WBBA II: The Future of Atlasing

in the era of

eBird

Ian Davies

eBird Project Coordinator

4 years ago…

…the experiment begins

Year 1

Season One Preliminary Results

Wisconsin Breeding Bird Atlas II

wsobirds.org/atlas

TOP 10 SPECIES

Found in the most blocks

1. American Robin — 832
2. Red-winged Blackbird — 607
3. Canada Goose — 557
4. Black-capped Chickadee — 512
5. European Starling — 505
6. Eastern Bluebird — 481
7. Common Grackle — 458
8. Chipping Sparrow — 456
9. Song Sparrow — 438
10. Tree Swallow — 430

What is a block?

The entire state was divided into approximately 3 x 3 mile squares, which we call "blocks."

MAKING HISTORY

Atlas is among the largest citizen-science surveys ever in WI

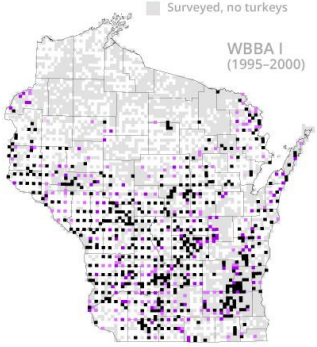
700 observers surveyed
2,600 atlas blocks and submitted
23,900 checklists documenting
1.7 million birds

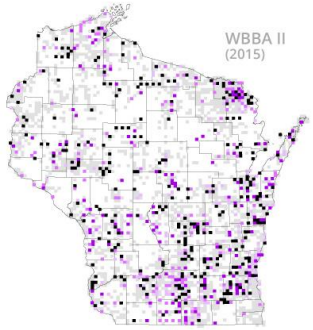
TURKEYS ON THE MOVE

Atlas shows an expansion in their range

Absent from the northern third of the state during the last atlas period, turkeys were reported statewide this year.

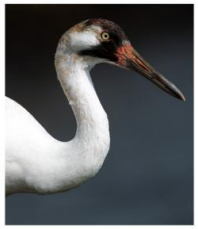
Observed · Probable · Possible · Confirmed · Surveyed, no turkeys





CAN YOU BELIEVE IT?

In one year, the second atlas has nearly reached the totals of the first atlas



8 NEW SPECIES

Not confirmed during the first atlas

Bufflehead
Eurasian Collared-Dove
White-eyed Vireo
Great Tit
Kirtland's Warbler
Yellow-throated Warbler
Whooping Crane
European Goldfinch

Photo credits: Eastern Bluebird by Brian Collins; Whooping Crane by Ryan Hagerty; Wild Turkey by Steve Davis. For more information contact Nick Anich, nicholas.anich@wisconsin.gov.

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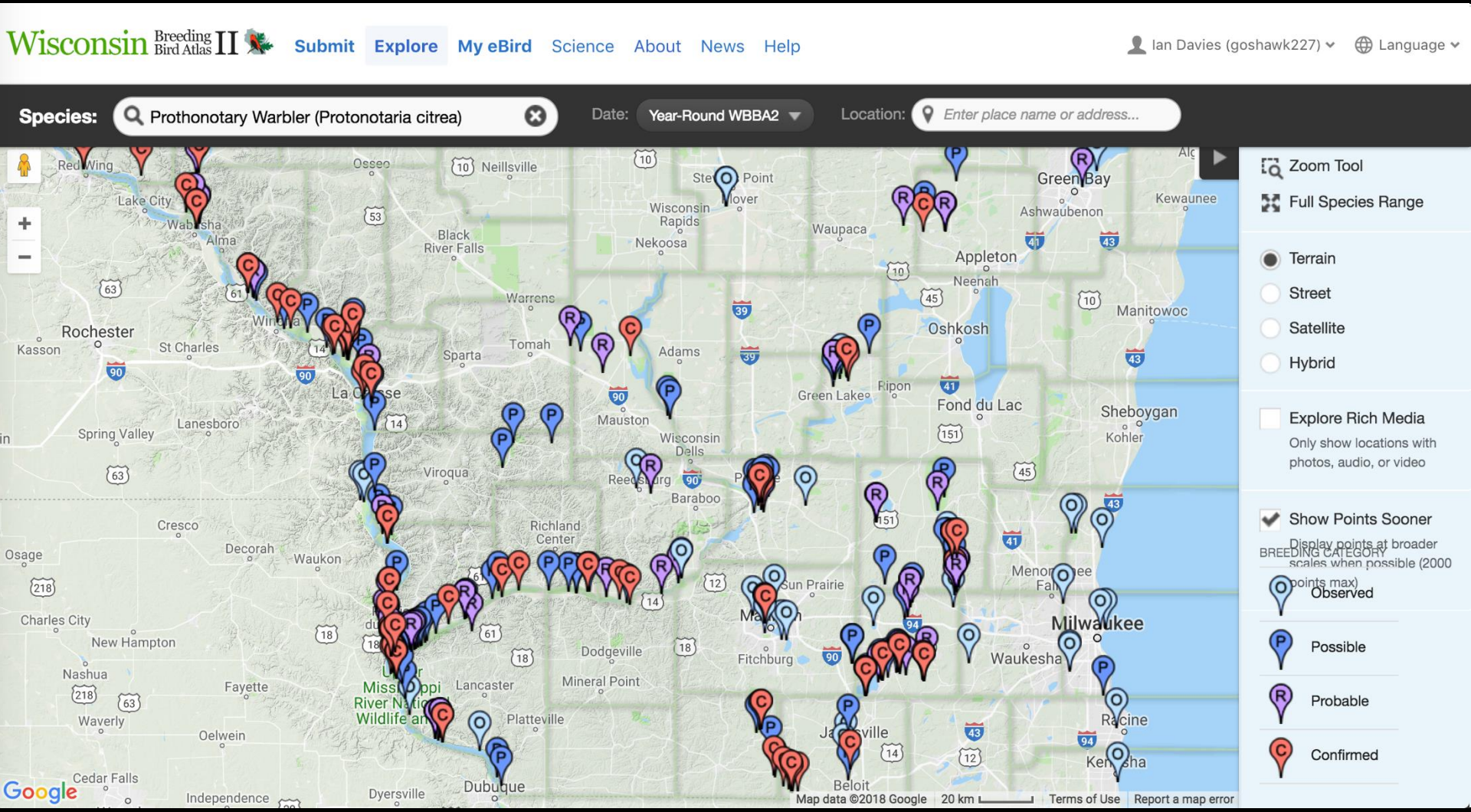
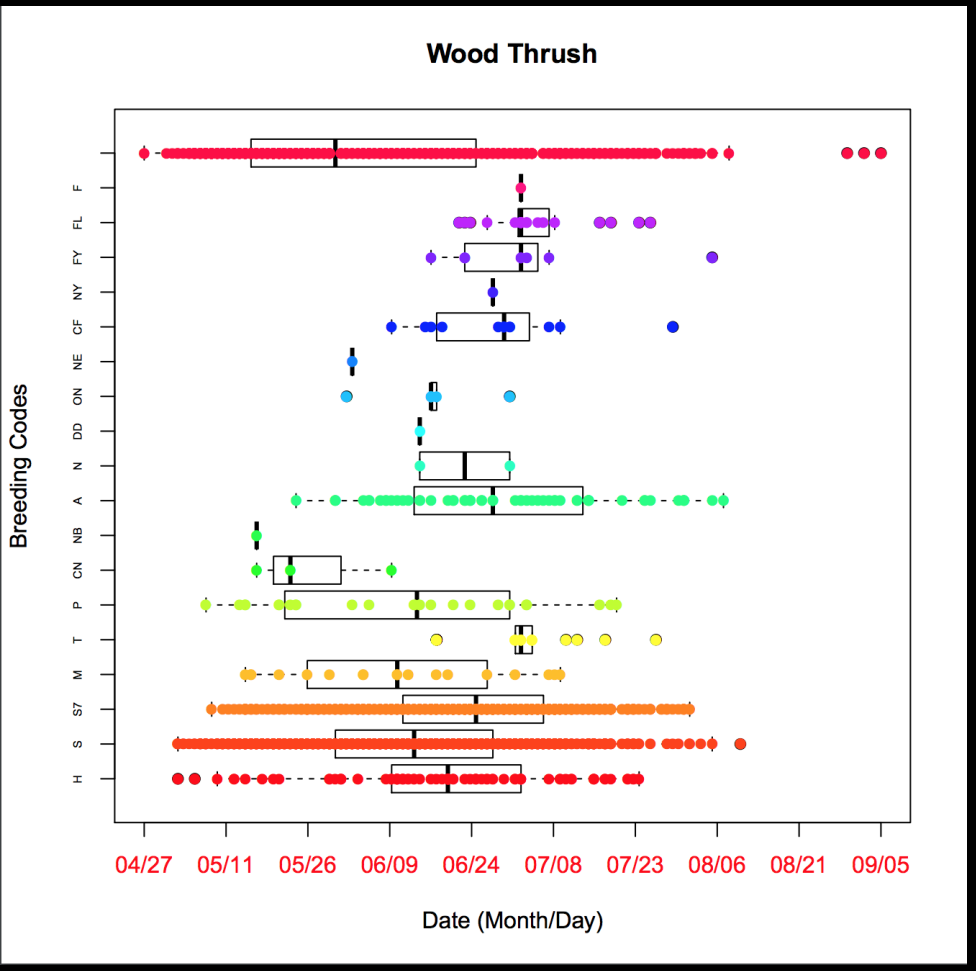
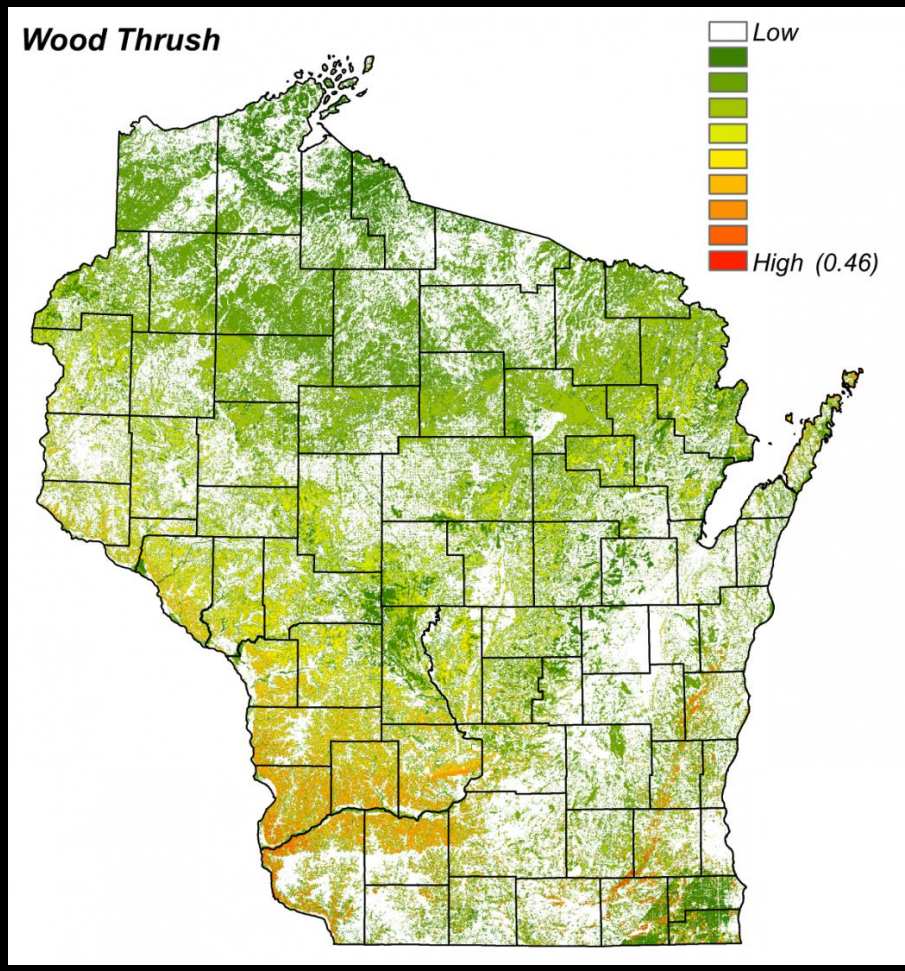
Better and more precise data



