

# The Avian Conservation Assessment Database (ACAD)

*Background, Current Status, and Opportunities for  
Collaborative Bird Conservation*



Northern Forest Bird Workshop – BCR 12  
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USFWS and *Partners in Flight*



# Avian Conservation Assessment Database

- Data for Standardized Status Assessments
  - Key factors indicative of vulnerability to extinction or extirpation
  - All birds, Canada to Panama
  - Global & regional scale assessments
  - A simple but sound scientific foundation, updated regularly (data-driven + expert input)
  - Peer-reviewed methodology
    - Hunter et al. (1993), Carter et al. (2000), Beissinger et al. (2000); PIF Handbook (Panjabi et al. 2005, 2012)

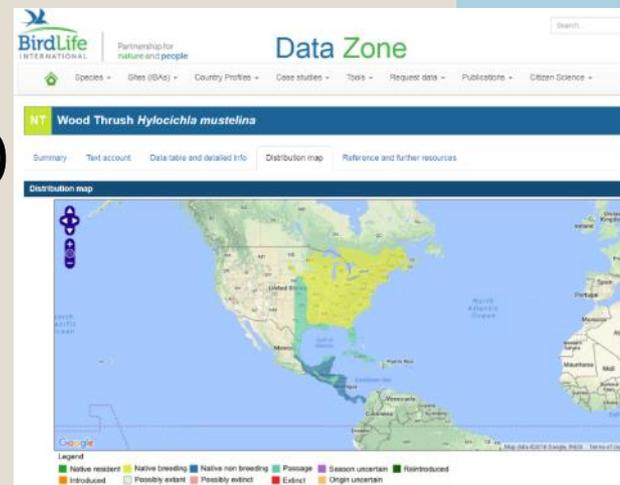
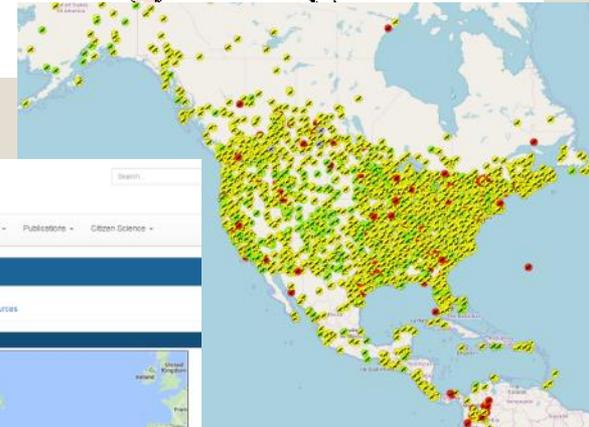
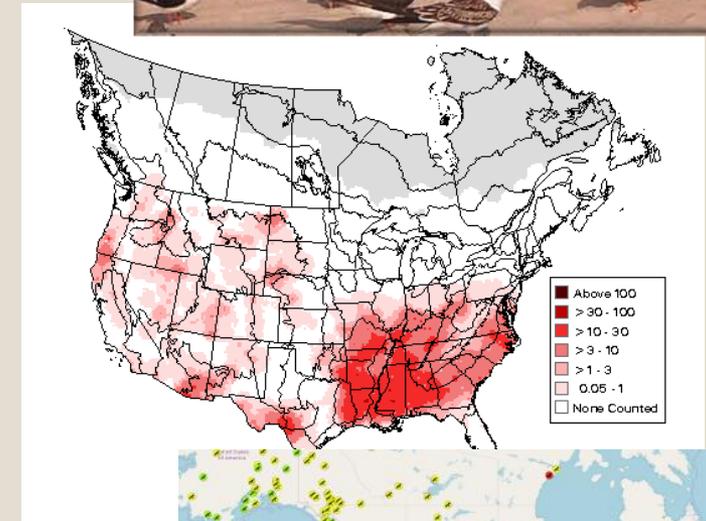
# Why do we need ACAD?

- Provide a common biological basis for assessment of vulnerability for all birds
- Out of 100s of species, helps identify most vulnerable and in need of conservation attention
- Tool for coordinated bird conservation
  - Across taxonomic groups, spatial scales, jurisdictions, etc.; one-stop shopping!
- A structure and framework for tracking additional conservation-related data (e.g., pop. estimates, pop. objectives, monitoring & research needs)



# Assessment Factors

- 6 Vulnerability measures
  - Population Size (PS)
  - Breeding and Non-breeding Distribution (BD, ND)
  - Threats Breeding and Non-breeding (TB, TN)
  - Population Trend (PT)
- 2 Area Importance measures (for BCRs/regions)
  - Relative Density (RD)
  - % of Population (%POP)



# ACAD Assessment Scores

All factors scored on same basic scale:

low  
vulnerability



high  
vulnerability

- 1** = resistance to major decline or extirpation
- 2** = no perceived vulnerability (stability)
- 3** = moderate vulnerability or *high uncertainty*
- 4** = high vulnerability
- 5** = in danger of major extirpation or extinction

# Population Trend (PT)

- A score between 1 and 5 based upon direction and magnitude of recent changes in population size
  - 1 = Significant large increase ( $>50\%$ )
  - 2 = Significant small increase (0% to 50%), Possible increase ( $>0\%$ ), or Stable ( $> -15\%$ )
  - 3 = Uncertain, Stable or possible decrease ( $<-15\%$ ), Possible or Significant small decrease (-15% to 0%)
  - 4 = Significant/Possible moderate decrease (-15% to -50%) or Possible large decrease ( $\leq -50\%$ )
  - 5 = Significant large decrease ( $\leq -50\%$ )

Data Sources: Breeding Bird Survey, Christmas Bird Count, other standardized surveys, Breeding Bird Atlases, expert opinion



# Threats to Breeding (TB)

- A score between 1 and 5 based upon current and foreseeable future conditions
  - **1** = Future conditions for breeding populations are ***expected to improve*** (i.e., due to widespread human activities or land uses that benefit the species)
  - **2** = Future conditions for breeding populations are ***expected to remain stable***; no significant threats.
  - **3** = ***Slight to moderate decline in the future suitability*** of breeding conditions is expected.
  - **4** = ***Severe deterioration in the future suitability*** of breeding conditions is expected.
  - **5** = ***Extreme deterioration in the future suitability*** of breeding conditions is expected; species is in danger of extirpation from substantial portions of range.

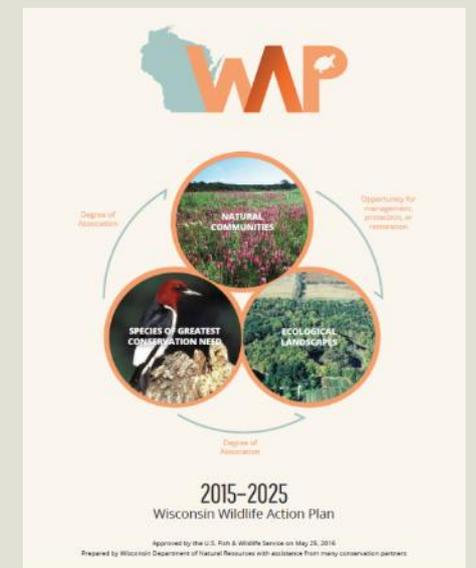
Data Sources: published literature, reports, ***expert opinion***

# Using Assessments to Identify Priority Species for Conservation

- Continental Level:
  - Watch List: combined score  $\geq 14$  or  $13+PT=5$
  - Common Birds in Steep Decline:  $PT=5$   
*e.g., PIF LCP 2016, State of the Birds Reports*
- Regional Level
  - Regional Concern: combined score  $>13$  + Threats  $> 3$  or (Threats = 3 and  $PT > 3$ )  
*e.g., BCR/JV/State priority species lists*
  - Regional Stewardship: %Pop in BCR  $\geq 25\%$  + Threats  $> 1$

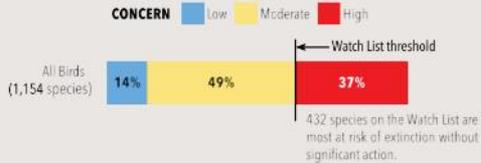
# How is the ACAD used??

