

SPARTA MOUNTAIN WMA FOREST MANAGEMENT RESULTS

A presentation to the NJ Fish and Game Council

by

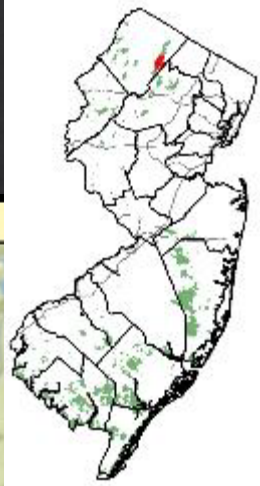
Sharon Petzinger, Senior Zoologist

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

May 9, 2023



About Sparta Mountain WMA

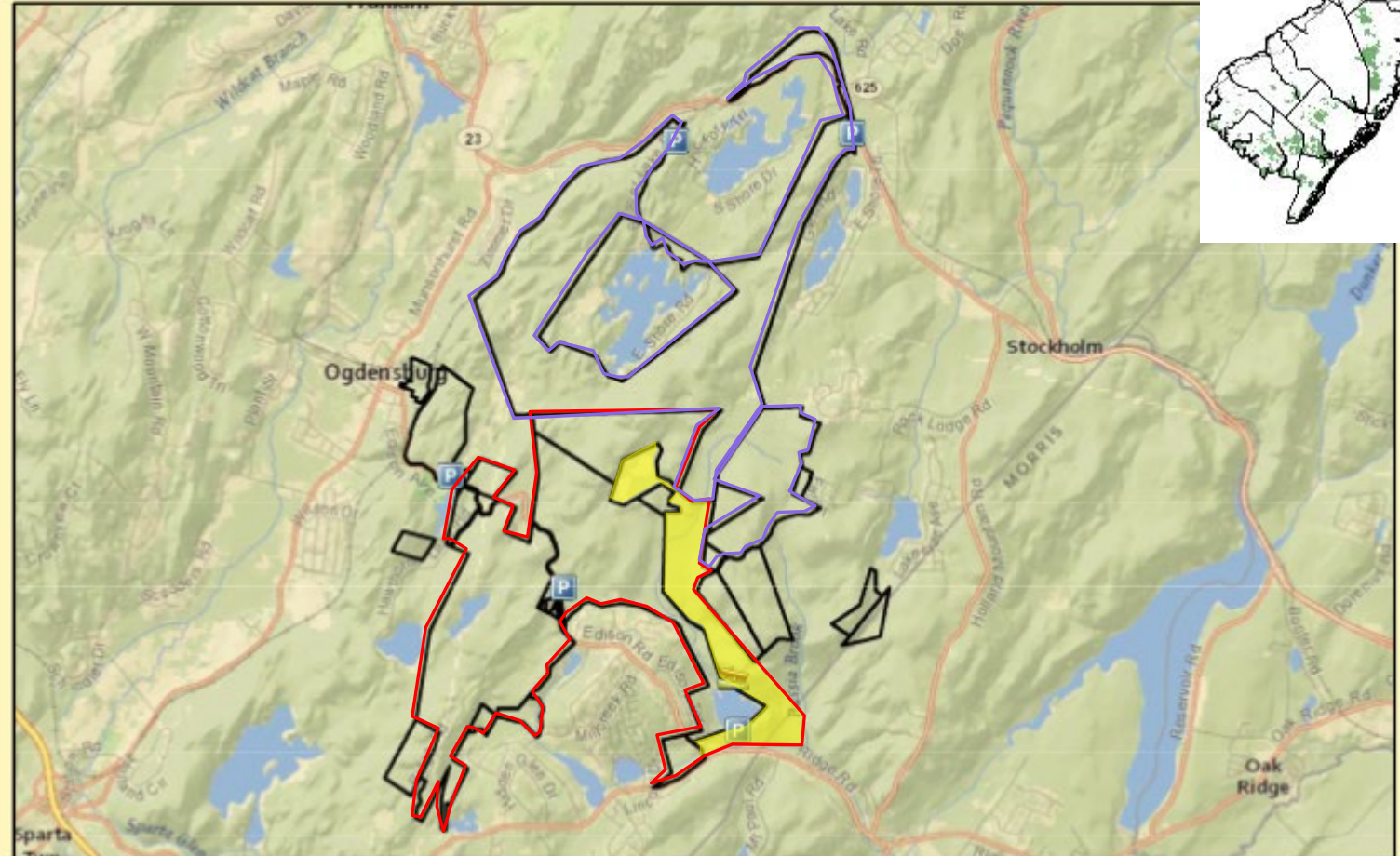


1994: First purchased

- NJ Audubon, Victoria Foundation, Green Acres

2002 & 2007: 1,500 acres added

- Forest Legacy Grant
- Requires creating a management plan (2009)



