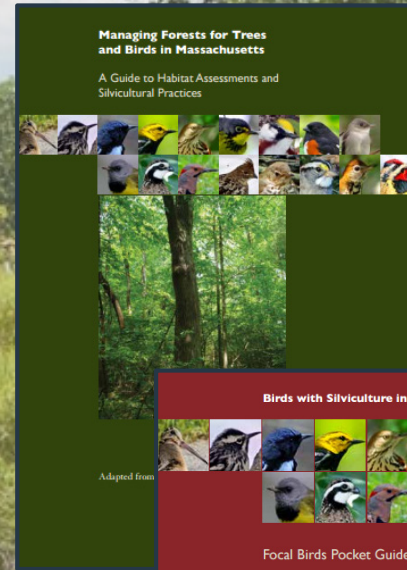


Foresters for the Birds

+ *Climate Adaptation!*



Jeff Ritterson
Forester workshop
5/1/19

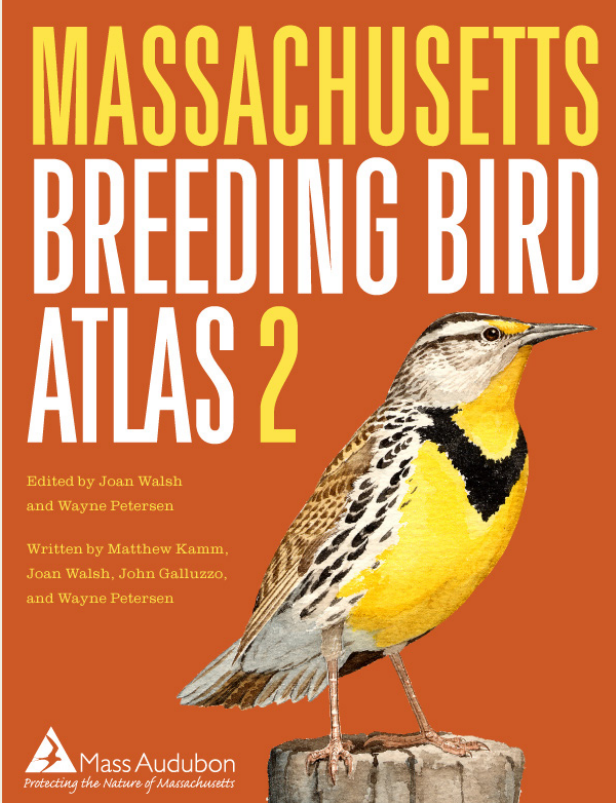


Outline

- Bird monitoring
- Early successional breeders
- Mature forest breeders
- Habitat goals and Focal Birds
- Identification tips
- Climate adaptation



Tools for evaluating bird populations

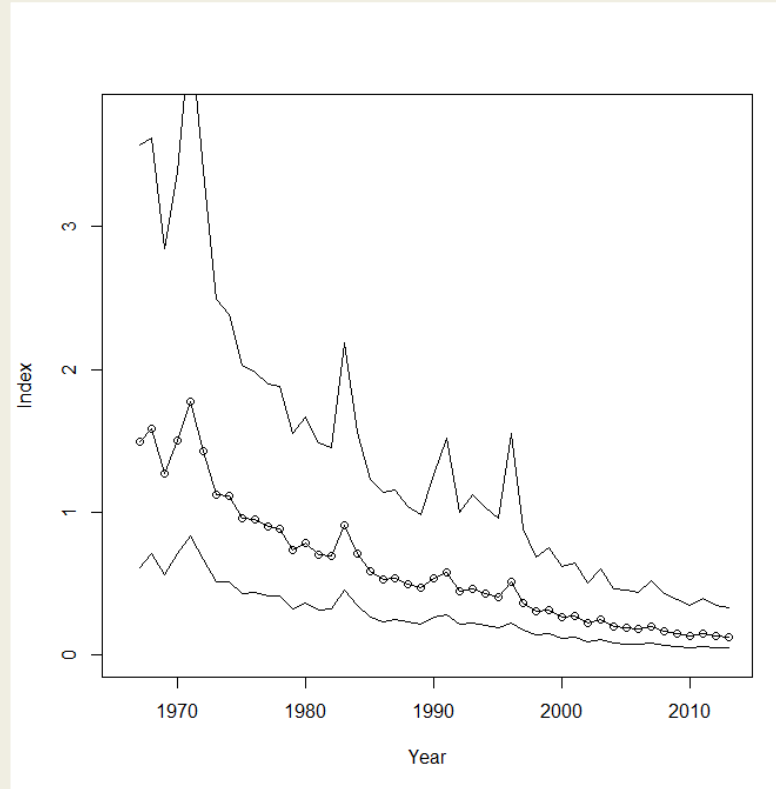
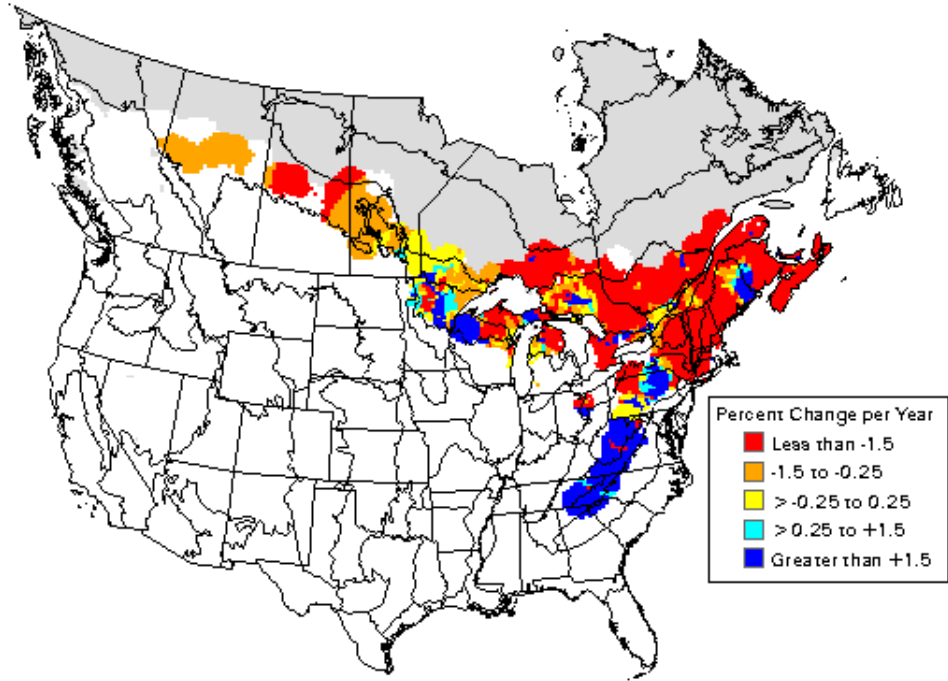


