## BREEDING BIRD TRENDS IN THE CHICAGO REGION 1999-2020

PRESENTED JULY 2023 FERMILAB COLLOQUIUM

PRESENTED BY: ERIC SECKER AND BOB FISHER





#### BIRD CONSERVATION NETWORK

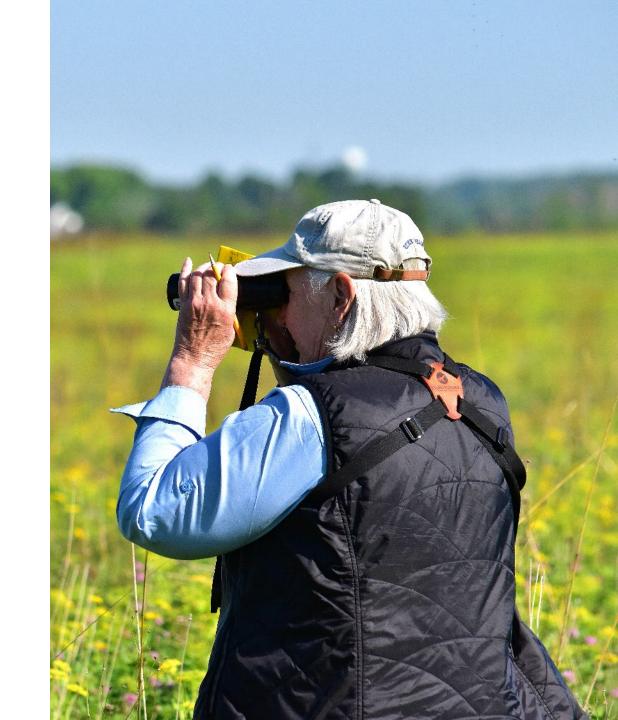
#### PROMOTING BIRD CONSERVATION IN CHICAGOLAND FOR OVER 20 YEARS

We are a coalition of 21 conservation organizations with an interest in the preservation of birds and the habitats they need to survive

We advocate for bird-friendly policy change and are a resource for researchers, land managers, and conservation partners in the Chicago Wilderness

### THE 1999-2020 **BCN SURVEY**

- Data collected within managed lands in Cook, Lake, McHenry, DuPage, Kane, and Will
- Target habitats: grassland, shrubland, woodland, wetland
- Strict protocols for point counts
  - 29,724 surveys by volunteers
  - 2,463 point counts
- A minimum of 10 sightings for inclusion



#### **ANALYSIS METHODOLOGY**

- Retained services of a professional statistician to analyze the data
- Calculated confidence levels in trends based on number of sightings and other factors, for example:

 COMMON YELLOWTHROAT
 5.1%
 +/-0.5%

 NORTHERN MOCKINGBIRD
 4.4%
 +/-3.0%

- References BCN Birds of Concern list to indicate conservation priority:
  - Immediate Management Needed: Species having high regional threats and experiencing large population declines. Conservation action needed to reverse or stabilize long-term declines.
  - Species experiencing moderate to strong declines and/or threats to breeding. Management or other actions needed to stabilize/increase populations or reverse threats.
  - LVL 3

    Declines or threats to regional populations. Require management and monitoring. Includes certain widespread species plus species using only limited/localized habitats.
    - **Rare or Recently Extirpated.** A species not of regional importance in the Midwest, but threatened or endangered in at least one of the states in the Chicago Wilderness Region.

RRE

#### DATA INTERPRETATION

- The findings tell us what is happening but not why
- Consulted regional ornithologists, published research, and our own Science Advisors in addition to tapping our own experience
- Developed reasonable "hypotheses" as to why certain trends may be occurring
- These interpretations are not based on a scientific process, although pursuing such a path makes sense to validate hypotheses and answer some of the questions that have been raised



#### **COMPARING BCN AND FERMILAB DATA**

#### Similarities between the two survey approaches:

- Both survey managed lands
- Extended survey duration 30+ years for Fermi, 22 years for BCN
- Disciplined and regular surveying and data capture