- Partners in Flight Landbird Conservation Plan 2016
  - Guidance to Joint Ventures on priority landbirds
- USFWS Birds of Conservation Concern (2002, 2008)
  - Regional and National lists
- US State Wildlife Action Plans
  - Species of Greatest Conservation Need
- Guidance to 20 US federal agencies
  - EO 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*



# State of North America's Birds

## ONE-THIRD OF ALL NORTH AMERICAN BIRD SPECIES NEED URGENT CONSERVATION ACTION



## MAJOR HABITATS OF NORTH AMERICA



This report assesses the conservation status of all native North American bird species across all major habitats, including wetlands embedded within terrestrial habitats. Species were assigned to one breeding habitat, except for oceans and coasts (where species were also included if they occurred anytime during the year) and wetlands (where species were included in both wetlands and their terrestrial breeding habitat). Species that commonly occur in many different habitat types were classified as generalists.

## CONSERVATION CONCERN ACROSS HABITATS



### MIXED STATUS

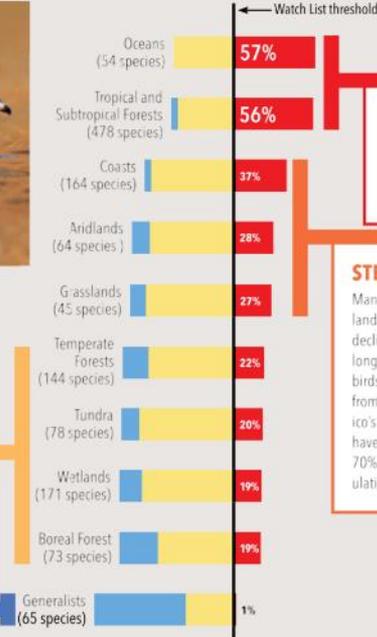
Most species in these habitats are of moderate or low concern, yet roughly 20% are on the Watch List. Waterfowl have benefited from careful harvest management and wetland conservation, but positive waterfowl trends may not last if wetlands loss continues.

### FARING WELL

The generalist group—birds that are adaptable and can live in multiple habitats—are of lowest conservation concern.



**CONCERN** Low Moderate High



### IN CRISIS

More than half of species from oceans and tropical forests are on the Watch List because of small and declining populations, small ranges, and severe threats to their habitats.

### STEEP DECLINES

Many species in coastal, grassland, and aridland habitats are declining steeply. In particular, long distance migratory shorebirds and species that migrate from the Great Plains to Mexico's Chihuahuan grasslands have lost, on average, almost 70% of their continental populations since 1970.



## OUR APPROACH

This report is based on the first-ever conservation vulnerability assessment for all 1,154 native bird species that occur in Canada, the continental United States, and Mexico. The assessment was compiled by a team of experts from all three countries. The overall conservation status for

each species takes into account its population trend, population size, extent of breeding and nonbreeding ranges, and severity of threats to populations. The Watch List identifies species of highest conservation concern based on high vulnerability scores across multiple factors. Year-round

abundance maps from eBird data, in which intensity of color reflects seasonal abundance, are presented for selected species. Animated eBird maps, as well as details on the assessment methodology and the complete Species Assessment Database, are available at [stateofthebirds.org](http://stateofthebirds.org).



# ACAD Status

- Canada & U.S. (719 species)
  - 462 landbirds, 158 waterbirds, 52 shorebirds, 47 waterfowl
  - Global assessments updated 2016/2017
  - Regional breeding assessments under review 2017/2018
  - Regional non-breeding score review planned for 2018/2019
- Mexico (1,049 species; *581 shared with U.S.*)
  - Global and regional assessments (updated 2016, in part)
- Central America (1,155 spp.; *380 shared with U.S.*)
  - Global and country-level assessments (updated 2016)
- Next? (Caribbean, South America?)

# Regional Non-breeding Scores

Will Include:

- Relative Density (RD)
- Threats to Non-breeding (TN)

A New Frontier For Full-life Cycle Bird Conservation

- Which species are conservation priorities during the migration and wintering periods?
- What issues represent greatest threats during those periods?

Katie is seeking a small team to help with this review!

Midwest Migration Monitoring Network is a resource.

# BCR 12 Regional Review (Breeding)

## Continental Watch List:

Long-eared Owl

**Black-billed Cuckoo**

Eastern Whip-poor-will

Chimney Swift

Piping Plover

Marbled Godwit

**American Woodcock**

Olive-sided Flycatcher

Bicknell's Thrush

Wood Thrush

**Evening Grosbeak**

**Golden-winged Warbler**

Connecticut Warbler

**Kirtland's Warbler**

**Cape May Warbler**

Cerulean Warbler

**Canada Warbler**

Le Conte's Sparrow

**Bobolink**

## Regional Concern:

**Common Loon**

**American Bittern**

Northern Harrier

Northern Saw-whet Owl

Black-backed Woodpecker

American Kestrel

Great Crested Flycatcher

Eastern Kingbird

**Tree Swallow**

**Veery**

Brown Thrasher

**Black-and-white Warbler**

**Bay-breasted Warbler**

Eastern Towhee

Scarlet Tanager

**Least Flycatcher\***

Field Sparrow\*

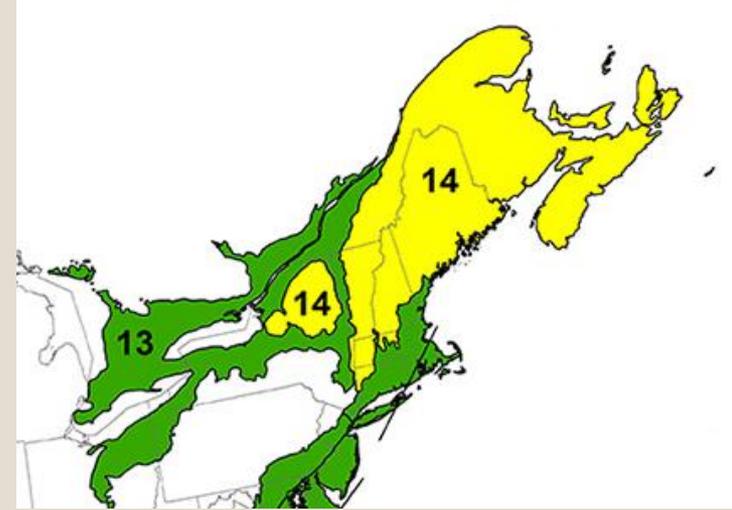
Grasshopper Sparrow\*

Eastern Meadowlark\*

# BCR 14 (Atlantic Northern Forest) Regional Review - Breeding

## Continental Watch List:

Long-eared Owl	<b>Bicknell's Thrush</b>
Black-billed Cuckoo	Wood Thrush
Eastern Whip-poor-will	<b>Evening Grosbeak</b>
Chimney Swift	<b>Cape May Warbler</b>
Piping Plover	<b>Canada Warbler</b>
<b>American Woodcock</b>	Prairie Warbler
Olive-sided Flycatcher	<b>Bobolink</b>



## Regional Concern:

<b>American Black Duck</b>	American Kestrel	Blue-winged Warbler
<b>Ruffed Grouse</b>	Eastern Wood-Pewee	<b>Black-and-white Warbler</b>
Upland Sandpiper	<b>Least Flycatcher*</b>	<b>Nashville Warbler</b>
<b>American Bittern</b>	Yellow-throated Vireo	Mourning Warbler
<b>Belted Kingfisher</b>	<b>Tree Swallow</b>	<b>Bay-breasted Warbler</b>
Black-backed Woodpecker	<b>Veery</b>	Scarlet Tanager
Northern Flicker	<b>Purple Finch</b>	<b>Rose-breasted Grosbeak</b>