More good data = more insights





A new generation of atlases

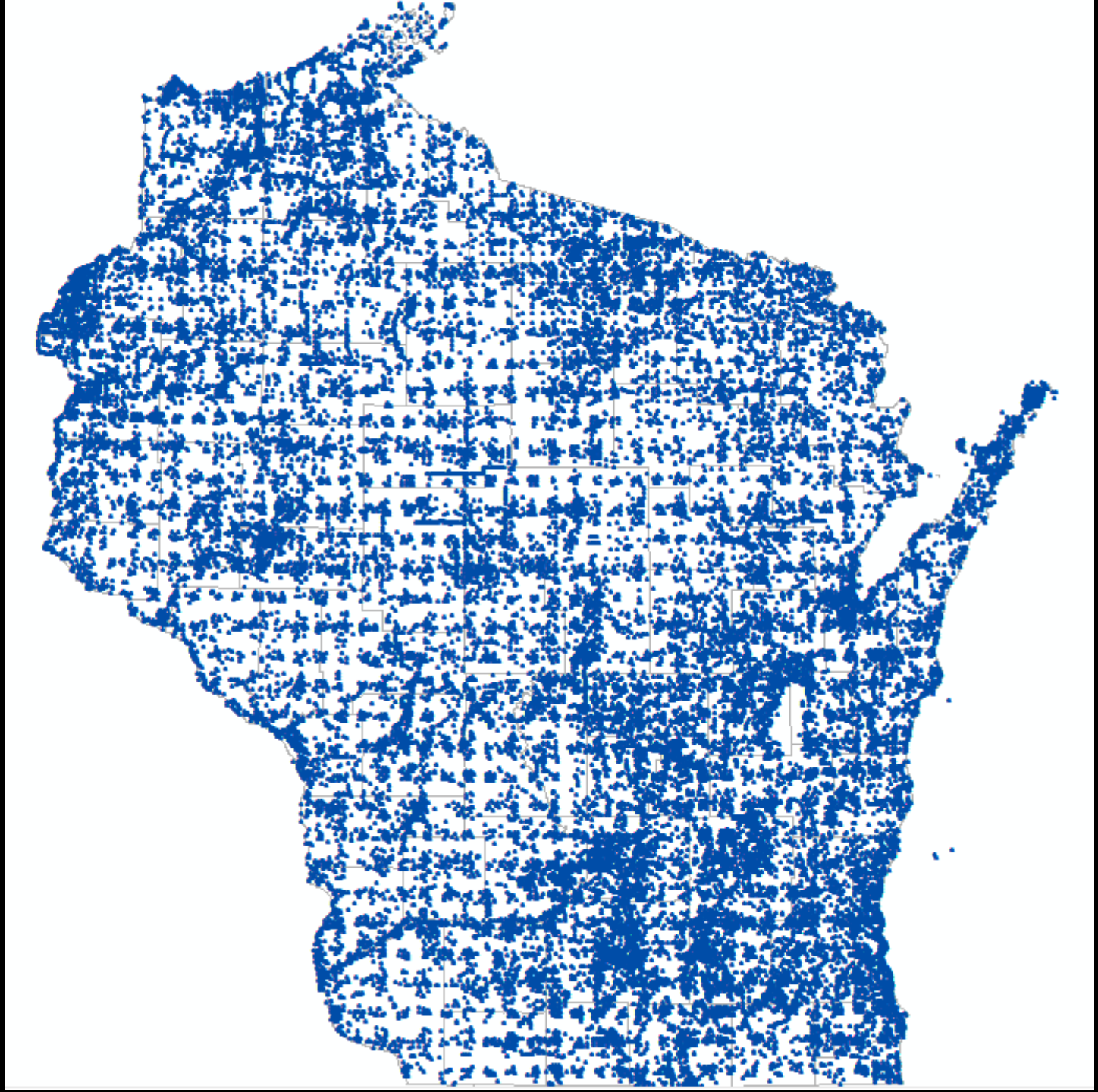
Wisconsin Breeding Bird Atlas II

Virginia Breeding Bird Atlas 2

Maine Bird Atlas

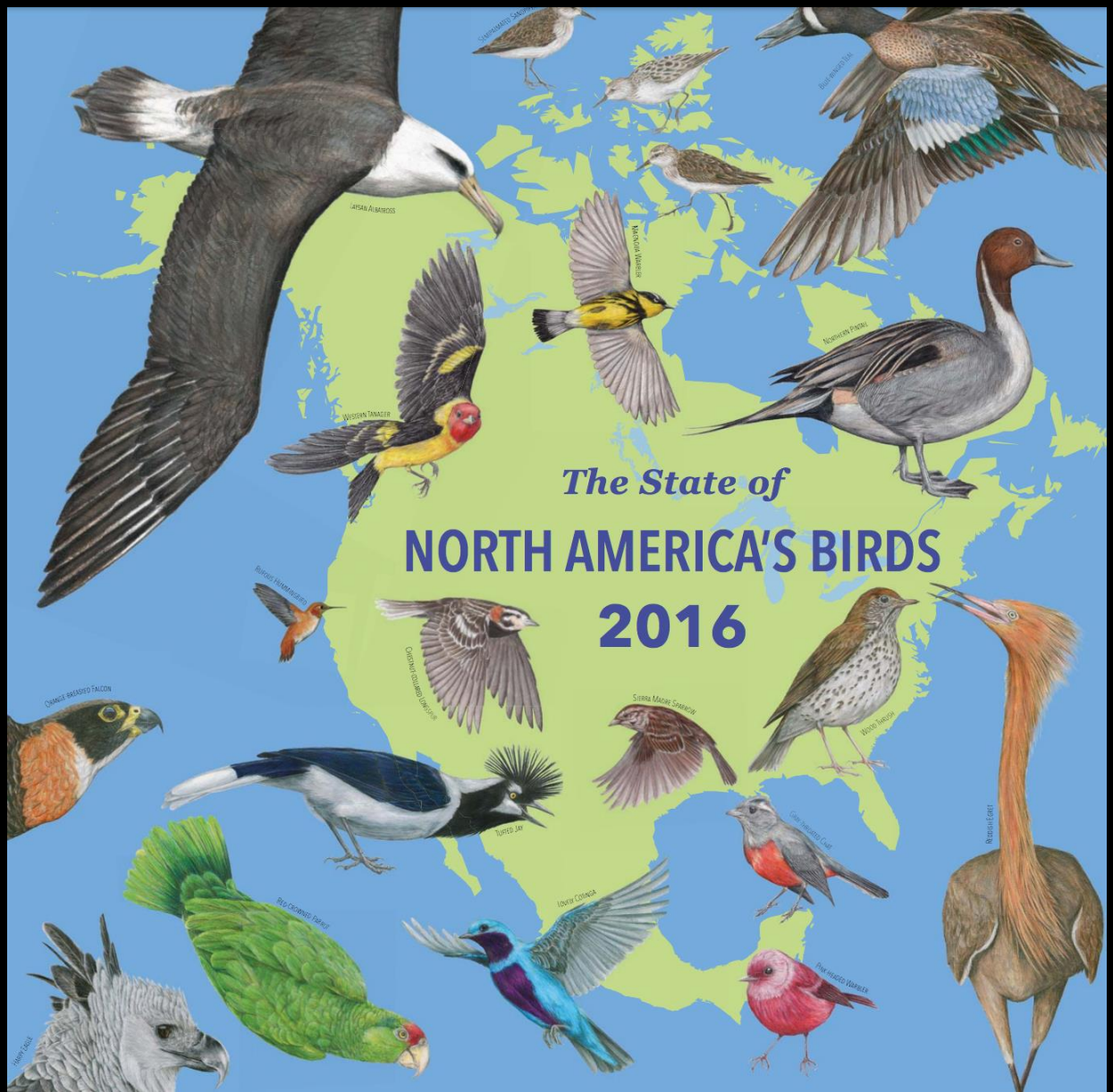
NEW ZEALAND BIRD ATLAS

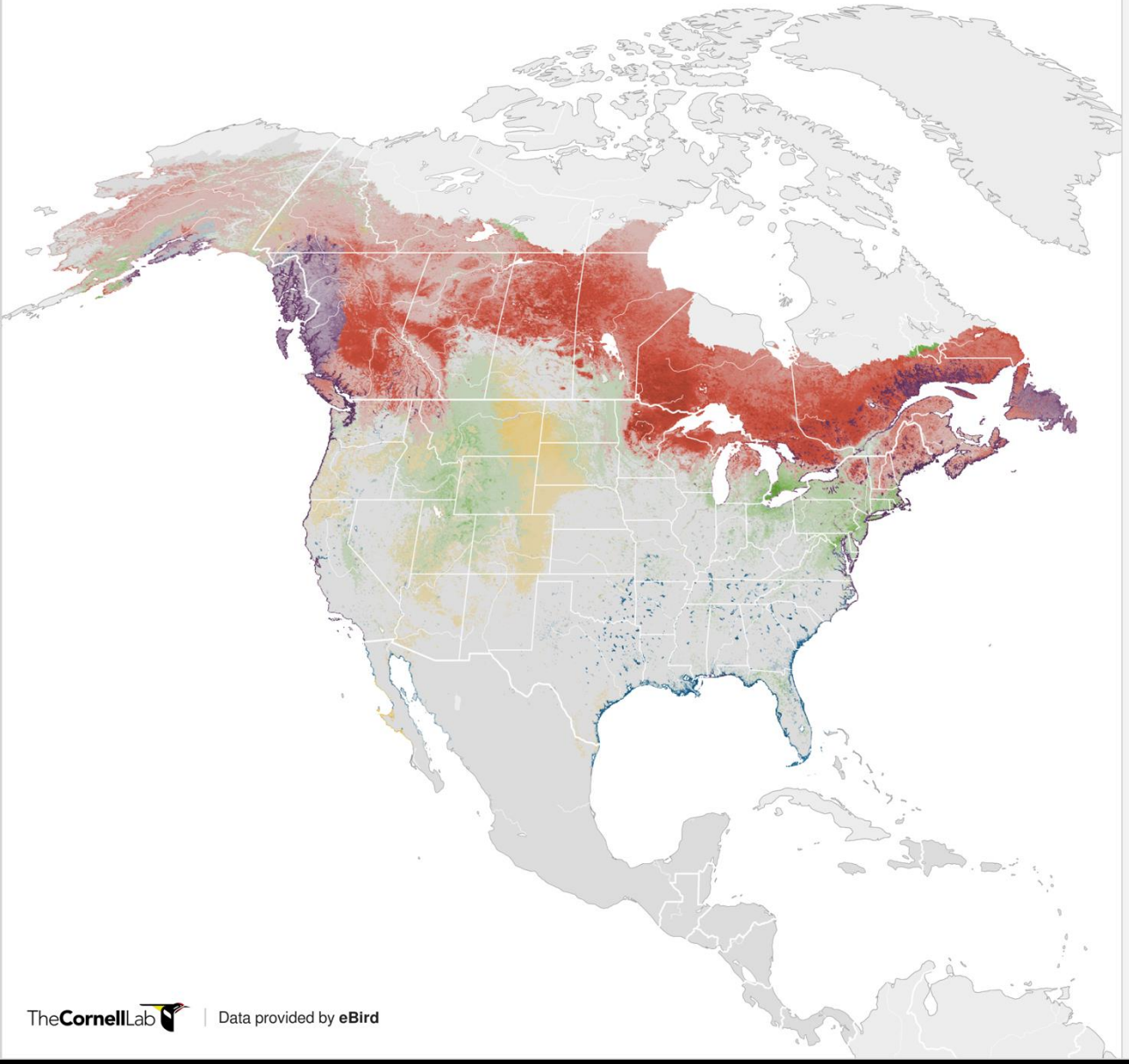
New York Breeding Bird Atlas III



eBird

Helping birds





TheCornellLab | Data provided by **eBird**

Abundance

This map depicts the seasonally-averaged estimated relative abundance, defined as the expected count on a one-hour, one kilometer eBird Traveling Count conducted at the ideal time of day for detection of that species in a region.

