

# UPDATE ON SPARTA MOUNTAIN WMA HABITAT RESTORATION

A presentation to the NJ Fish and Game Council

by

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NJ DEP Fish & Wildlife's Endangered and  
Nongame Species Program

August 12, 2025





# The Wildlife Society Code of Ethics

## I pledge that I will:

- ❖ Subscribe to the highest standards of integrity and conduct
- ❖ Endeavor to avoid even the suspicion of dishonesty, fraud, deceit, misrepresentation, or unprofessional demeanor
- ❖ Refrain from fabrication, falsification, or suppression of results
- ❖ Not deliberately misrepresent research findings, or otherwise commit scientific fraud

## The Wildlife Society Code of Ethics

(As amended and approved March 2019)

**Section 1. GENERAL PROVISIONS** -- All members of the Society must pledge upon application, renewal, or recertification to uphold and conduct their professional and membership-related activities in accordance with the Code of Ethics as prescribed by the Society in the TWS Code of Ethics as prescribed by the Society and set forth in Sections 2 and 3 below. A person accepting membership in the Society incurs the obligation to conduct his or her professional and membership-related activities in a responsible and ethical manner. The Code of Ethics sets forth the required principles of conduct for Society members.

**Section 2. GENERAL PROVISIONS** -- Members of the Society have a responsibility for contributing to an understanding of human society's proper relationship with natural resources, and in particular for determining the role of wildlife in satisfying human needs and addressing the management of wildlife-related impacts. All members of the Society shall adhere to the following principles and practices in the conduct of their professional and membership-related activities. All members shall:

1. Subscribe to the highest standards of integrity and conduct and will proactively promote and address ethical behavior.
2. Recognize research and scientific management of wildlife species, their environments, and their stakeholders as primary goals.
3. Encourage and sustain the use of sound biological, physical, and social science information in management decisions.
4. Disseminate information to promote understanding of, and appreciation for, values of wildlife and their habitats.
5. Strive to increase the knowledge and skills needed to advance the practice of wildlife management.
6. Promote competence in the field of wildlife management by supporting high standards of education, employment, and performance.
7. Support fair and uniform standards of employment and treatment of those professionally engaged in the practice of wildlife management.
8. Refrain from speaking for or representing the Society or any of its Chapters, Sections, or Working Groups in any way, or implying such representation, without appointment or approval by the Council of the Society, its officers, or the Executive Boards of Chapters, Sections, or Working groups.

**Section 3. STANDARDS FOR PROFESSIONAL CONDUCT** -- Members of the Society who are employed or otherwise engage in professional activity shall adhere to all provisions of the Code of Ethics, including the following Standards for Professional Conduct. These standards express the intent, practices, and procedures of the Code of Ethics as they particularly apply to wildlife professionals. Wildlife professionals shall at all times:

1. Uphold the dignity and integrity of the wildlife profession. They shall endeavor to avoid even the suspicion of dishonesty, fraud, deceit, misrepresentation, or unprofessional demeanor.
2. Refrain from plagiarism in verbal or written communications and shall give credit to the works and ideas of others.
3. Refrain from fabrication, falsification, or suppression of results, and shall not deliberately misrepresent research findings, or otherwise commit scientific fraud.