# BCR 12 Regional Review (Breeding)

## Common Birds in Steep Decline:

Black Tern	Bank Swallow
<b>Least Flycatcher</b>	Pine Siskin
Field Sparrow	Blackpoll Warbler
Grasshopper Sparrow	Brewer's Blackbird
Eastern Meadowlark	Common Grackle
Common Nighthawk	

## Critical Information Needs:

*limiting factors<sup>1</sup>, unknown trends<sup>2</sup>, relative density<sup>3</sup>*

Spruce Grouse <sup>2</sup>	Great Gray Owl <sup>2,3</sup>
Chimney Swift <sup>1</sup>	Eastern Screech Owl <sup>2,3</sup>
Northern Saw-whet Owl <sup>1</sup>	Least Flycatcher <sup>1</sup>
Boreal Owl <sup>1,2,3</sup>	Black-and-white Warbler <sup>1</sup>
Long-eared Owl <sup>1,2,3</sup>	Lincoln's Sparrow <sup>1</sup>

## Regional Stewardship:

Kirtland's Warbler  
Golden-winged Warbler  
Chestnut-sided Warbler  
Veery  
Black-throated Blue Warbler  
Blackburnian Warbler  
Black-billed Cuckoo  
Ovenbird  
Mourning Warbler  
Nashville Warbler  
Yellow-bellied Sapsucker  
Black-throated Green Warbler  
Broad-winged Hawk  
Canada Warbler

# BCR 14 Regional Review (Breeding)

## Common Birds in Steep Decline:

### **Least Flycatcher**

Bank Swallow

Pine Siskin

Blackpoll Warbler

Rusty Blackbird

Common Grackle

## Regional Stewardship:

Bicknell's Thrush

Black-throated Blue Warbler

Northern Parula

Black-throated Green Warbler

## Critical Information Needs:

*limiting factors<sup>1</sup>, unknown trends<sup>2</sup>, relative density<sup>3</sup>*