#### Differences:

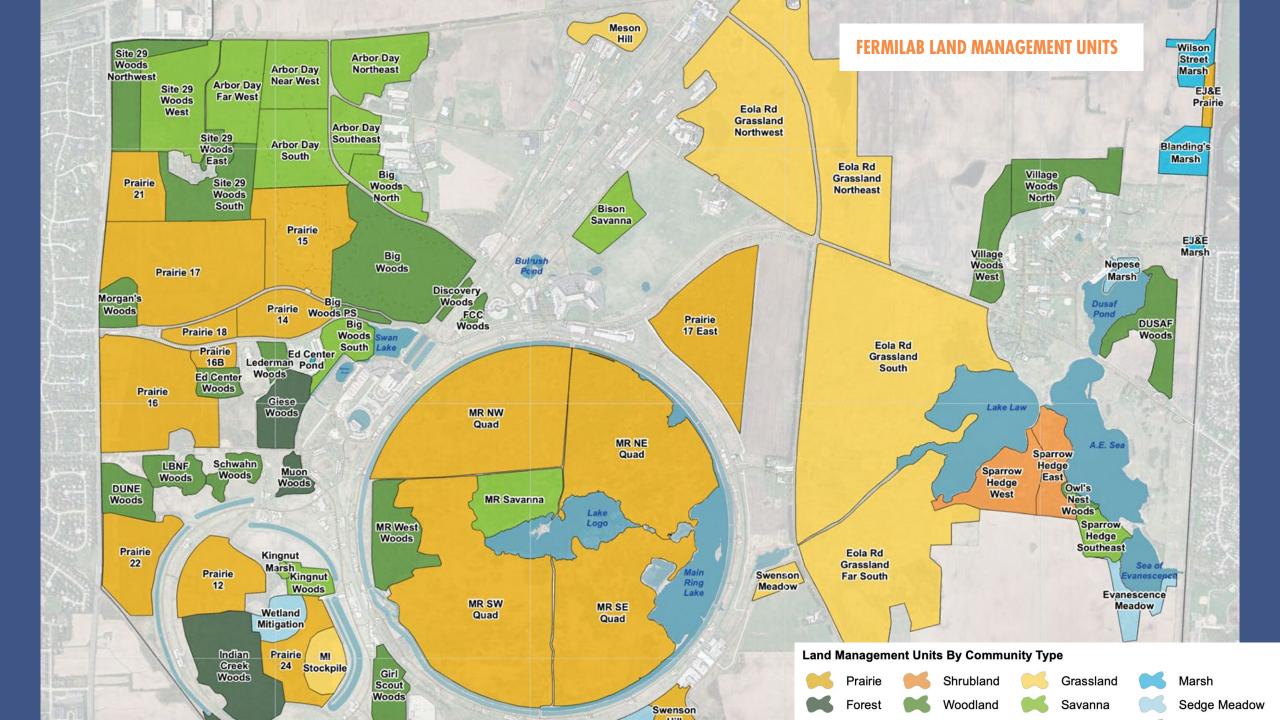
- BCN Survey collects data during two visits in the breeding season while Fermilab surveys collect data every week of the year.
- BCN data records abundance, while Fermilab data logs presence.
- Fermilab data notes arrival and departure dates useful for gauging the influence of climate change.



# **ALL ANALYZED POINT COUNT LOCATIONS** Chicago Map data © 2023 Google

# MAP OF BCN POINTS USED IN THE BCN TRENDS ANALYSIS







### DELIVERING UNIQUE INSIGHTS INTO THE REGION

- A rich repository for land managers to use in preservation and restoration efforts
- A catalyst for researchers to explore BCN data and collaborate with us
- An opportunity to educate the public about the importance of local natural areas for birds

"The Bird Conservation Network has been a pioneer in using targeted surveys to better understand birds in a region and influence the way that areas are managed to ultimately increase the populations of species that are declining elsewhere."

CHRIS WOOD
PROJECT LEADER
eBird, Cornell Lab of Ornithology

### CHICAGO WILDERNESS AS A STRONGHOLD

- A dynamic landscape of bird populations with a complex set of influences at work
- Doing better than other parts of Illinois
  - 56% of 104 birds surveyed are stable or expanding vs. 37% elsewhere in Illinois\* \*Comparison with N.A. Breeding Bird Survey data for IL
- An impressive green space of global importance to key avian species
- Notable for a metropolitan area



### POWER OF PROACTIVE LAND MANAGEMENT

- Preservation and restoration efforts are working for many birds.
- Managing habitats for the needs of many bird species remains a challenge.
- Our region can be a model for balancing habitat restoration goals with the needs of specific birds of concern.
- BCN is eager to partner with land managers to facilitate this goal.





### FINDINGS BY HABITAT GRASSLANDS

- A stronghold of highly concentrated habitat
- Of 27 surveyed species, half are stable or growing, while the other half are declining.
- Our grasslands are globally important for Henslow's Sparrows, and restoration efforts appear to have benefited them.
- 13 Birds of Concern depend on our grasslands.

### FINDINGS BY HABITAT GRASSLANDS

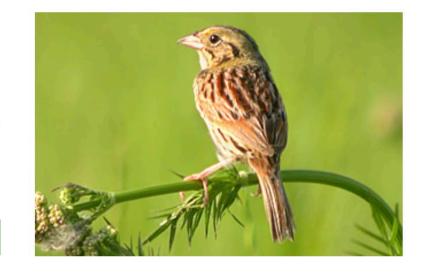
- Henslow's and Dickcissel are successes.
  - Fermilab is locally important for Henslow's, Bobolinks, Dickcissels, and Killdeer.
- Field Sparrows and aerial insectivores are doing better than national trends.
- Sandhill Cranes and Northern Mockingbirds are becoming more common.
  - Again, Fermilab is locally important for breeding Sandhill Cranes.
- BUT: Many traditional grassland species are in decline.