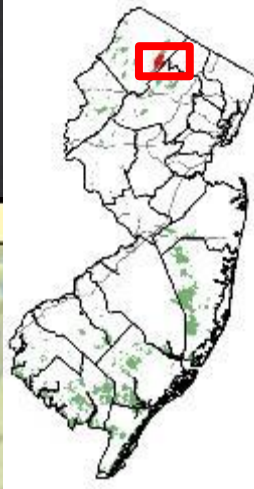
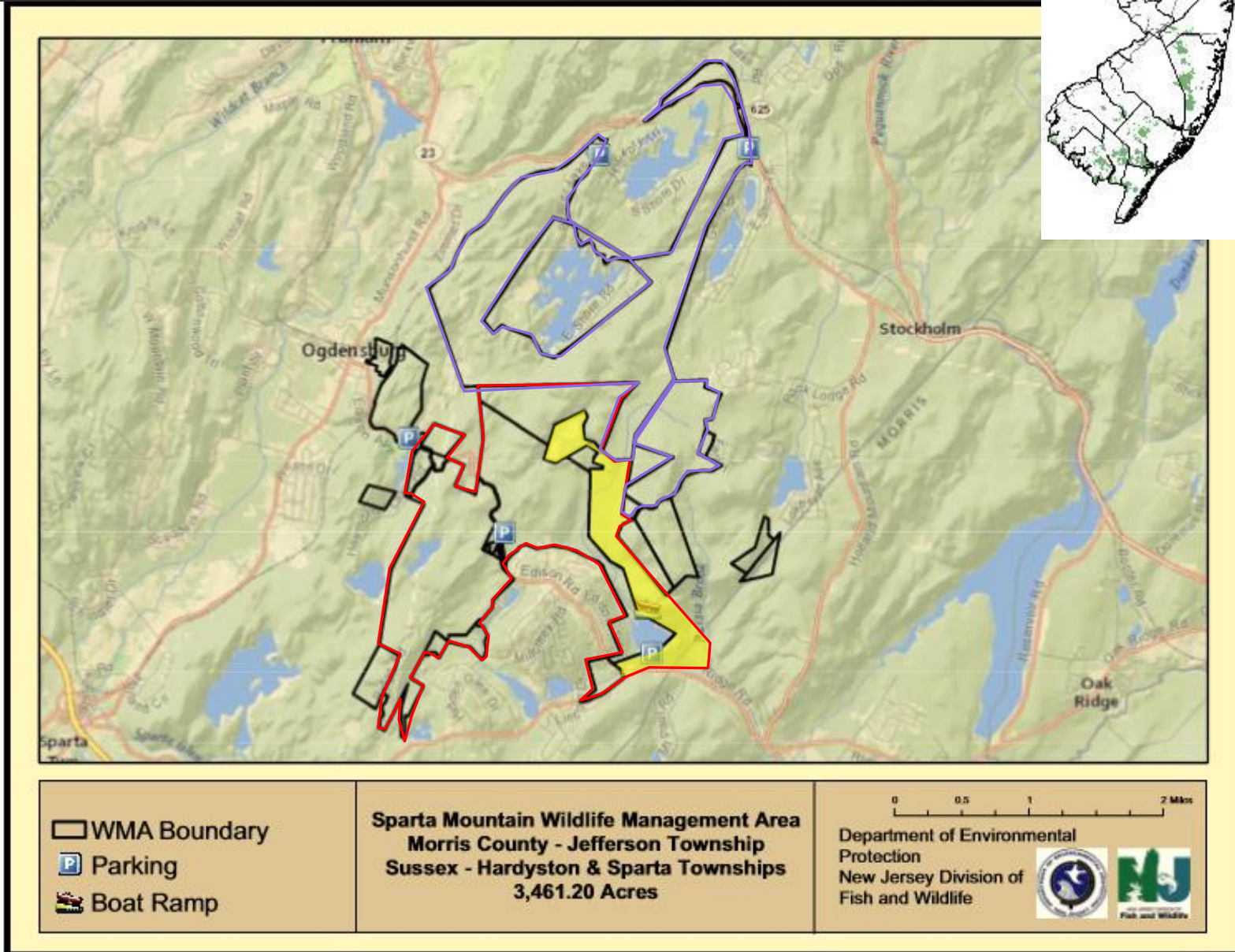
# Sparta Mountain WMA Overview

1994: First purchased (red)

- NJ Audubon (yellow),  
Victoria Foundation, Green  
Acres

2002 & 2007: 1,500 acres  
used Forest Legacy Grant  
(purple)

- Requires a resource  
management plan



# Forest Stewardship Plans

- ◆ January 2009: Original Forest Stewardship Plan

Sparta Mountain Wildlife Management Area  
State of New Jersey, Division of Fish and Wildlife  
c/o The New Jersey Audubon Society  
**Forest Stewardship/Woodland Management Plan**