Spruce Grouse<sup>2</sup>

Northern Flicker<sup>1</sup>

Chimney Swift<sup>1</sup>

Least Flycatcher<sup>1</sup>

Northern Saw-whet Owl<sup>2,3</sup>

Tree Swallow<sup>1</sup>

Long-eared Owl<sup>1,2,3</sup>

Swainson's Thrush<sup>2</sup>

Eastern Screech Owl<sup>2,3</sup>

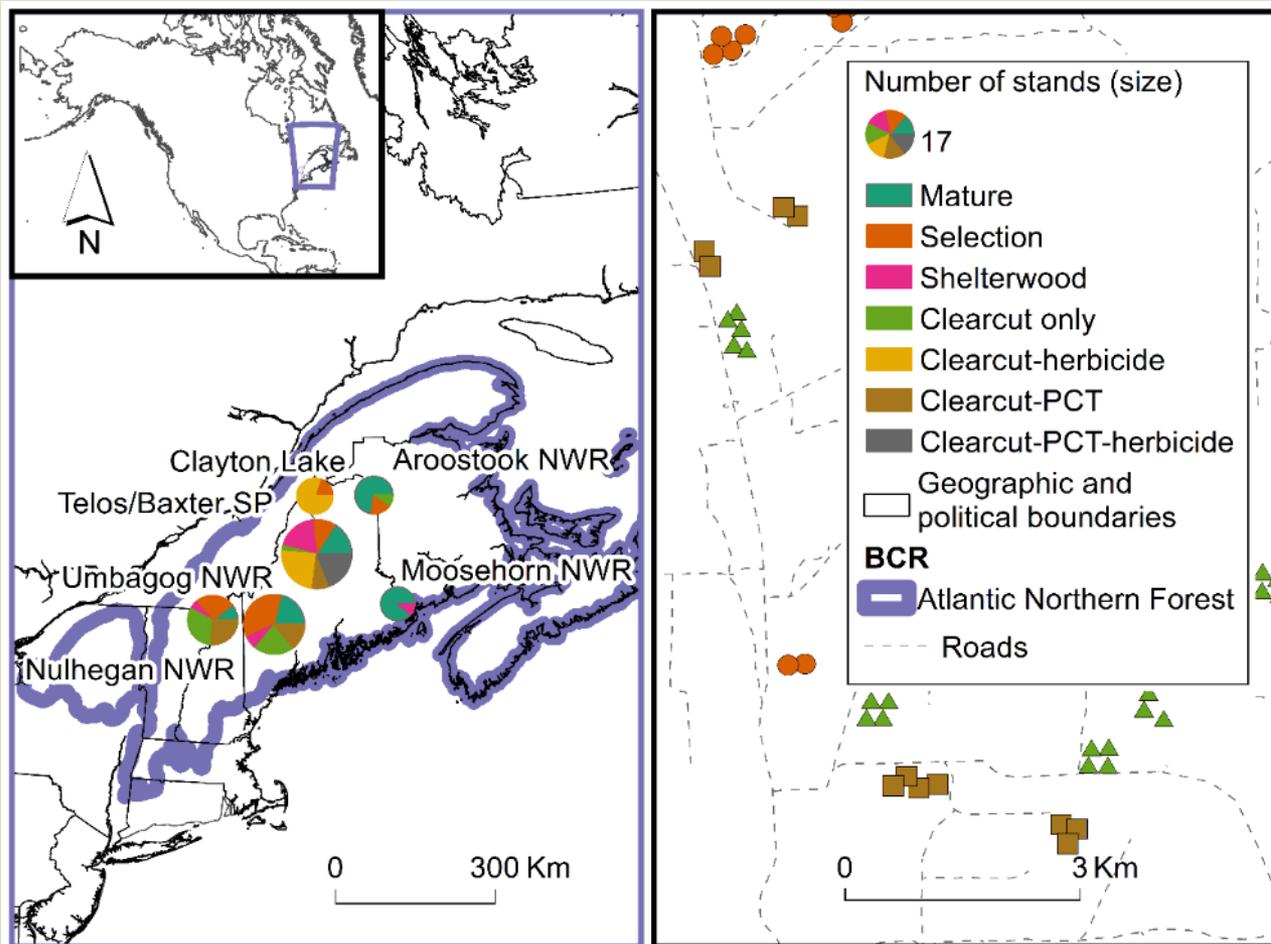
Veery<sup>1</sup>

Belted Kingfisher<sup>1</sup>

Blackpoll Warbler<sup>1</sup>

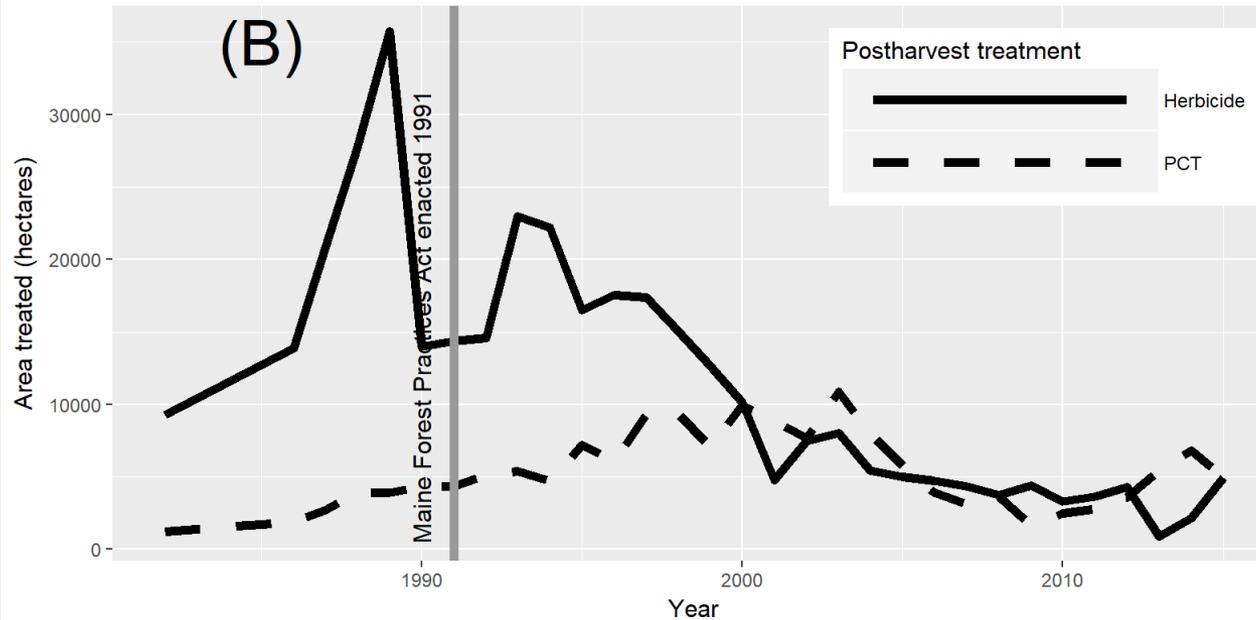
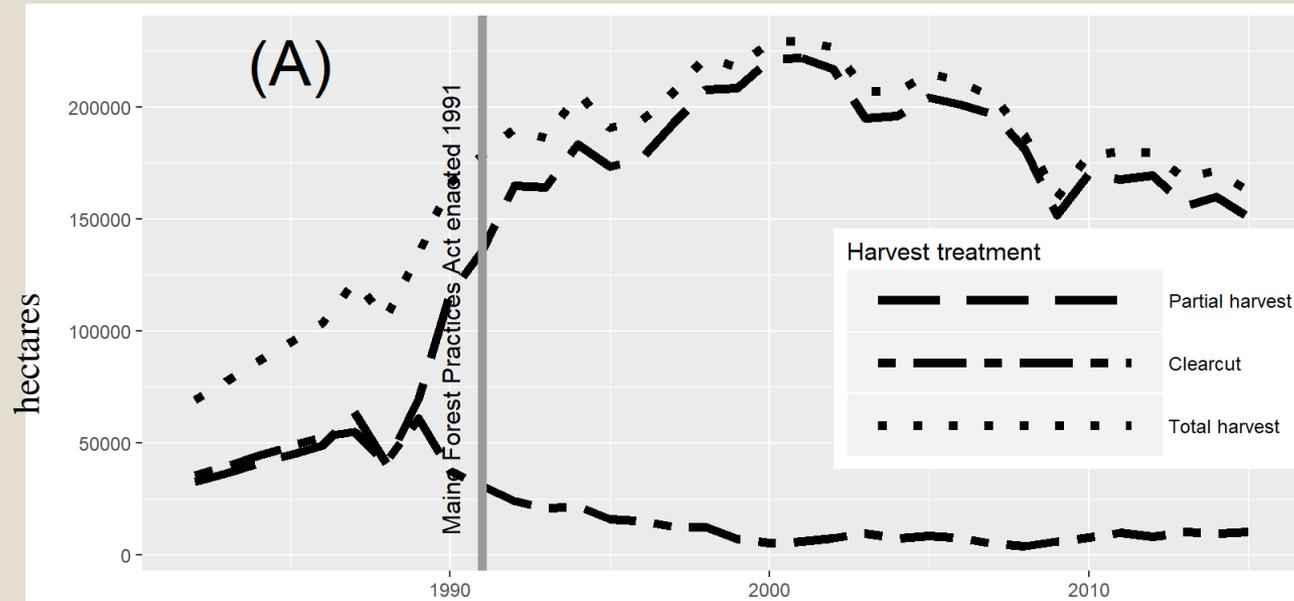
# Forest Management Effects on Forest Bird Communities in the Northern Forest

Part 1: Regenerating clearcuts and postharvest forestry treatments promote habitat for breeding spruce-fir avian assemblages in the Atlantic Northern Forest

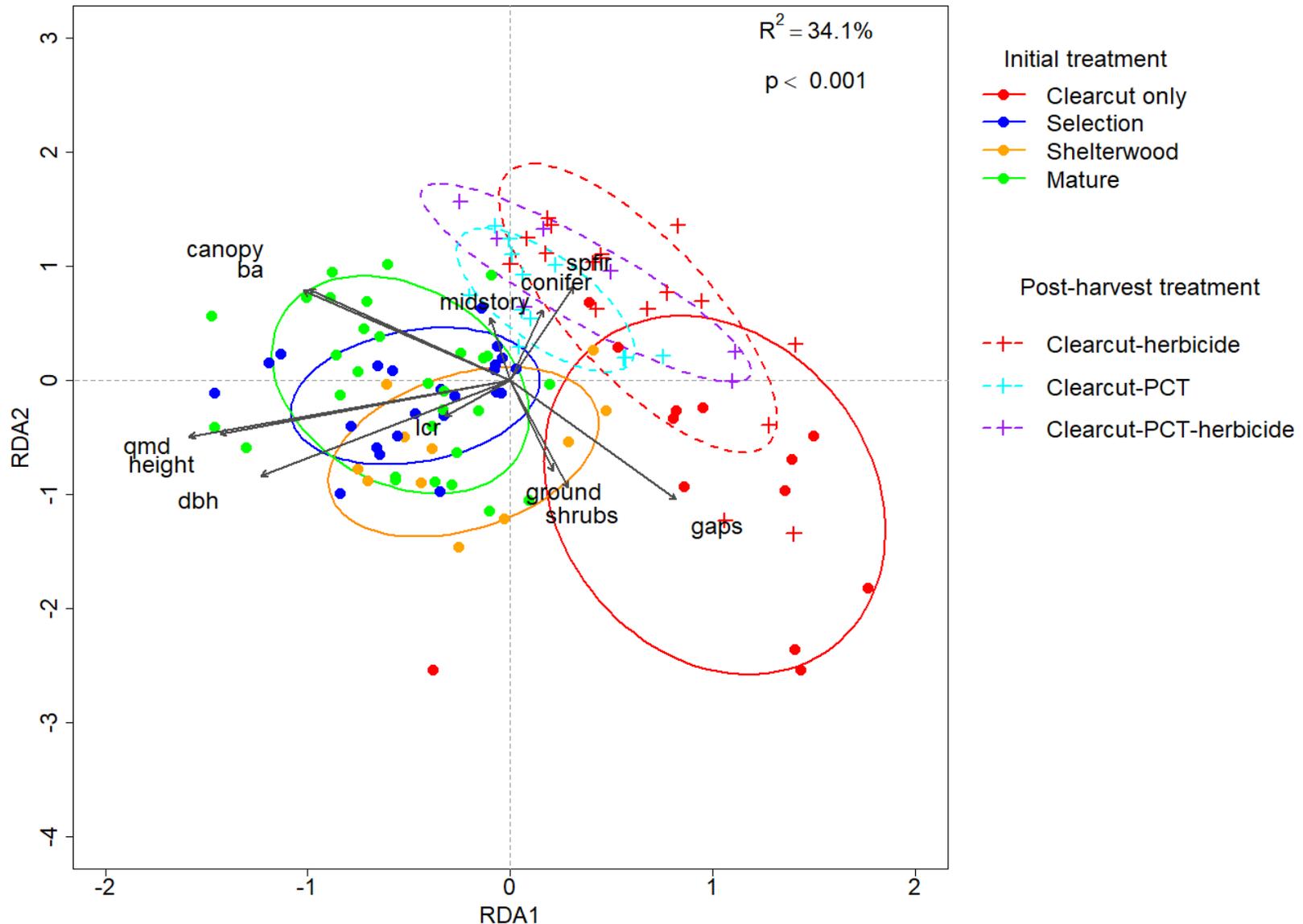


- Avian surveys (point counts) and vegetation sampling at 7 study sites
- 114 forest stands, 425 total survey points