SPECIES	Trend	% Error
SANDHILL CRANE	7.3%	+/-4.4%
DICKCISSEL	5.5%	+/-0.8%
COMMON YELLOWTHROAT	<b>5.1</b> %	+/-0.5%
NORTHERN MOCKINGBIRD	4.4%	+/-3.0%
HENSLOW'S SPARROW	3.4%	+/-0.9%
BARN SWALLOW	2.6%	+/-1.1%
TREE SWALLOW	2.3%	+/-0.9%
GRASSHOPPER SPARROW	-2.7%	+/-0.9%
BOBOLINK	-2.9%	+/-0.7%
VESPER SPARROW	-3.0%	+/-5.6%
SAVANNAH SPARROW	-3.4%	+/-1.0%
UPLAND SANDPIPER	-10.4%	+/-5.2%

View full results at: www.bcnbirds.org/trends/

#### **BCN SURVEY DATA: HENSLOW'S SPARROW**

The Henslow's Sparrow is an uncommon breeder in the Chicago Wilderness Region. Breeding habitat includes mature grasslands. Sizeable populations are still limited to large grasslands, but numbers of this species have greatly improved during the past fifteen years. BCN Survey trends show a significant moderate increase, and this species is well monitored by the survey. Photo: © Eric Secker



#### **TREND: MODERATE INCREASE**

Annual Change Pct. Error +/-0.9%

# Points Seen At Records Frequency 652 5465 26%

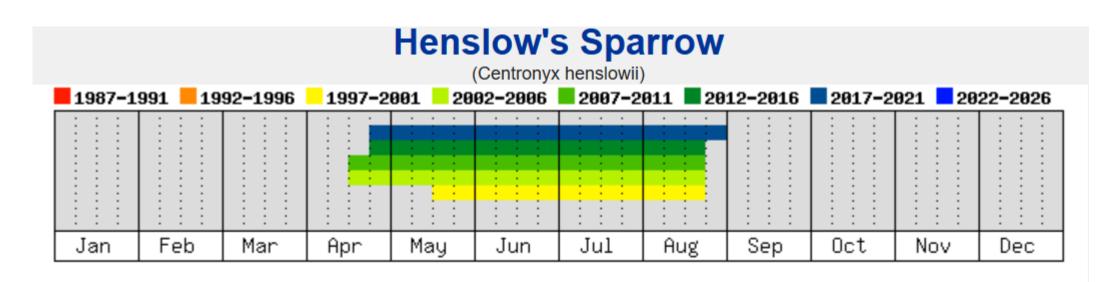
Good

Conservation Status

LVI 1



#### FERMILB DATA: HENSLOW'S SPARROW



Status: Summer Resident.

Last recorded on site in 2021

**Breeding Status:-**

1997 to 2001: Likely but not confirmed 2002 to 2006: Confirmed

2007 to 2011: Likely but not confirmed 2012 to 2016: Confirmed

2022 to 2026:

#### **BCN SURVEY DATA: DICKCISSEL**

The Dickcissel is a locally fairly common breeder in the CW region. Preferred habitat includes grasslands with mixed forbs and abandoned weedy fields. This species may be facing serious threats on its wintering grounds and from generalized restoration efforts and mowing and burning of nonnatives. BCN data in 2007 showed a significant decline but now shows a significant increase in 2013 and 2020. Photo: © Eric Secker



Annual Change Pct. Error +/-0.8%

# Points Seen At Records Frequency 841 11724 34%



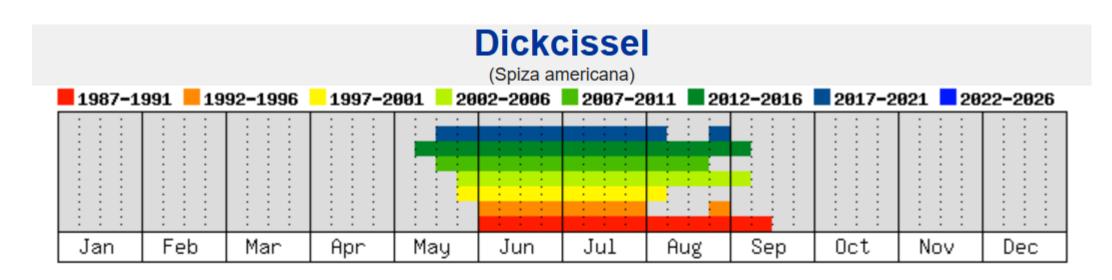
Good Credibility

Conservation Status

LVI 3



#### FERMILB DATA: DICKCISSEL



Status: Summer Resident.

