

# Wildlife Response to Young Forest Management on New York Wildlife Management Areas

## 2016-18 Effort and Preliminary Results

Prepared 2/2019 by the DEC Young Forest Initiative Team

### Summary

The Young Forest Initiative (YFI) is a forest management program that restores wildlife habitat on over 90 Wildlife Management Areas (WMA) throughout New York. We create and improve thickets of tree seedlings and saplings, shrubs, grasses, and wildflowers to provide food, cover, and nesting places for game species like woodcock, deer, grouse, turkey, and snowshoe hare as well as at-risk species like New England cottontail, golden-winged warbler, and whip-poor-will. Our goal is to manage over 12,000 acres of young forest throughout the WMA system for these target species.

As described in the YFI Monitoring Plan, we survey wildlife on WMAs in the YFI program to meet three objectives:

- Assess target species response to management actions.
- Document baseline status prior to management.
- Avoid impacts to sensitive species.

This report summarizes wildlife survey effort from 2016-18 and provides preliminary results. The majority of wildlife surveys to date have focused on objectives two and three. Baseline surveys tell us where and approximately how abundant a target species is before management, which sets a bar for comparison after habitat management is complete. For the less common species, this step helps us determine if a species is present on a WMA and identify areas to improve habitat. Pre-treatment surveys are necessary to avoid impacts to Species of Greatest Conservation Need (SGCN) such as bats, raptors, and songbirds. Over time, as more projects are completed and suitable habitat structure develops, we will compare baseline and post-treatment surveys to determine how wildlife respond to management. These results will help to inform future management decisions such as the location, timing, and methods used.

### YFI Program Accomplishments

- Completed over 152,000 acres of habitat inventory.
- Wrote 44 Habitat Management Plans.
- Held 31 public meetings to talk about young forest and habitat management.
- Wrote 50 silvicultural prescriptions for YFI project areas.
- Created 665 acres of young forest habitat on 14 WMAs in 15 counties.
- Currently managing active young forest projects totaling 2,577 acres in 24 counties.