Breeding Birds Survey (BBS)



North American Breeding Bird Survey (USGS)

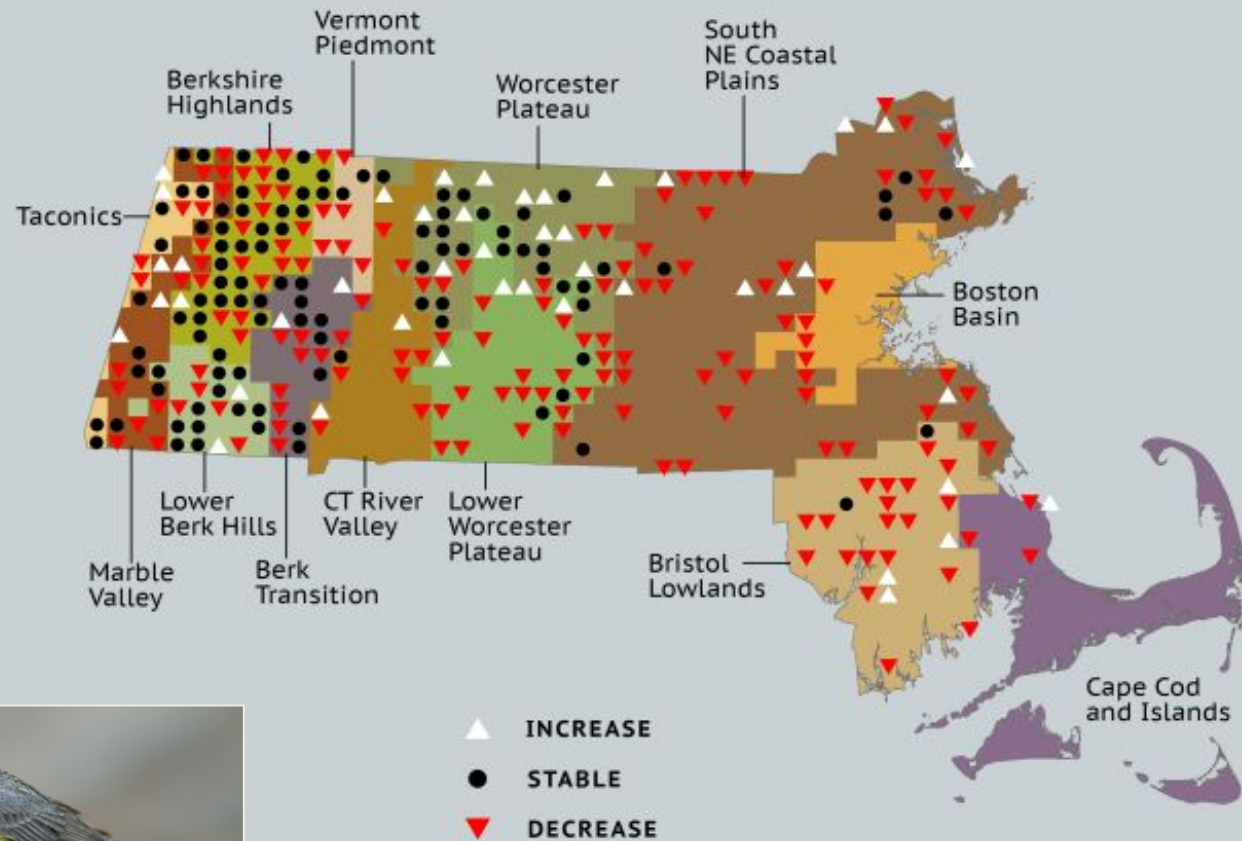
BBS Results – Canada Warbler



Mass Audubon Breeding Bird Atlas (BBA)



BBA Change Map – Canada Warbler



Forest Succession

Nicolle R. Fuller



Time





Francesco Veronesi



Charles J Sharp



Reago & McClarren



Simon Pierre Barrette



Simon Pierre Barrette



Kelly Colgan Azar



Nicolle R. Fuller

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Nicolle R. Fuller



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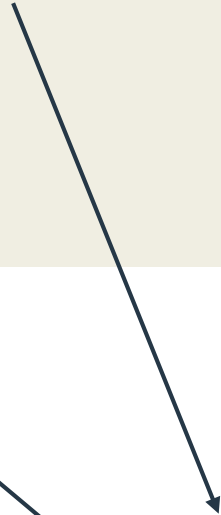