**MANAGEMENT PERIOD:** January 1, 2009 - December 31, 2018  
**Plan Date:** January 1, 2009  
**LDE File No.** F-1682

- ◆ March 2017: New Forest Stewardship Plan

## **Forest Stewardship Plan Review: Final Plan Approval**

Plan Area:	Sparta Mountain Wildlife Management Area
Property Ownership:	New Jersey Division of Fish and Wildlife
Plan Date:	March 13, 2017
Plan Length:	10 years – 2017-2027
Plan Title:	Sparta Mountain Forest Stewardship Plan

- ◆ July 2021: Addendum to 2017 Forest Stewardship Plan

**New Jersey Division of Fish and Wildlife**  
**Addendum to 2017 Sparta Mountain Forest Stewardship Plan**  
**July 2021**



# 2021 Addendum Overview

- ◇ Reduced forest management to 10 acres per year
- ◇ Limited treatments to seed tree and shelterwood
- ◇ Required additional site-selection criteria

Treatment Type	Proposed 2017 Plan Acres (% of WMA)	2021 Addendum Acres (% of WMA)
Modified Seed Tree	208.5 (6%)	67.7 (1.9%)
Shelterwood	100.0 (3%)	20.0 (0.5%)
Single Tree Selection Group Selection	319.0 (9%)	0.0 (0.0%)
Overstory Removal	2.5 (0%)	0.0 (0.0%)
<b>TOTAL</b>	<b>630 (18%)</b>	<b>87.7 (2.5%)</b>

Created in conjunction with concerned stakeholder groups as a compromise

# What's New – Forestry Activities

2023 – 2025: Managed 20 acres to create young forest (seed tree prescription)

Completed 2018-2025: 67.7 acres (1.9%)

Young Forest: 47.7 acres (1.3%)

Open-Canopy Forest: 20.0 acres (0.6%)

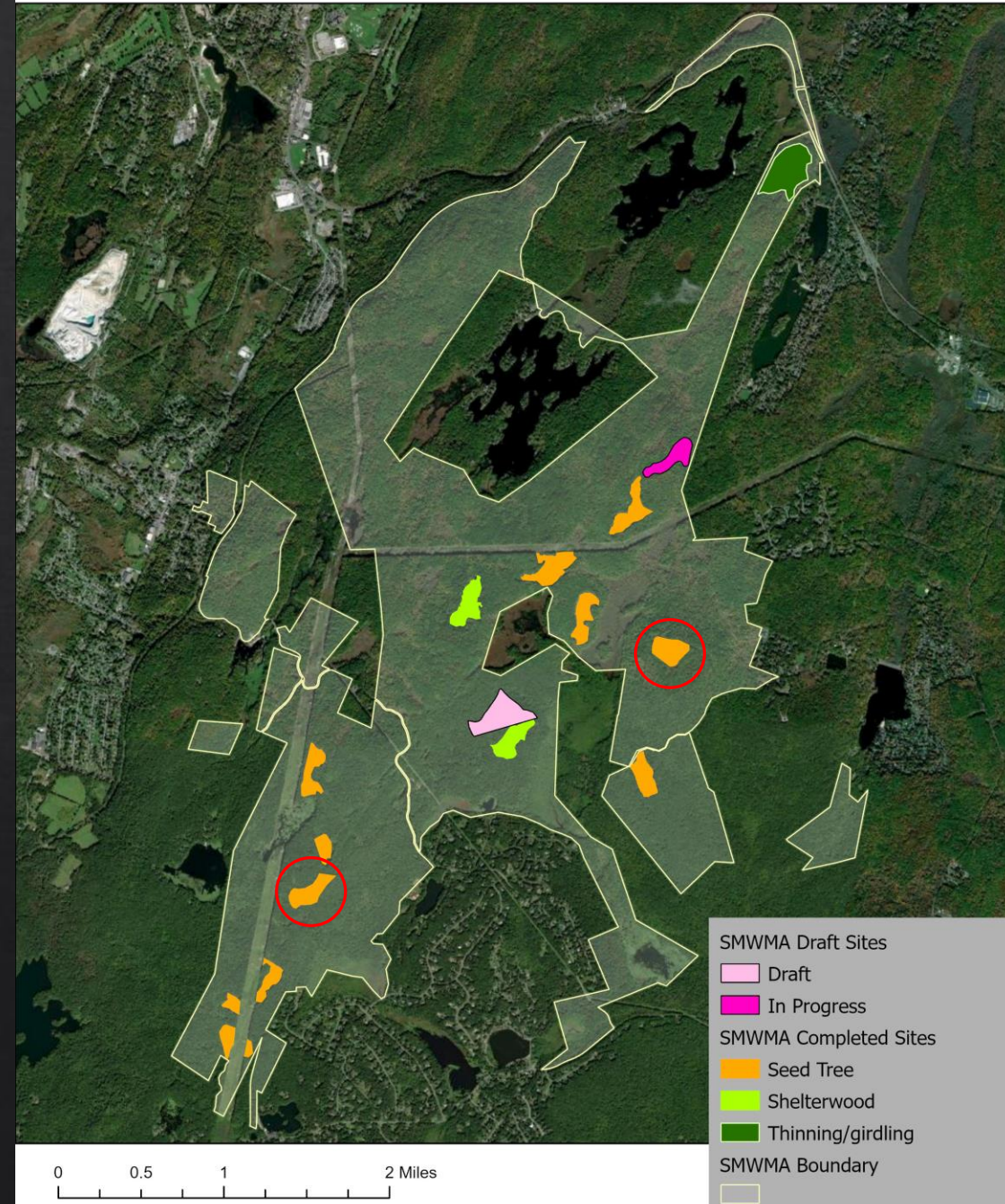
Proposed 2025-2027: 20 acres (0.6%)