### Where We Work: Complete and Active YFI Project Areas by County

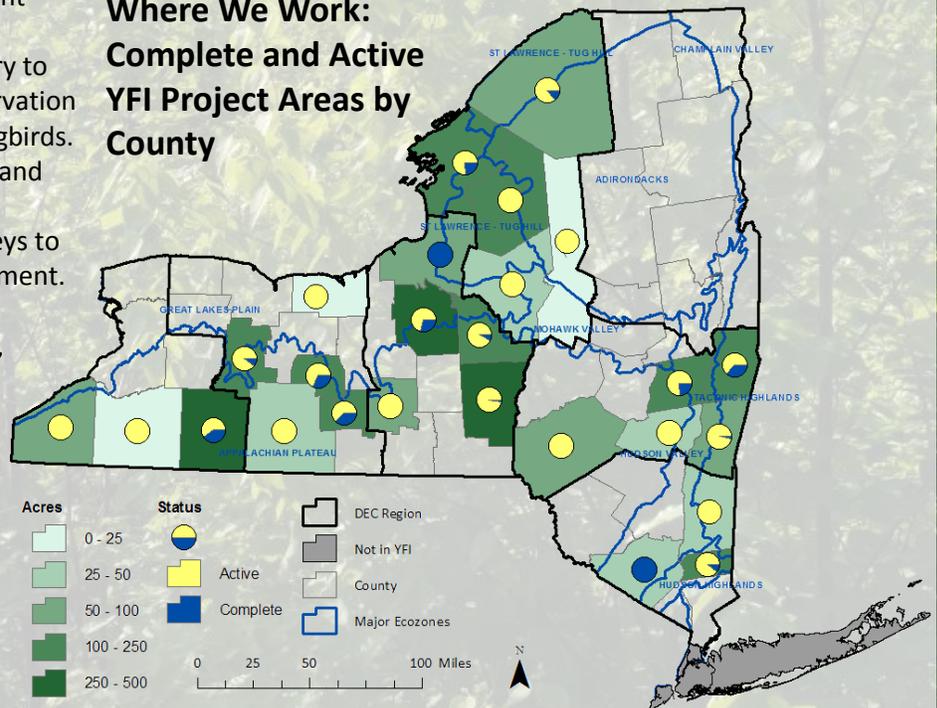


Figure 1. Statewide distribution of complete and active (planned or underway) YFI projects by county to date. Green shading shows total managed acres per county (complete + active). Pie charts show the proportion of complete (blue) and active (yellow) projects per county. Blue lines show the major NY ecozones because forest types and wildlife species distributions vary across the state. There are no project areas on Long Island (gray).

# Target Species

## Woodcock Singing-ground Surveys

American woodcock are a widely distributed migratory gamebird and SGCN. They use a mix of forest—especially young aspen and alders—and fields for displaying, nesting, and brood rearing. Each April, we count “peenting” males to estimate distribution and abundance on WMAs with YFI project areas.



Larry Federman

### What We Did

- Singing-ground surveys at 360 points on 32 WMAs.
- The majority of surveys were conducted to establish baseline data for the WMA. A small number of surveys were conducted at post-treatment points (10%).

### What We Found

- We detected woodcock at 27 WMAs (33% of all survey points) and did not detect woodcock at 5 WMAs.
- Baseline relative abundance (RA; average number of singing males per point) was highest on WMAs in the Great Lakes Plain ecozone and lowest in the Appalachian Plateau ecozone. This is consistent with flush rates from the 2017-18 statewide woodcock hunting logs, which were highest in the Lake Plains and below average in the Appalachian Plateau.
- WMAs with the highest baseline RA included Stockport (2.2 males/point), Wilson Hill (2.0), and Three Rivers (1.9).
- Woodcock were heard at post-treatment points on 5 WMAs.

### Next Steps

- Baseline surveys at WMAs that haven’t been surveyed yet and post-treatment surveys at completed project areas.

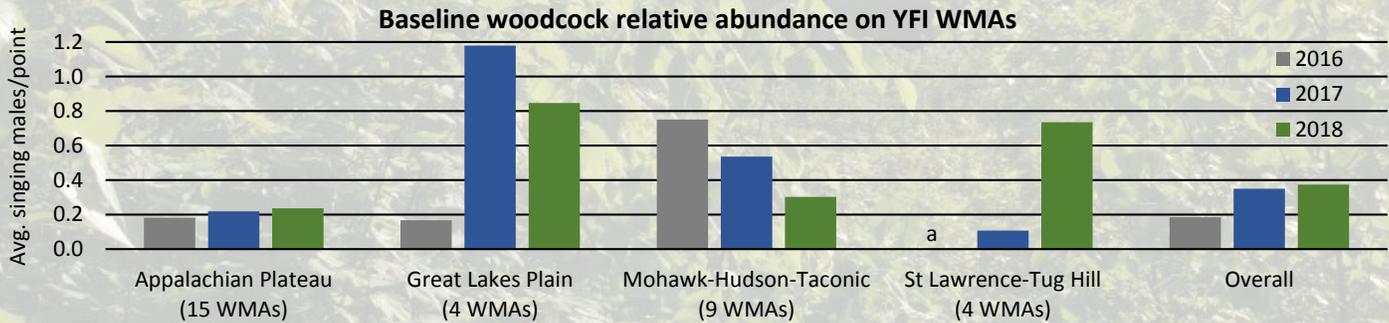


Figure 2. Woodcock relative abundance by ecozone from surveys at 32 WMAs, 2016-18. <sup>a</sup> Only 1 WMA surveyed in 2016 and no woodcock detected.

## White-tailed Deer Impact Surveys

An abundant and widespread species, deer benefit from young forest management due to the abundant food and thick cover, but also adversely impact forest regeneration by over-browsing shrubs and saplings. Our survey efforts primarily focus on documenting impacts to vegetation.