Last recorded on site in 2020

**Breeding Status:-**

1987 to 1991: Confirmed 1992 to 1996: Likely but not confirmed

1997 to 2001: Confirmed 2002 to 2006: Confirmed

2007 to 2011: Likely but not confirmed 2012 to 2016: Confirmed

2022 to 2026:

### PRIORITY SPECIES FOR CONSERVATION GRASSLANDS

Given vanishing grasslands
 nationally and the global
 importance of our stronghold,
 grassland habitat protection and
 restoration should continue to
 be a top priority for our region.

**LEVEL 1:** Henslow's Sparrow, Bobolink

**LEVEL 2:** Grasshopper Sparrow, Sedge Wren,

**Upland Sandpiper,** 

**Eastern Meadowlark** 

LEVEL 3: Dickcissel, Northern Harrier, Swainson's Hawk, American Kestrel, Common Nighthawk, Horned Lark, Barn Owl (Rare)

View full list at: www.bcnbirds.org/trends21/concern.html

#### RESEARCH QUESTIONS: GRASSLANDS

Why are Bobolinks declining in Chicago Wilderness?

Why do some insectivores appear to be doing better here than nationally (Tree Swallow and Barn Swallow)?

What is the impact of declining insect populations on birds?

What is the right balance of short grass vs. tallgrass to support the largest number of grassland species?

What is driving the increase of Dickcissels in the survey?

How are Kestrels doing statewide? How much are they using ag fields?

Why are Upland Sandpipers disappearing from our grasslands?

What are best practices for managing invasive sweet clover and tall goldenrod?

### FINDINGS BY HABITAT SHRUBLANDS

- Challenge and opportunity managing our ephemeral shrublands
- 20 of 37 species stable or increasing, while the rest are in decline or lack sufficient data
- Doing better than elsewhere in Illinois\*
   \*Compared to North American Breeding Bird Survey data for Illinois
- 11 shrubland species appear as Birds of Concern



### FINDINGS BY HABITAT SHRUBLANDS

- Some shrubland and edge species increasing, such as Ruby-throated Hummingbird, Warbling Vireo, Common Yellowthroat, and Eastern Towhee
- Field Sparrows and Brown Thrashers are holding steady here.
- Declining species merit further study, such as Willow Flycatcher.

SPECIES	Trend	% Error
RUBY-THR. HUMMINGBIRD	6.4%	+/-2.9%
WARBLING VIREO	5.4%	+/-1.4%
COMMON YELLOWTHROAT	5.1%	+/-0.5%
EASTERN TOWHEE	4.4%	+/-1.0%
BLACK-BILLED CUCKOO	-1.7%	+/-4.3%
AMERICAN GOLDFINCH	-3.0%	+/-0.6%
WILLOW FLYCATCHER	-3.4%	+/-0.9%
AMERICAN REDSTART	-8.1%	+/-5.5%

View full results at: www.bcnbirds.org/trends/

#### **BCN SURVEY DATA: BLACK-BILLED CUCKOO**

The Black-billed Cuckoo is an uncommon breeder in the region and is now listed as a Threatened species in Illinois. They are usually found in shrublands, grassland hedgerows, or woodlands with moderate understory. This species can be very difficult to detect and BCN eBird records are insufficient to determine a significant trend. BBS data indicates a a significant annual decrease in the upper Midwest. Photo: © Eric Secker



#### **TREND: UNCERTAIN**

**Annual Change** Pct. Error

**-1.7%** +/-4.3%

# Points Seen At

Records

**Frequency** 

2%

66 58

Good

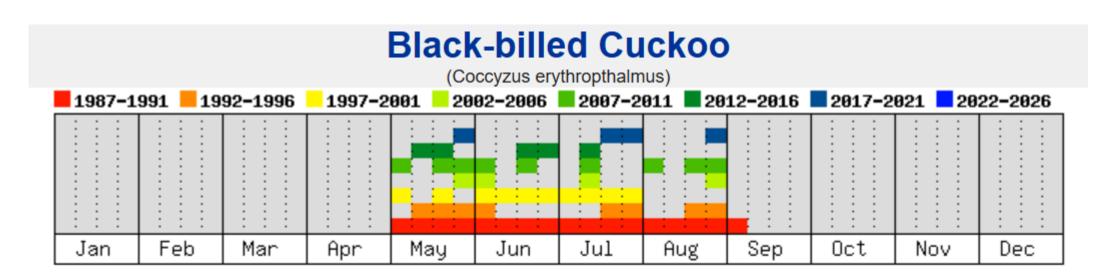
Credibility

**Conservation Status** 

Lvl 1



#### FERMILB DATA: BLACK-BILLED CUCKOO



Status: Summer Resident. Last recorded on site in 2019

**Breeding Status:-**

1987 to 1991: Confirmed 1992 to 1996: Possible but not likely

1997 to 2001: Confirmed 2002 to 2006: Possible but not likely

2007 to 2011: Possible but not likely 2022 to 2026:

This species is **State Threatened**. It is likely to be in danger of extinction as a breeding species in the state of Illinois within the forseeable future.