Young Forest: 10.0 acres (0.3%) **in progress**

Open-Canopy Forest: 10.0 acres (0.3%) **draft**

129.5 acres managed since 2011

## Sparta Mountain WMA Managed Sites





# What's New – Monitoring Results

## Goal # 3 of the 2017 Forest Stewardship Plan

### **3) Inventory and monitor priority wildlife populations and habitat**

- ◇ Monitor wildlife responses to habitat improvement activities and adjust as necessary
- ◇ Identify Rare, Threatened and Endangered (RTE) species present and manage property to ensure their existence

# Updated Bird Conservation Scores

- ❖ Based on 2025 criteria to designate Species of Greatest Conservation Need (SGCN) in NJ
  - ❖ Native: 1 point
  - ❖ State-listed: additional 3-5 points based on status
  - ❖ Federally-listed: additional 1-2 points based on status
  - ❖ Additional points based on ranking within global, continental, and regional priority lists.
- ❖ Additional points based on % max global abundance from eBird.org
- ❖ Maximum 46 points

Bird Species	Score
Saltmarsh Sparrow	39
Black Rail	33
Golden-winged Warbler	26
Red Knot	24
Bicknell's Thrush	23
Henslow's Sparrow	23
Piping Plover	23
American Black Duck	13
American Woodcock	7
Northern Bobwhite	5
Ruffed Grouse	4
Wild Turkey	1
American Robin	1
European Starling	0