- WMA Boundary
- P Parking
- Boat Ramp

Sparta Mountain Wildlife Management Area
Morris County - Jefferson Township
Sussex - Hardyston & Sparta Townships
3,461.20 Acres

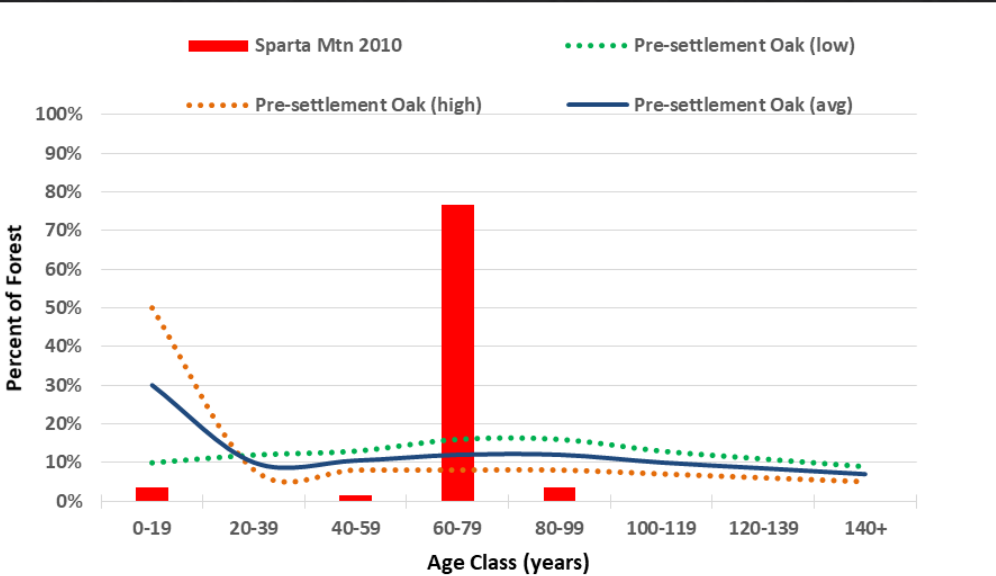
0 0.5 1 2 Miles

Department of Environmental
 Protection
 New Jersey Division of
 Fish and Wildlife