RELATIVE ABUNDANCE birds per km/hr

Year-round

Breeding season Jun 14 - Aug 24

Non-breeding season Dec 21 - Mar 8

Pre-breeding migratory season Mar 15 - Jun 7

Post-breeding migratory season Aug 31 - Nov 16

0.19 0.84 72.54

Note: Seasonal ranges overlap and are stacked in the order above; view full range in season maps.

SEASONS TIMELINE

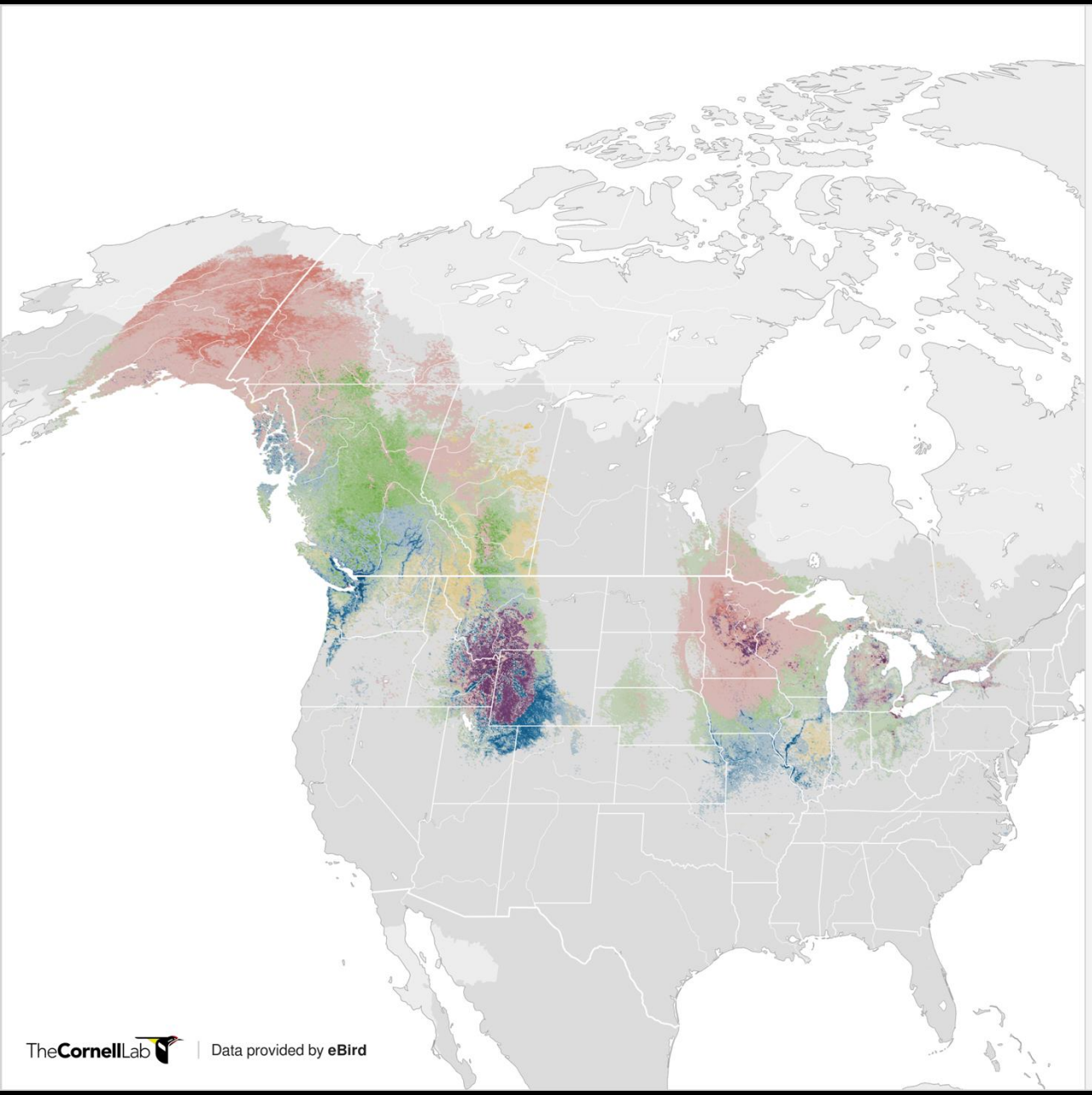
J F M A M J J A S O N D

Modeled area (0 abundance)

No prediction

Released November 2018. eBird data from 2004-2016. Estimated for 2016.

Fink, D., T. Auer, A. Johnston, M. Strimas-Mackey, M. Iliff, and S. Kelling. eBird Status and Trends. Version: November 2018. https://ebird.org/science/status-and-trends. Cornell Lab of Ornithology, Ithaca, New York.



Abundance

This map depicts the seasonally-averaged estimated relative abundance, defined as the expected count on a one-hour, one kilometer eBird Traveling Count conducted at the ideal time of day for detection of that species in a region.

RELATIVE ABUNDANCE birds per km/hr

Year-round

Breeding season May 17 - Sep 7

Non-breeding season Dec 14 - Feb 15

Pre-breeding migratory season Feb 22 - May 10

Post-breeding migratory season Sep 21 - Dec 7

0.23 1.84 99.47

Note: Seasonal ranges overlap and are stacked in the order above; view full range in season maps.

SEASONS TIMELINE

J F M A M J J A S O N D

Modeled area (0 abundance)

No prediction

eBird data from 2004-2016. Estimated for 2016.

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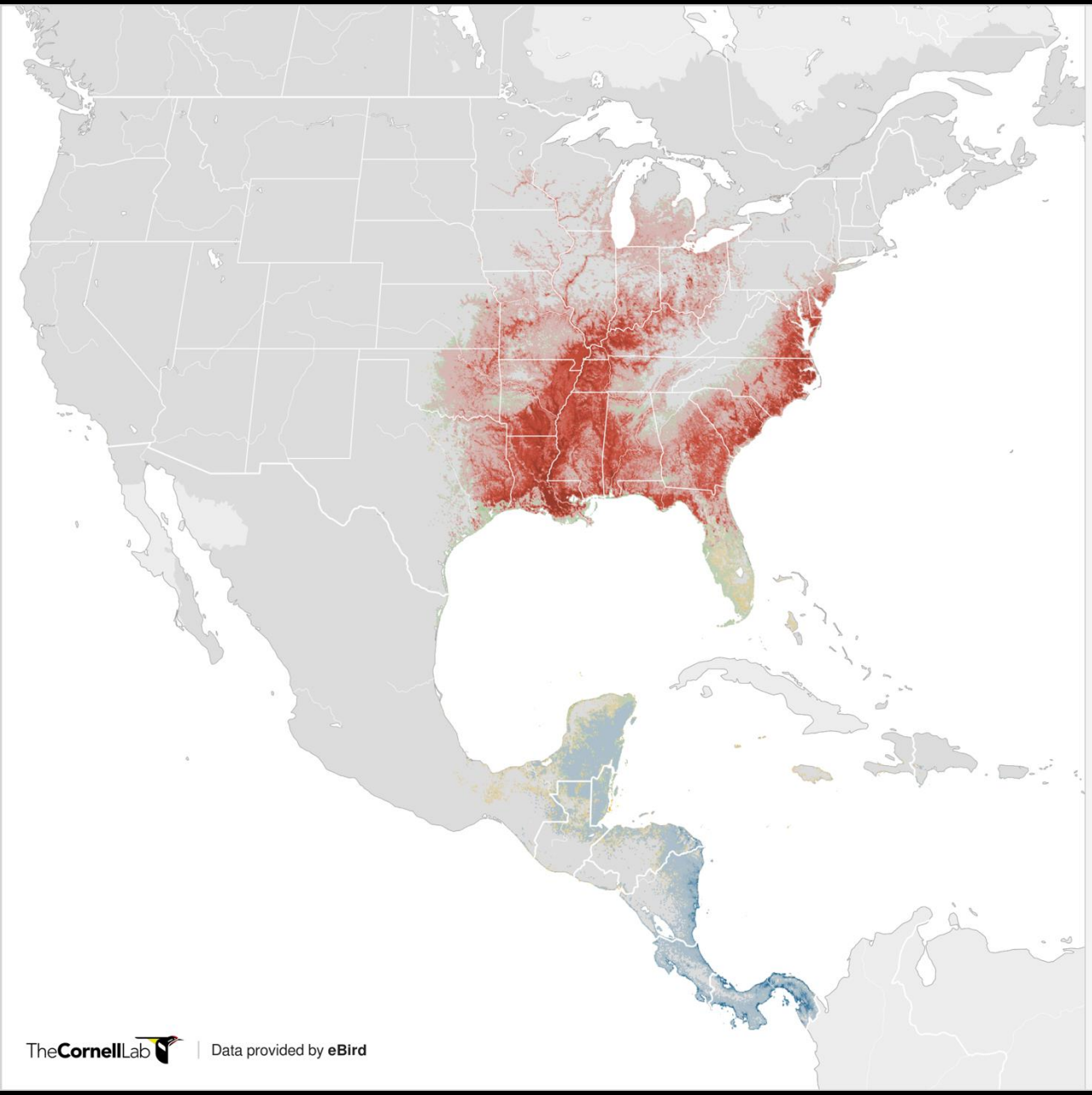


Abundance

This map depicts the seasonally-averaged estimated relative abundance, defined as the expected count on a one-hour, one kilometer eBird Traveling Count conducted at the ideal time of day for detection of that species in a region.

RELATIVE ABUNDANCE birds per km/hr

Breeding season May 17 - Jul 20

Non-breeding season Oct 12 - Mar 8

Pre-breeding migratory season Mar 15 - May 10

Post-breeding migratory season Jul 27 - Sep 28

0.17 0.73 10.87

Note: Seasonal ranges overlap and are stacked in the order above; view full range in season maps.

SEASONS TIMELINE

J F M A M J J A S O N D

Modeled area (0 abundance)

No prediction

Released November 2018. eBird data from 2004-2016. Estimated for 2016.

Fink, D., T. Auer, A. Johnston, M. Strimas-Mackey, M. Iliff, and S. Kelling. eBird Status and Trends. Version: November 2018. https://ebird.org/science/status-and-trends. Cornell Lab of Ornithology, Ithaca, New York.