# Bird Species

## 90 Different Bird Species Observed Post-Treatment: 2012-2025

◆ 35 SGCN

◆ 1 E, 1 T, 15 SC

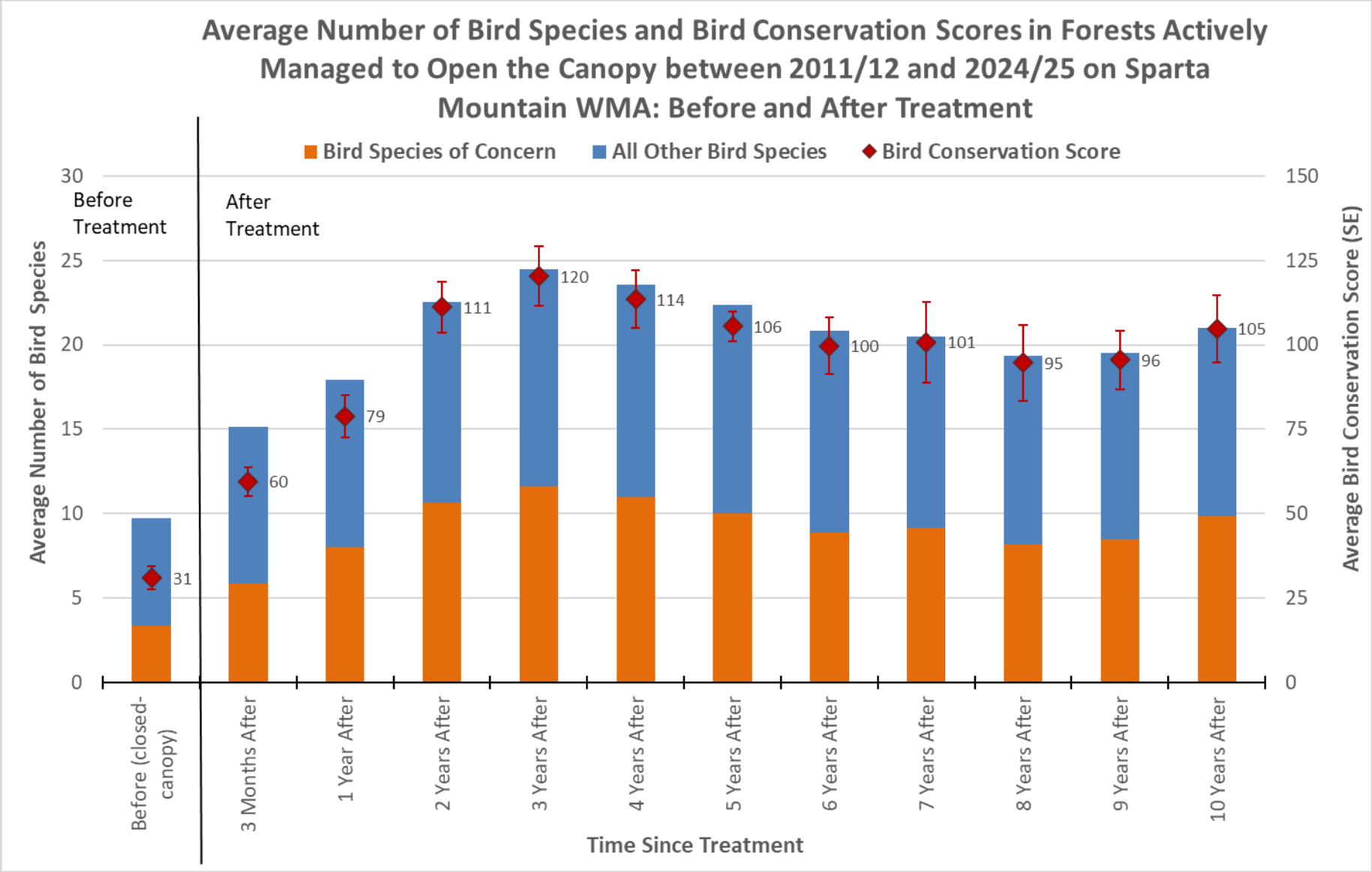
◆ 1 Game SGCN

◆ 6 Tipping Pt (NABCI 2025)

Bird Species Observed	Status	Score
Red-shouldered Hawk	E	6
Red-headed Woodpecker	T	10
Eastern Whip-poor-will	SC, Tipping Pt	22
Cerulean Warbler	SC, Tipping Pt	21
Prairie Warbler	SC, Tipping Pt	19
Wood Thrush	SC, Tipping Pt	19
Field Sparrow	SC, Tipping Pt	14
Eastern Towhee	SC, Tipping Pt	12
Blue-winged Warbler	SC	17
Black-billed Cuckoo	SC	16
Canada Warbler	SC	14
American Woodcock	SGCN, Game	7