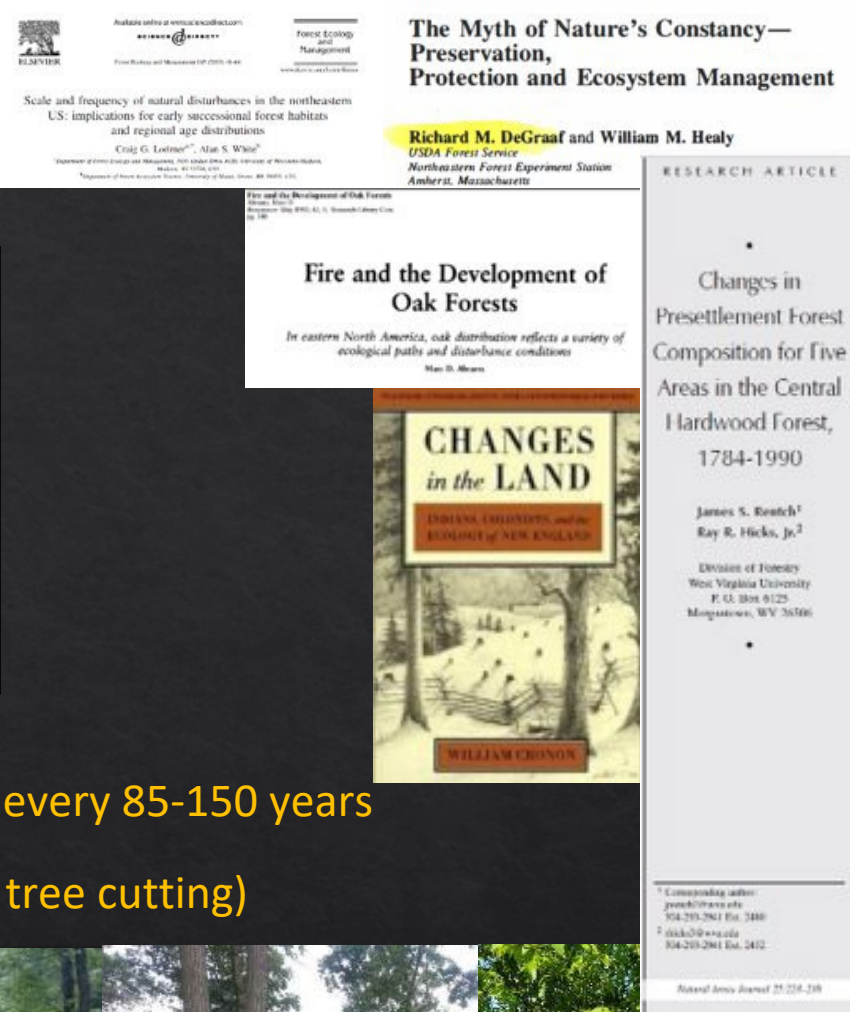


Forest Conditions: Sparta Mountain WMA

Upland Forest Structure	% Estimated in Northern NJ Before European Settlement	% in Sparta Mtn WMA (2002 LULC)
Multi-aged Oak/Semi-open	25-40%	0%
Open Canopy/Young	10-50% (excl. beavers, fires)	3.5% (+5% ROW)
Closed-canopy Old Growth	<7%	0%
Closed-canopy Mature	3-58%	>90%



- Stand-replacement hurricanes every 85-150 years
- Fires every 20 years or less
- >10x more beavers (flooding + tree cutting)



2017 Planned Acreage



Sparta Mountain Wildlife Management Area 2017 Forest Stewardship Plan Goals

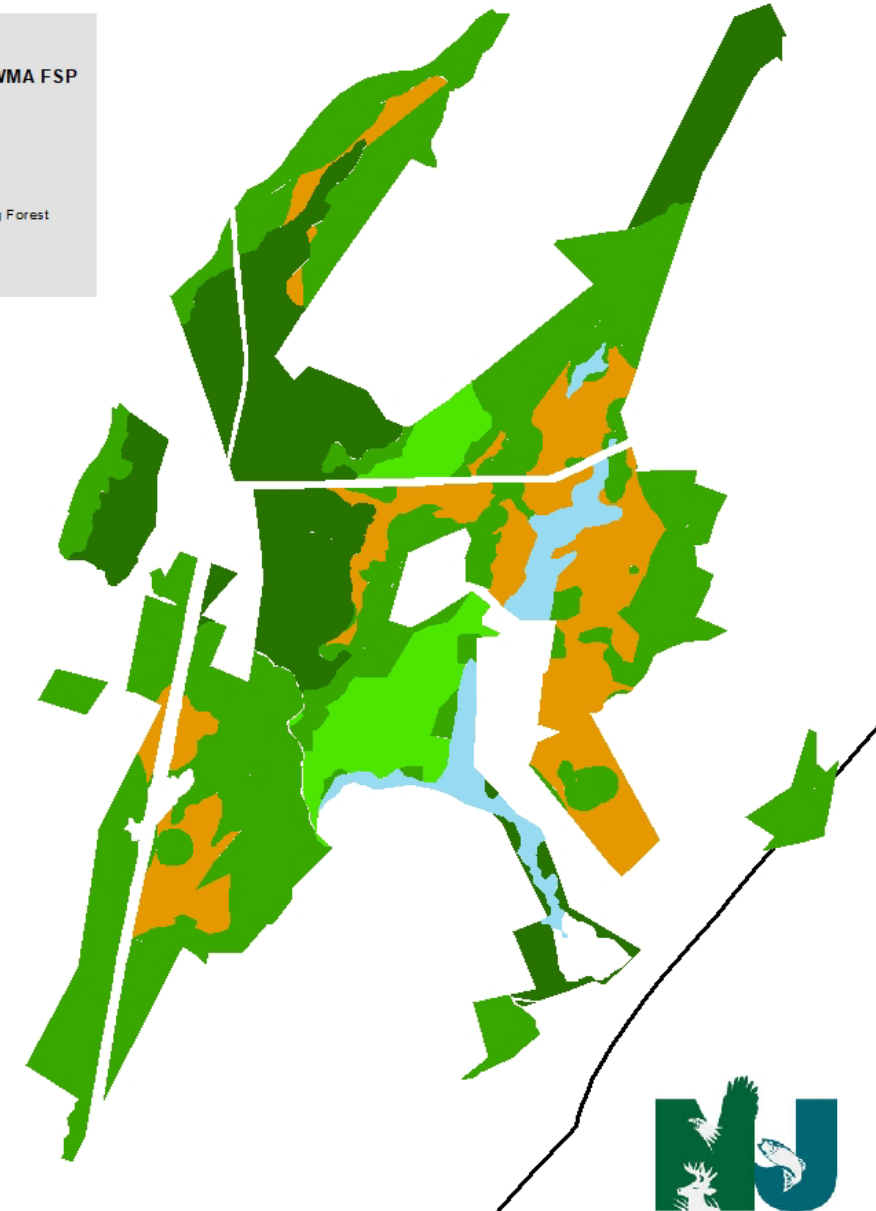
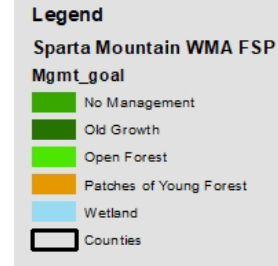