### PRIORITY SPECIES FOR CONSERVATION SHRUBLANDS

 Because more than 3 dozen species of our breeding birds use shrublands, these successional habitats merit further consideration for restoration and maintenance. **LEVEL 1: Black-billed Cuckoo** 

**LEVEL 2:** Brown Thrasher, Field Sparrow, Willow Flycatcher, Northern Bobwhite

LEVEL 3: Blue-winged Warbler, Loggerhead Shrike, Yellow-breasted Chat, Bell's Vireo, Eastern Towhee, Prairie Warbler (rare), Golden-winged Warbler (rare)

View full list at: www.bcnbirds.org/trends21/concern.html

#### RESEARCH QUESTIONS: SHRUBLANDS

What is the best way to monitor secretive species like Black-billed Cuckoo? Is conspecific playback necessary to adequately sample these species?

What is the ideal amount of burning and clearing to support shrubland birds?
What are the best configurations of shrubby clumps?

Are there habitat changes we can make to bring back Loggerhead Shrikes?

Does re-creating uneven terrain in restored shrublands that were farmed and tilled help promote wet shrublands and species like Willow Flycatcher?

What habitats are Blue-winged Warblers and Brown Thrashers using?



### FINDINGS BY HABITAT WOODLANDS

- Our most intact ecosystem, supporting an impressively diverse 66 breeding bird species
- Moderate to strong expansion for 22 breeding species; another 17 are stable
- BUT: 15 species show declines, inviting further study
- 15 species appear as Birds of Concern

### FINDINGS BY HABITAT WOODLANDS

- 60% showing stable or increasing trends, including Pileated Woodpecker, Redheaded Woodpecker, Chimney Swifts
- Possible range expansion for Acadian Flycatcher, Summer Tanager, Orchard Oriole, and others
- A range of birds are in decline, with a complex set of influences at work.

SPECIES	Trend	% Error
PILEATED WOODPECKER	29.5%	+/-9.8%
ACADIAN FLYCATCHER	16.9%	+/-8.2%
SUMMER TANAGER	8.6%	+/-8.0%
CHIMNEY SWIFT	6.8%	+/-2.2%
OVENBIRD	-4.6%	+/-2.7%
GREAT HORNED OWL	-6.1%	+/-3.8%
AMERICAN CROW	-7.6%	+/-1.2%
AMERICAN REDSTART	-8.1%	+/-5.5%
LEAST FLYCATCHER	-10.8%	+/-6.3%

View full results at: www.bcnbirds.org/trends/

#### **BCN SURVEY DATA: RED-HEADED WOODPECKER**

The Red-headed Woodpecker is an uncommon breeder in the Chicago Wilderness Region, more common to the south, but seriously declining throughout its range. This cavity nester typically breeds in dead trees near marshes or in mature oak savannas and woodlands. Habitat loss, competition with European Starlings, and an increase in managed removal of dead trees are possible contributing factors to this species declines. Protecting dead trees during wetland and woodland burns may help this species where it still breeds. 2020 Trends indicate an encouraging moderate increase. Photo: Dave Menke / USFWS

#### **TREND: MODERATE INCREASE**

Annual Change Pct. Error +/-2.9%

# Points Seen At Records Frequency 153 330 6%



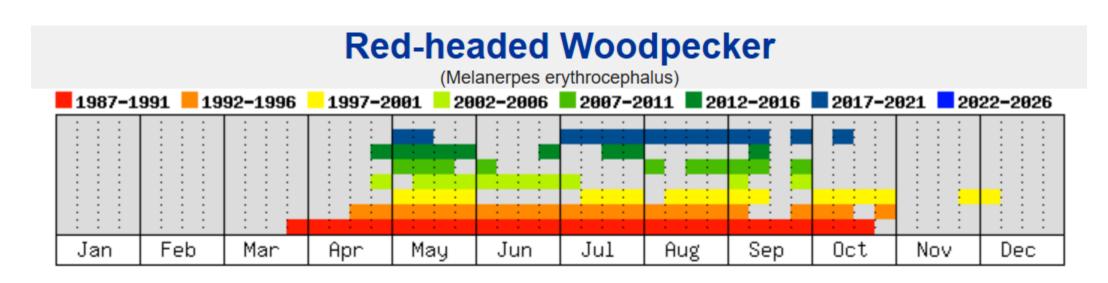
Good

Conservation Status

LVI 1



#### FERMILB DATA: RED-HEADED WOODPECKER



Status: Summer Resident.