Francesco Veronesi



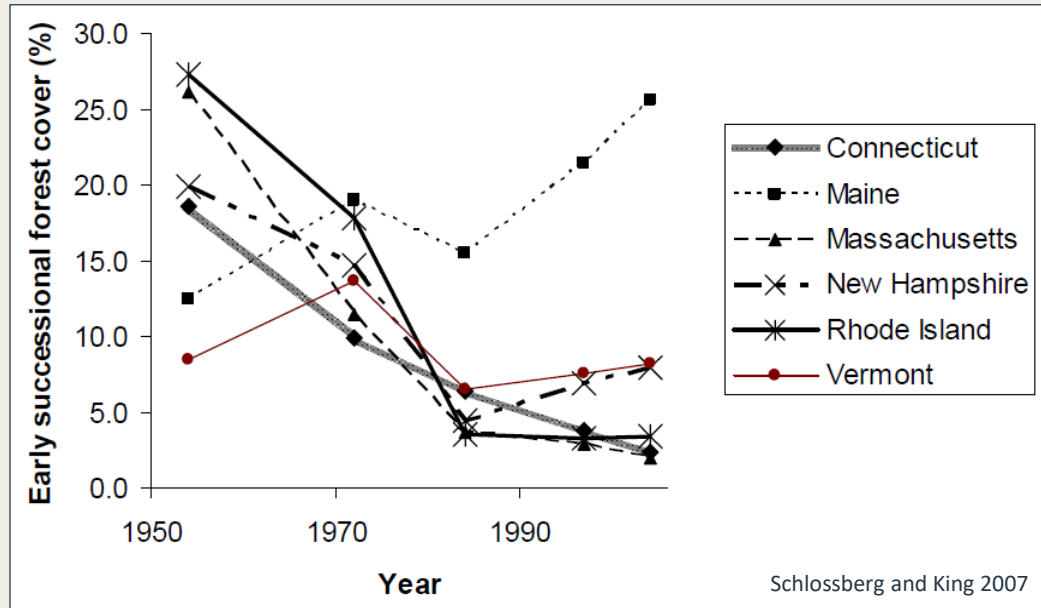
Simon Pierre Barrette



Time

|----- 15 years -----|

Early Successional Habitat



Massachusetts >90% habitat loss



- 41 species in Northeast
- 75% of species in decline
- Habitat quantity

Historic disturbance



Current sources

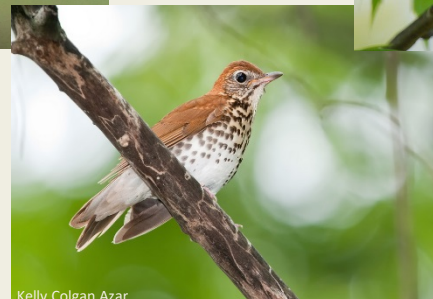


Currently 5% of MA forest is early successional, goal is 10-15%

Even-aged management

- Clear cuts
- Clear cut with reserves
- Shelterwood
- Seed tree





Time

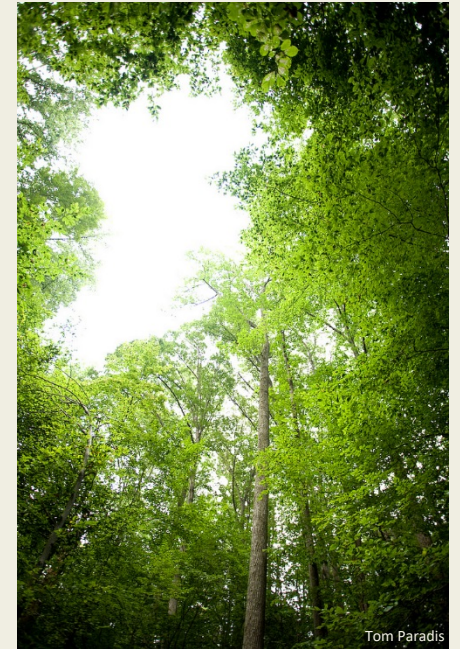


Nicolle R. Fuller

Complex Vertical Structure



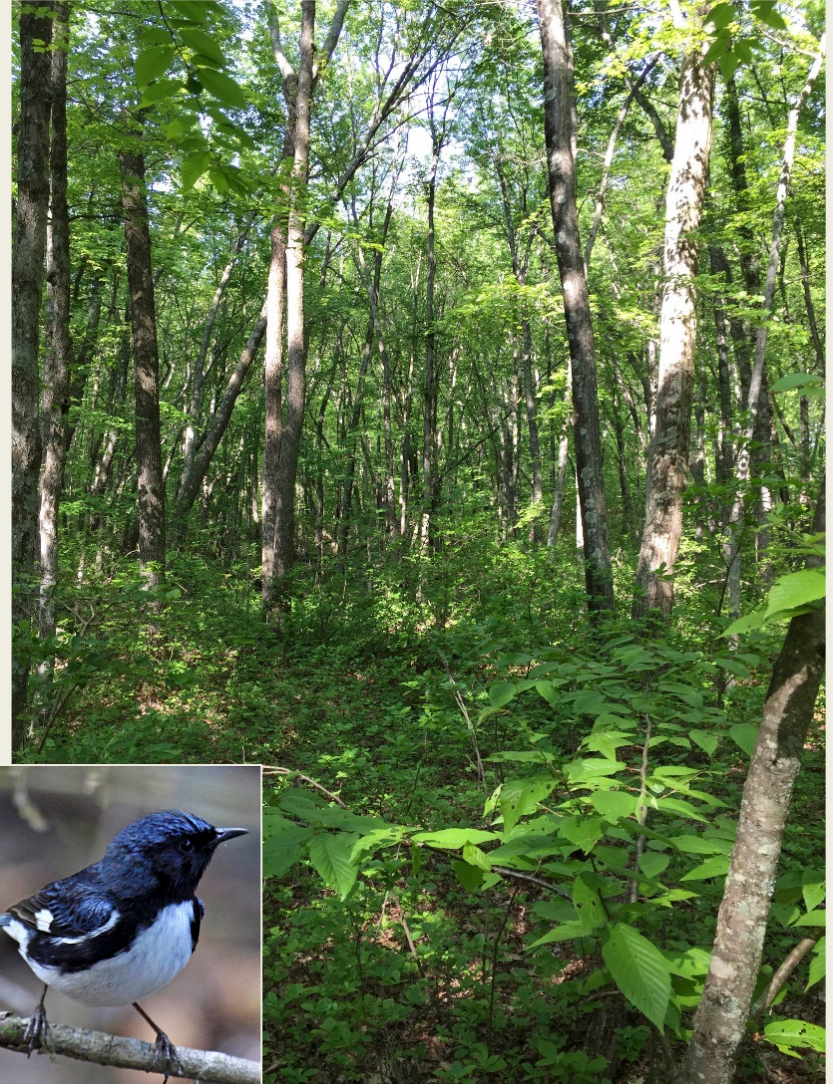
Complex Vertical Structure





