

ELEVATING AUDUBON

America's Most Effective Conservation Network



Audubon's Climate Watch

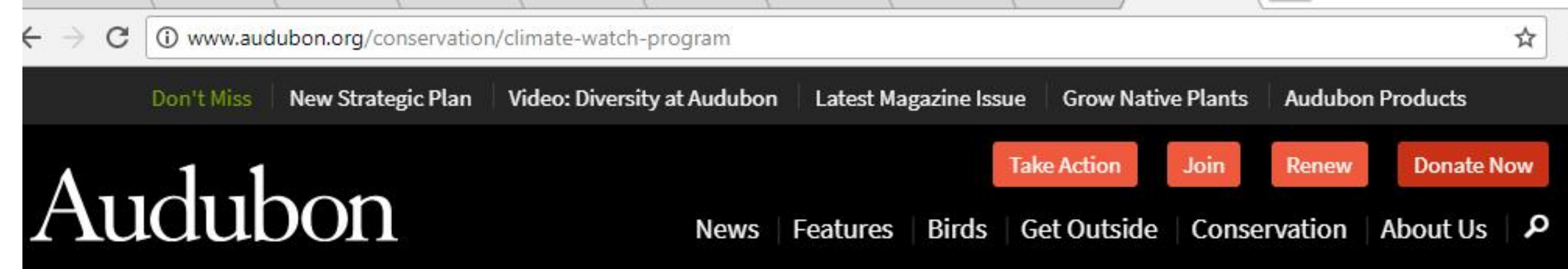
Birds and climate change community science collaboration

Brooke Bateman, PhD - Director of Climate Watch

Climate Watch Program Overview

Climate Watch

Climate change is the biggest threat to birds around the world. Community scientists can now help us find out how birds are responding to climate change as it is happening.



Climate

Climate Watch Program

Climate change is the biggest threat to birds around the world. Learn how you can help by counting climate-threatened species.



Eastern Bluebird. Photo: John Larson/Audubon Photography Awards

Climate Watch

Climate Watch aims to document species' responses to climate change by having volunteers in the field look for birds where Audubon's climate models project they should be in the 2020s.



Climate Watch

- Science-driven survey and protocol
 - Monitoring with purpose
 - Updated 2.0 models
 - Hypothesis testing climate change
 - Improving future projections
- Target Species
 - Good models with strong predictions
 - Wide geographic coverage
 - Easily identified
 - Charismatic
- Fun for participants
 - Community Science
 - Tangible climate change action
 - Birders of all levels

