

### Shrubland Bird Ecology & Management




Matt Tarr  
Associate Extension Professor - Wildlife Specialist  
University of New Hampshire Cooperative Extension

### What are “shrublands”?

Shrublands are habitats:


- dominated by shrubs and young trees (<15' tall)
- often interspersed with grasses, ferns, wildflowers
- few/no tall trees that shade the shrubs & ground cover



Also referred to as:

- “thickets”
- early-successional habitat
- scrub-shrub habitat
- young forest

= “SHRUBLANDS”



### Why care about shrublands?



A wide variety of birds, mammals, reptiles, amphibians, and insects use shrubland habitats to meet their daily or seasonal needs for food and cover

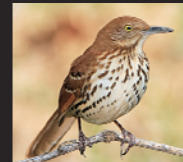
### 36 species of birds in NH require shrublands as their primary habitat

*(Schlossberg and King, 2007)*

- |                        |                           |
|------------------------|---------------------------|
| American woodcock      | Lincoln's sparrow         |
| Alder flycatcher       | White-throated sparrow    |
| Willow flycatcher      | Northern cardinal         |
| House wren             | Indigo bunting            |
| Gray catbird           | American goldfinch        |
| Brown thrasher         | Wilson's snipe            |
| Blue-winged warbler    | Yellow-billed cuckoo      |
| Tennessee warbler      | Whip-poor-will            |
| Nashville warbler      | Ruby-throated hummingbird |
| Yellow warbler         | Cedar waxwing             |
| Chestnut-sided warbler | Magnolia warbler          |
| Prairie warbler        | Black-and-white warbler   |
| Palm warbler           | Canada warbler            |
| Mourning warbler       | Dark-eyed junco           |
| Common yellowthroat    | Rusty blackbird           |
| Eastern towhee         | Carolina wren             |
| Field sparrow          | Ruffed grouse             |
| Song sparrow           | Northern mockingbird      |



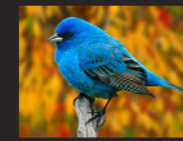
Prairie warbler



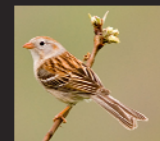
Brown thrasher



Chestnut-sided warbler



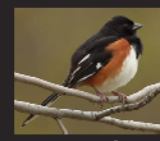
Indigo bunting



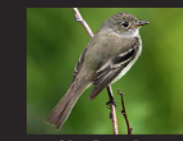
Field sparrow



Blue-winged warbler



Eastern towhee



Alder flycatcher

These are the "shrubland-dependent" or "shrubland" birds

Shrubland birds require the unique structure and composition of shrubland vegetation to meet their needs during the breeding season



Nesting cover



Insects



Singing perches



Fruits

Where did shrublands occur in New England historically?



Beaver wetlands

*Wet shrublands*

These support a slightly different suite of shrubland birds than...



Thickets on wetland edges

*Dry shrublands*



Pine barrens



Coastal dunes



Forest disturbances

Today, many “natural” shrublands have been lost due:



Development



Altered natural disturbance regimes



Maturing forest

Without regular disturbance most shrublands revert to forest within 10-15 years

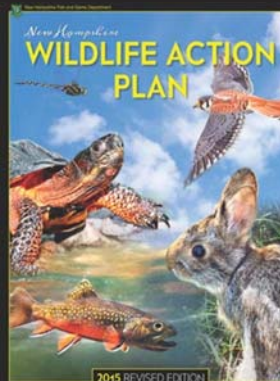
Since mid 1900's:

- Has been a steady decline in shrublands
- Has been a steady decline in populations of many shrubland-dependent wildlife

Why be concerned about shrublands & shrubland birds?