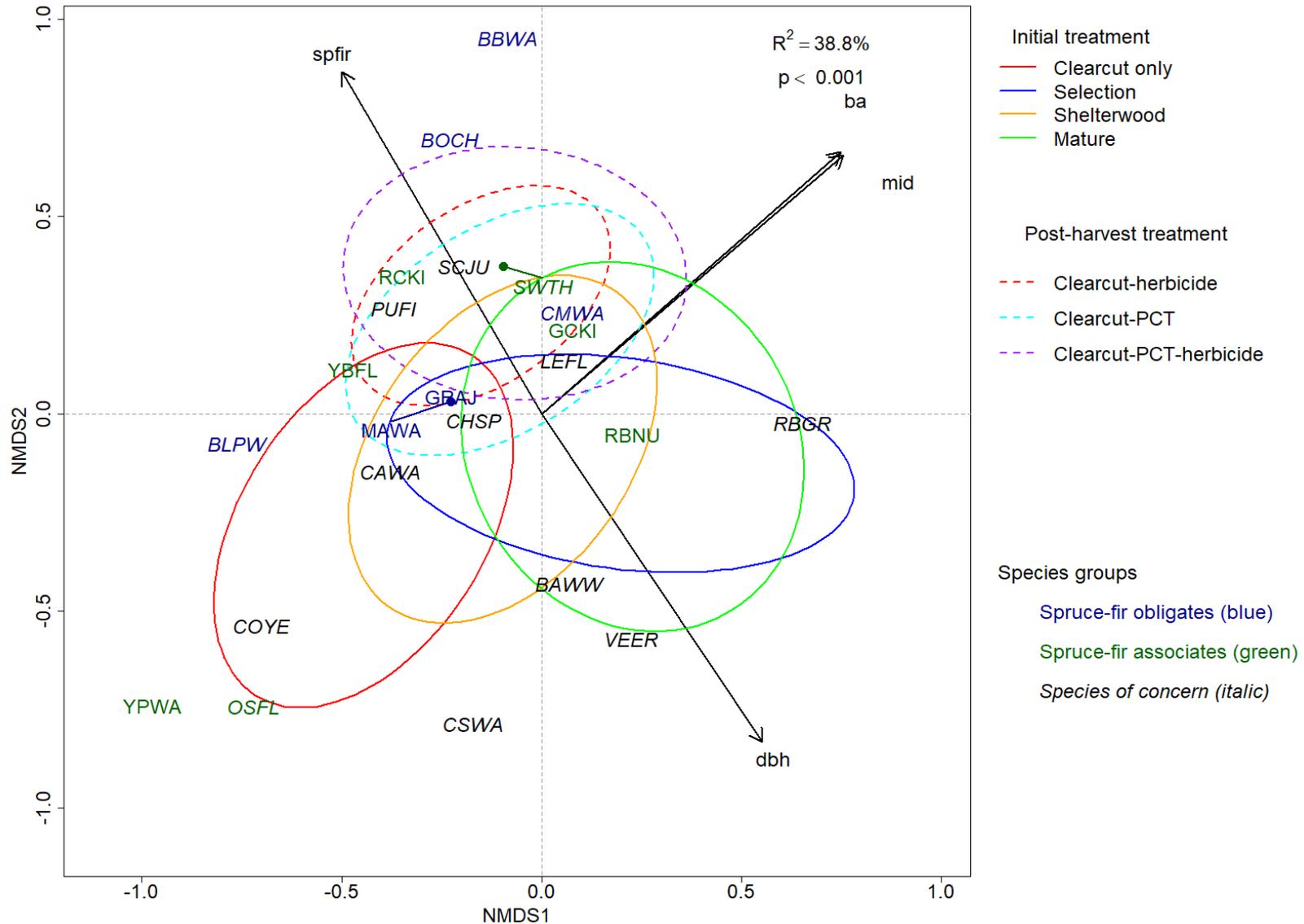
# Harvested Area in Maine: 1982-2015



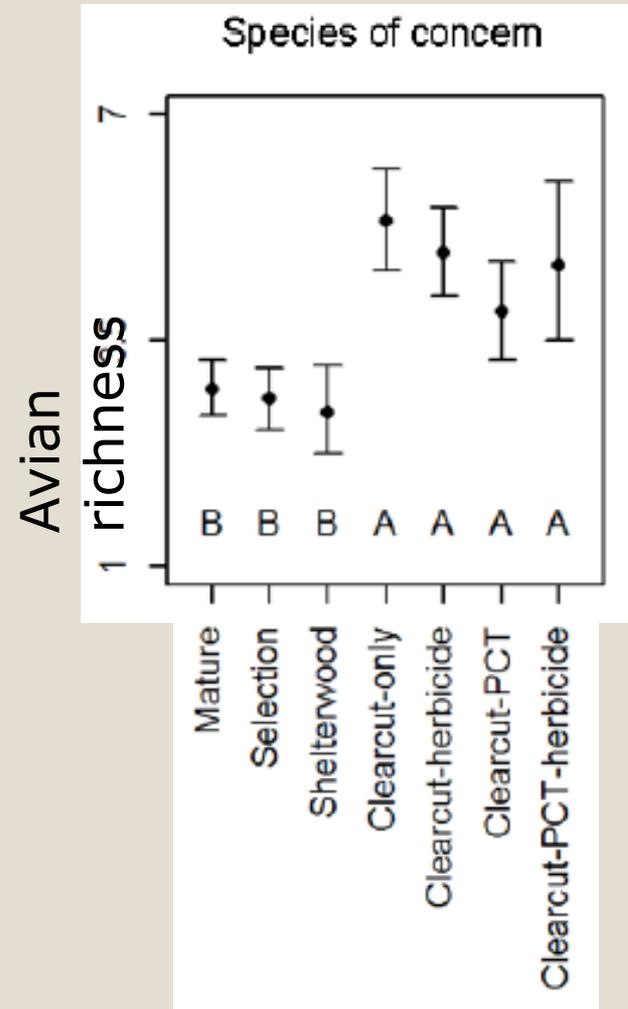
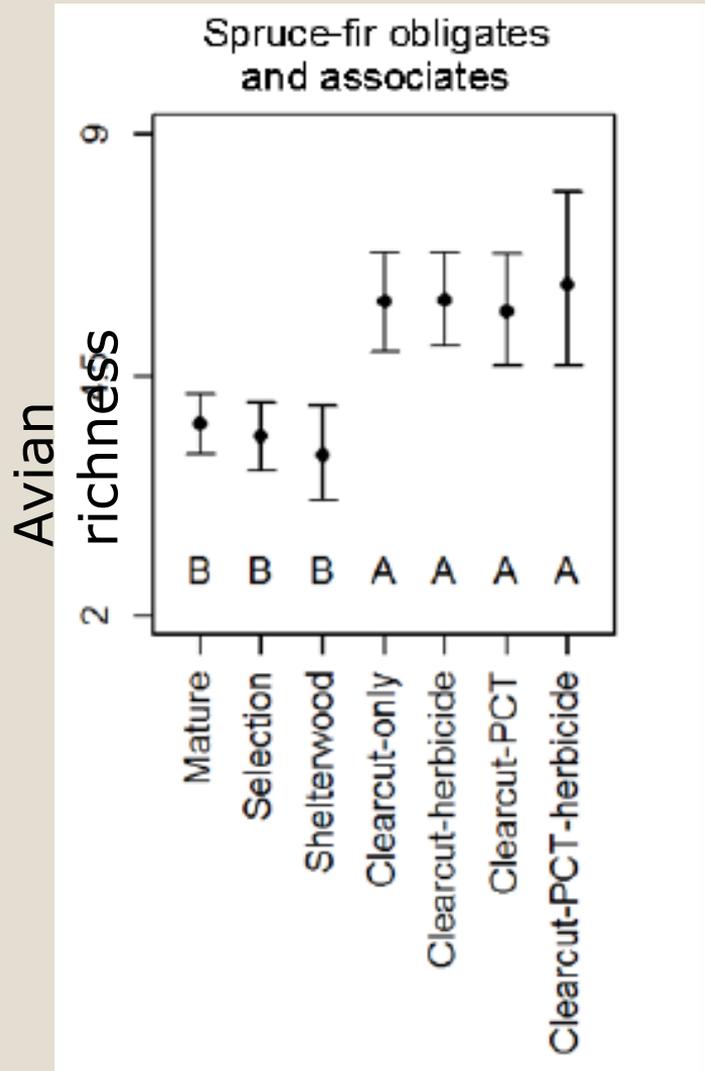
# Clearcuts w/p-h treatment help fill spr-fir void & have high BA