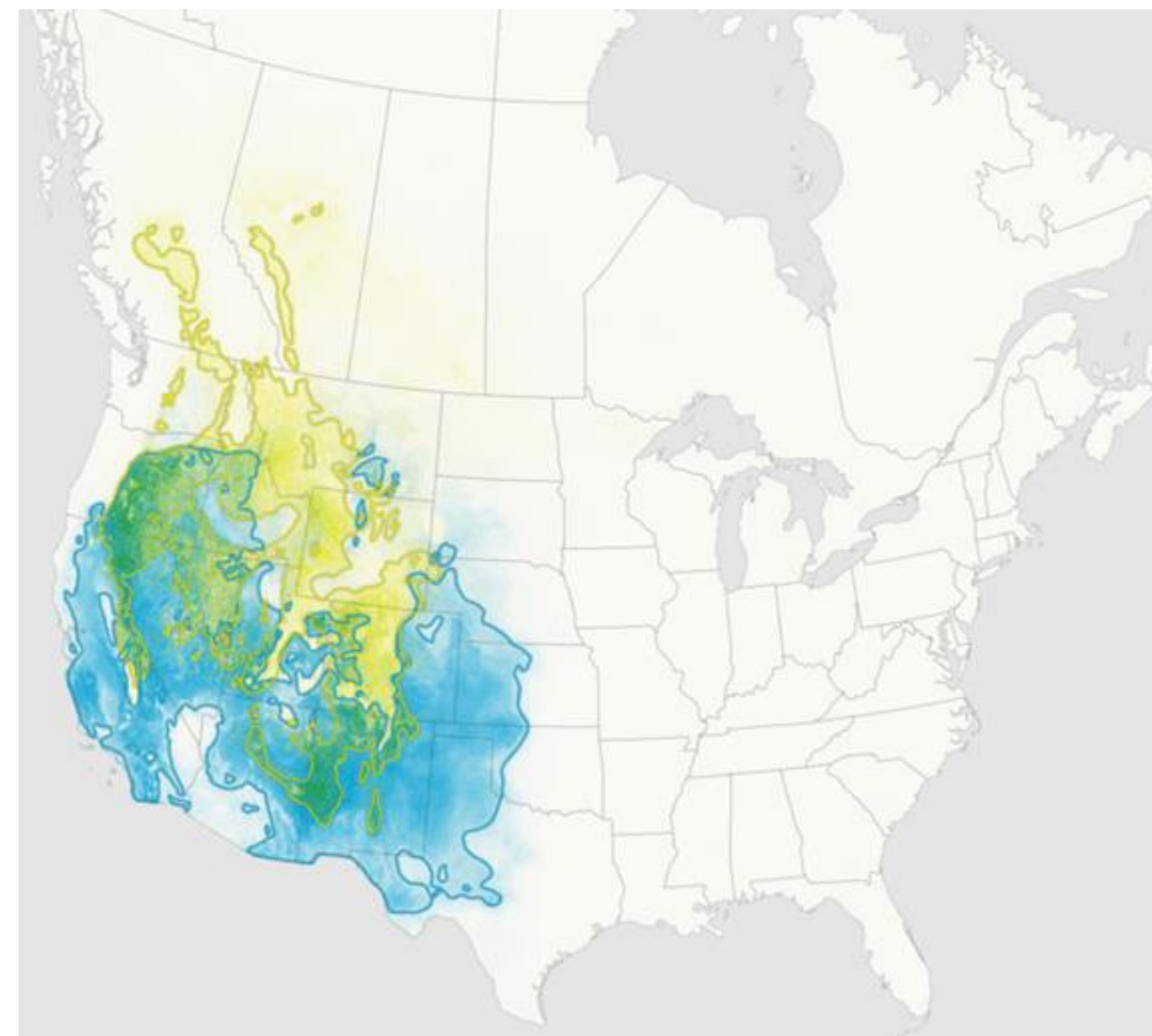


PHOTO: BRANE SMALL



PHOTO: CAMILLA CEREIA

Climate Watch Target Species

TARGET SPECIES



Eastern Bluebird



Mountain Bluebird