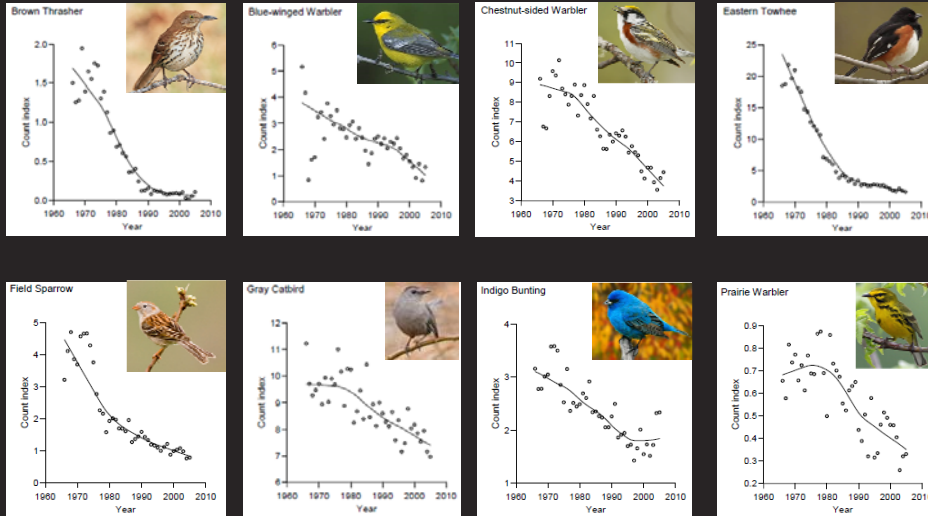


Shrublands uncommon in NH, identified in NHWAP as *Habitats at Risk*



Many shrubland-dependent wildlife identified as *Species in Greatest Conservation Need* due to declining populations

## Declining shrubland-dependent birds



Populations of most shrubland dependent bird species are declining

(Schlossberg and King 2007)

Most shrubland birds are habitat specialists that require...



- Habitats greater than a certain minimum size

- Habitats with specific vegetation structure

A few shrubland birds use shrublands as small as 0.3 acres:



chestnut-sided warblers



common yellowthroats



mourning warblers

“Gap specialists” evolved to exploit small forest disturbances

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(Costello et al. 2000)

Most shrubland birds don't occur in openings < 2 acres in size

(Askins et al. 2007, Schlossberg and King 2007, Roberts and King 2017)



alder flycatcher



Indigo bunting



prairie warbler



brown thrasher



field sparrow



eastern towhee

Shrublands > 10 acres support greatest diversity of shrubland birds

(Shake et al. 2012, Tarr et al. unpublished data)

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Today, shrubland-dependent birds often rely on large human-created shrublands



SHRUBBY "OLD FIELDS"



GRAVEL PITS



TRANSMISSION LINE RIGHTS-OF-WAY  
>165 feet wide



REGENERATING CLEARCUTS

Vegetation structure influences where each shrubland bird species occurs



Brown thrasher most specialized: scattered low shrubs in dry, sandy sites



Prairie warbler: dense shrubs, low trees, some overstory in dry sites with minimal herb cover



Field Sparrow: scattered low shrubs on dry sites with short, sparse grass



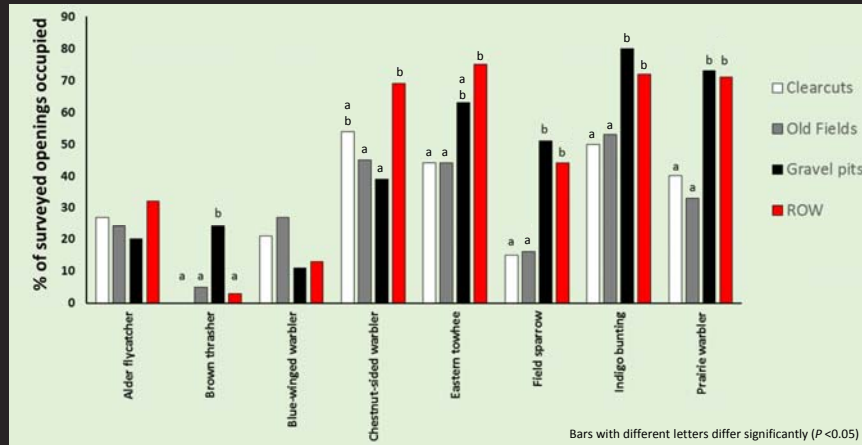
Blue-winged warbler: clumped, dense shrubs with abundant herbaceous cover



Common yellowthroats, gray catbirds, song sparrows most general and occur in nearly all shrublands

(Shoe, Tarr, & Litvaitis 2017, Holm, Tarr & Kovach unpublished data)