Table 12. Summary of maximum total acres proposed to be cut for different treatment duration of this plan

Treatment Type	Code	Trees Cut	Maximum Acres	% of WMA
Modified Seed Tree	MST	Most	208.45	6%
Shelterwood	SHWD	≈Half	100	3%
Single Tree Selection Group Selection Overstory Removal	STS GS OSR	Few	321.84	9%
Total			630.29	18%



CLEARCUTTING



SEED TREE



SHELTERWOOD



GROUP SELECTION



SINGLE TREE SELECTION

2021 Addendum

- ◊ Limited forest management to 10 acres per year
- ◊ Site-selection criteria, timeline, and public comment period

Treatment Type	Objective	Completed 2009 Plan Acres (% of WMA)	Proposed 2017 Plan Acres (% of WMA)	2021 Addendum Acres (% of WMA)
Seed Tree	Young Forest	33.3 (1.0%)	208.5 (6%)	67.7 (1.9%)
Shelterwood	Open-canopy Forest	11.5 (0.3%)	100.0 (3%)	20.0 (0.5%)
Single Tree Selection Group Selection	Old-growth Forest	17.0 (0.5%)	319.0 (9%)	0.0 (0.0%)
Overstory Removal	Emergent Wetland	0.0 (0.0%)	2.5 (0%)	0.0 (0.0%)
TOTAL		61.8 (1.8%)	630 (18%)	87.7 (2.5%)

Created in conjunction with concerned stakeholder groups as a compromise

Forestry Activities

Completed 2011-2023: 109.5 acres (3%)

Young Forest: 71.0 acres (2.0%)

Open-Canopy Forest: 21.5 acres (0.6%)

