

Rare Bird Conservation

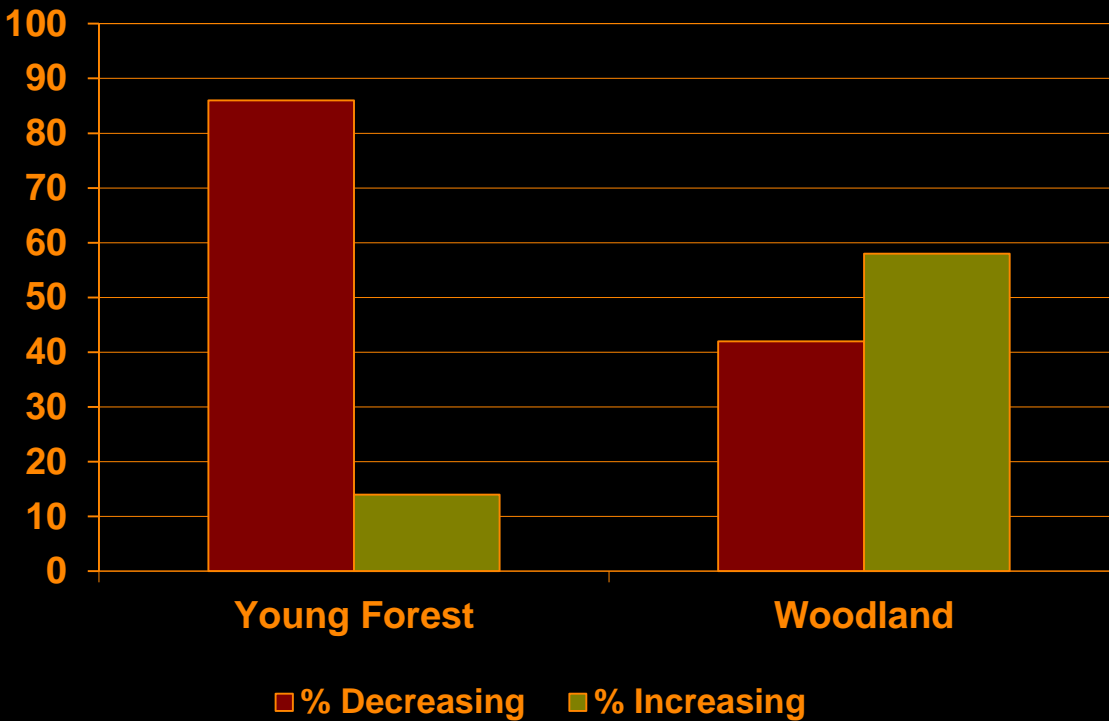


NJ Invasive Species Strike Team Annual Conference
April 11, 2018

Sharon Petzinger, Senior Zoologist

NJ Fish and Wildlife's Endangered and Nongame Species Program

Bird Population Trends



Black-and-white Warbler (Blaine Rothauser)



Field Sparrow (Blaine Rothauser)

Significant Trend ($P < 0.05$)

BBS Species Group Summary Results, 1966-2015
Appalachian Mountains Region

NJ Birds in Decline: Appalachians

BBS Species Group Summary Results, 1966-2015

All species listed has a significant declining trend ($P < 0.05$)

<u>Species</u>	<u>Trend</u>	<u>N routes</u>	<u>Species</u>	<u>Trend</u>	<u>N routes</u>
Golden-winged Warbler	-8.4	157	Eastern Screech-owl	-1.2	154
Prairie Warbler	-3.6	284	Yellow Warbler	-1.2	329
Field Sparrow	-2.9	348	Common Yellowthroat	-1.0	349
Eastern Wood-pewee	-2.6	349	Great Crested Flycatcher	-1.0	346
Cerulean Warbler	-2.5	202	Blue-gray Gnatcatcher	-0.9	323
Least Flycatcher	-2.4	203	Eastern Towhee	-0.9	349
Nashville Warbler	-2.3	49	Acadian Flycatcher	-0.8	295
Black-billed Cuckoo	-1.9	264	Rose-breasted Grosbeak	-0.8	225
Black-and-white Warbler	-1.6	311	House Wren	-0.8	308
Indigo Bunting	-1.6	349	American Goldfinch	-0.6	348
Wood Thrush	-1.5	349	Brown Thrasher	-0.5	347
Kentucky Warbler	-1.4	252	Downy Woodpecker	-0.4	346
Ruffed Grouse	-1.3	147	Song Sparrow	-0.4	336
Yellow-billed Cuckoo	-1.2	346			