### Likelihood of eight shrubland bird species occurring in human-created shrublands in southeastern New Hampshire



- Each shrubland type supports a different abundance of each bird species
- Rights-of-way (ROW) & gravel pits largest shrublands and support the greatest variety of species, greatest abundance of certain species

**Study conclusion: All opening types appear important for maintaining the full suite of shrubland birds in southeastern NH**

### 27 bird species in NH nest only in mature forest

Pileated woodpecker  
 Eastern wood-pewee  
 Great crested flycatcher  
 Yellow-throated vireo  
 Blue-headed vireo  
 Red-eyed vireo  
 Red-breasted nuthatch  
 Brown creeper  
 Golden-crowned kinglet  
 Ruby-crowned kinglet  
 Hermit thrush  
 Wood thrush  
 Northern parula  
 Black-throated blue warbler  
 Yellow-rumped warbler  
 Black-throated green warbler  
 Blackburnian warbler  
 Pine warbler  
 Ovenbird  
 Scarlet tanager  
 Louisiana waterthrush

Northern waterthrush  
 Sharp-shinned hawk  
 Cooper's hawk  
 Northern goshawk  
 Red-shouldered hawk  
 Broad-winged hawk



Wood thrush



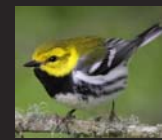
Scarlet tanager



Great crested flycatcher



Black-throated blue warbler



Black-throated green warbler



Red-eyed vireo



Ovenbird



Blackburnian warbler

**Shrublands have typically been considered entirely negative to these "mature forest birds", but...**



Adult and fledgling “mature forest birds” do use shrubby openings

- abundant ground-level cover allows birds to avoid predators
- abundant fruits and insects provide important food

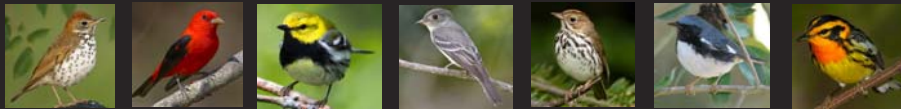
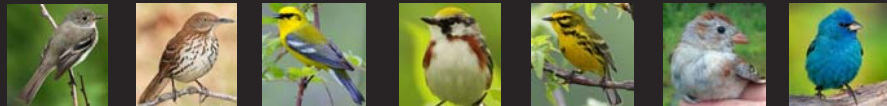


Hermit thrush eating a black cherry

Young forest openings may enhance the productivity (i.e., number of young that survive to reproduce) of a wide variety of bird species

(King et al. 2006, Vitz and Rodewald 2006, Askins et al. 2007, Holm et al. unpublished data) 17

Use of transmission line rights-of-way and clearcuts by songbirds during the nesting and post-nesting season



Erica Holm, Matt Tarr, Adrienne Kovach  
2017-2018

Preliminary data from 2017 breeding season (Holm et al. *unpublished data*)

*Composition of shrubland birds (bold) and non-shrubland birds caught in 12 shrubby transmission line rights-of-way in southeastern ME and NH 2017*

<b>Alder flycatcher</b>	Chipping sparrow	<b>House wren</b>	Swainson's thrush
<b>American goldfinch</b>	<b>Common yellowthroat</b>	<b>Indigo bunting</b>	<b>Tennessee warbler</b>
American redstart	<b>Chestnut-sided warbler</b>	Least flycatcher	Tree swallow
American robin	Downy woodpecker	<b>Lincoln's sparrow</b>	Tufted titmouse
Bank swallow	Eastern bluebird	<b>Northern cardinal</b>	<b>Flycatcher sp.</b>
Baltimore oriole	Eastern kingbird	Orchard oriole	<b>Sparrow sp.</b>
<b>Black-and-white warbler</b>	Eastern phoebe	Ovenbird	Veery
Black-billed-cuckoo	<b>Eastern towhee</b>	<b>Prairie warbler</b>	<b>Wilson's warbler</b>
Black-capped chickadee	<b>Field sparrow</b>	Purple finch	Wood thrush
Blue jay	Great-crested flycatcher	Rose-breasted grosbeak	<b>White-throated sparrow</b>
Black-throated green warbler	<b>Gray catbird</b>	Red-eyed vireo	<b>Yellow warbler</b>
<b>Blue-winged warbler</b>	Hairy woodpecker	<b>Ruby-throated hummingbird</b>	
<b>Canada warbler</b>	Hermit thrush	Scarlet tanager	
<b>Cedar waxwing</b>	House sparrow	<b>Song sparrow</b>	