### What We Did

- Ranked deer browse severity as part of a qualitative regeneration assessment on project areas.
- Baseline pellet counts and browse impact surveys in proposed YFI project areas at 6 WMAs in Regions 3 and 4.
- Began to establish Assessing Vegetation Impacts from Deer (AVID) plots; currently 1 plot on Connecticut Hill WMA.

### Next Steps

- Continue to monitor deer browse impacts on regeneration to determine where additional management actions (e.g., fencing or deer exclosures) may be needed to establish young forest.



Kate Yard

## Ruffed Grouse Drumming Surveys

Grouse are a widely distributed game bird and SGCN. In early spring, we count drumming males to determine an index of abundance on WMAs. They use forests of varying age, structure, and composition throughout the year—for nesting, brood rearing, foraging, and overwintering—so response to young forest management may not be observed for several years.

### What We Did

- Surveys at 350 points on 27 WMAs (points surveyed twice per year).
- The majority of surveys were conducted to establish baseline data for the WMA. A small number of surveys were conducted at post-treatment points (11%).

### What We Found

- We detected grouse at 22 WMAs (39% of all points) and did not detect them at 5 WMAs.
- Baseline relative abundance was higher in the St. Lawrence-Tug Hill and Appalachian Plateau ecozones and lower in the Mohawk-Hudson Valley-Taconic and Great Lakes Plain ecozones. This is consistent with drumming rates reported in the statewide Grouse Drumming Survey from 2016-18, which were highest in the Adirondack-Tug Hill ecozone and lowest in the Lake Plains and Hudson Valley ecozones.
- WMAs with the highest baseline relative abundance included Keeney Swamp (3.0), Cranberry Creek (1.5), Partridge Run (1.4), Tioughnioga (0.8), and Tug Hill (0.8).

Baseline grouse and turkey relative abundance on YFI WMAs

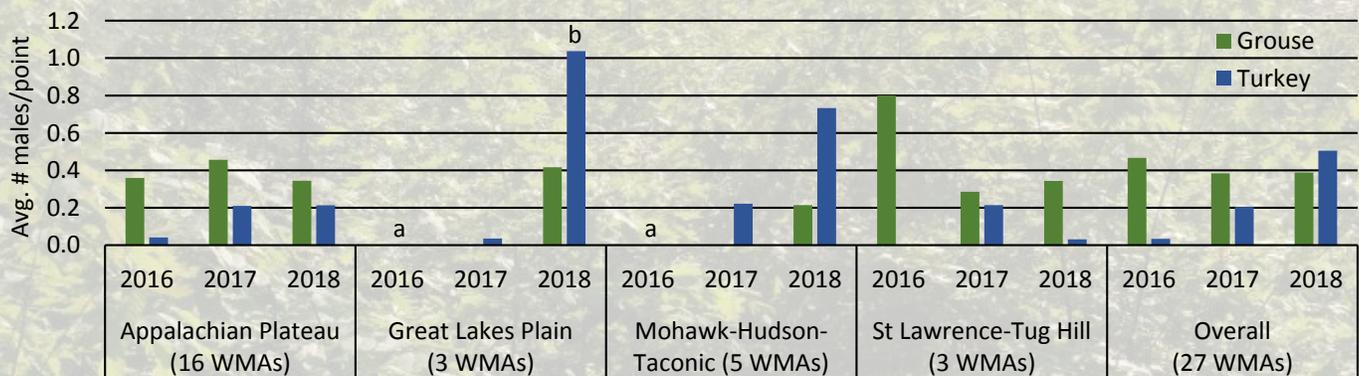


Figure 3. Baseline relative abundance of grouse (green) and turkey (blue) by ecozone, from surveys on 27 YFI WMAs in 2016-18.

<sup>a</sup> No WMAs in the ecozone surveyed in 2016. <sup>b</sup> Peak driven by high abundance at Cranberry Creek WMA.