Wood Thrush

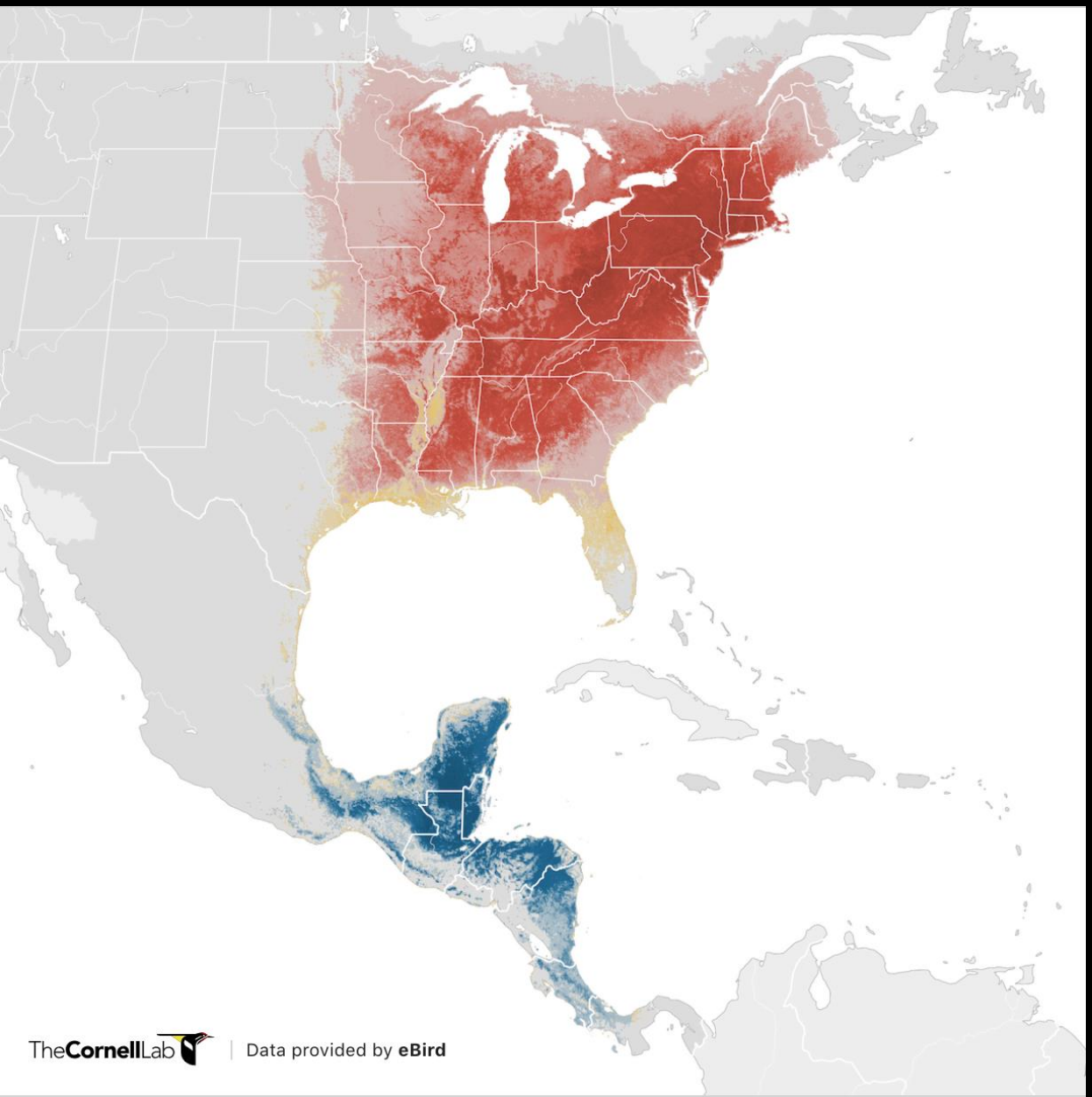
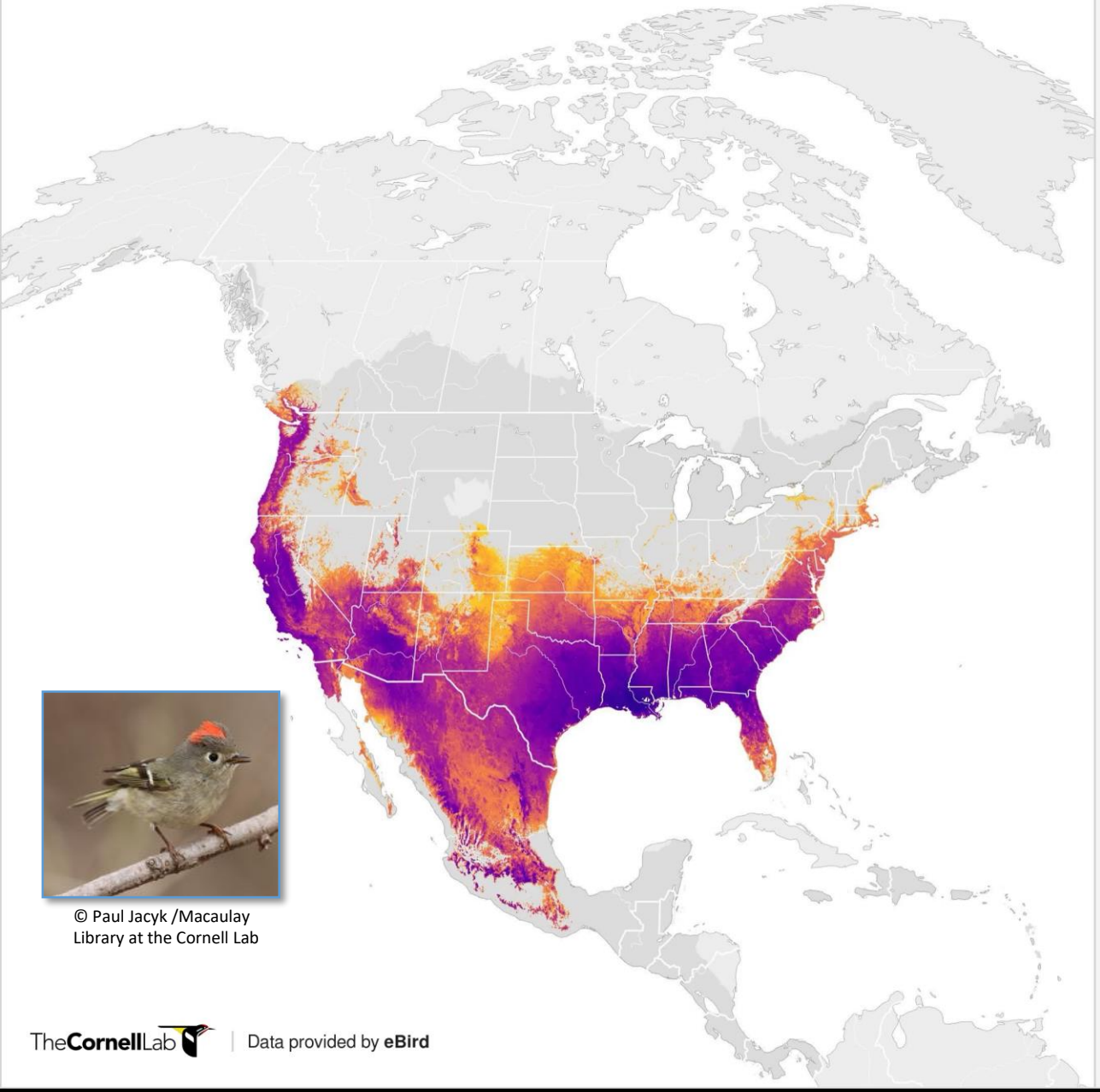


Photo ©John Petruzzi/Macaulay Library



© Paul Jacyk /Macaulay Library at the Cornell Lab

TheCornellLab | Data provided by **eBird**

Ruby-crowned Kinglet

Regulus calendula

Abundance

This map animates weekly estimated relative abundance, defined as the expected count on a one-hour, one kilometer eBird Traveling Count conducted at the ideal time of day for detection of that species in a region.

RELATIVE ABUNDANCE birds per km/hr

0.18 1.21 11.97

WEEK OF THE YEAR January 4

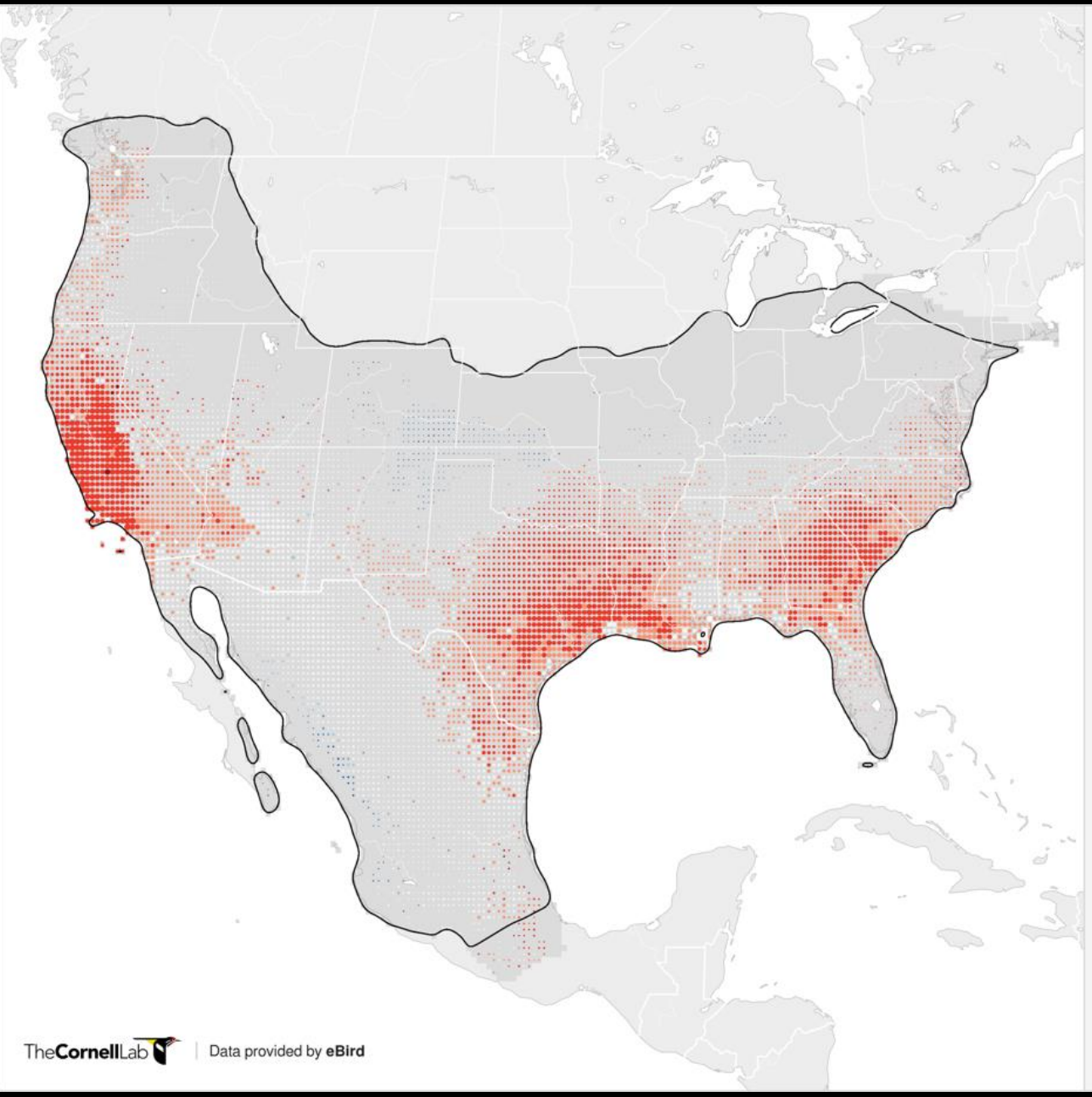
J F M A M J J A S O N D

Modeled area (0 abundance)

No prediction

eBird data from 2004-2016. Estimated for 2016.

Fink, D., T. Auer, A. Johnston, M. Strimas-Mackey, M. Iliff, and S. Kelling. eBird Status and Trends. Version: November 2018. https://ebird.org/science/status-and-trends. Cornell Lab of Ornithology, Ithaca, New York.



Ruby-crowned Kinglet *Regulus calendula*

Trends: Non-breeding

This map depicts the ranked amount of change during the non-breeding season in estimated relative abundance across the years 2007-2016. Circles are colored by ranked increasing or decreasing trends and circle sizes are scaled by the maximum estimated relative abundance across 2007-2016. Light gray circles represent locations with trends not significantly different from zero.