- Shrubland birds most abundant species in these shrublands
- Mature forest birds are a large component of bird community in these shrublands
- Mature forest birds are in these openings regularly throughout breeding season

unique birds captured:	<b>3441</b>
unique species captured:	<b>76</b>
species <b>only</b> found in ROW:	<b>15</b>
species <b>only</b> found in CC:	<b>17</b>

**ROW & Clearcuts important for birds in SE Maine & NH**

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What can YOU do?

Contact our team of natural resource professionals who can help you identify, conserve, and manage shrubland habitats!



**University of New Hampshire**  
Cooperative Extension



United States Department of Agriculture

**Natural Resources Conservation Service**



Funding to assistance landowners manage and conserve shrublands:

Available from NRCS

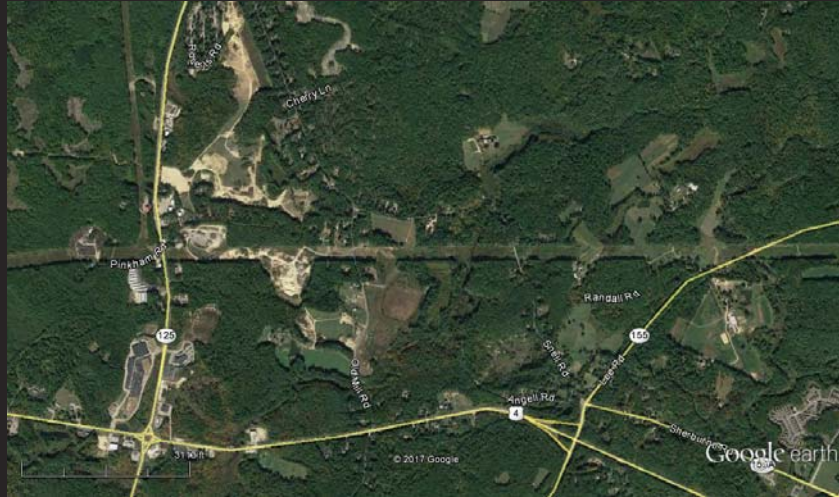
Available from NH Fish & Game in south central and southeastern NH for NE Cottontails

Your call gets us out of the office!!

(Matt Tarr 953-4425 / [matt.tarr@unh.edu](mailto:matt.tarr@unh.edu))

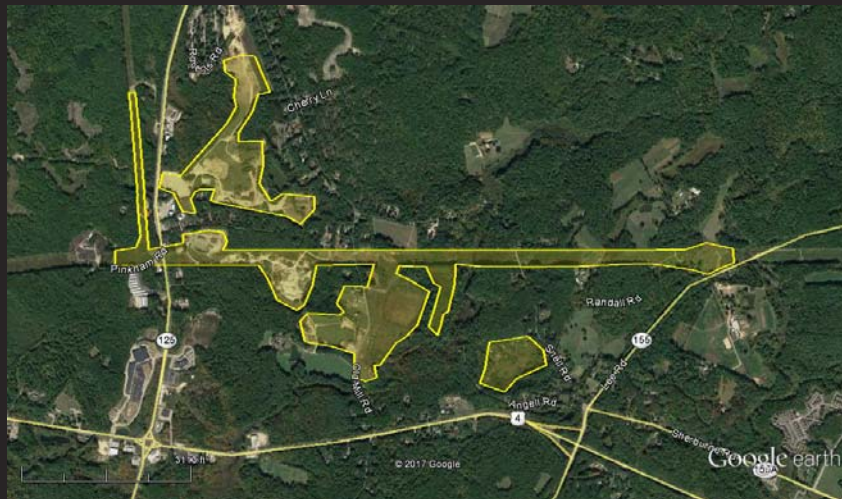
### What can YOU do?