Last recorded on site in 2021

**Breeding Status:-**

1987 to 1991: Confirmed

1997 to 2001: Confirmed

2007 to 2011: Confirmed

2022 to 2026:

1992 to 1996: Likely but not confirmed

2002 to 2006: Likely but not confirmed

2017 to 2021: Likely but not confirmed

#### **BCN SURVEY DATA: WOOD THRUSH**

The Wood Thrush is an uncommon statewide breeder. Preferred habitat includes woodlands with understory and dense shrublands with canopy. 2013 trends estimates indicated a decrease of 10% annually, but 2020 trends now indicate a positive 2% annual increase. Research indicates Wood Thrushes have poor breeding success in fragmented forests. Breeding success likely declines after buckthorn and honeysuckle removal without sufficient reintroduction of native understory. Photo: © Eric Secker

#### TREND: MODERATE INCREASE

**Annual Change** 

Pct. Error

2.1% +/-1.5%

# Points Seen At

Records

**Frequency** 

361

1029 15%

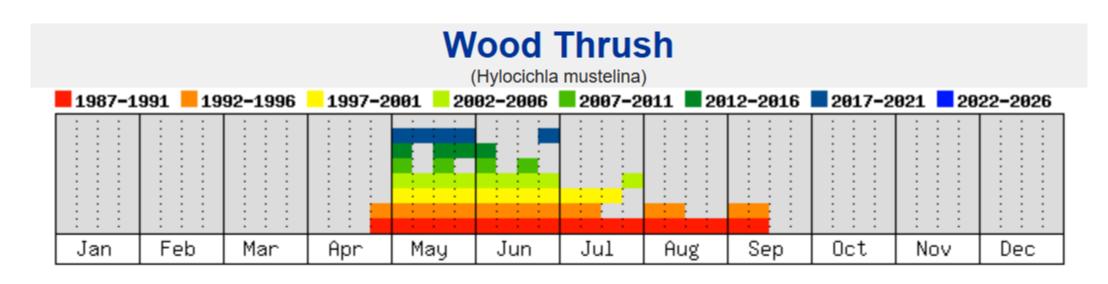
Credibility

Good

Lvl 2



#### FERMILB DATA: WOOD THRUSH



Status: Summer Resident.

Last recorded on site in 2019

**Breeding Status:-**

1987 to 1991: Confirmed 1992 to 1996: Confirmed

1997 to 2001: Confirmed 2002 to 2006: Likely but not confirmed

2012 to 2016: Likely but not confirmed 2022 to 2026:

### PRIORITY SPECIES FOR CONSERVATION WOODLANDS

 Proactive management of our oak woodlands and savannas has shown positive results and should continue to be a priority. **LEVEL 1:** Red-headed Woodpecker, Cerulean Warbler, Eastern Whip-poor-will

**LEVEL 2:** Yellow-billed Cuckoo, Chimney Swift, American Woodcock, Wood Thrush

LEVEL 3: Northern Flicker, Broad-winged Hawk, Kentucky Warbler, Prothonotary Warbler, Hooded Warbler, Acadian Flycatcher, Ovenbird, Red-shouldered Hawk, Yellow-throated Warbler

View full list at: www.bcnbirds.org/trends21/concern.html

#### RESEARCH QUESTIONS: WOODLANDS

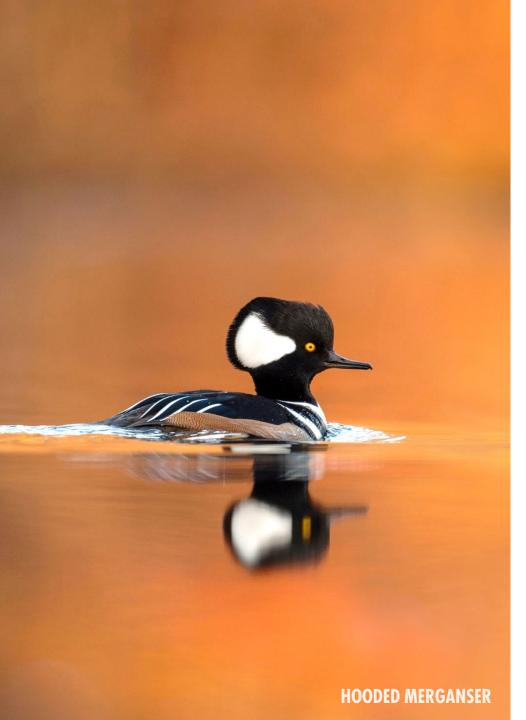
Why are we seeing increasing numbers of Chimney Swifts in our managed lands compared to statewide?