## Wild Turkey Tally

Turkeys are another widely distributed game bird that use a variety of forest and field habitat throughout the year, including young forest for nesting and brood rearing. Males are gobbling at the same time grouse are drumming, so we count both species at the same time.

### What We Did

- Concurrent spring gobbler count with each grouse drumming survey (see above).

### What We Found

- We heard gobblers at 24 WMAs (22% of points) and did not detect them at 3 WMAs.
- Relative abundance was highest in the Great Lakes Plain and Hudson Valley ecozones.
- The highest relative abundance was observed at Cranberry Creek (3.3), Louise E. Keir (2.0), Stockport (1.7) and Margaret Burke (1.3) WMAs.

### Next Steps

- For both grouse and turkey, we will conduct baseline surveys at WMAs where we haven't yet surveyed and post-treatment surveys at completed project areas.



DEC Region 7

## Golden-winged Warbler Surveys

Golden-winged warblers are a high priority SGCN with populations in Regions 3 and 6 and scattered breeding records in other regions. They nest in young forest and move to mature forest after young leave the nest. In May and June, we conduct point count surveys with a call-broadcast period to increase likelihood of detection.

### What We Did

- Baseline surveys to determine whether warblers were present at YFI WMAs in focus areas or areas with prior records of the species.
- Surveyed over 70 points on 11 WMAs.
- Most points were located in an early to mid successional stage habitat (<20 years).

### What We Found

- We detected golden-wings at 3 WMAs (3% of all points) and 1 hybrid at 1 WMA, all in pre-treatment areas in the St. Lawrence Valley and Lakes Plain ecozones. At these project areas, we intend to improve and expand the currently occupied habitat.
- Relative abundance (average number of warblers per point) was highest at Indian River (2.5) and lower at Deer Creek Marsh (0.3) and Lake Shore Marshes (0.1).

### Next Steps

- Survey other WMAs in focus areas or near previous records to determine if golden-wings are present.
- Continue to conduct post-treatment surveys.

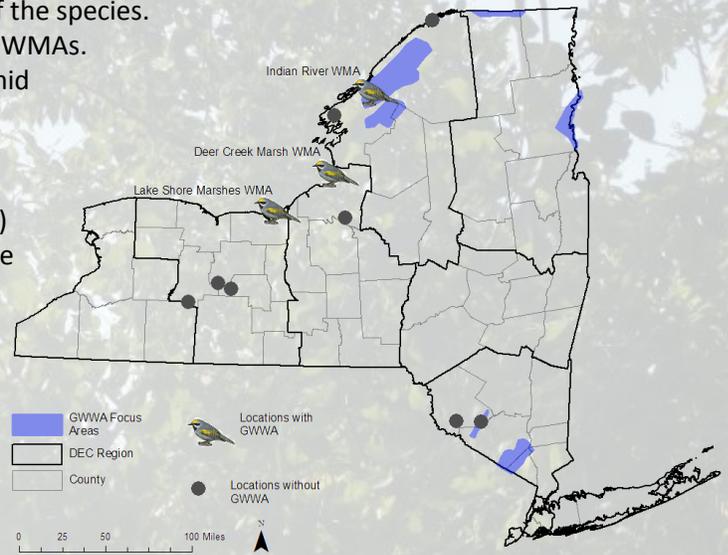


Figure 4. WMAs surveyed for golden-winged warblers in 2017-18, showing WMAs where GWWA were detected (birds) and not detected (dots).

## Whip-poor-will Surveys

Eastern whip-poor-wills are a high priority SGCN most likely to be found in Regions 3, 4, 5, and 6. In June and July, we count singing males on nights with a bright moon when these cryptic, nocturnal birds are most vocal and likely to be detected.

### What We Did

- Baseline surveys to determine whether whip-poor-wills were present at YFI WMAs.
- Surveyed 60 points on 5 WMAs.
- The majority of surveys were conducted to establish baseline data for the WMA. A small number of post-treatment surveys were conducted (12%).