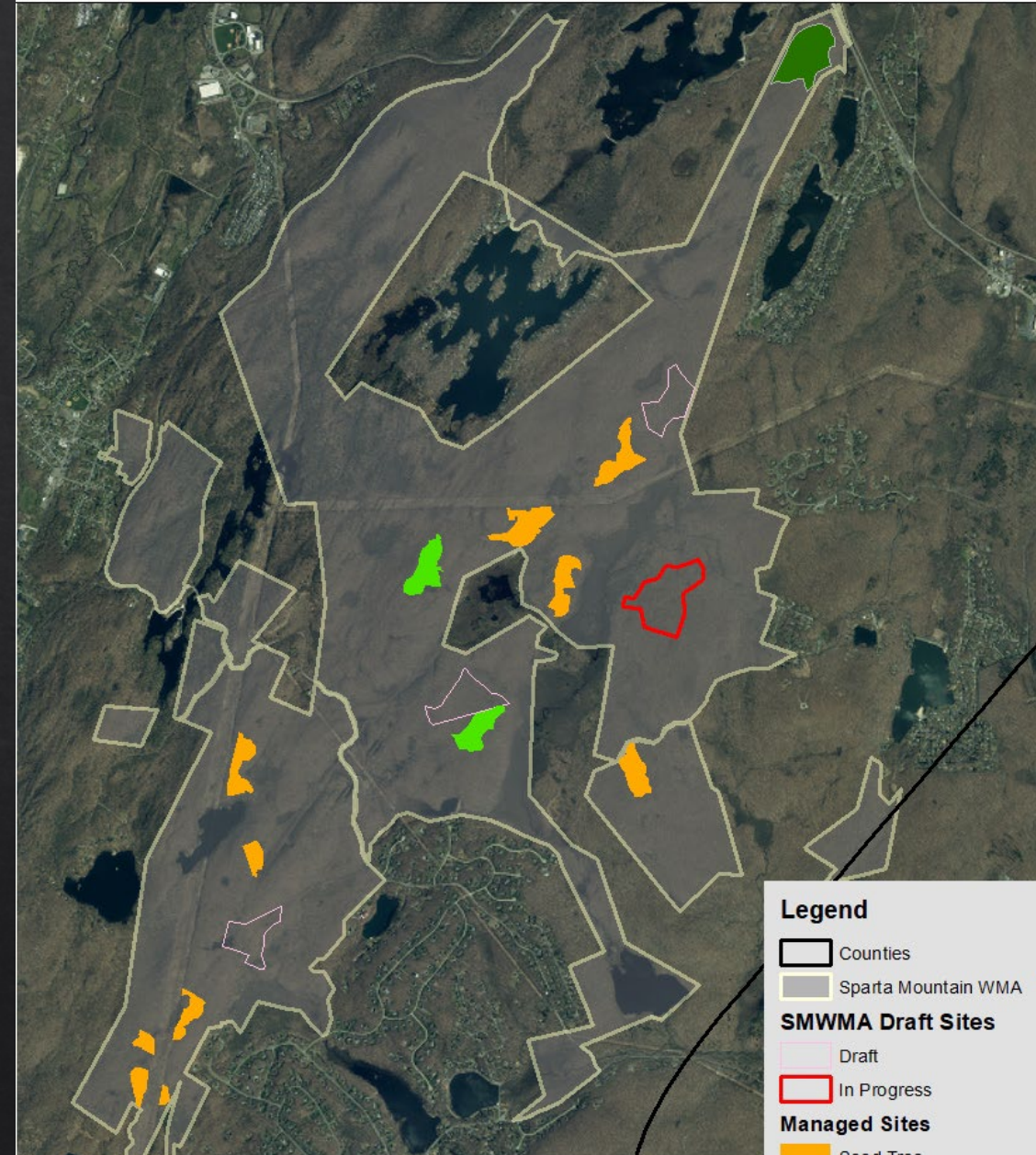
Old-Growth Forest: 17.0 acres (0.5%)

Planned 2023-2027: 40 acres (1.2%)

Young Forest: 30.0 acres (0.9%)

Open-Canopy Forest: 10.0 acres (0.3%)

Sparta Mountain WMA Managed Sites



0 0.45 0.9 1.8 Miles

Wildlife Diversity

Sparta Mountain WMA

10 Endangered, 4 Threatened, 25 Special Concern

Endangered

Bog turtle
Indiana bat
Northern Myotis
Bald Eagle
Bobcat
Bronze copper
Golden-winged warbler
Northern goshawk
Red-shouldered hawk
Timber rattlesnake



Threatened

Barred owl
Long-eared owl
Red-headed woodpecker
Wood turtle



70% Birds

12% Insects

10% Reptiles/Amphibians

8% Mammals



Threatened



Fed.
Threatened



Endangered

Kristin Mylecraine



Endangered



Threatened



Threatened



Special
Concern

Blaine Rothauser



Special
Concern



Threatened



Special
Concern



Special
Concern

Blaine Rothauser



Special
Concern



Declining



Kristin
Mylecraine

Special
Concern



Special
Concern



Threatened



Endangered



Special
Concern



Declining

Blaine Rothauser



Endangered

Sam Galick

Birds are Indicators

Before

250-550 Trees Per Acre

10% trees >13" dbh
(oak-hickory)

Most trees are <13" dbh
(maple-birch)

>75% Tree Cover

oak-hickory with
maple-birch understory

10% Shrub/Sapling Cover

maple, birch, witch hazel

5% Herbaceous Cover

fern, forb

<1% Invasive Plants

9 Bird Species

3 Rare and Declining



Treatment

Seed Tree

Retain 10-30% of canopy trees

Shelterwood

Retain 40-50% of canopy trees

Trees retained are the healthier, more vigorous oak-hickory species



After

10-40 Trees Per Acre

>90% trees >13" DBH
(oak-hickory)

10-40% Tree Cover

(oak-hickory)

>30% Downed Woody
Material

0 Months Old



Sparta Mountain WMA Stand 18
March 2019

After

10-40 Trees Per Acre

>90% trees >13" DBH
(oak-hickory)

10-40% Tree Cover

(oak-hickory)

>30% Downed Woody
Material

0 Months Old



WHY IS NJ CUTTING DOWN ITS BEST
DEFENSE AGAINST CLIMATE CHANGE?