Golden-winged warbler (Sharon Petzinger)



Prairie Warbler (Sharon Petzinger)



Cerulean Warbler (Blaine Rothausen)

What they all have in common

- Sufficient stretches of forests
- Specific structure within forest
 - young forest/shrub, mature forest, over-mature forest (lots of tree fall gaps)
- Certain species within forest

Pennsylvania

New York



Breeding Habitat

- 1) Large areas of mature forest
 - Foraging & post-fledging
- 2) Patches of open forest within the mature forest
 - Nesting and foraging
- 3) Native deciduous shrubs/saplings
 - Foraging



Golden-winged warbler nest in Franklin, NJ (Sharon Petzinger)



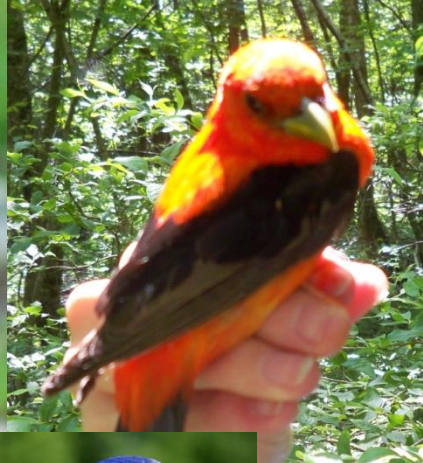
Sterling Forest, NY (John Confer)



Sterling Forest, NY (Sharon Petzinger)



Cerulean Warbler (Blaine Roth)



Black-and-white Warbler (Blaine Rothäuser)



American Woodcock (NWTF)



Field Sparrow (Blaine Rothäuser)



Indigo Bunting (Kristin Munafo)



Ruffed Grouse (NWTF)



Golden-winged warbler (Sharon Petzinger)



Wood Thrush (Anonymous)



Eastern Towhee (Blaine Rothäuser)

Threats to Breeding Habitat



- Fragmentation of Sufficient Stretches
 - Need >70% mature forest cover in addition to shrubby habitat
- Land use history and lack of larger-scale disturbances (>5 acres) limits specific structure
 - Succession more a threat than development for structure
- Invasive plants, overabundant deer, and lack of sunlight inhibits certain species

Certain Species

Positive Correlation

Species	Shade Tolerance	# Lepidoptera species	# caterpillars/ 10 g dry leaves
White oak	Intermediate	30	0.5
Pin cherry	Intolerant	5	3
Aspen spp.	Intolerant	58	unk.
Speckled Alder	Intermediate	70	unk.
Sweet Fern	Intermediate	13	3
<i>Rubus</i> spp.	Intermediate	43	2.7
Willow spp.	Intolerant	138	unk.
Gray birch	Intolerant	10	unk.
<i>Carex</i> spp.	Intermediate	Structure	n/a
<i>Solidago</i> spp.	Intolerant	Structure	n/a

<https://plants.usda.gov/>

Negative Correlation

Species	Shade Tolerance	# Lepidoptera species	# caterpillars/ 10 g dry leaves
Sweet birch	Intermediate	8	unk.
Beech	Tolerant	8	unk.
Hemlock	Tolerant	8	unk.
White pine	Intermediate	16	0.2
<i>Rhododendron</i> spp.	Tolerant	24	unk.
<i>Vaccinium</i> spp.	Intermediate	99	1
Sassafras	Intolerant	15	0.5
Mountain laurel	Tolerant	2	0.7
Spicebush	Intermediate	7	unk.
Hay-scented fern	Intermediate	Structure	n/a

<http://www.nhm.ac.uk/our-science/data/hostplants/>

Implementation

>70% forest cover: Create & enhance patches of open forest

<70% forest cover: Increase forest cover & enhance existing habitat

Site assessment and guidance:

Regenerate/plant intermediate- and shade-intolerant native plant species

Create openings > 0.5 mile from other openings (limited to <20% of large forest block)