### What We Found

- We detected whip-poor-wills at 3 WMAs (28% of all points) and did not detect them at 2 WMAs.
- We detected whip-poor-wills at YFI project areas one year after treatment at both Ashland Flats and Mongaup Valley WMAs.
- Of WMAs surveyed, Ashland Flats had the highest relative abundance (2.1 individuals per point). This area is well known to support the species.

### Next Steps

- Survey other WMAs in focus areas or near previous records to determine if whip-poor-wills are present.
- Continue to conduct post-treatment surveys.

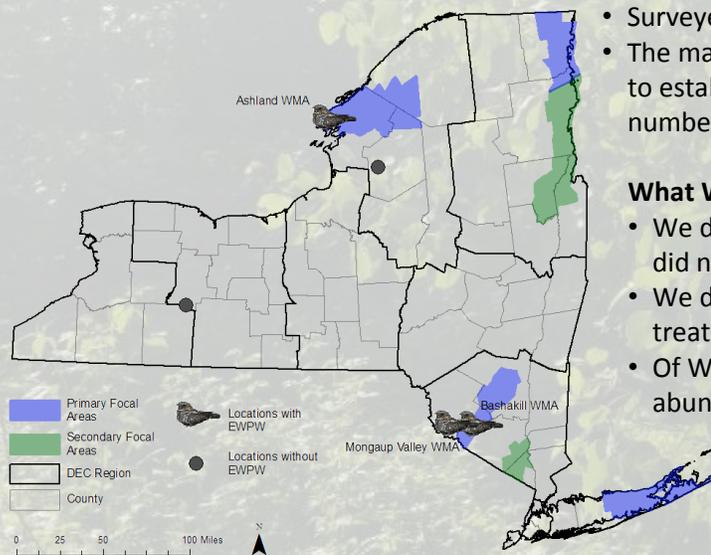


Figure 5. WMAs surveyed for whip-poor-wills in 2016-18, showing WMAs where EWPW were detected (birds) and not detected (dots).



Liz Truskowski



Kate Yard

## New England Cottontail Pellet Surveys

New England cottontails (NEC) are a high priority SGCN currently found on only 2 WMAs in the YFI program (both in Region 3). Every winter, we collect fecal pellet samples as part of a multi-state, long-term monitoring effort to determine NEC and eastern cottontail (EC) site occupancy.



Amanda Cheeseman

### What We Did

- Surveyed 3 WMAs including Cranberry Mountain (14 plots), Great Swamp (3 plots), and Doodletown (2 plots).
- Plots were located in both managed and unmanaged areas, including areas where NEC were previously known to occur as well as areas where occupancy was unknown.

### What We Found

- At Cranberry Mountain, we detected NEC in both managed and unmanaged plots.
- At Great Swamp, we have not detected NEC since 2016. This area is not currently managed for NEC.
- We did not detect NEC at Doodletown, a new WMA that is currently mature forest and does not yet provide suitable habitat for NEC. NEC have been found on nearby private land.
- We detected EC, a non-native rabbit that competes with NEC for resources, at all 3 WMAs.

### Next Steps

- Implement new best management practices developed by SUNY-ESF for management of NEC in the presence of EC, which call for retention of more canopy cover than previously recommended.
- Partner with SUNY-ESF to look at NEC and EC response to management by tracking individual NECs on Cranberry Mountain WMA.