Land use – 1800's

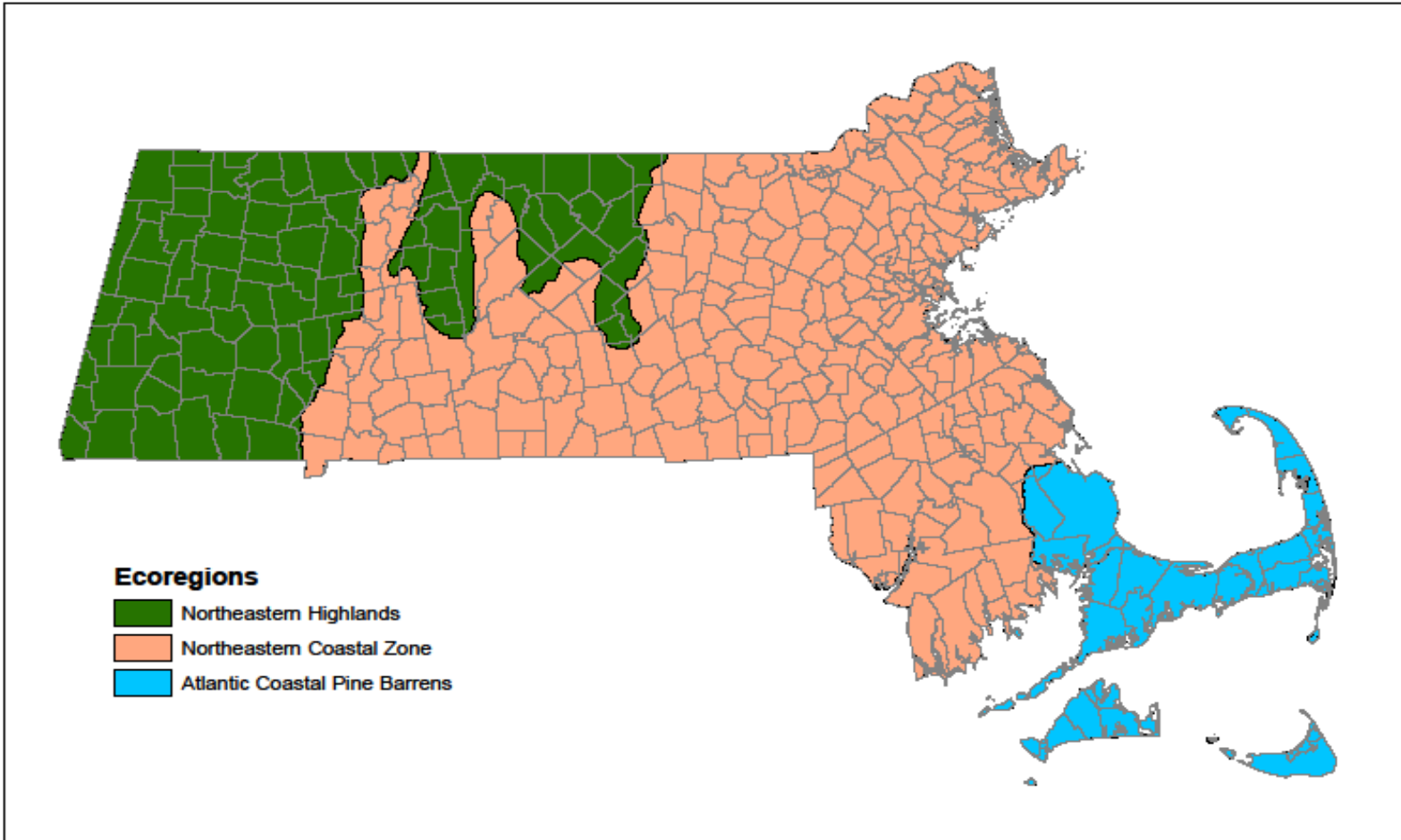
Complex Vertical Structure



Steps for a plan

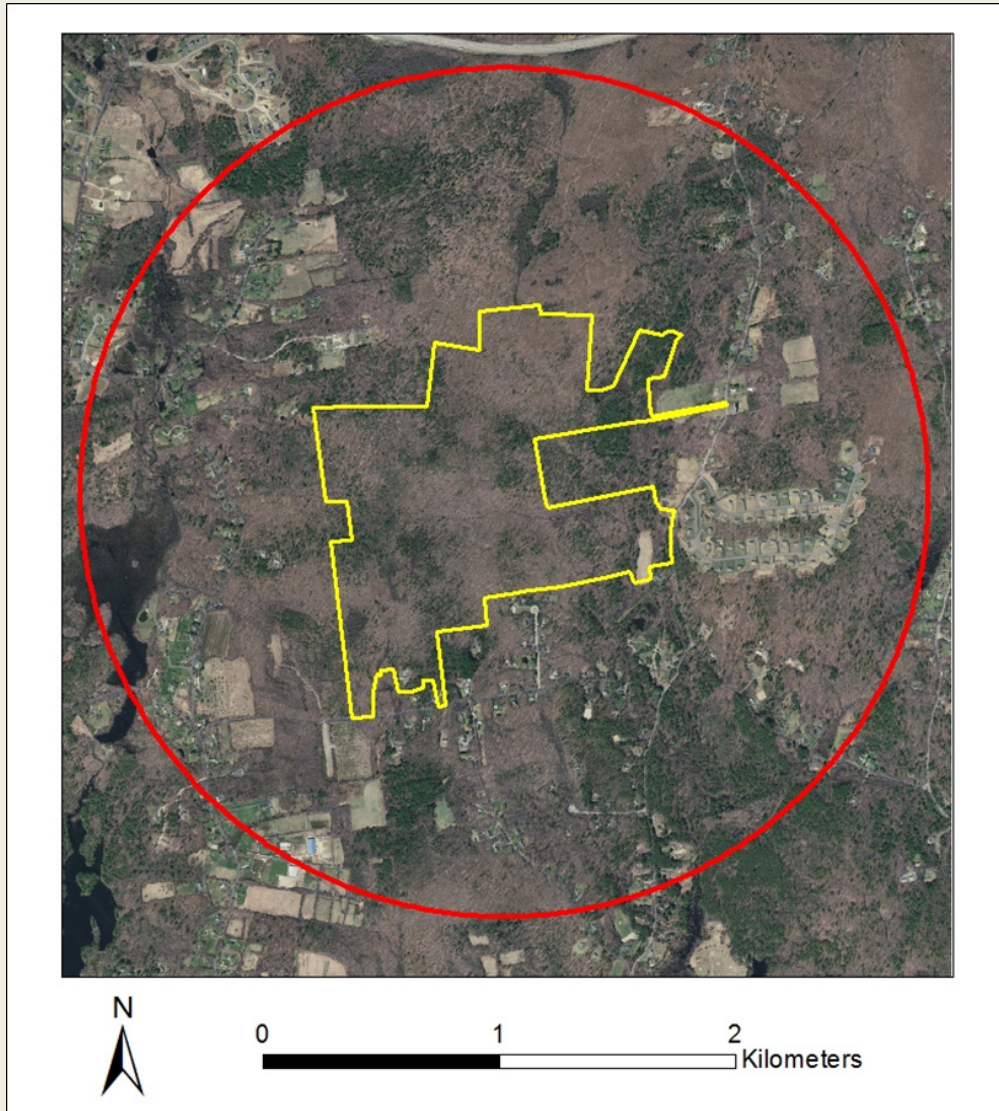


Region



- Focal Bird Species
- Forest challenges and land use differences
- Climate vulnerability of forests and regional birds

Landscape Considerations



- Is there early successional habitat?
- How large is the forest patch?
- How fragmented is the landscape?
- What are the climate considerations?

Stand and property level assessment

- What are the habitat strengths and weakness?
- What species are present and can the habitat be improved?
- What species should be present, but were not detected?
- Merge with other landowner goals

Agriculture with Birds in Mind
Bird Habitat Data Field Sheet

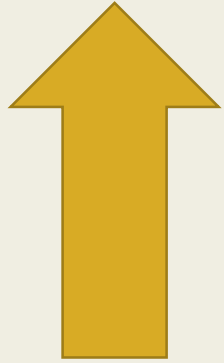
Property: _____ Plot ID: _____ GPS ID: _____
Technician: _____ Date: _____ BAF: _____

Plots: _____

Canopy height:	<20 ft	20-60 ft	>60 ft		
Overstory (20-60)					
% cover:					
distribution:	uniform	patchy			
Midstory (10-20)					
% cover:	0%	25%	50%	75%	100%
distribution:	uniform	patchy			
type:	hard	soft	mixed		
Understory (0-10)					
cover:	0%	25%	50%	75%	100%
distribution:	uniform	patchy			
type:	hard	soft	mixed		
Soil class:					
presence:	present	absent			
species:					
Sampling for Invasive Species (plants):					
	50%	75%	100%		