Control overabundant deer and invasives



Before Treatment (N=16)



- Little vegetation on the ground
- Beech/birch/maple understory
- Oak overstory

Total # Birds: Range 6 - 22 (mean = 12.3)

Total # Birds of Concern: Range 1 - 8 (mean = 4.8)



Eastern Wood-pewee (Anonymous)

<1 year after treatment (N=20)



Eastern Wood-pewee (Anonymous)



- Woody debris
- Grasses, shrubs, & coppice sprouting
- Oak overstory

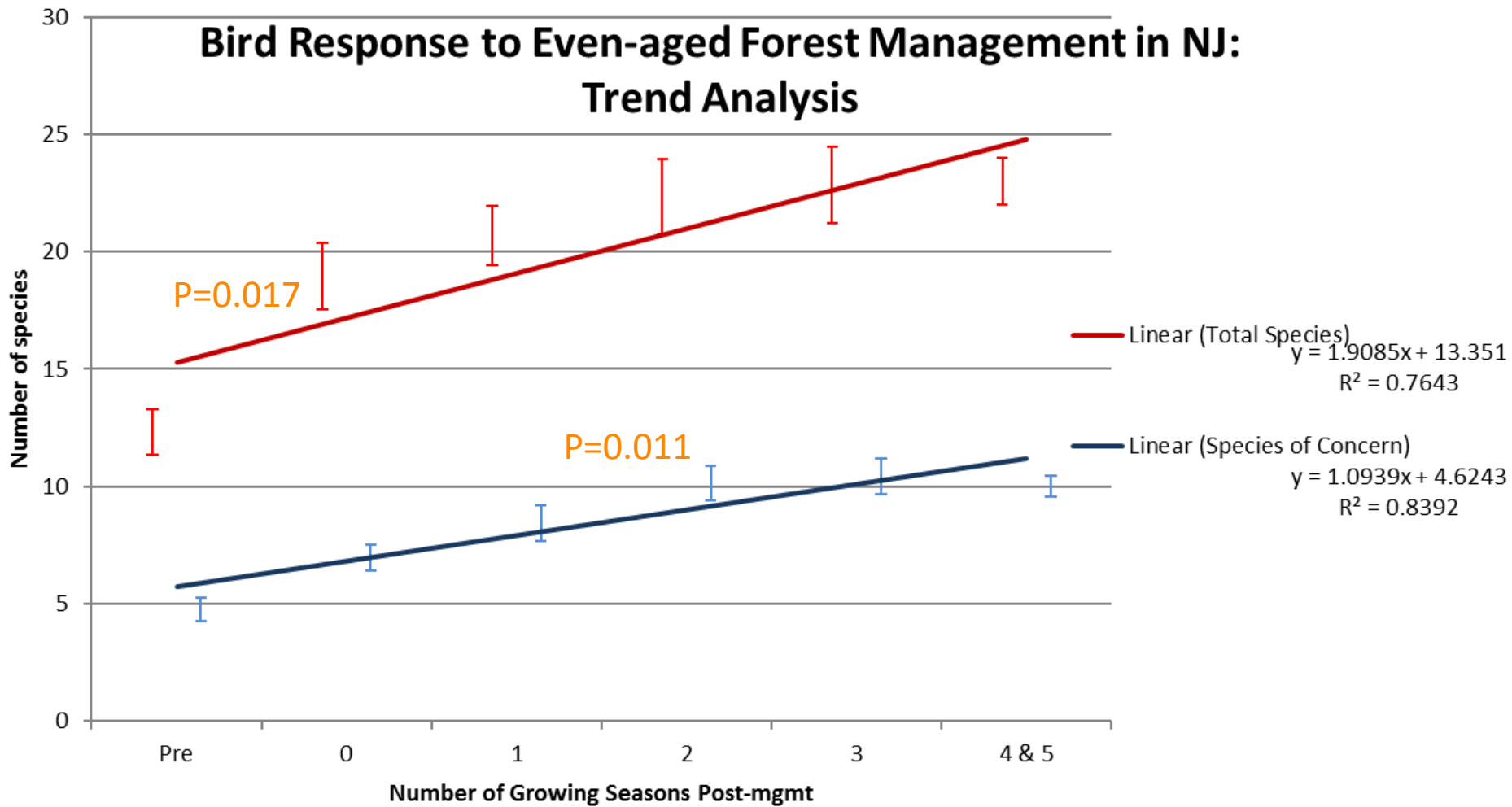
Total # Birds: Range 7 - 27 (mean=19.0)