CHANGE IN RELATIVE ABUNDANCE 2007-2016

Decrease 0* Increase

*Trend not significantly different from zero

RELATIVE ABUNDANCE

Low High

SEASON DATE RANGE Dec 21 - Jan 25

J F M A M J J A S O N D

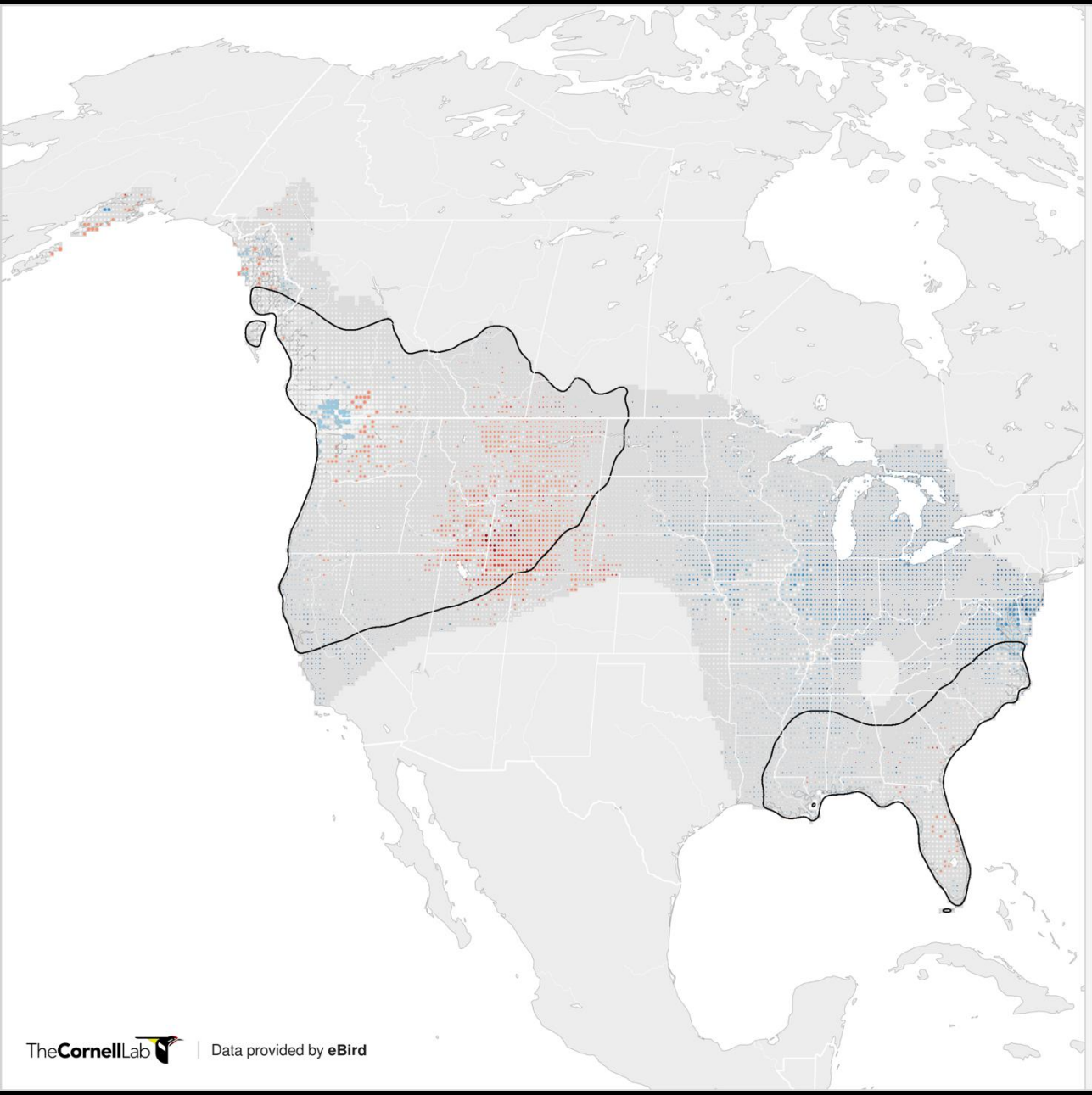
Most reliable trends Learn more

Modeled area (0 abundance)

No prediction

eBird data from 2004-2016. Estimated for 2007-2016.

Fink, D., T. Auer, A. Johnston, M. Strimas-Mackey, M. Iliff, and S. Kelling. eBird Status and Trends. Version: November 2018. https://ebird.org/science/status-and-trends. Cornell Lab of Ornithology, Ithaca, New York.



TheCornellLab | Data provided by **eBird**

Bald Eagle *Haliaeetus leucocephalus*

Trends: Non-breeding

This map depicts the ranked amount of change during the non-breeding season in estimated relative abundance across the years 2007-2016. Circles are colored by ranked increasing or decreasing trends and circle sizes are scaled by the maximum estimated relative abundance across 2007-2016. Light gray circles represent locations with trends not significantly different from zero.

CHANGE IN RELATIVE ABUNDANCE 2007-2016

Decrease 0* Increase

*Trend not significantly different from zero

RELATIVE ABUNDANCE

Low High

SEASON DATE RANGE Jan 4 - Feb 8

J F M A M J J A S O N D

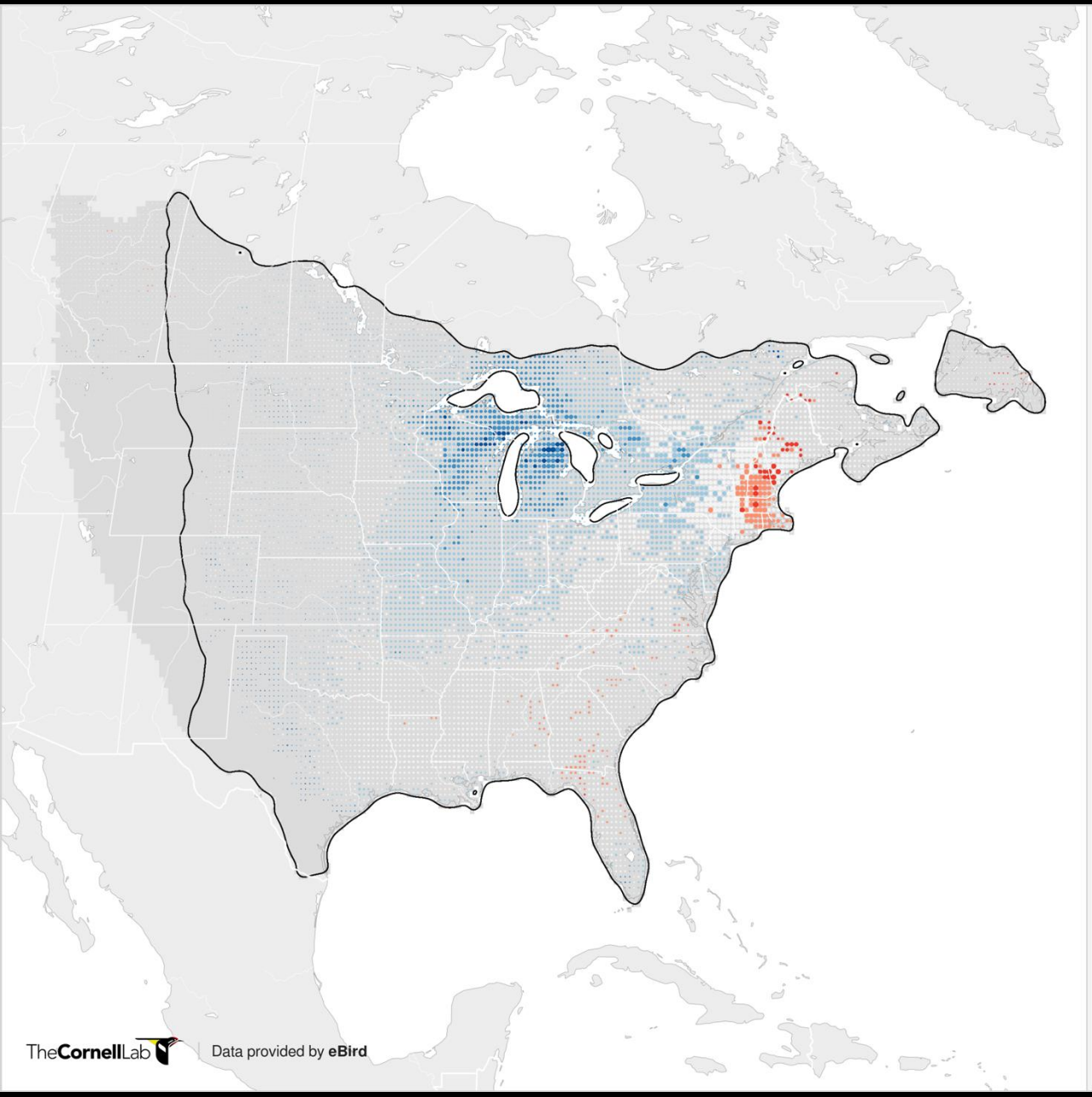
Most reliable trends Learn more

Modeled area (0 abundance)

No prediction

eBird data from 2004-2016. Estimated for 2007-2016.

Fink, D., T. Auer, A. Johnston, M. Strimas-Mackey, M. Iliff, and S. Kelling. eBird Status and Trends. Version: November 2018. https://ebird.org/science/status-and-trends. Cornell Lab of Ornithology, Ithaca, New York.



Blue Jay *Cyanocitta cristata*

Trends: Non-breeding

This map depicts the ranked amount of change during the non-breeding season in estimated relative abundance across the years 2007-2016. Circles are colored by ranked increasing or decreasing trends and circle sizes are scaled by the maximum estimated relative abundance across 2007-2016. Light gray circles represent locations with trends not significantly different from zero.

CHANGE IN RELATIVE ABUNDANCE 2007-2016

Decrease 0* Increase

*Trend not significantly different from zero

RELATIVE ABUNDANCE

Low High

SEASON DATE RANGE Jan 4 - Mar 1

J F M A M J J A S O N D

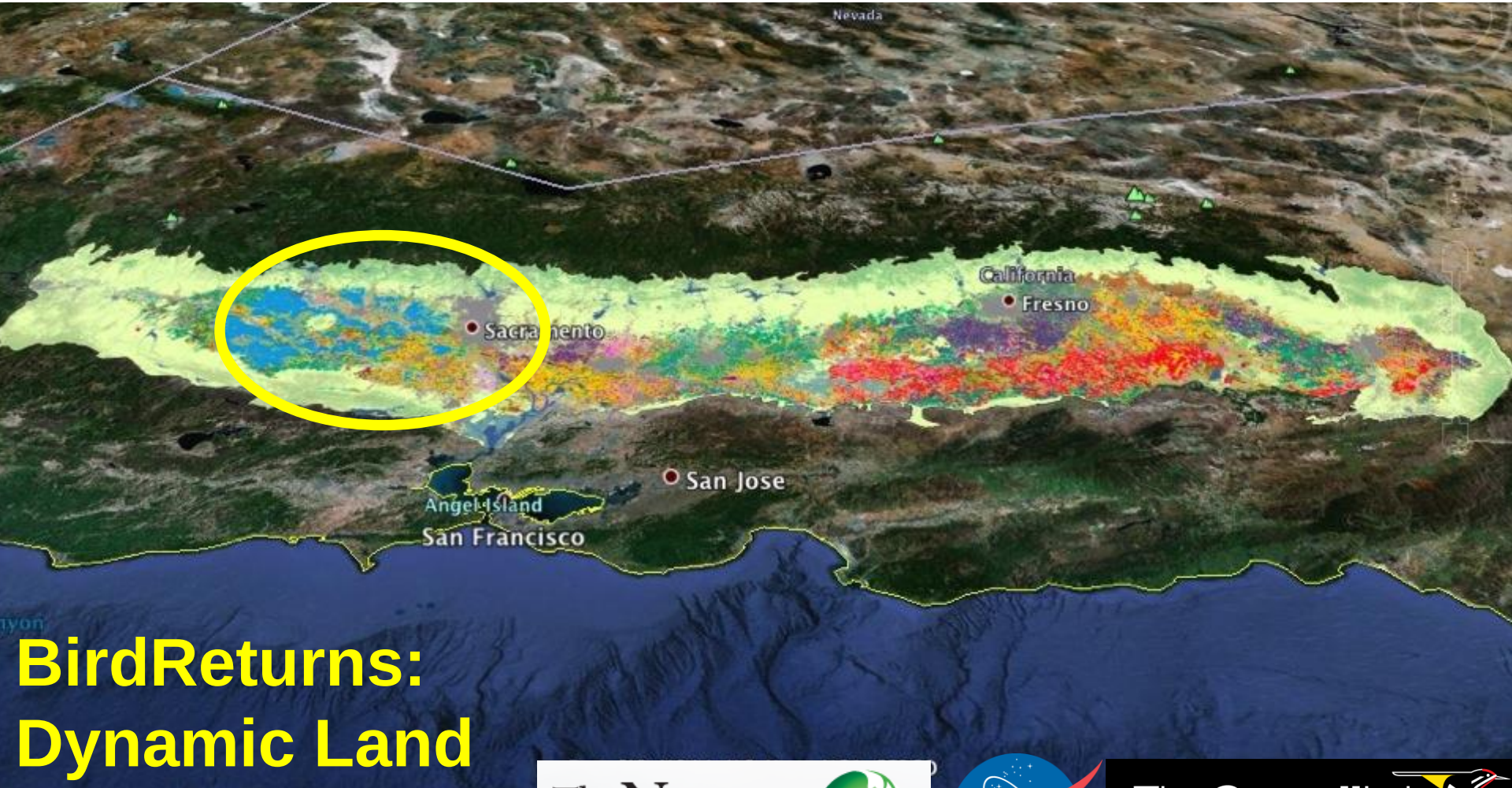
Most reliable trends Learn more

Modeled area (0 abundance)

No prediction

eBird data from 2004-2016. Estimated for 2007-2016.