Western Bluebird



White-breasted
Nuthatch



Red-breasted
Nuthatch



Brown-headed
Nuthatch

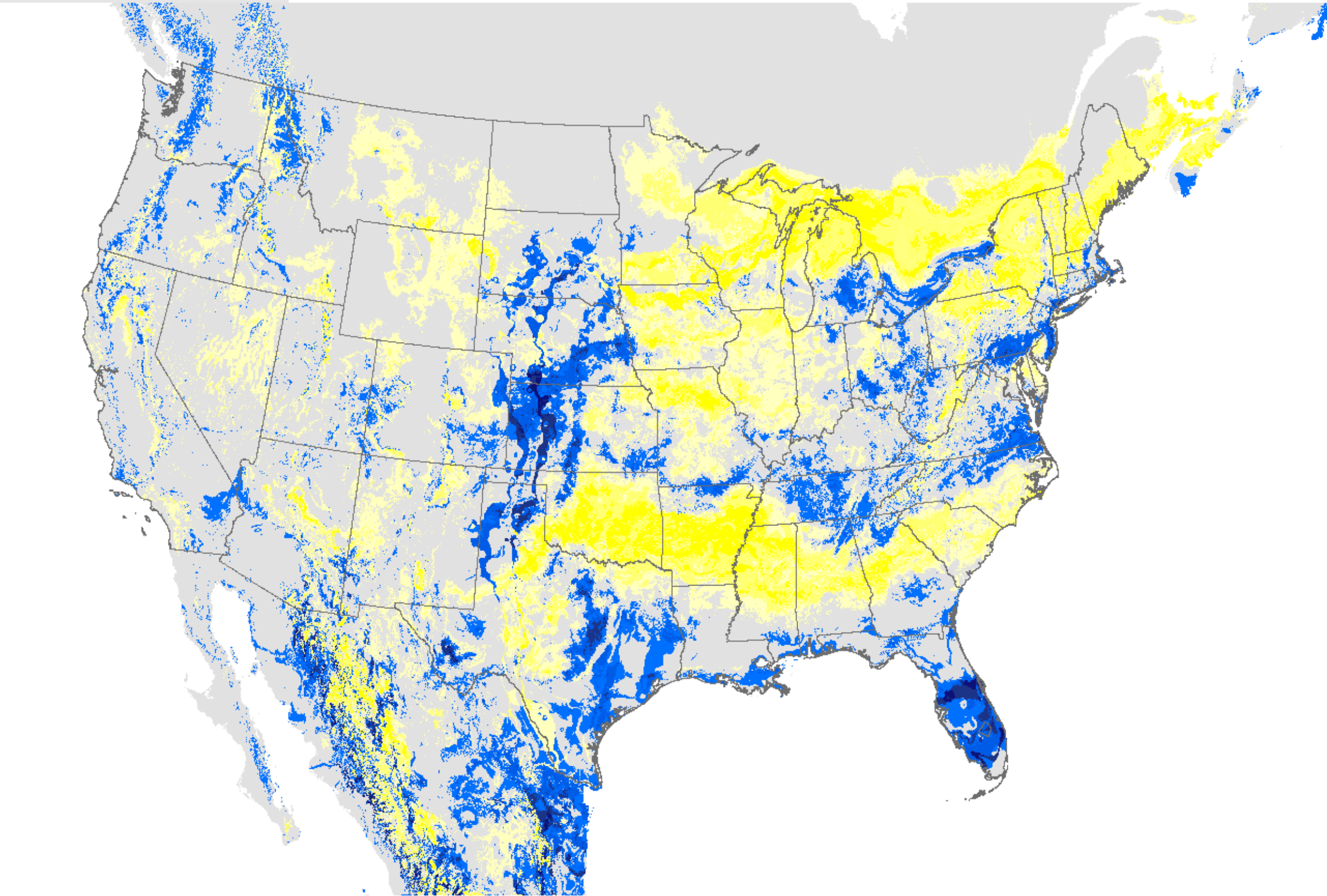
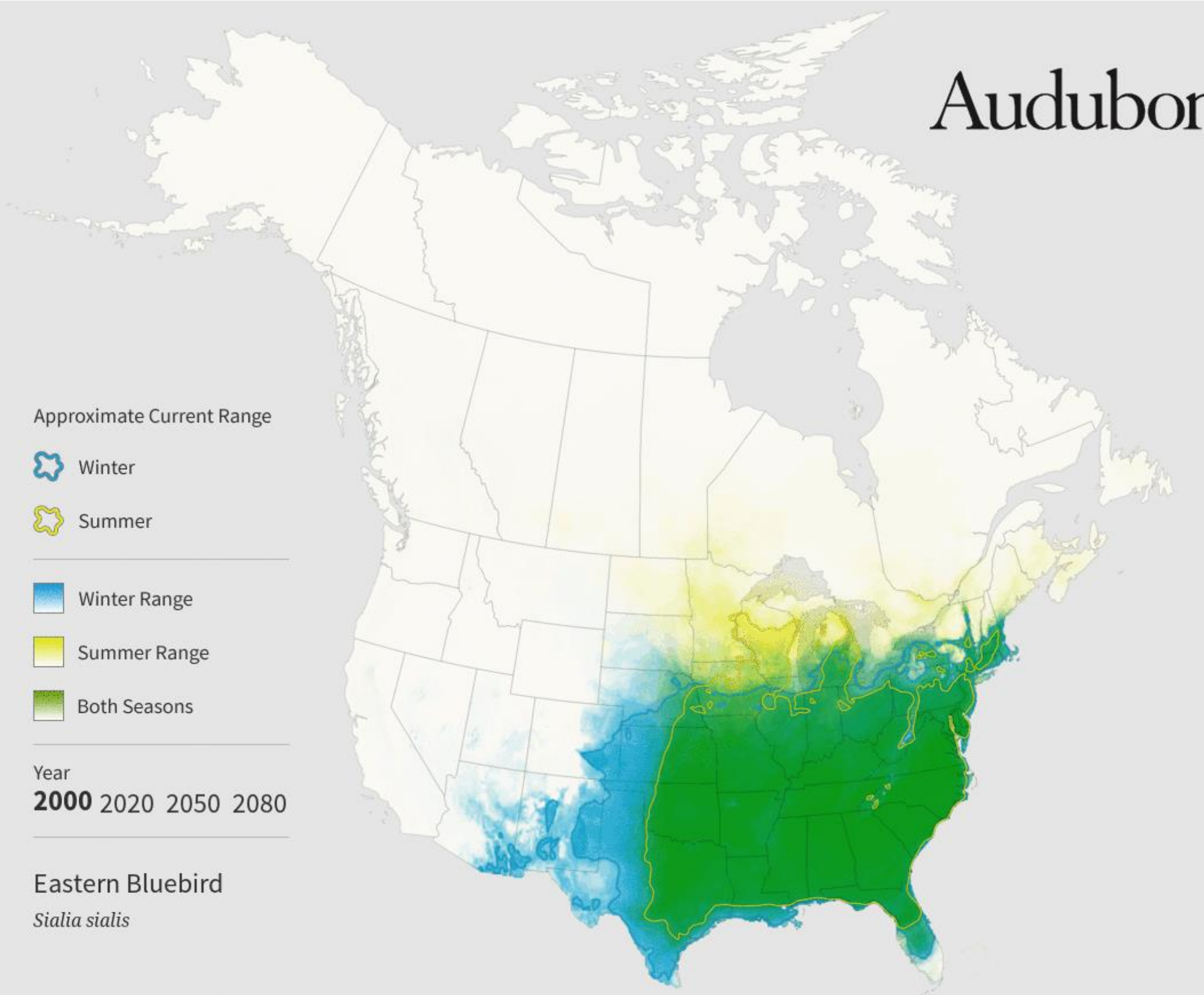