NEW JERSEY
HIGHLANDS
COALITION

SPARTA MOUNTAIN
WILDLIFE MANAGEMENT AREA
APRIL 1, 2019

Sparta Mountain WMA Stand 18
March 2019

3-6 Months Later

2,760 live seedlings/acre

85% oak species

> Herbaceous Cover

sedges, ferns, forbs, grasses

<1% Invasive Plants

15 Bird Species

6 Rare and Declining



Sparta Mountain WMA Stand 18
September 2019

3 years Later

30% Tree Canopy
oak-hickory

30% Shrub/Sapling Cover
rubus, oak, hickory, cherry

30% Herbaceous Cover
forbs, sedges, grasses

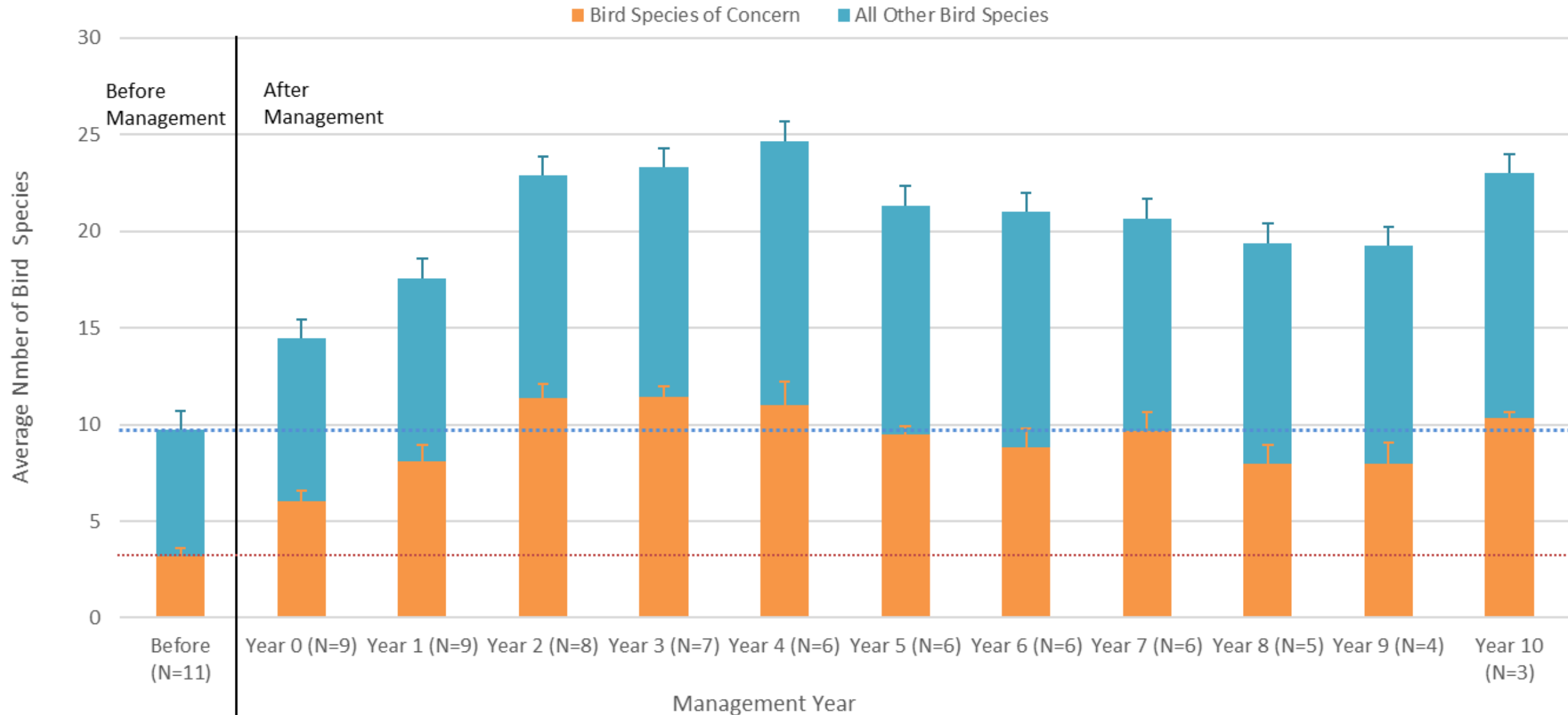
<1% Invasive Plants

24 Bird Species