Fink, D., T. Auer, A. Johnston, M. Strimas-Mackey, M. Iliff, and S. Kelling. eBird Status and Trends. Version: November 2018. https://ebird.org/science/status-and-trends. Cornell Lab of Ornithology, Ithaca, New York.



BirdReturns: Dynamic Land Conservation

The Nature Conservancy

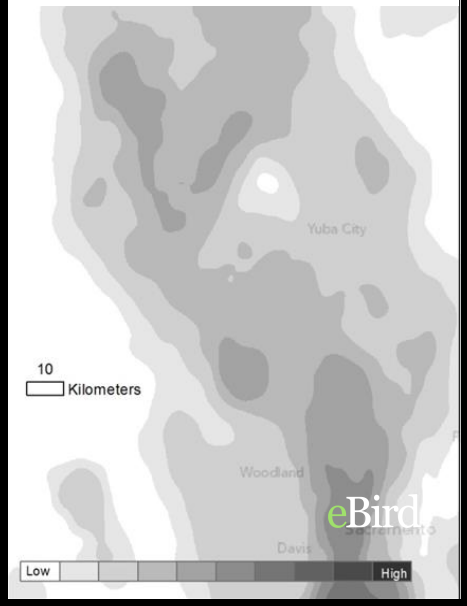
NASA

The Cornell Lab of Ornithology

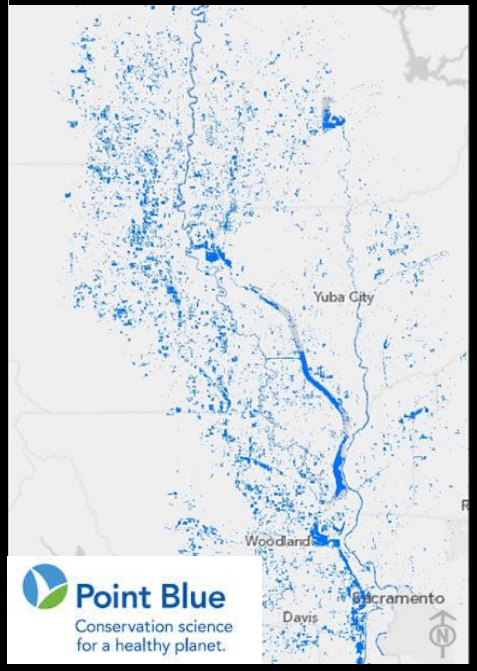
1. Program Design

2. Determine conservation value

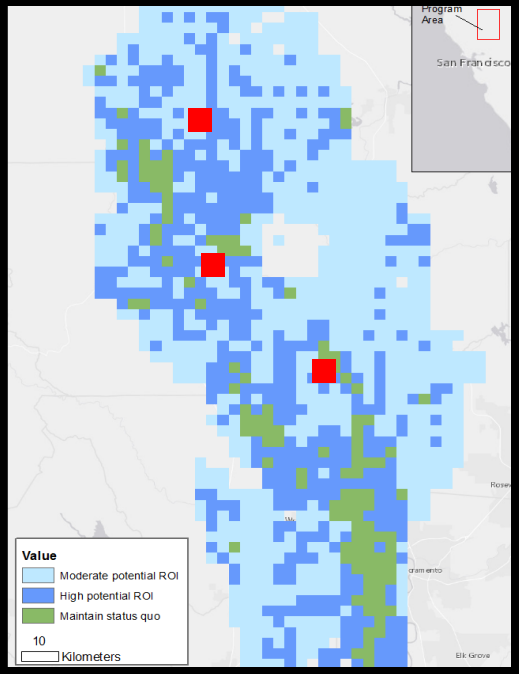
Shorebird Abundance



P(Surface Water)

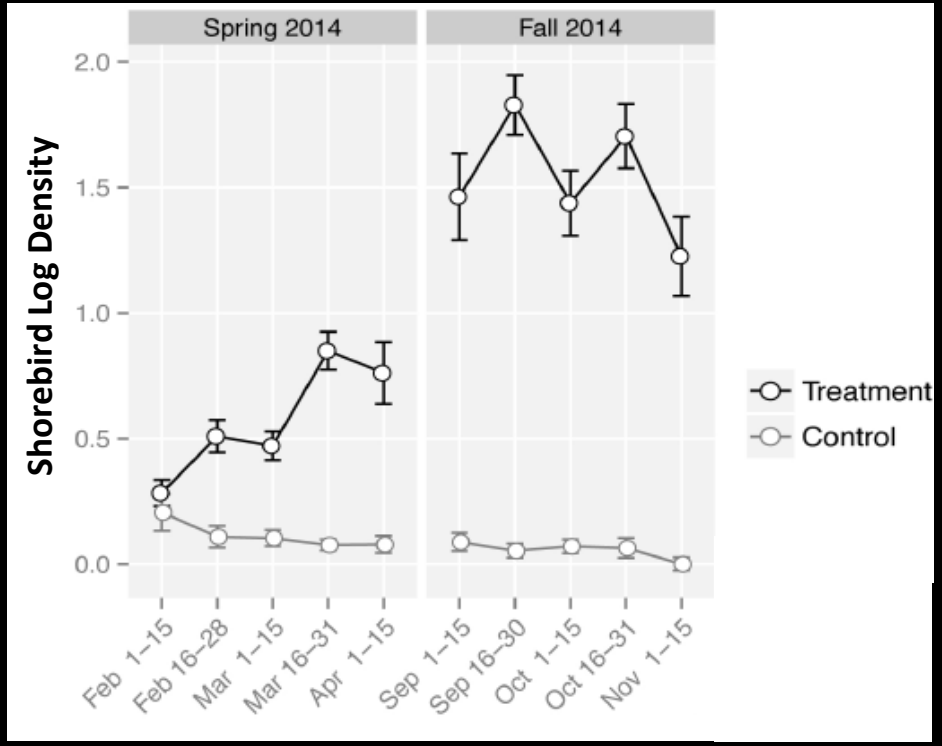


Conservation Value



Bird Returns Impact

Season	Acres
Spring 2014	11,000
Fall 2014	6,100
Winter 2014-2015	5,000
Spring 2015	6,000
Fall 2015	7,200
Spring 2016	6,300
Fall 2016	5,765
Spring 2017	3,900