General Habitat Goals



Early Successional Habitat



Complex Vertical Structure

- Layers
- Tree diversity



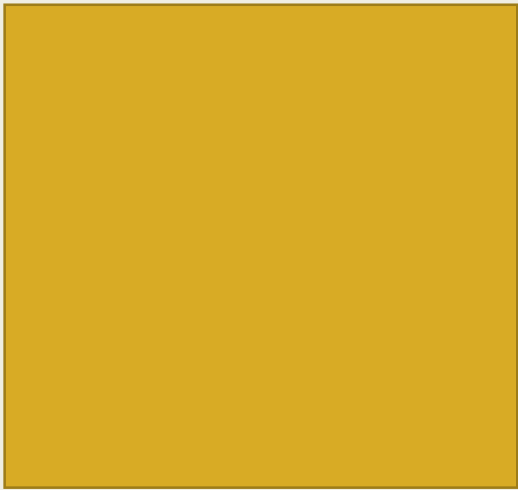
Microhabitat Features

- CWD
- Snags and cavities

Edge

Reduce the amount of edge relative to area

Good



Ok



Bad



Area requirements

Early Successional Birds

- Minimum 2.5 acres
- Increasing density up to 10-20 acres
- Proximity

Mature Forest Birds

- Minimum areas – some at 200 acres
- Landscape context

	Species	Regions		
Mature Forest	Black-and-white Warbler	SE	C	W
	Wood Thrush	SE	C	W
	Black-throated Green Warbler		C	W
	Black-throated Blue Warbler		C	W
	Veery	SE	C	W
	Eastern Wood-pewee	SE	C	W
	Canada Warbler	SE	C	W
Young Forest	Eastern Towhee	SE	C	W
	Chestnut-sided Warbler	SE	C	W
	Brown Thrasher	SE		
	Mourning Warbler			W
	White-throated Sparrow		C	W
Mosaic	American Woodcock	SE	C	W
	Ruffed Grouse	SE	C	W
	Northern Bobwhite	SE		
Cavity	Northern Flicker	SE	C	
	Yellow-bellied Sapsucker			W

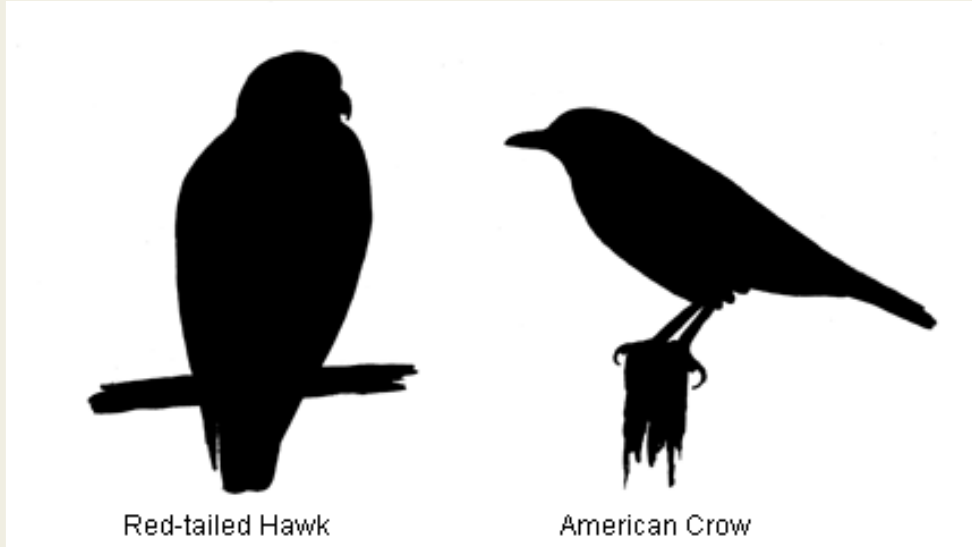
Focal Birds

- Most are a conservation priority in the region, or statewide
- Are relatively simple to ID by sound or sight
- Collectively use a wide range of habitat features
- Are likely to respond positively to silviculture practices

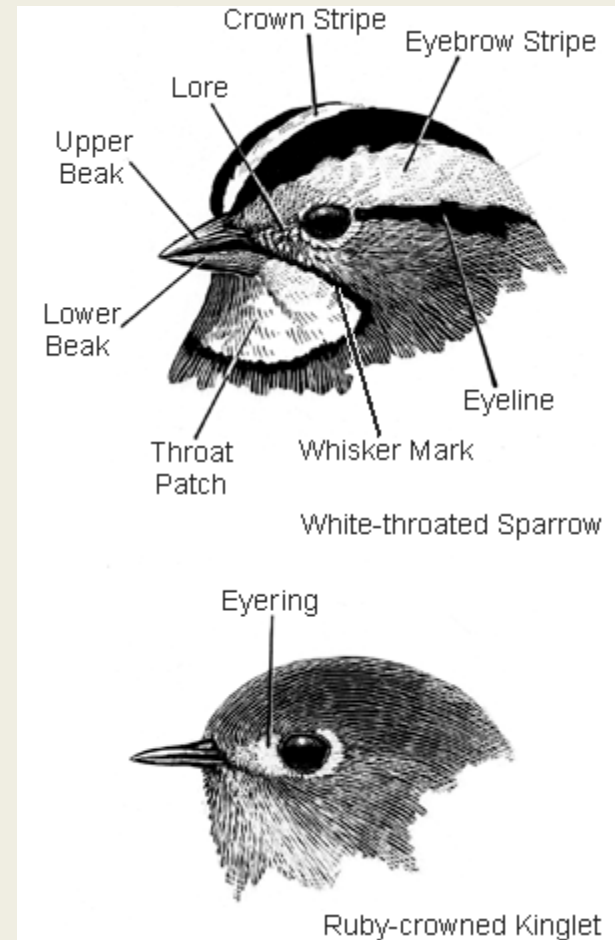
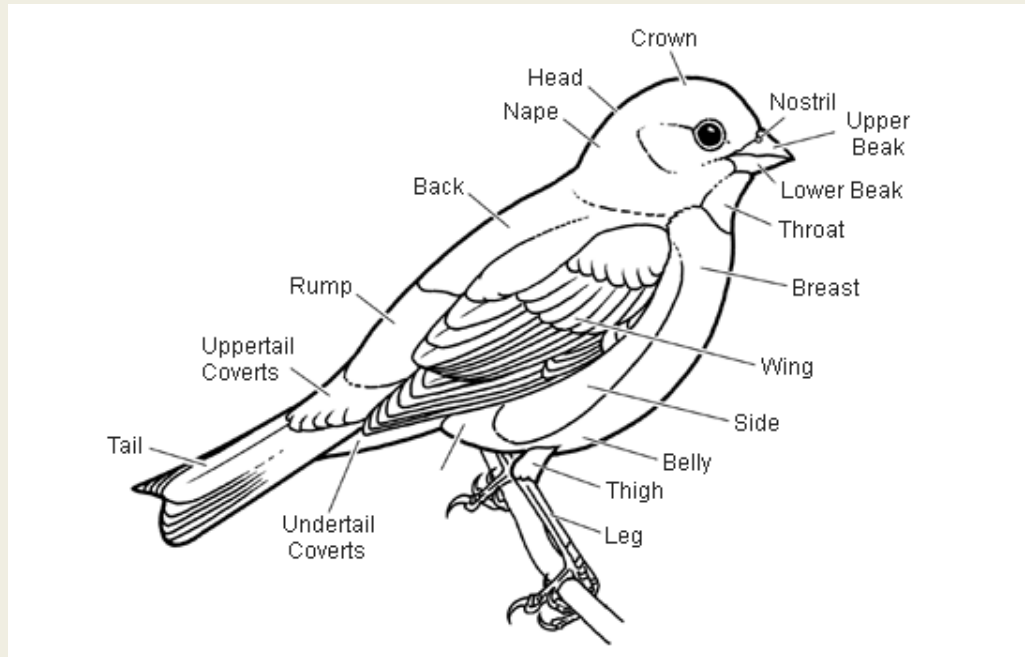
Bird ID Tips – Silhouette



