source for future stand regeneration initiatives at Abraitys Pine Stand Preserve. In December 2003, when the preserve supported approximately 25 very mature TMP trees, the Trust collected cones from the forest floor and delivered them to the New Jersey Forest Service's (NJFS) Forest Tree Nursery in Jackson (NJ Forest Nursery) where approximately 1,000 viable seeds were extracted. From those seeds the NJ Forest Nursery successfully grew 50 seedlings. These progeny, consisting of two-year old seedlings, were planted back on-site in 2005 following selective removal of large hardwood canopy trees surrounding a healthy TMP and employing protection of the saplings from deer browse. However, this planting attempt failed potentially due to two consecutive years of drought, unsuitably shady planting location choice, lack of implementation of prescribed burning for site preparation, and rampant overgrowth by invasive plants including Japanese stiltgrass (*Microstegium vimineum*) and Japanese wineberry (*Rubus phoenicolasius*). In 2013, a second collection of cones resulted in several potted seedlings which did not survive at the NJ Forest Nursery. Some of this seed collected in 2013 was saved by Trust staff and was shared with the NJ Forest Nursery. Seeds stored under refrigeration at the NJ Forest Nursery failed to germinate, but those stored by Trust staff and later germinated by the NJ Forest Nursery produced 47 potted seedlings housed in the nursery as of July 2018. Average height is approximately five inches; seedlings range from two to seven inches in height and all are considered healthy. Seeds were again collected in December 2017.

Restoration Plan Components

Based on the status and history of management of TMP at Abraitys Pine Stand Preserve, the following is recommended for implementation by the NJFS in cooperation with the Trust during 2018 through 2022 to secure its continued existence at the Preserve. Results will be assessed periodically and at the conclusion of the fifth year of the plan in 2022, and the plan objective, plan components, partners and/or implementation schedule may be revised as needed.

Component 1: Extract remaining seed from preserve. The genetic material comprising TMP from this preserve is extremely limited and consists of 47 one-year greenhouse seedlings and an undetermined number of additional seed and cones collected from the site during 2017. It is critical that the forest formerly and currently supporting this species be thoroughly scoured at the earliest opportunity for any additional remaining viable genetic material for use in propagation and restoration. Collected cones and seed must be properly stored to maximize their long-term viability. To reduce the risk of catastrophic loss, seed collected in 2017 and during future collection events should be evenly divided and separately stored at NJ Forest Nursery and at the chosen Secondary Nursery (see Component 2). Further, consideration should be given to transferring a subset of seed to a reputable long-term seed storage facility, such as the UC Davis Seed Biotechnology Center.

Component 2: Establish and maintain *ex situ* seed tree orchards. When greenhouse seedlings at the NJ Forest Nursery reach appropriate maturity (two years minimum), a subset of the seedlings (20 trees-assuming 100 percent survival) should be used to create a seed tree orchard for *ex situ* conservation on the nursery grounds. These trees will serve as a source of trees, seed and cuttings for future and continuing restoration efforts. Another subset of seedlings (20 trees) should also be established in a seed tree orchard in at least one other botanical garden, academic institution or similar qualified facility where they would receive proper care and further secure the survival of this genetic material, should a catastrophic event befall both the preserve and the *ex situ* NJ Forest Nursery material. This Secondary Nursery should also store half of seed collected from the TMP site to reduce the risk of loss (see Component 1). Finally, the remaining seedlings (7 trees) should be retained in pots for initial experimental outplanting at the preserve (see Components 3 and 4).

Component 3: Prepare Abraitys Pine Stand Preserve for initial experimental outplanting. Both forested and active agricultural field habitat currently exists at the preserve. Fields currently in agriculture, once abandoned and properly prepared, may provide the most time and cost-effective locations for initial experimental outplanting of trees. Open fields also allow for simpler maintenance and monitoring. Access for vehicles and equipment will need to be addressed prior to any outplanting effort. Consideration should be given to amending soils in the selected outplanting location(s), potentially including incorporation of upper soil horizons removed from the adjacent forested habitat.