- > 46K Acres habitat created
- > 175 Farmers
- Drought - Flood

- 6K point counts
- > 50 species of waterbirds
- > 250K shorebirds

Tricolored Blackbirds and eBird

Orin Robinson, Viviana Ruiz-Gutierrez, Daniel Fink, Evan Cooch

Photo ©Nigel Voaden/Macaulay Library

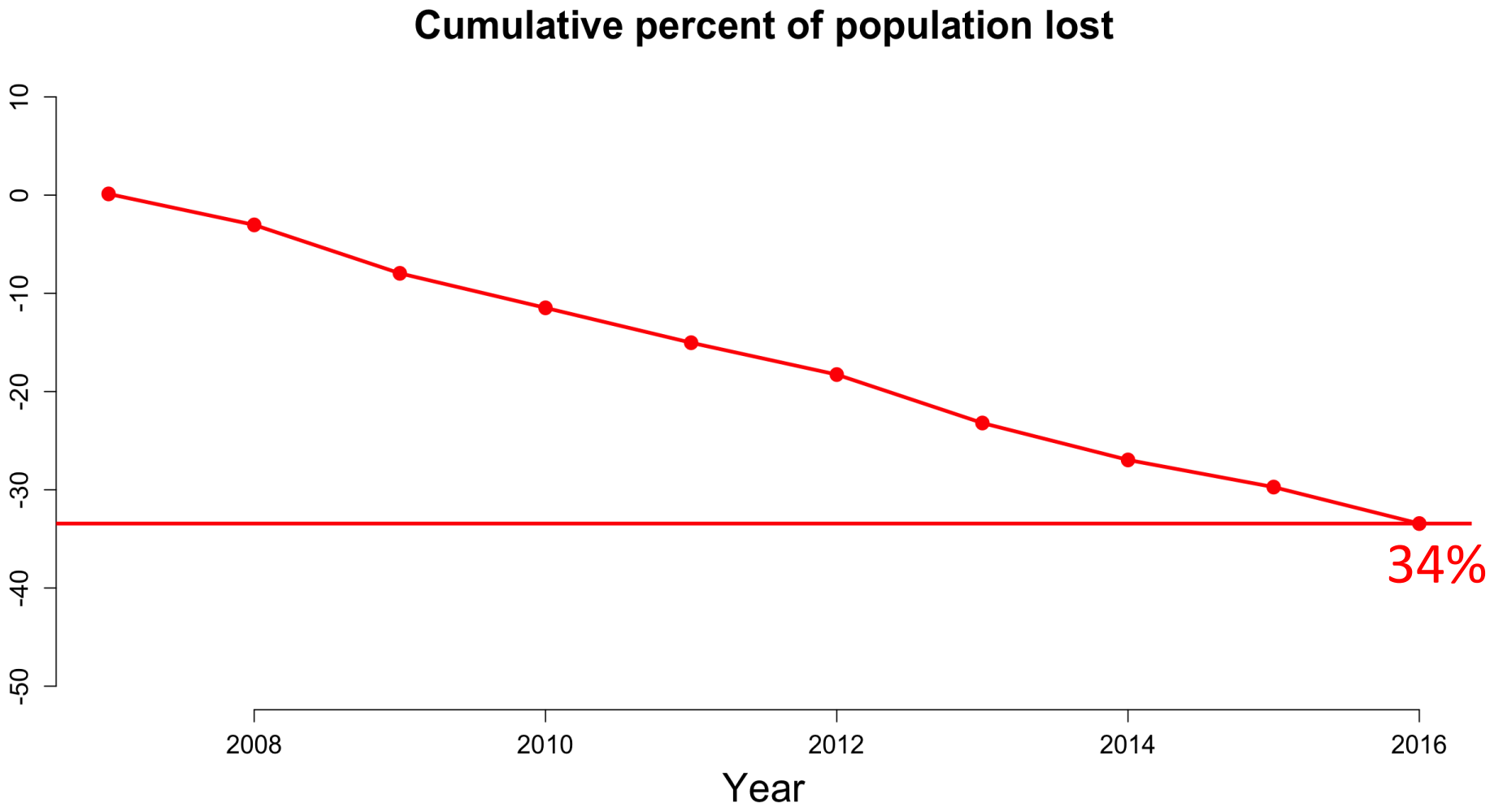
Banding Survival

Counts → Trend

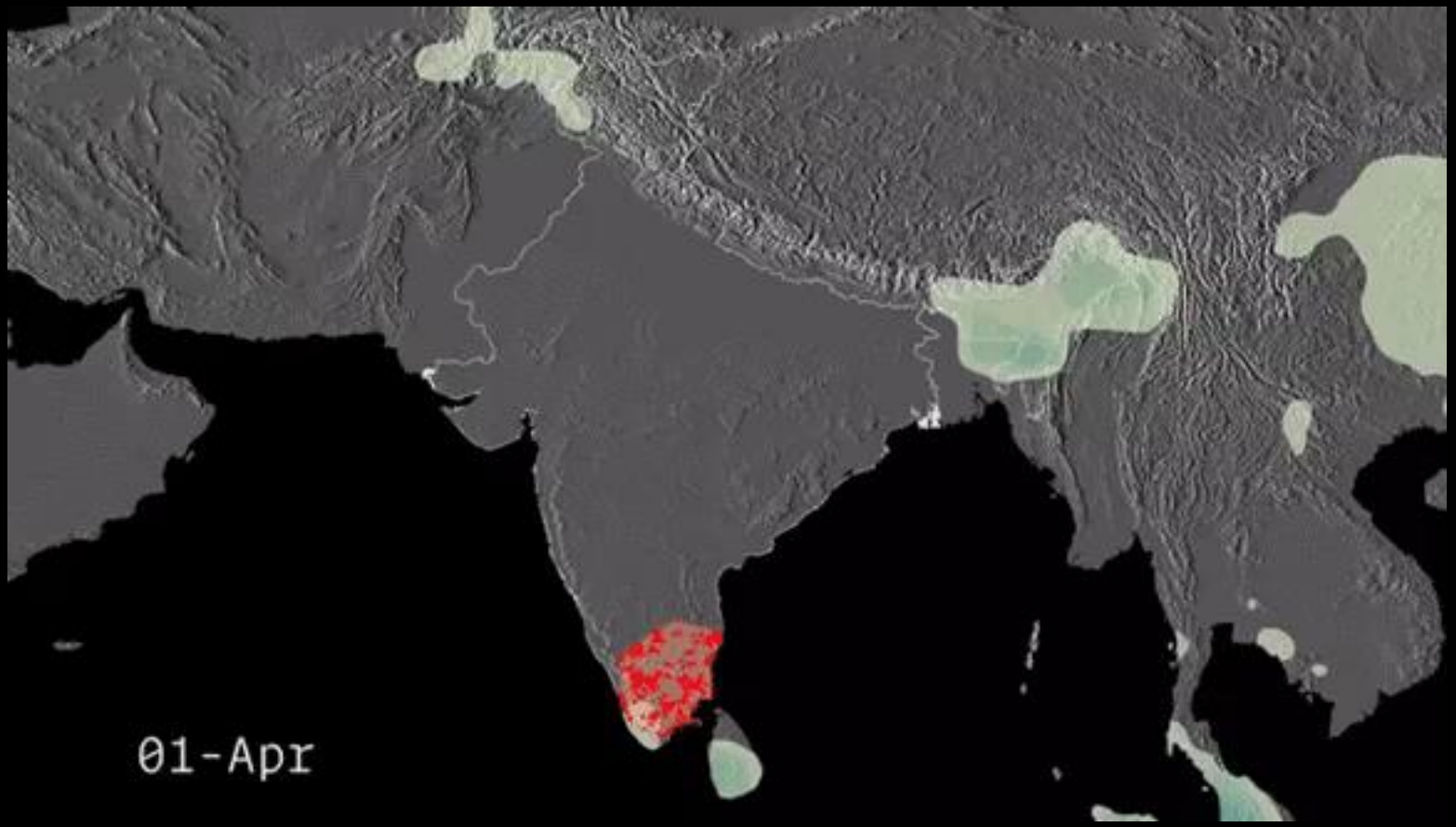
Nest Surveys Reproduction

Integrated Population Model

Tricolored Blackbird trend



The ‘Chataka’



Contents lists available at ScienceDirect

Biological Conservation

journal homepage: www.elsevier.com/locate/bioc

Using open access observational data for conservation action: A case study for birds

Brian L. Sullivan [a,*], Tina Phillips [a], Ashley A. Dayer [a], Christopher L. Wood [a], Andrew Farnsworth [a], Marshall J. Iliff [a], Ian J. Davies [a], Andrea Wiggins [b], Daniel Fink [a], Wesley M. Hochachka [a], Amanda D. Rodewald [a], Kenneth V. Rosenberg [a], Rick Bonney [a], Steve Kelling [a]

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Conservation impacts

ABSTRACT

Ensuring that conservation decisions are informed by the best available data is a fundamental challenge in the face of rapid global environmental change. Too often, new science is not easily or quickly translated into conservation action. Traditional approaches to data collection and science delivery may be both inefficient and insufficient, as conservation practitioners need access to salient, credible, and legitimate data to take action. Open access data could serve as a tool to help bridge the gap between science and action, by providing conservation practitioners with access to relevant data in near real time. Broad-scale citizen-science data represent a fast-growing resource for open access databases, providing relevant and appropriately scaled data on organisms, much in the way autonomous sensors do so on the environment. Several such datasets are now broadly available, yet documentation of their application to conservation is rare. Here we use eBird, a project where individuals around the world submit data on bird distribution and abundance, as an example of how citizen-science data can be used to achieve tangible conservation science and action at local, regional, and global scales. Our examination illustrates how these data can be strategically applied to improve our understanding of spatial and temporal distributions of birds, the impacts of anthropogenic change on ecological systems, and creative conservation solutions to complex problems. We raise awareness of the types of conservation action now happening with citizen-science data, and discuss the benefits, limitations, and caveats of this approach.

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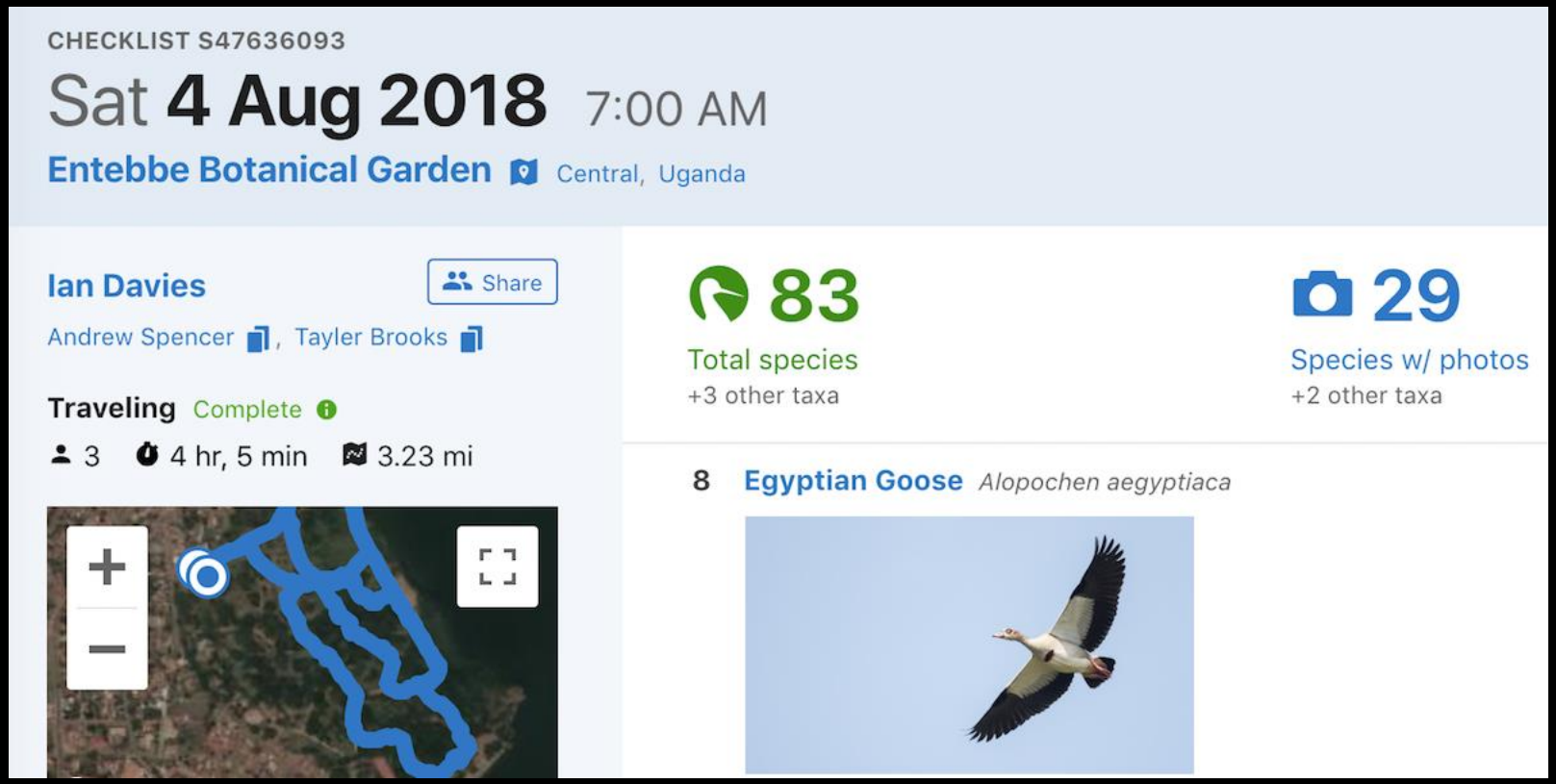
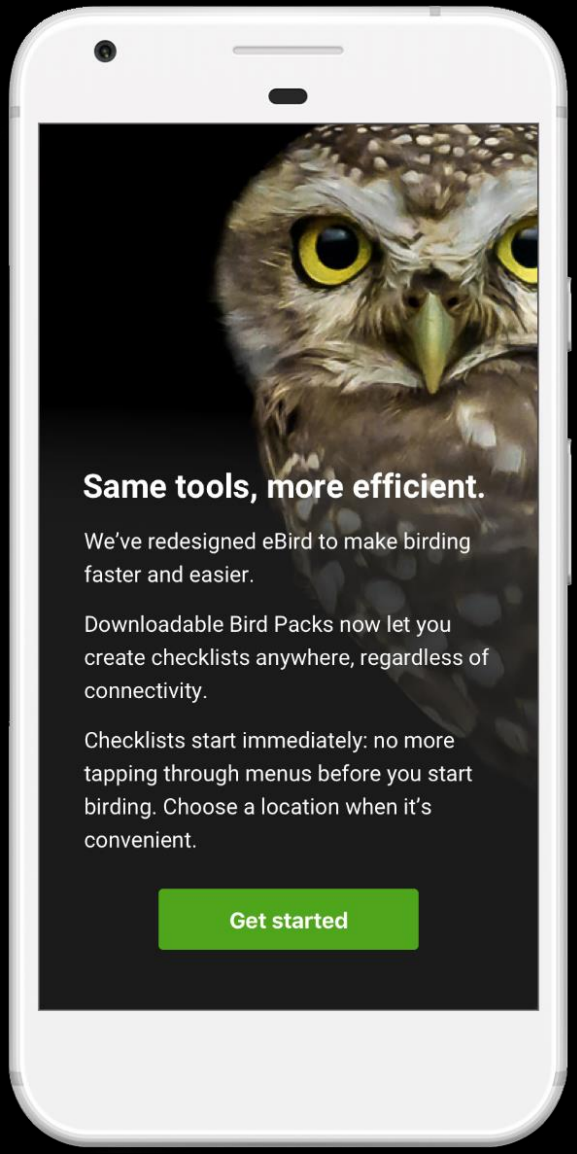
1. Introduction