Bird ID Tips – Posture



Bird ID Tips – Field Marks



Bird ID Tips – miscellaneous

- Size helps – tough to judge
- Habitat type
- Behavior – flight, foraging
- Song
 - Watch it sing
- Use your fancy phone
- Buy a field guide
- Time and experience

Adaptation for Birds

Key Concepts

- Trophic cascade
- Generalist species – structure and forest type more important than tree species composition
 - Retain the stage, rotating cast of actors
- Specialists – may require resistance strategies

Adaptation for Birds

Habitat adaptation

- Forest birds are inextricably linked to forest habitat
- Adapted forests will provide better habitat

Population adaptation

- Adaptation strategies apply directly to wildlife as well
 - Reduce other stressors – poor habitat quality
 - Maintain and enhance genetic diversity
 - Growing populations more likely to adapt

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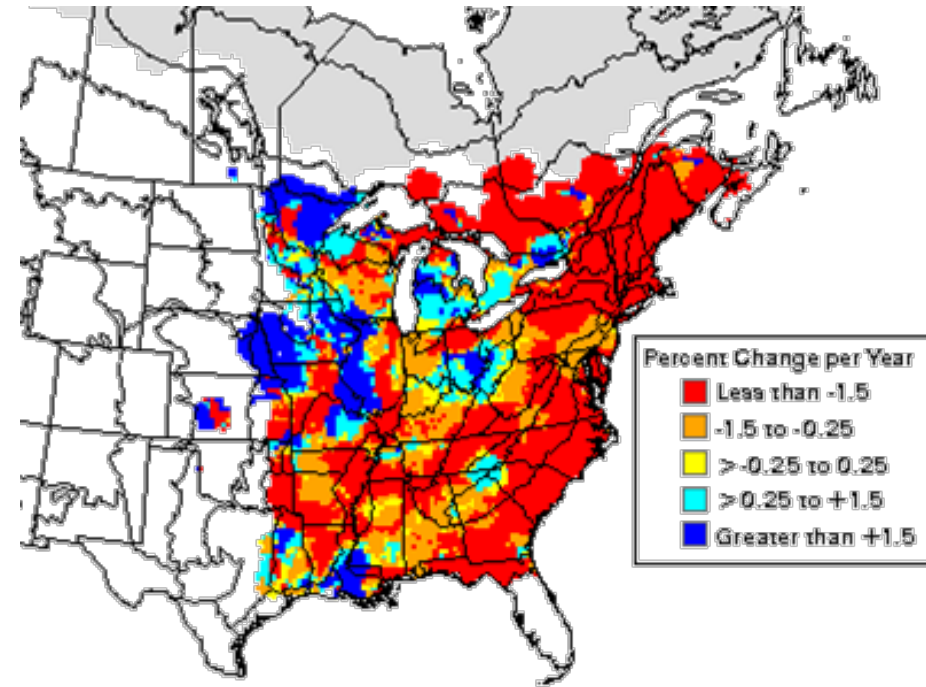
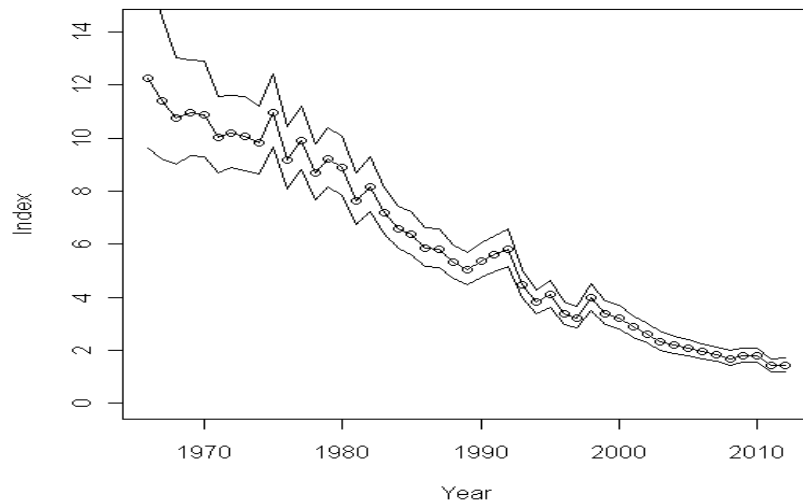
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		RESISTANCE	RESILIENCE	TRANSITION
S T R A T E G Y	① Sustain fundamental ecological functions	[Solid black bar]		
	② Reduce the impact of biological stressors	[Solid black bar]		
	③ Reduce the risk and long-term impacts of severe disturbances	[Solid black bar]		
	④ Maintain or create refugia	[Solid black bar]		
	⑤ Maintain and enhance species and structural diversity	[Solid black bar]		
	⑥ Increase ecosystem redundancy across the landscape		[Solid black bar]	
	⑦ Promote landscape connectivity		[Solid black bar]	
	⑧ Maintain and enhance genetic diversity		[Solid black bar]	
	⑨ Facilitate community adjustments through species transitions			[Solid black bar]
	⑩ Realign following severe disturbance			[Solid black bar]