Component 4: Perform initial experimental outplanting. Once the seven seedlings retained in pots at the NJ Forest Nursery attain a minimum age of two years they should be outplanted in the fall to a properly prepared experimental location in one or two of the adjacent open fields near the existing population. Seedlings must be caged and otherwise protected from herbivory and will require regular watering. Plantings will be monitored on a bi-annual or more frequent basis, including but not limited to survival, height, crown diameter, basal trunk diameter and, eventually, DBH and reproductive output. Results will be used to inform subsequent management prescriptions for the site. Depending on the results of this initial experimental outplanting, additional outplantings may be pursued using material obtained from subsequent seed germination and cuttings (see Component 5).

Component 5: Maximize propagation through phased seed germination and cuttings. A phased approach to propagation from collected seed (see Component 1) and through clonal tip cuttings should proceed at the NJ Forest Nursery and Secondary Nursery. The resulting material will be used to augment the seed tree orchards as well as for use in additional outplanting events at the preserve (see Component 4). While germination of remaining seed collected from the preserve is likely to diminish or end during the five-year period of this plan, propagation through cuttings obtained from the seed tree orchards may continue until seed orchard trees achieve reproductive maturity.

Component 6: Forest Restoration. Rehabilitating conditions within the natural forested habitat that may stimulate germination of TMP seed and also prepare this location for future outplanting of TMP trees obtained through propagation will include prescribed burning, invasive

species control, creating canopy gaps, and deer management. The use of prescribed fire, preferably warm season application, alone or in combination with herbicide treatment, mechanical removal and deer exclusion, will be employed to increase canopy light, control non-natives, and facilitate the recolonization of native species. Fire is also expected to remove leaf litter and expose mineral soil, promoting seed germination of TMP and/or creating conditions for future TMP outplanting in created canopy gaps. The use of deer fencing will further promote the colonization of a native understory.

Component 7: Genetic Analysis. To guide efforts to conserve New Jersey genetics of this species, NJFS will explore involvement in ongoing studies of pine genetics. Camcore, an international program for tree breeding and genetic conservation, has developed a comprehensive resource for TMP genetics (Jetton et al., 2015). Based at North Carolina State University (NCSU), Camcore researchers had been in touch with Trust staff to include New Jersey's population in earlier research efforts but did not include NJ's population at that time. NJFS will contact staff affiliated with Camcore to replicate their protocols with what remains of the extant population to determine the uniqueness of NJ's population. This information should be used to verify species genetics and inform local breeding efforts. This may include conservation of unique genetics if NJ's population is distinct from neighboring populations or supplementation of planting stock if NJ's population is indistinguishable.

Five-Year Activity Schedule

Year 1 –Fall/Winter 2018

- Maintain existing TMP seedlings in the NJ Forest Nursery.
- Perform one or more cone collection events at Abraitys Pine Stand Preserve, concentrating search efforts at locations surrounding live and dead TMP trees.
- Extract seed from any collected cones and divide into two or more batches, one to be retained and stored at the NJ Forest Nursery and another to be stored at the selected Secondary Nursery. Consider transferring a subset of seed to a reputable long-term seed storage facility, such as the UC Davis Seed Biotechnology Center.
- Establish access for vehicles and equipment to potential experimental agricultural outplanting site(s) at Abraitys Pine Stand Preserve.
- Develop plans for future planting, watering, herbivory protection and monitoring of experimental outplanting site(s).
- Identify and establish relationship with selected Secondary Nursery.

Year 2 - 2019

- Consider/implement removal of seed from storage at NJ Forest Nursery and/or Secondary Nursery for germination and establishment of another seedling cohort in controlled

greenhouse environment. (Note: This is an annual activity, as determined necessary.)