Identify where large shrublands already occur in your community



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Work with our team to educate landowners about shrublands and inquire about their interest to maintain shrubland conditions

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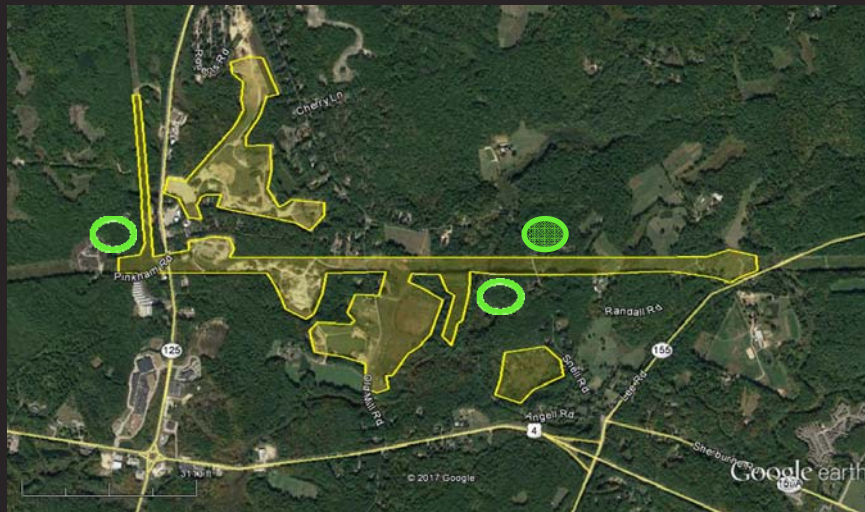
Large landowners may have the ability to create large (> 5 acre) shrublands



Created with a commercial timber harvest planned and supervised by a NH Licensed Forester

Our team will work with you to assess the landscape to ensure a new shrubland of this size is appropriate for the landscape

When creating new shrublands less than two acres in size  ...



Locate them adjacent to (within about ½ mile) of large shrublands to maximize the chance they will be used by shrubland birds

(Roberts and King 2017, Shoe et al. 2017)

Locate openings <1 acre immediately adjacent to larger shrublands



Can be completed as:

- Commercial harvest
- Firewood harvest

Purpose for grouping shrubland openings:

- increase habitat value of small openings by increasing their size
- perpetuate ideal shrub conditions

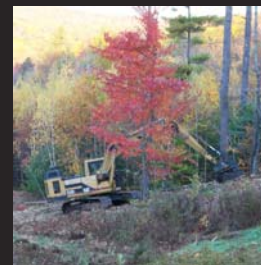
Cutting in this manner would be especially valuable to shrubland birds in rights-of-way < 150' wide

If you have one opening that you want to maintain as a shrubland

Periodically remove only the tallest sapling trees that are beginning to shade out the shrubs



- Can also target invasives for removal - but don't disturb the soil!
- No need to cut established native shrubs!

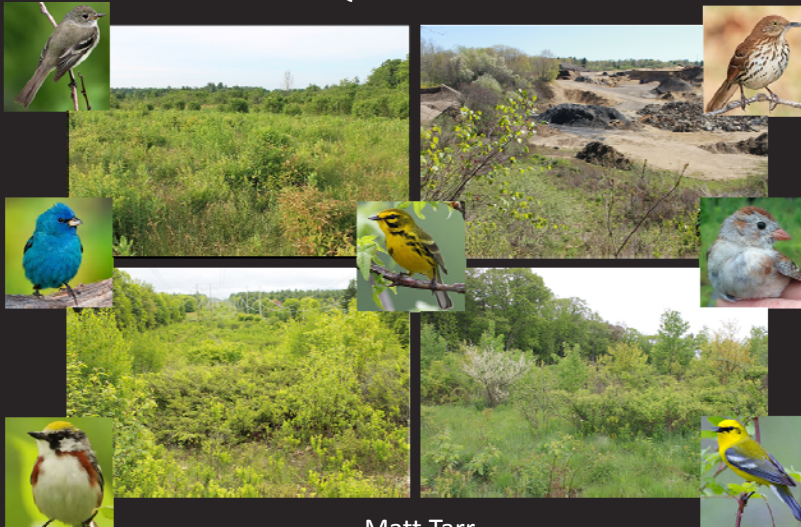


Large openings can be cut with a brontosaurus



Small openings can be cut with a brush saw/chainsaw

# Questions?



Matt Tarr  
UNH Cooperative Extension  
matt.tarr@unh.edu