Wood Thrush



Wood Thrush



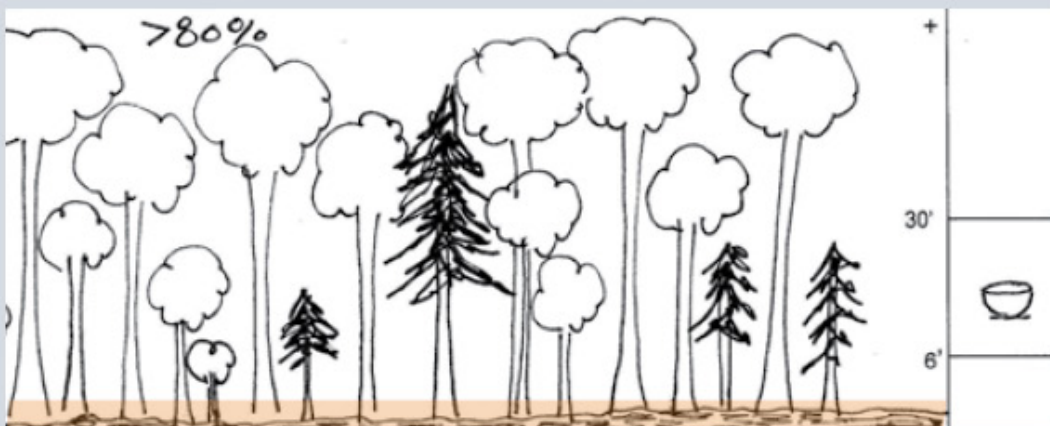
Wood Thrush

WOTH



⊙ + SE CW

Hylocichla mustelina



ID Tips Brown back, heavily spotted on white breast; large thrush a little smaller than an American Robin.

Song A flute-like *ee-oh-layyy*, ending in a sound like shattering glass.

Habitat Interior and edges of hardwood and mixedwood forest. Prefers stands with canopy >50 feet in height, a diversity of hardwood tree species, moderate midstory closure and shrub density, shade, fairly open forest floor, moist soil, and decaying leaf litter.

Territory 0.2-7 acres.

Nest Open cup of leaves and grasses lined with mud, placed on lower limb of a tree or shrub 10-13 feet off the ground and well-hidden among leaves in a shady area.

Food Mostly soil invertebrates; some fruits. Primarily forages on ground in leaf litter or on semi-bare ground under forest canopy.

Silvicultural Considerations

Desired Condition Maintain or create well-stocked, uneven-aged, sawtimber hardwood stands with >80% canopy cover and moist leaf litter.

⚠️ WOTH are area sensitive. In a heavily forested (90+%) landscape, a patch of at least 70 acres is needed for successful breeding. Larger patches are needed in less forested landscapes.

⚠️ Avoid disturbance and desiccation of leaf litter and soil conditions; consider operating in winter.

Management decisions will be based on existing conditions

Silvicultural Options	Compatible Silviculture Treatments	Tips and Considerations
Option 0 Do nothing	<ul style="list-style-type: none">• Increase dead woody material• Promote or plant soft mast• Control invasive plants	
Option 1 Low intensity	<ul style="list-style-type: none">• Crop Tree Release with Gap Formation• Small Group and Single Tree Selection• Variable Retention Thinning	Favor or retain a diversity of hardwood species.

The Forest Bird Umbrella

Action	Bird Habitat	Adaptation	Mitigation
Maintain large, unfragmented forests			
Forest harvest, including group selection and gaps; retain snags			
Promote or plant red oak in harvested areas			
Long rotations			

The Forest Bird Umbrella

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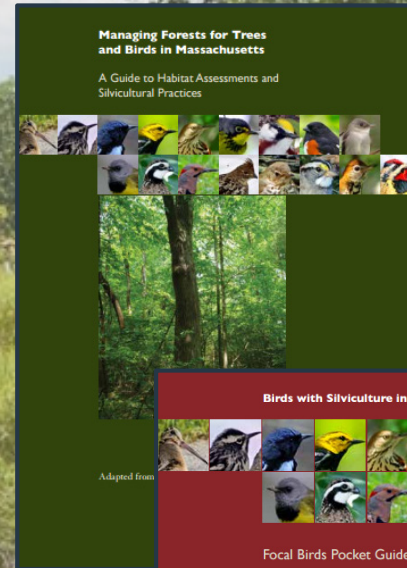
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Long rotations	Minimize disturbance, impact on understory	Maintain seed source of select species	Allows trees to grow larger; forest retains carbon

Foresters for the Birds

+ *Climate Adaptation!*



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781-259-2179