Total # Birds of Concern: Range 2 – 10 (mean=7.0)



Scarlet Tanager (Sharon Petzinger)

Bird Response to Even-aged Forest Management in NJ: Trend Analysis



4/5 years after treatment (N=14)



Declining

Eastern Wood-pewee (Anonymous)



Scarlet Tanager (Sharon Petzinger)

Wood thrush



Special Concern



Declining

Prairie Warbler (Sharon Petzinger)



Declining

Black-and-white warbler (Blaine Rothauer)



Declining

Eastern Towhee (Blaine Rothauer)



Declining

Indigo Bunting (Kristin Mylecraime)



Declining

Blue-winged Warbler (Sharon Petzinger)



Declining

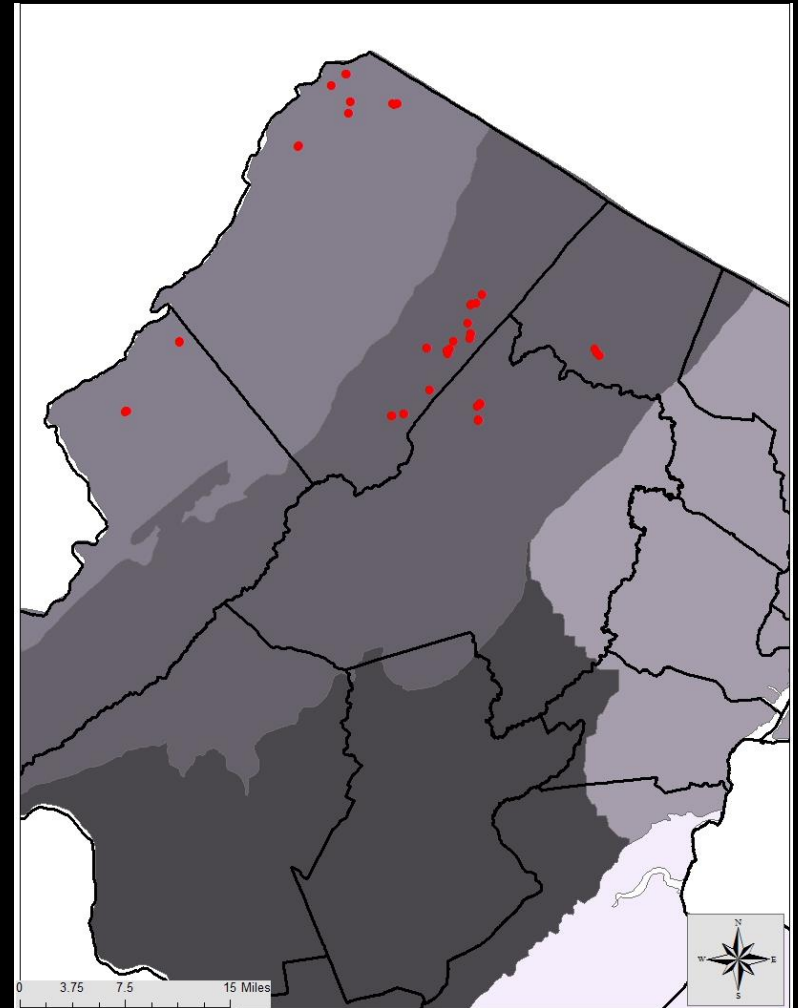
Field Sparrow (Blaine Rothauer)

Total # Birds: Range 15 - 31 (mean = 23.0)

Total # Birds of Concern: Range 7 - 13 (mean = 10.0)

Implementation

Known Issues	Prescription	N
Invasive Species	Treat invasives	2
Sunlight	Open canopy	11
Invasive Species Sunlight	Treat invasives Open canopy	7
Overabundant deer Invasive species	Increase hunting pressure Treat invasives	1
Overabundant deer Invasive species Sunlight	Increase hunting pressure Treat invasives Open canopy	5