Pygmy Nuthatch

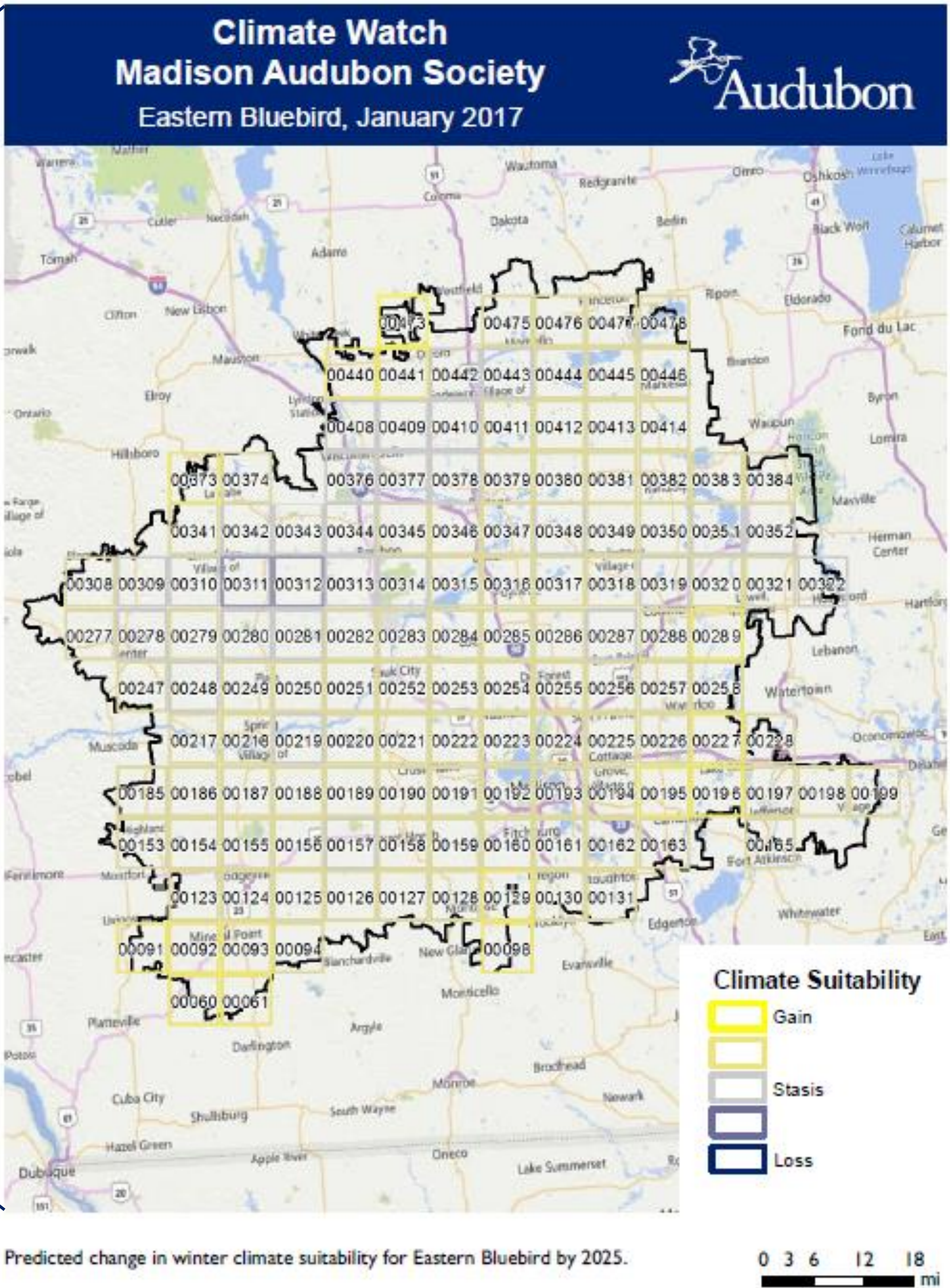