12 Rare and Declining

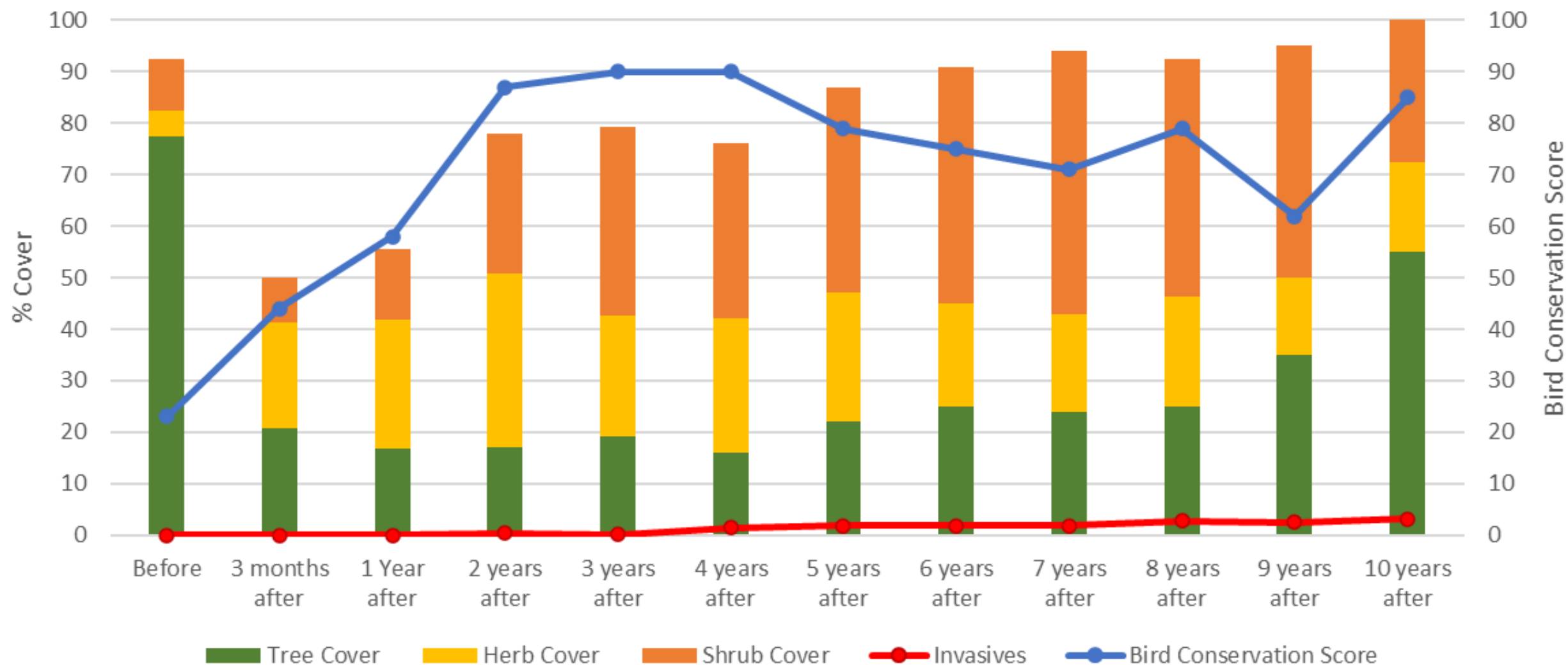


Sparta Mountain WMA Stand 18
June 2022

Change in Number of Bird Species in Actively Managed Areas on Sparta Mountain WMA 2008, 2012-2022



Changes in Vegetation Cover and Bird Conservation Score in Managed Sites on Sparta Mountain WMA



Deer

Closed-canopy Mature Forest



Private Land



Sparta Mountain WMA

Deer

Open-canopy Forest



Private Land



Sparta Mountain WMA

Sparta Mountain WMA Stand 18



Bird photos represent bird species commonly observed in sites at this stage of management



QUESTIONS?