# Spruce-fir birds love stands with post-harvest treatment = spr-fir

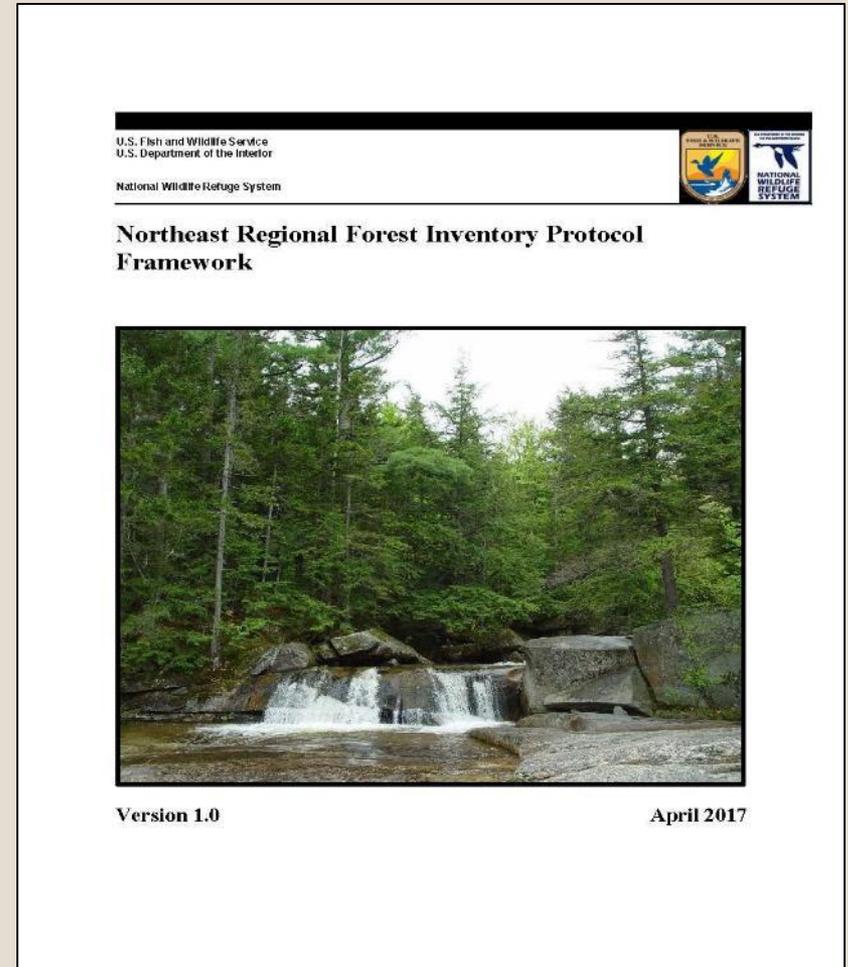


# Species diversity also responds to clearcuts w/p-h treatment



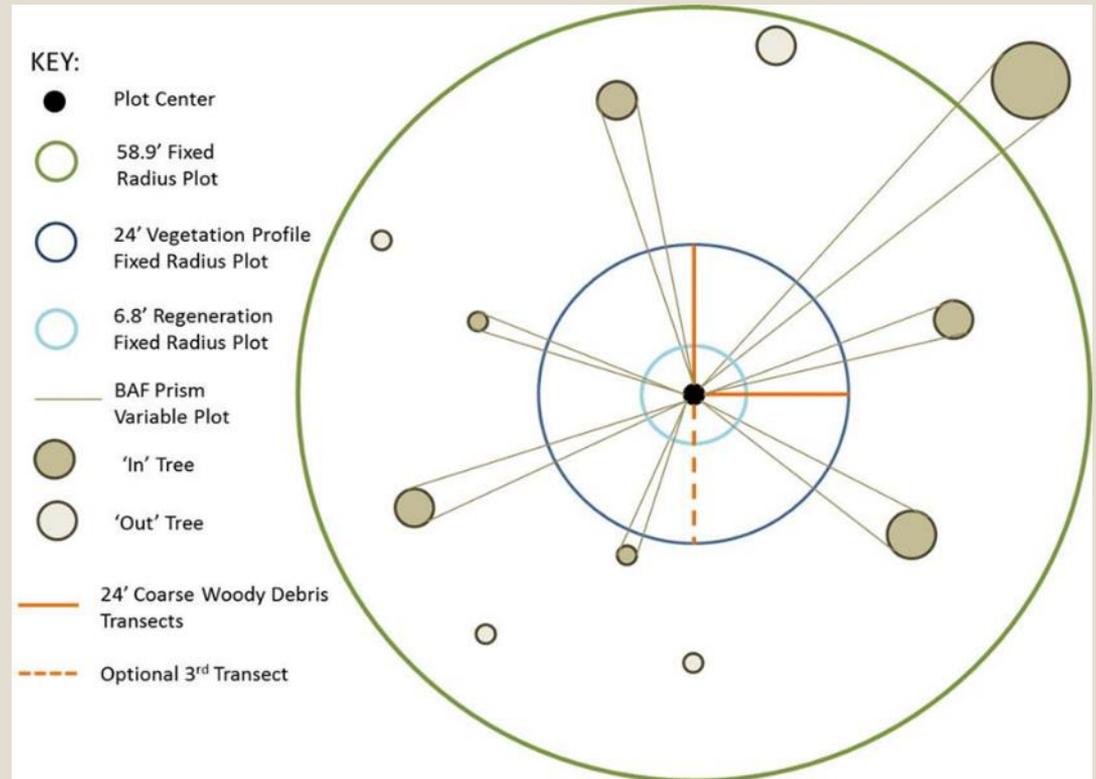
# Northeast NWR Forest Inventory Protocol Framework:

- Regional framework that is standardized yet flexible enough to meet varying Refuge survey needs
- Function at multiple geographic scales: stand, management unit and Refuge scales
- Quantify the current composition, structure, and unique characteristics of forest stands
- Initiate evaluations of habitat quality, biological integrity, diversity, and environmental health
- Detect forest health issues
- Collect data on trees, seedling and sapling regeneration, shrubs, herbaceous plants, graminoids and coarse woody debris



# Forest Data Collected

- Trees (>5")
- Seedling and Sapling
- Coarse Woody Debris
- Shrubs, herbaceous plants, graminoides
- Stand characteristics
- Watchlist species
- Health detection