for conservation science to most effectively translate into conservation

New checklist view



eBird Mobile 2.0



Ryan's Yard Explorer

CHECKLIST S18139357

Sat 26 Apr 2014 11:50 AM

Woodbury Lane Ashland County, Wisconsin, United States

Ryan Brady

Traveling Complete

1 | 1 hr, 25 min | 2.2 mi

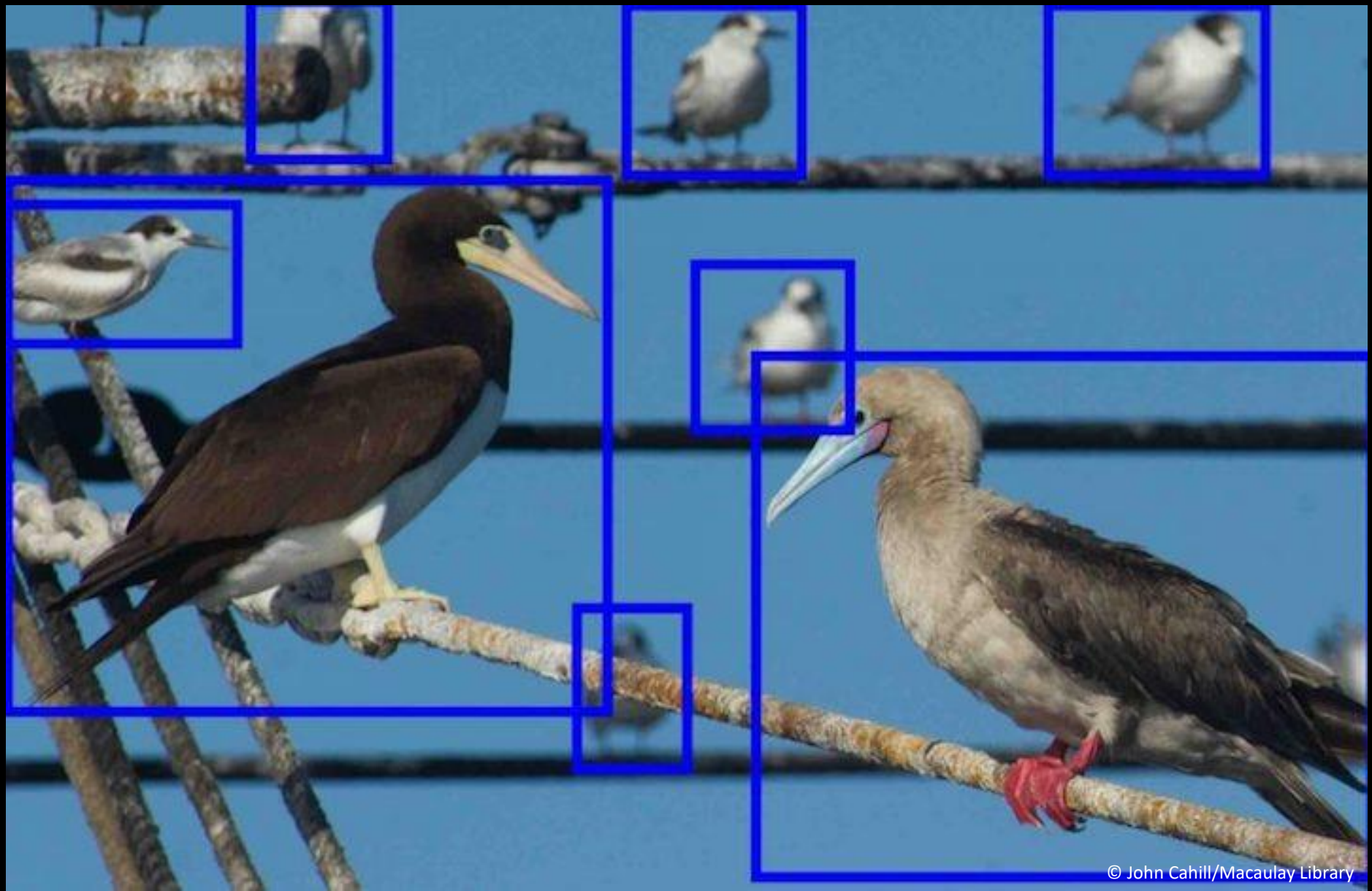
14 Total species Review

10	**Blue-winged Teal**	*Spatula discors*	Review
1	**Green-winged Teal**	*Anas crecca*	Review
1	**Rock Pigeon (Feral Pigeon)**	*Columba livia (Feral Pigeon)*	Review
9	**Wilson's Snipe**	*Gallinago delicata*	Review
15	**Greater Yellowlegs**	*Tringa melanoleuca*	Review
2	**Lesser Yellowlegs**	*Tringa flavipes*	Review
12	**Ring-billed Gull**	*Larus delawarensis*	Review
1	**Herring Gull (American)**	*Larus argentatus smithsonianus*	Review
2	**Turkey Vulture**	*Cathartes aura*	Review
1	**Say's Phoebe**	*Sayornis saya*	Review

5th state record! Found it hawking insects around the farmyard and barn on west side at southern end of road. Subsequently seen by multiple observers, including N. Anich, T. Oksiuta, M. Backus, and others. Photos at http://www.pbase.com/rbrady/saph2014

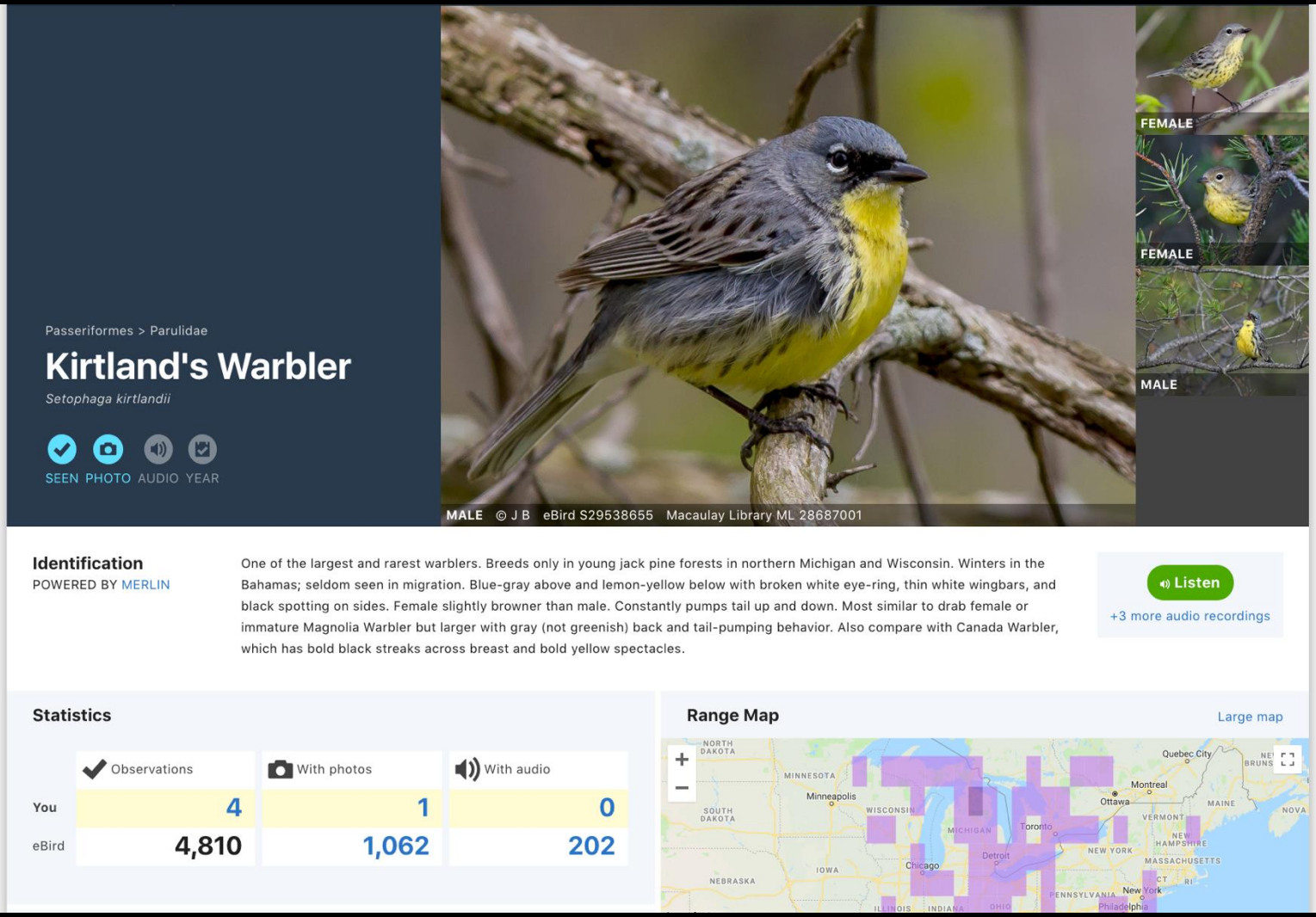
1	**American Crow**	*Corvus brachyrhynchos*	Review

Automatic Merlin Photo ID on upload



“do not count on my list”

Bird Atlas Central?



Thank you

Kay Kavanagh

Niagara, Wisconsin, United States

eBirder since 20 Sep 2005
Oldest checklist: 5 May 1979
Oldest media: 23 Jun 2016

My early birding begin in the 80's, when I spent most of my time in Dane Co. Then I branched out to Iowa & Sauk Co as they were then somewhat under-birded counties. In the early 90's I was inspired to bird in every county when I traveled to every corner ...
Show more

Region: **Wisconsin, US** Change Region

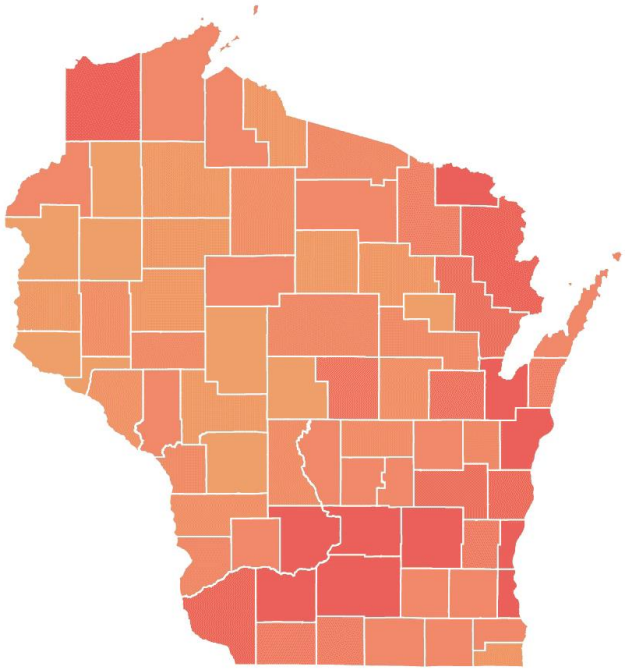
387
Species observed

20,045
Complete checklists
21,050 Total

7
Species w/ photos
8 Observations

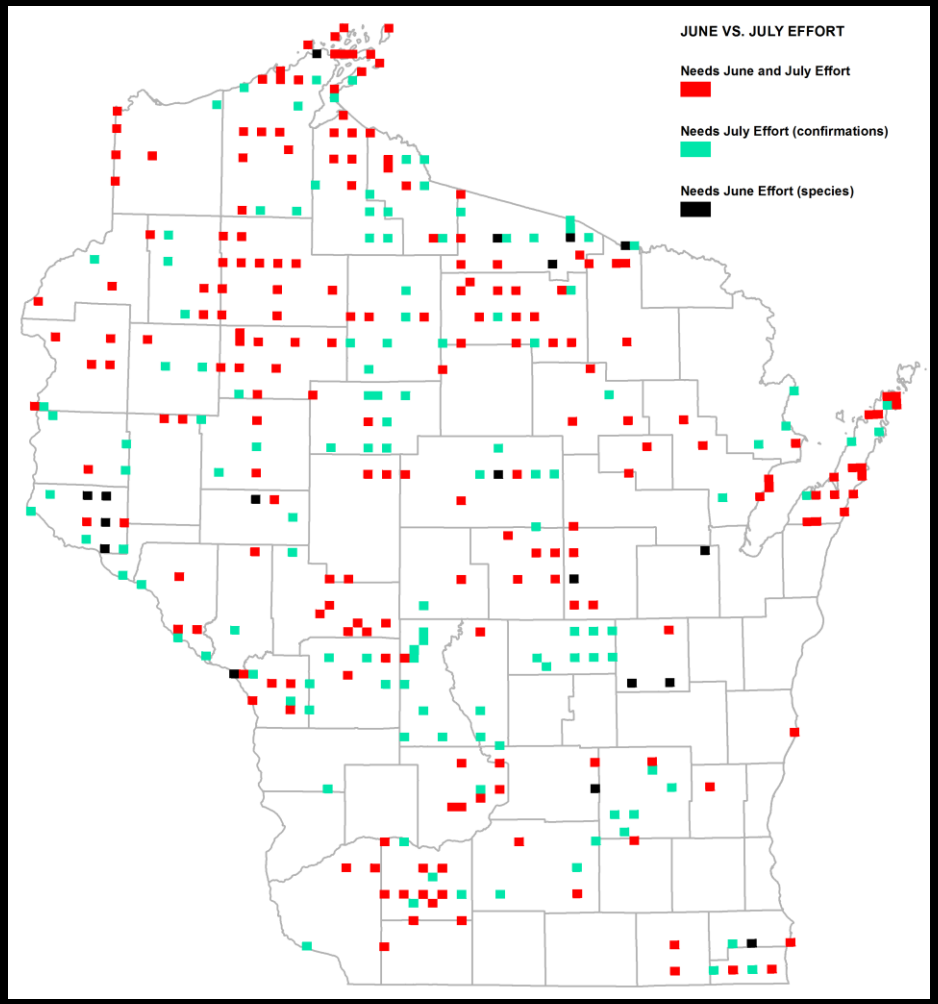
2
Species w/ audio
17 Observations

Zoom out



1 299

Let's make year 5 count



The Cornell Lab of Ornithology

eBird

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