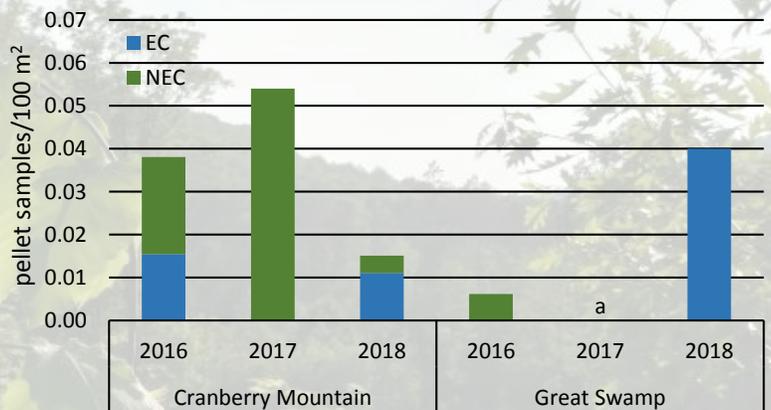


Figure 6. New England cottontail (green) and eastern cottontail (blue) detections (pellet samples/100m<sup>2</sup>) on YFI WMAs, 2016-18. <sup>a</sup> No pellets detected.

## Snowshoe Hare Snow Track Surveys

Snowshoe hare rely on coniferous (e.g. spruce and fir) forest and persistent snow cover associated with northerly latitudes or high elevation, such as the Adirondack and Tug Hill ecozones. Hare are known to occur on 4 WMAs in the YFI program and several WMAs have historic records. Hare rely on young, regenerating conifers for thermal and protective cover and foraging. They are most easily detected in winter by finding tracks in the snow (pictured).

### What We Did

- Conducted baseline snow track surveys on over 450 transects on 4 WMAs (2 where hare are known to occur and 2 with historic records) with proposed YFI project areas.

### What We Found

- We detected hare at 2 WMAs where hare were known to occur (Tug Hill and Happy Valley) but not at 2 WMAs with historic hare records (Capital District and Vinegar Hill).
- At Tug Hill WMA, we detected hare on 60% of transects in a stand that will be converted to young forest.
- At Happy Valley WMA, we detected hare on 7% of transects on a WMA-wide survey of potential hare habitat.

### Next Steps

- Conduct baseline surveys at Little John WMA and WMAs with historic records and/or credible reports of hare sign.
- Follow up with post-treatment surveys in forest stands managed for hare.



Kate Yard

# Avoiding Impacts to Sensitive Wildlife

## Bat Acoustic Surveys

Most cave bats in NY have been heavily impacted by White-nose Syndrome (WNS) since 2006, especially those with historically low population levels including Northern long-eared bat (Threatened), Indiana bat (Endangered), and tri-colored bat (Special Concern). Bats can be directly impacted by forest management through loss of roost trees, particularly during the pup rearing season. However, they can also respond positively after management since forest openings can provide new foraging habitat.



### What We Did

- Approximately 112 surveys on 24 WMAs with proposed YFI project areas to determine if protected bats were present near proposed project areas.
- Approximately 86,000 sound files were recorded and analyzed, 37% of which were identified to species.\*

### What We Found

- Protected bats were confirmed to be present at 17 survey sites (8 WMAs, 15% of sites surveyed):
  - Northern long-eared and/or Indiana bats were detected at 6 WMAs (11% of sites surveyed).
  - Tri-colored bats were detected at 3 WMAs (5% of sites surveyed).

### Applying Our Results

- For project areas where protected bats are present, forest management will only occur during the winter months when hibernating bats are not moving on the landscape.