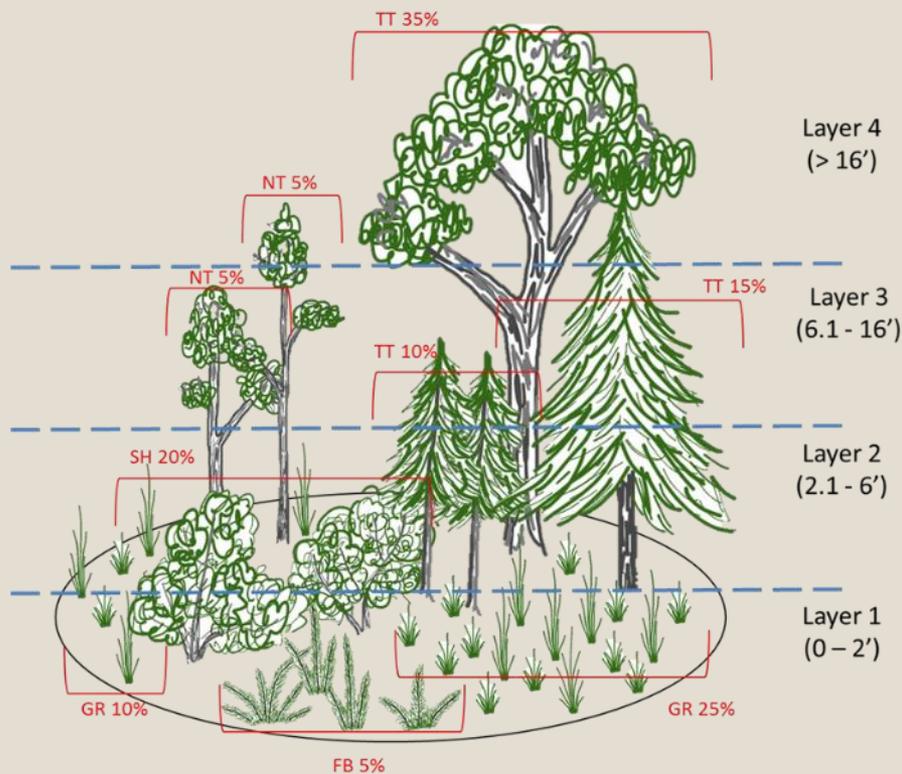




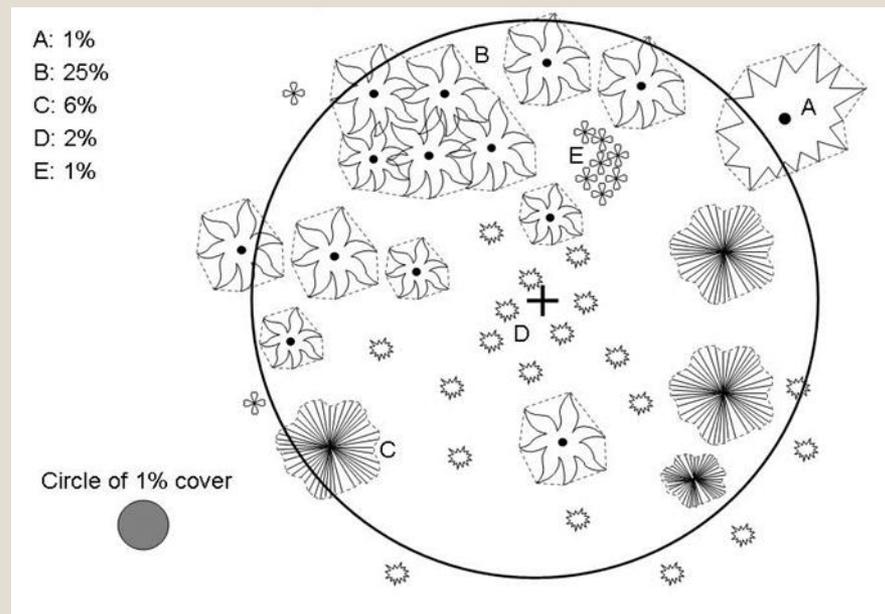
# Vegetation Profile



## Understory Structure and Composition



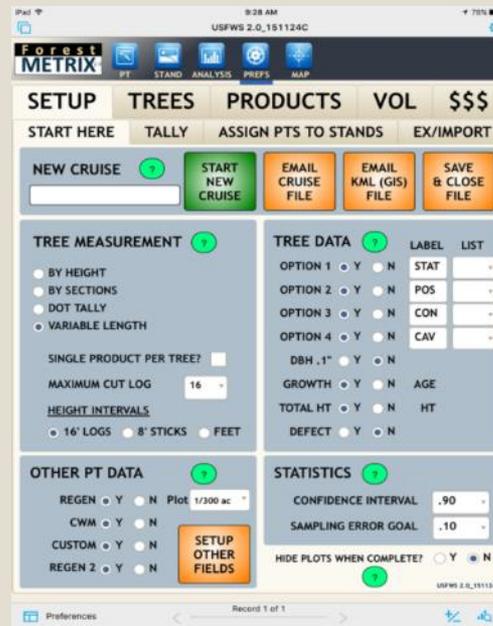
## Percent Cover by Growth Form in each of four layers



# The Northeast Forest Inventory and Monitoring Protocol Framework is built into a software system and uses iPads to collect forest data