Are Wood Thrushes successfully nesting in our region given their susceptibility to predation and nest parasitism? Should we look at key individual sites to determine why we might be seeing positive and dramatic change from 2013 to 2020?

How is clearing of understory and growth of invasive species impacting Ovenbird populations?

What factors are contributing to the range expansion [northward?] of woodland birds?

Which birds are telling the best stories about factors other than climate change (e.g., Emerald Ash Borer and woodpeckers, Cooper's Hawks and DDT/feeders)?



### FINDINGS BY HABITAT WETLANDS

- Much more to learn since wetlands not as extensively surveyed as other habitats
- Stable or increasing numbers for 22 species
- Insufficient data on 16 species due to lack of coverage, difficult detection, and low numbers of nesting birds
- Additional species with numbers too low

#### FINDINGS BY HABITAT WETLANDS

- Soras and Sandhill Cranes increasing though low number of sightings
- Swamp Sparrows and Marsh Wrens are on the rise.
- Northern Rough-winged Swallow and Bank Swallow findings are consistent with national trends.
- Night-Heron findings possibly skewed due to nesting sites outside of survey areas

SPECIES	Trend	% Error
SORA	10.3%	+/-5.9%
SWAMP SPARROW	9.1%	+/-2.4%
SANDHILL CRANE	7.3%	+/-4.4%
MARSH WREN	6.7%	+/-2.4%
N. ROUGH-WING. SWALLOW	-0.1%	+/-2.2%
BANK SWALLOW	-2.5%	+/-5.8%
BLACK-CR. NIGHT-HERON	-10.5%	+/-5.7%

View full results at: www.bcnbirds.org/trends/

#### **BCN SURVEY DATA: SANDHILL CRANE**

The Sandhill Crane is an uncommon to rare breeder in the Chicago Wilderness Region. Breeding habitat includes secluded, vegetated marshes and ponds. Once common in Illinois, Sandhill Cranes more or less disappeared from the state in the late 1800s and were not rediscovered breeding until about 1980 when they were found nesting in northern Lake County. They have since spread into other areas in the CW Region. The latest BCN Survey results continue to show a significant moderate increase for this species. Photo: © Eric Secker

#### **TREND: MODERATE INCREASE**

Annual Change	Pct. Error
7.3%	+/-4.4%

# Points Seen At	Records	Frequency
78	175	3%

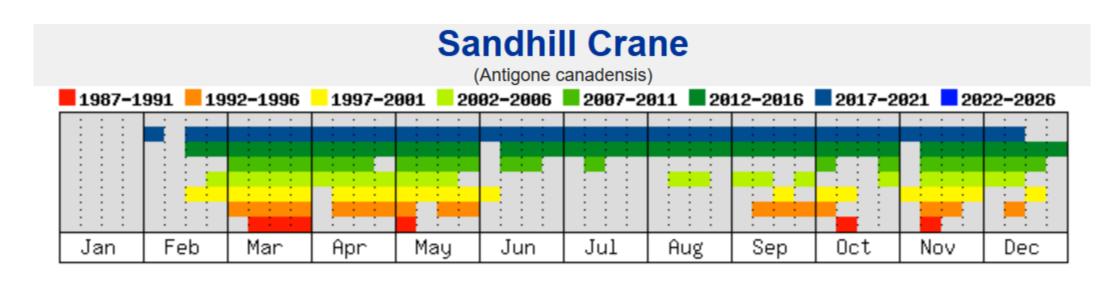


Good

Conservation Status



#### FERMILB DATA: SANDHILL CRANE



Status: Migrant.

Last recorded on site in 2021

**Breeding Status:-**

1997 to 2001: Possible but not likely

2002 to 2006: Possible but not likely

2007 to 2011: Possible but not likely

2012 to 2016: Likely but not confirmed

2017 to 2021: Confirmed

2022 to 2026:

### BCN SURVEY DATA: BLACK-CROWNED NIGHT-HERON

The Black-crowned Night-Heron is an uncommon to rare breeder in the CW Region. This species has declined dramatically during the past century. Some proposed reasons for their decline in our area include disturbance, filling in of marshes, and competition with cormorants and other waders. The BCN Survey does not adequately monitor wetlands. Retaining large tracts of willows and maintaining hemi-marsh habitat may help this species where it still breeds. Photo: © Heather Secker