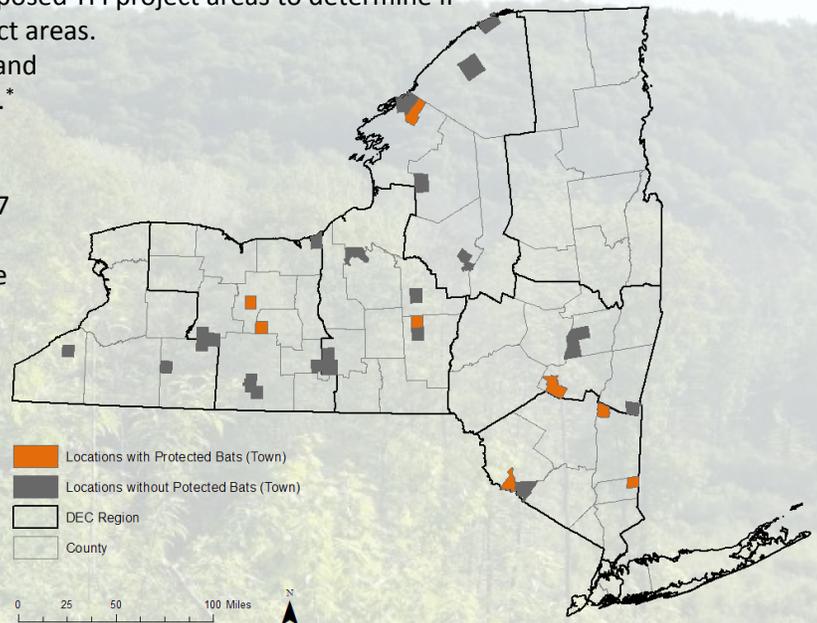


Figure 7. YFI bat acoustic survey locations both without (gray) and with protected bats (orange), 2016-18. Locations shown at the town scale.

### Percent of Calls Identified by Species for Sites with Confirmed Presence

### Percent of Calls Identified by Species for Sites with Probable Absence

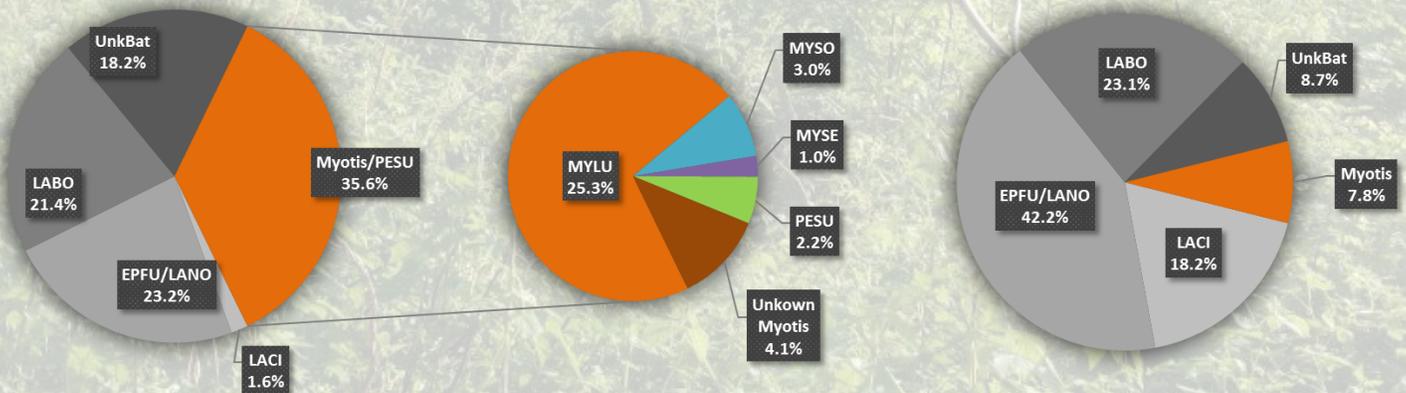


Figure 8. Percent of calls identified by species for sites with confirmed presence (left) or probable absence (right) of protected bats on YFI WMAs, 2016-18. Species: little brown bat (MYLU), Indiana bat (MYSO), Northern long-eared bat (MYSE), tri-colored bat (PESU), red bat (LABO), big brown/silver-haired bat (EPFU/LANO), hoary bat (LACI), unknown (UnkBat).

\* Does not include all Region 7 surveys in 2018. Initial filtering with analysis software removed over 60% of files that did not meet call parameters for target species (e.g. highest frequency <35kHz). A small percentage (2.1%) were determined to be noise or otherwise unidentifiable calls during manual review.