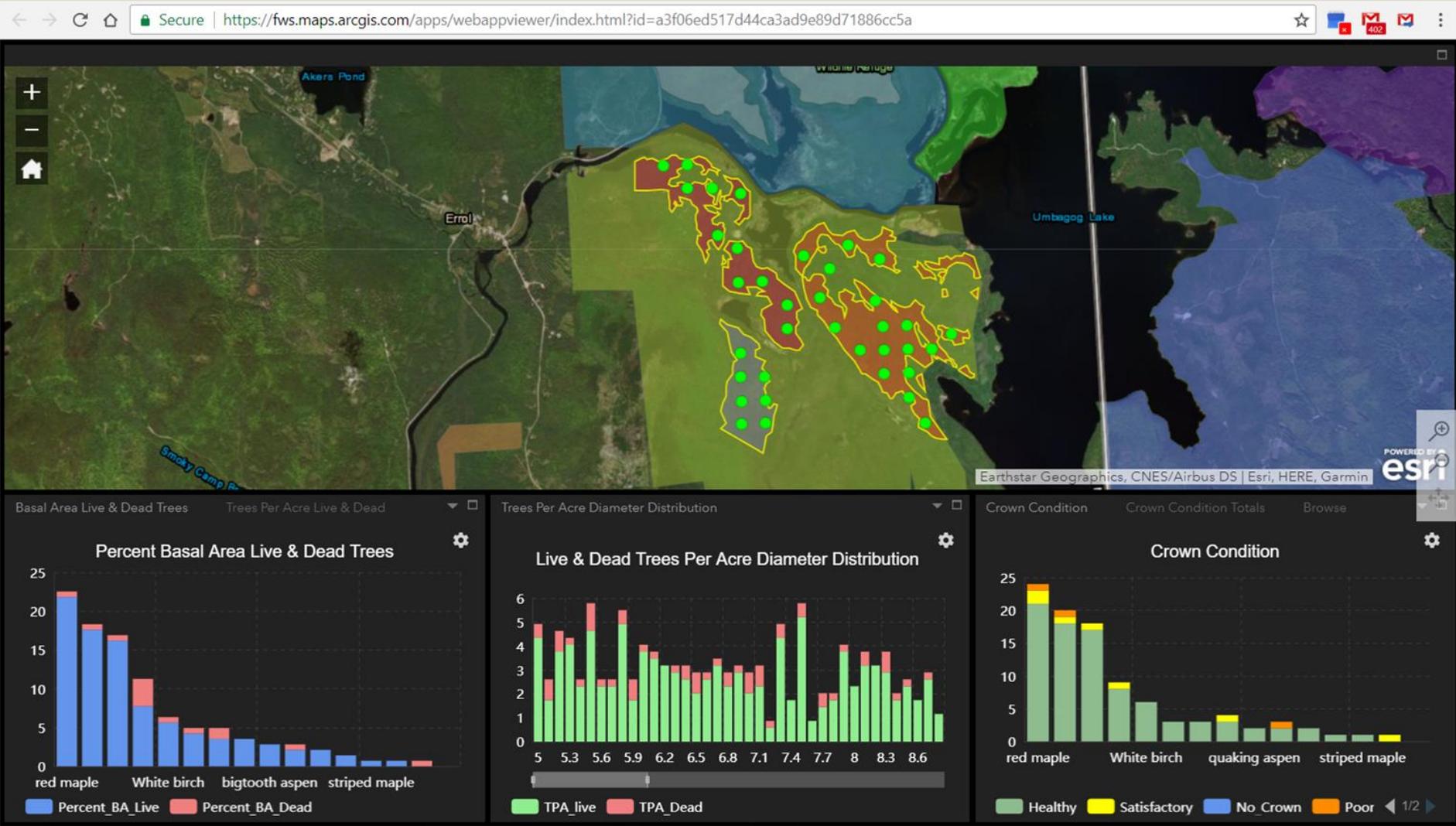
iPad mini



Forest Metrix inventory software



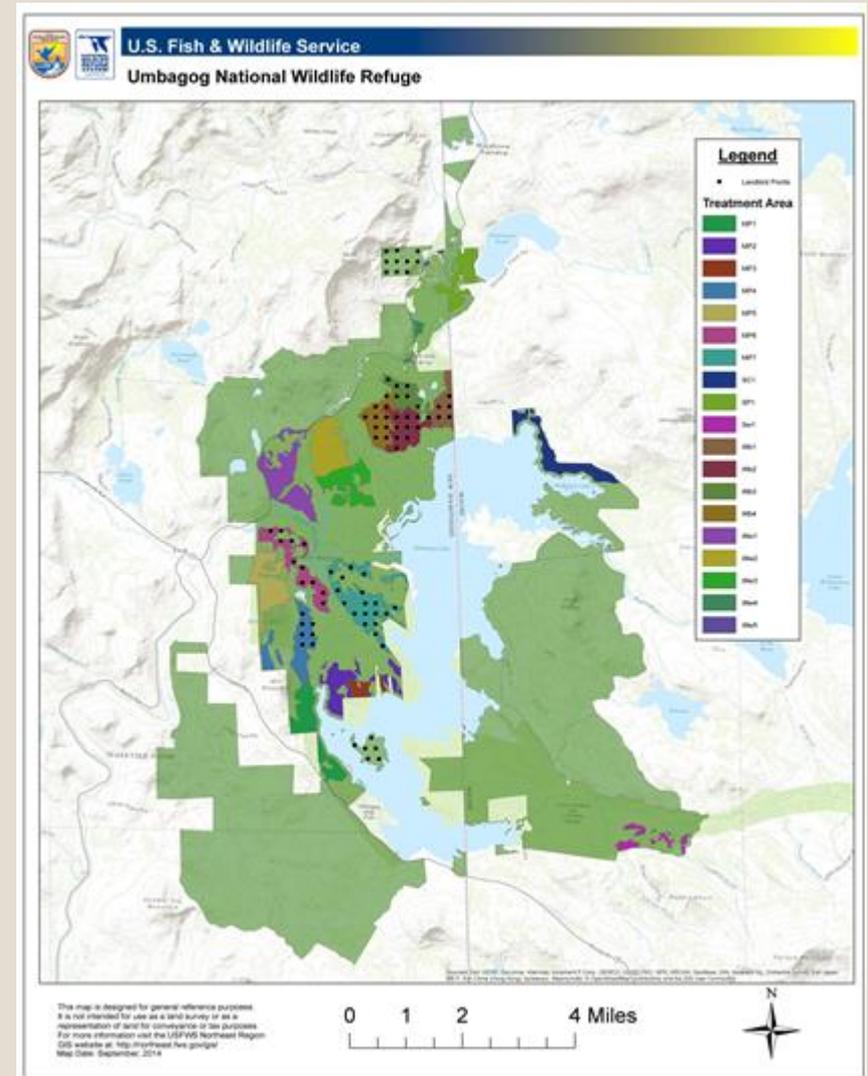
# ArcGIS Online (AGOL) - allows graphical and spatial display of plot and stand level forest data



# Landbird habitat monitoring Umbagog NWR

## Goal

The study will quantify and compare stands receiving forest management treatments (treatment stands – 1600 acres) aimed at providing high-quality breeding habitat and compare to stands that will not receive treatments (no treatment stands – 600 acres).

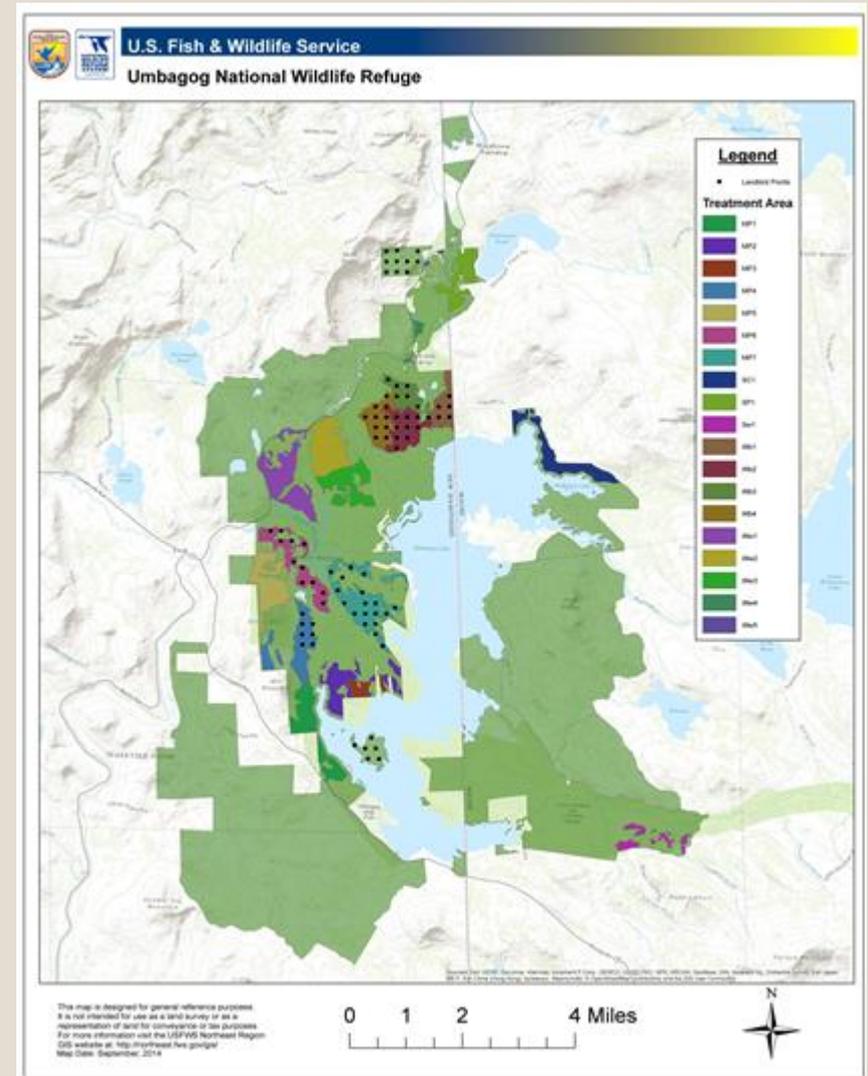


# Landbird habitat monitoring

## Umbagog NWR

### Monitoring objectives

- 1) Monitor change in vegetation composition, structure, and health
- 2) Monitor the diversity and abundance of the bird community, with an emphasis on refuge focal species.



# Opportunities for Northern Forest Bird Conservation Collaborations?

- Shared priority species: EVGR, CMWA, CAWA, BBWA, BWWA, LEFL, BBCU
- Effects of forest management on birds of concern
- Filling information gaps:
  - threats/limiting factors for aerial insectivores, owls, LEFL, BWWA
  - Population trends & RD: SPGR, owls