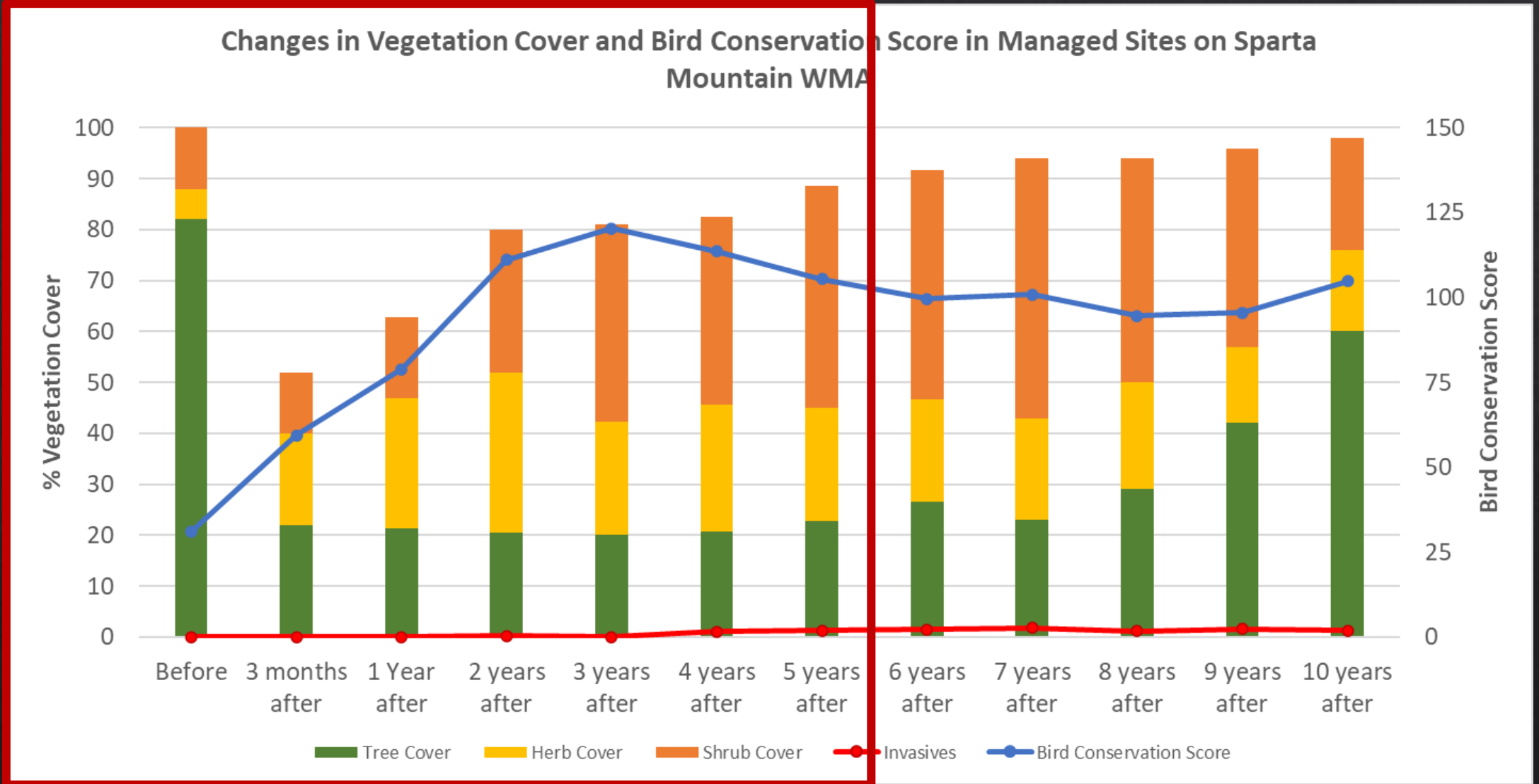
# Treatments are successful in increasing the conservation value of the sites



The Conservation Score increases significantly ( $P<0.01$ ) compared to before treatment and continues over time ( $P<0.001$ )



# Treatments are successful in increasing structural complexity in the sites



The conservation score increases significantly ( $P=0.003$ ) with less tree cover and more shrub cover



# Correlation: Vegetation and Bird Conservation Score

Linear Mixed Model: Before Treatment through 5 years post-treatment

Correlation	Tree Cover	Herbaceous Vegetation Cover	Shrub Cover	Invasive Cover
Bird Conservation Score	-0.713*	0.451	0.873*	0.326
Invasive Cover	-0.214	0.214	0.166	