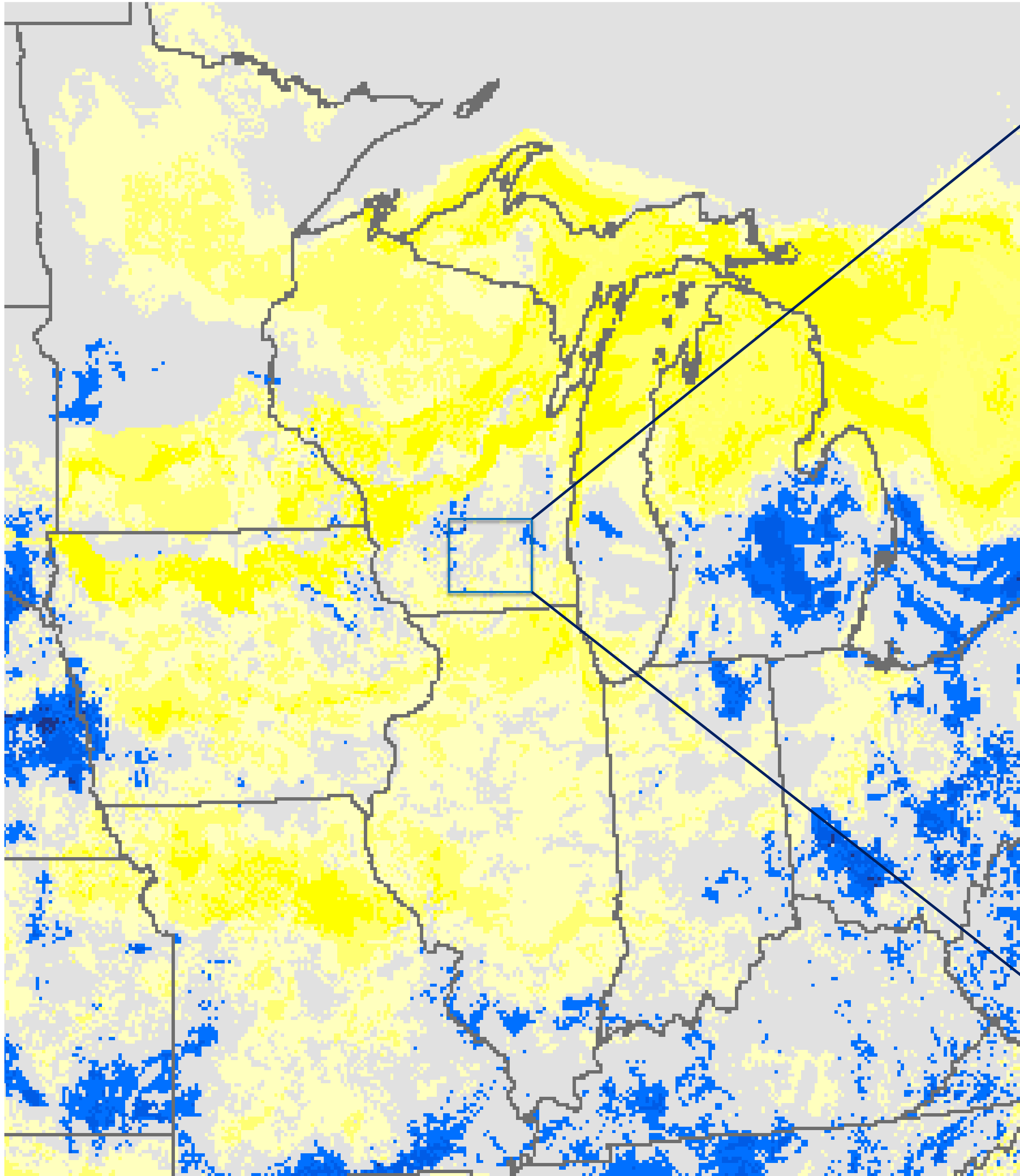
Moving from Models to Maps