Implementation: Invasive Species

N=2

2014



2017

Implementation: Sunlight

N=11



2014



2017



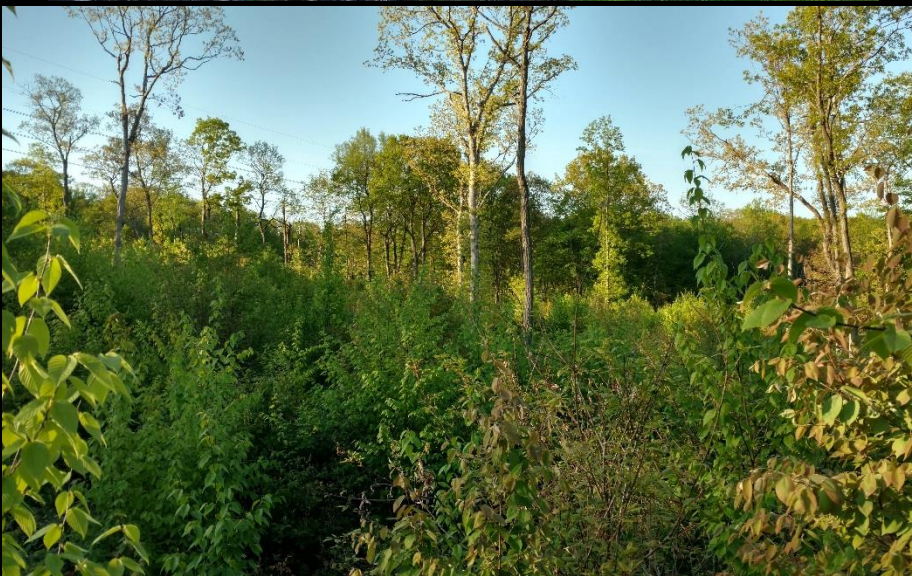
Implementation: Inv Spp & Sunlight

2014



N=7

2015



2017



Implementation: Inv Spp & Deer

2013

N=1



2017



Implementation: Inv Spp, Deer, Sun

2015



2014



N=5



2017



Summary of Results

Prescription	Historic Ag	N	Vegetation Results		Bird Trends		Cost \$: <\$100/acre 🕒 : >1 treatment/year
			Height ▲ +1m ■ 0 ▼ -1m	Invasives ▲ + 5% ■ 0 ▼ - 5%	# Species ▲ +2/yr ■ 0 ▼ -2/yr	# SCC ▲ +1/yr ■ 0 ▼ -1/yr	
Treat invasives	Yes Maybe No	0 1 1	- ■ ▼▼	- ▲ ▲	- ■ ▲	- ▼ ▲	\$ 🕒
Open canopy	Yes Maybe No	1 0 10	▲ - 6▲, 1▲▲, 2■, 1▼,	- - 3▲, 6■, 1▼	▲▲ - 3▲, 4▲▲, 3▲▲▲	▲▲ - 2▲, 6▲▲, 2▲▲▲	\$
Treat invasives & Cut	Yes Maybe No	1 1 2	▼ ▲ 1▲, 1▲▲	▼▼ ▲▲ 1▲▲▲, 1■	▲▲▲ ▲▲ 2▲▲	▲▲▲ ▲ 2▲▲	\$ 🕒
Treat invasives & Girdle	Yes Maybe No	0 0 3	- - 3■	- - 2■, 1▲	- - 2▲, 1▲▲	- - 2■, 1▼	\$\$ 🕒
Hunt & Treat invasives	Yes Maybe No	1 0 0	▲ - -	▼▼▼ - -	▲▲▲ - -	▲ - -	\$ 🕒🕒
Hunt, Treat invasives, Open canopy	Yes Maybe No	4 0 1	4■ - ▲	1▲, 1■, 1▼, 1▼▼ - ▼▼▼▼▼	1▲, 3▲▲▲ - ▲▲	3▲▲, 1▼ - ▲▲	\$\$\$\$\$ 🕒🕒

Questions?

Special thanks to my NJ team:

USDA NRCS, NJ Audubon, Conserve Wildlife
Foundation

Shout out to my regional partners:

IUP, Cornell, AMJV, GWWWG