#### TREND: MODERATE DECLINE

Annual Change	Pct. Error
-10.5%	+/-5.7%

# Points Seen At	Records	Frequency
34	70	1%



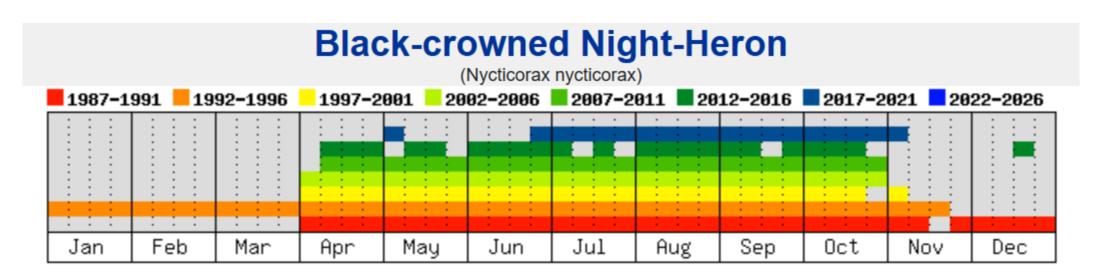
Credibility

Conservation Status

LVI 2



#### FERMILB DATA: BLACK-CROWNED NIGHT-HERON



Status: Summer Resident. Last recorded on site in 2019

**Breeding Status:-**

1987 to 1991: Confirmed 1992 to 1996: Confirmed

1997 to 2001: Confirmed 2002 to 2006: Possible but not likely

2007 to 2011: Possible but not likely 2022 to 2026:

This species is **State Endangered**. It is in danger of extinction as a breeding species in the state of Illinois.

### PRIORITY SPECIES FOR CONSERVATION WETLANDS

 Wetlands are fast disappearing across Illinois, including the Chicago region. Our conservation efforts should include restoration of functional wetlands to places where they once were.

**LEVEL 1:** Piping Plover, Black Rail, King Rail, American Bittern, Common Tern, Black Tern

**LEVEL 2:** Black-crowned Night-Heron, Least Bittern, Wilson's Snipe

LEVEL 3: Yellow-headed Blackbird, Common Gallinule, Virginia Rail, Pied-billed Grebe, Marsh Wren, Sora, Osprey, Caspian Tern, Great Egret, Bald Eagle, Yellow-crowned Night-Heron (rare), Little Blue Heron (rare), Snowy Egret (rare), Forster's Tern (rare), Wilson's Phalarope (rare), Trumpeter Swan (rare)

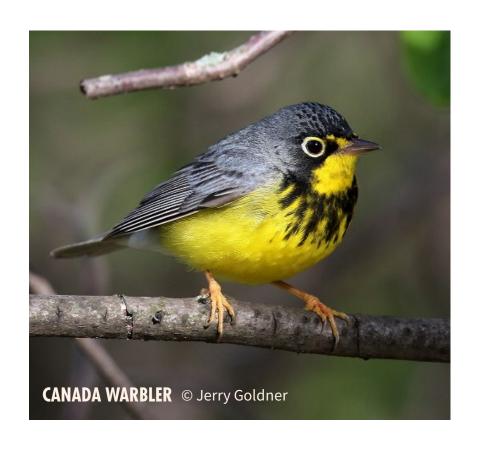
View full list at: www.bcnbirds.org/trends21/concern.html

#### RESEARCH QUESTIONS: WETLANDS

What does weather history of dry vs. wet years tell us about weather impact on wetlands?

What is happening with Black-crowned Night-Herons in our region?

#### LEADERSHIP AS A BIRD-FRIENDLY REGION



- Our region is vitally important given national trends of many species declines.
  - Fermilab's 6,800 acres and active land management contributes significantly.

    -Population source for expansion of species like Osprey and Henslow's Sparrow in the region.
  - -One of the largest open areas left in DuPage Co.
- 50+% of our breeding birds are stable or expanding in protected lands—a testament to the hard work of land managers, conservation groups, policy makers, and ordinary citizens.
- We are also an important stopover for migrants.

#### THE POWER OF ONE: WHAT YOU CAN DO

- Become a bird monitor with BCN and help monitor the health of our birds.
- Support Fermilab's active land management program.
- Advocate for bird-friendly policies in your community—Lights Out programs, birdfriendly building design, Cats Indoors.
- Vote for referendums that protect and expand green space.
- Adopt bird-friendly homeowner practices.

#### **7 SIMPLE ACTIONS TO HELP BIRDS**

- Landscape for birds and wildlife, even in a small city lot.
- Limit the use of pesticides.
- Reduce window kills in highly reflective areas.
- Consume shade-grown coffee.
- Keep your cats indoors.
- Reduce use of plastics that pollute our landfills and oceans.
- Get involved in community science.



# THE WAY TO GET STARTED IS TO QUIT TALKING AND BEGIN DOING.

**WALT DISNEY** 



For more information on the Breeding Bird Trends in the Chicago Region 1999-2020:

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THANK YOU

**ERIC SECKER BCN PRESIDENT** 

**BOB FISHER**BCN COMMUNICATIONS CHAIR





www.bcnbirds.org