## Woodland Raptor Surveys

Northern goshawk (SGCN), red-shouldered hawk (SGCN), Cooper’s hawk, and sharp-shinned hawk (all species of Special Concern) are sensitive to forest management. We survey to determine if there are nesting territories near proposed project areas.

### What We Did

- Over 40 area search and call-broadcast surveys in YFI project areas on 13 WMAs.

### What We Found

- Territorial raptors or evidence of nesting at 26% of areas surveyed, including red-shouldered (4 sites), broad-winged (3), red-tailed (1), sharp-shinned (1), and Cooper’s hawks (1), as well as barred owl (2).

### Applying Our Results

- We leave a forested buffer around known SGCN nest locations near project areas.

## Beyond Target Species

### Avian Point Counts

A diverse forested landscape—different forest types, age classes, and stand structure—is needed to support the forest bird community from nesting to after fledging. Over 20 SGCN birds need forested habitats. Songbirds are good indicators since they respond rapidly to forest management, quickly finding new patches of young forest to nest, rest, and feed.

### What We Did

- Point count surveys at over 250 points on 25 WMAs.
- The majority of surveys were conducted to establish baseline data for the WMA. A small number of surveys were conducted at post-treatment points (32%).

### What We Found

- 114 species overall, with the highest species richness observed at Hanging Bog (81 species), Connecticut Hill (69), and Capital District (65) – all large (>4,000 acres), primarily forested WMAs with a history of forest management.
- 16 SGCN including 9 that nest in mature forest and 7 that nest in young forest.
- Post-treatment relative abundance (average number of individuals per point) of young forest-dependent SGCN birds was highest for Canada warbler (0.16, pictured) and blue-winged warbler (0.12).

### Applying Our Results

- If we detect mature forest SGCN (e.g., cerulean warbler, Special Concern) during baseline surveys and determine a stand has exceptional habitat value for that species, we may avoid disturbing the stand or consider other management options to enhance habitat.
- The immediate, positive response of young forest birds is a sign that management resulted in suitable habitat structure and resources.



Kate Yard

Relative abundance of SGCN songbirds on WMAs

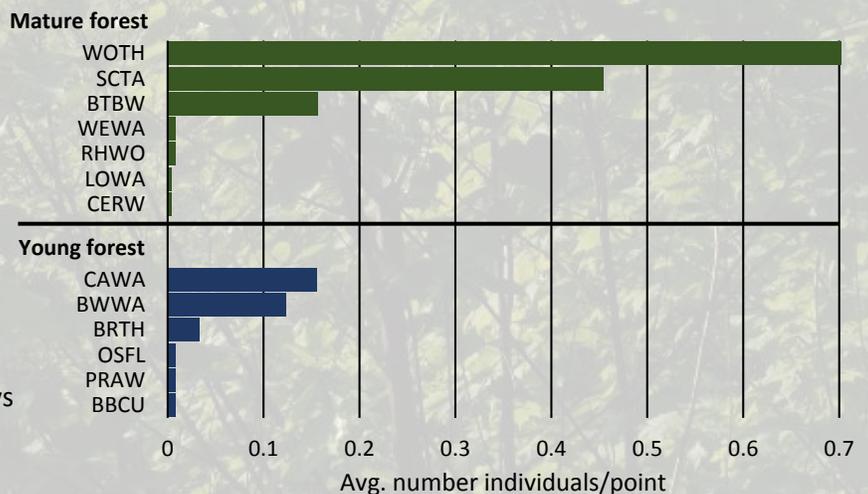


Figure 9. Relative abundance of SGCN songbirds detected in mature forest, pre-treatment (green) and in young forest, post-treatment (blue) on YFI WMAs from 2016-18. Species (from top to bottom): wood thrush, scarlet tanager, black-throated blue warbler, worm-eating warbler, red-headed woodpecker, Louisiana waterthrush, cerulean warbler, Canada warbler, blue-winged warbler, brown thrasher, olive-sided flycatcher, prairie warbler, black-billed cuckoo.

Matt Walter