- Plan and prepare *ex situ* seed tree orchard sites at NJ Forest Nursery and Secondary Nursery, taking into consideration possible future expansion to accommodate additional trees propagated from seed and cuttings.
- Consider/implement outplanting all or portion of two-year seedlings (approximately 20 trees) at *ex situ* seed tree orchards at NJ Forest Nursery and Secondary Nursery in fall 2019.
- Consider/implement outplanting remaining two-year seedlings (approximately 7 trees) at selected and properly prepared experimental agricultural outplanting location(s) on preserve.
- Consider/implement initial forest habitat restoration through application of warm season prescribed burn.
- Design/implement additional experimental invasive species control techniques (herbicide treatment, mechanical removal, deer exclusion) in combination with warm season prescribed burn. The treatment plan may include plots for monitoring different treatments (e.g., prescribed burn with/without deer exclusion, prescribed burn with herbicide treatment and deer exclusion, etc.)
- Seek/enter four-year contract for annual seedling maintenance (watering, weeding, fence/cage management, etc.) and monitoring (morphometrics and environmental conditions) at preserve experimental agricultural outplanting location(s).
- Contact Robert Jetton and Andrew Whittier from NCSU to determine whether and how to include NJ genetic material in Camcore's *Pinus pungens* project. This will likely include collection of cones/seed and/or branch clippings from established seed tree orchards.

Year 3 – 2020

- Consider/implement removal of seed from storage at NJ Forest Nursery and/or Secondary Nursery for germination and establishment of another seedling cohort in controlled greenhouse environment.
- If not implemented in 2019, outplant all or portion of three-year seedlings (approximately 20 trees) at NJ Forest Nursery and Secondary Nursery seed tree orchards.
- If not implemented in 2019, outplant remaining three-year seedlings (approximately 7 trees) at selected and properly prepared experimental agricultural outplanting location(s) on preserve.
- If not implemented in 2019, implement forest habitat restoration through application of warm season prescribed burn alone or in combination with additional experimental invasive species control techniques (herbicide treatment, mechanical removal, deer exclusion).

- If not implemented in 2019, enter contract for seedling maintenance (watering, weeding, fence/cage management, etc.) and monitoring (morphometrics and environmental conditions) at preserve experimental agricultural outplanting location(s).
- Based on assessment of seedling maturity at seed tree orchards in NJ Forest Nursery and Secondary Nursery, implement propagation from cuttings and establish in controlled greenhouse environment.
- Consider/implement outplanting of additional two-year seedlings at selected experimental agricultural outplanting location(s) on preserve.

Year 4 – 2021

- Consider/implement removal of seed from storage at NJ Forest Nursery and/or Secondary Nursery for germination and establishment of another seedling cohort in controlled greenhouse environment.
- Assess other site management needs at experimental agricultural outplanting site(s) based on monitoring data.
- Consider/implement outplanting of additional two-year seedlings at selected agricultural outplanting location(s) on preserve.

Year 5 – 2022

- Consider/implement removal of seed from storage at NJ Forest Nursery and/or Secondary Nursery for germination and establishment of another seedling cohort in controlled greenhouse environment.
- Consider/implement outplanting of additional seedlings as well as seedlings propagated from cuttings at selected experimental agricultural outplanting location(s) on preserve.
- Assess/implement forest habitat restoration through second application of warm season prescribed burn alone or in combination with additional experimental invasive species control techniques (herbicide treatment, mechanical removal, deer exclusion).
- Assess other site management needs at experimental agricultural outplanting site(s) based on monitoring data.
- Based on degree of success of outplanting at experimental agricultural location(s) and results of forested habitat restoration through prescribed fire and other methods, consider option of outplanting seedlings into forested portions of preserve.
- Assess results of annual monitoring and overall TMP restoration success and perform planning for 2023-2027

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Figure 1



New Jersey Natural Lands Trust
Abraitys Pine Stand Preserve

Delaware Township, Hunterdon County, New Jersey