1 = perfect positive correlation

0 = no correlation

-1 = perfect negative correlation

\* Statistically significant (P=0.003)

# Invasive Plants

In 2025, the average invasive plant cover in SMWMA managed sites was <1%

	Number of Sites	Average Invasive Plant Cover	% of Sites with > 5% Invasive Plant Cover
Shrubby Wetlands	41	14.1% ( $\pm 3.6\%$ )	73.5%
WLFW	43	5.5% ( $\pm 1.2\%$ )	34.2%
Sparta Mountain WMA	12	0.05% ( $\pm 0.04\%$ )	0%

Un-managed shrubby wetlands contained higher invasive plant cover than managed sites\*



# What's New – Information Available to Public

## Ten Site-specific Reports Posted in January 2025

- ◆ Site Description and History
- ◆ Treatment
- ◆ Carbon Storage & Sequestration (if applicable)
- ◆ Bird Survey Results
- ◆ Vegetation Results

<https://dep.nj.gov/njfw/sparta/stewardship-plan/>

Rapid vegetation surveys are conducted during the same time and location as the bird surveys (center of the site) to assess the vegetation cover and dominant species of vegetation before and after treatment (Table 1). Before treatment no non-native invasive plants were observed in the location of the bird survey before treatment and were removed prior to the treatment. The treatment resulted in opening the canopy by about 70%, retaining oak and hickory trees and targeting northern hardwoods (maple, beech) for removal. The shrub and herbaceous cover grew in quickly after treatment (Fig. 6) and consist of a diverse mix of vegetation. Witch hazel and maple-leaf viburnum are still growing on the site but oak and blueberry responded quickly to the increased sunlight, as did cherry and some aspen.

Table 1. Vegetation cover and the dominant trees, shrubs, herbaceous, and non-native invasive plants observed during the rapid vegetation surveys on Stand 12 in SMWMA before and after treatment.

Vegetation Type	Before Treatment	3 Months After Treatment	1 Year 3 Months After Treatment	2 Years 3 Months After Treatment	3 Years 3 Months After Treatment
Tree (% cover)	90	30	30	20	20
Shrub (% cover)	5	5	20	30	50
Herbaceous (% cover)	5	5	30	30	20
Non-native (% cover)	0	0	0	0	0
Dominant 3 Trees	Maple, oak, hickory	Oak, hickory, ash	Oak, hickory	Oak, hickory, cherry	Oak, hickory, cherry
Dominant 3 Shrubs	Viburnum, maple, witch hazel	Blueberry, maple, viburnum	Maple, blackberry, blueberry	Oak, cherry, maple	Blackberry, sweet birch, blueberry
Dominant 3 Herbaceous	Grass/sedge, forb	Forb, grass/sedge, fern	Grass/sedge, forb, fern	Grass/sedge, forb, fern	Forb, grass/sedge, fern
Dominant 3 Non-native Invasive	None Observed	None Observed	None Observed	None Observed	None Observed



Figure 6. Photo of the forest in the 10-acre site in Stand 12 on SMWMA 3 years, 3 months after treatment (May 2024).

In summary, while the number of species detected during surveys can vary year to year, there is a treatment effect that results from opening the forest canopy. The bird conservation score, which represents both the number and conservation concern of species observed, is highly correlated with less tree canopy cover (Fig. 7), even before the end of the first growing season post-treatment. The seed tree treatment on Stand 12 in SMWMA opened the forest canopy to allow for herbaceous and small woody vegetation (shrub and saplings) to grow, specifically vegetation that cannot grow or thrive in the shade of closed-canopy forests.

This resulted in many more bird species using the area during the breeding season compared to before



# Next Steps

**Complete final 20 acres prescribed in 2017 plan and 2021 addendum**

## **Plan for after the 2017 plan expires**

- ◆ Continue with the agreed-upon compromise that resulted in the 2021 Addendum
  - ◆ Manage 7 sites (10 ac each) over 7 years with seed tree/shelterwood prescription
  - ◆ Reset succession on 3 oldest previously-managed sites over 3 years OR combination reset succession and manage adjacent 5 acres (10 ac total)

Sparta Mountain WMA Proposed for 2027