Eastern Bluebird



Moving from Models to Maps

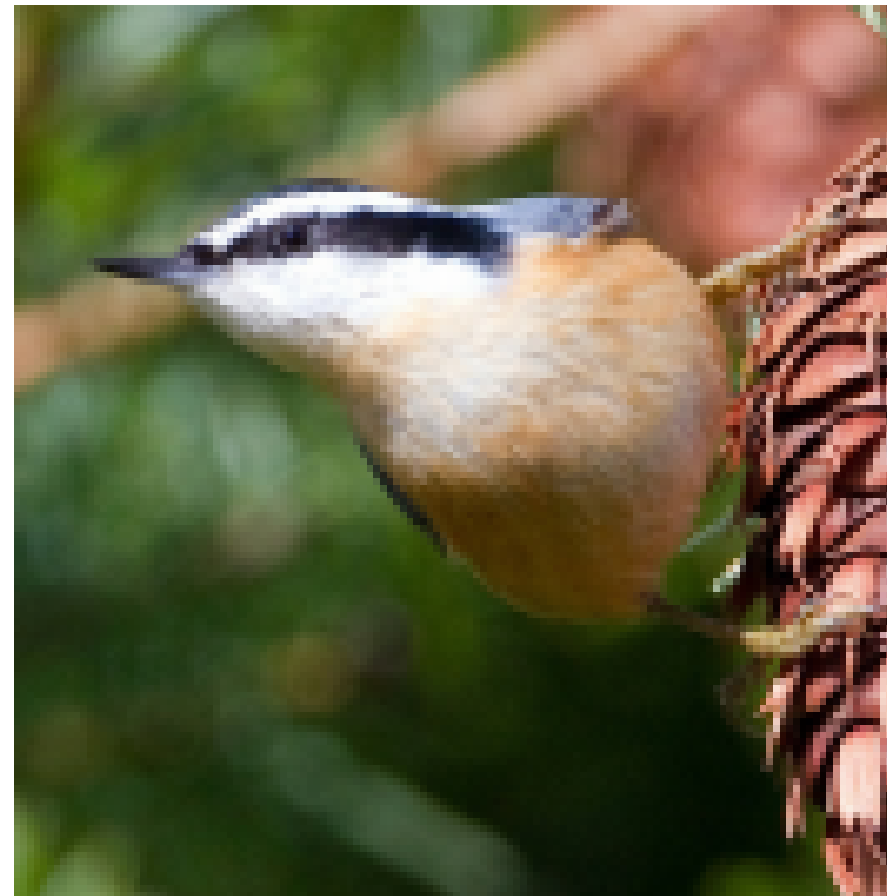


Eastern Bluebird

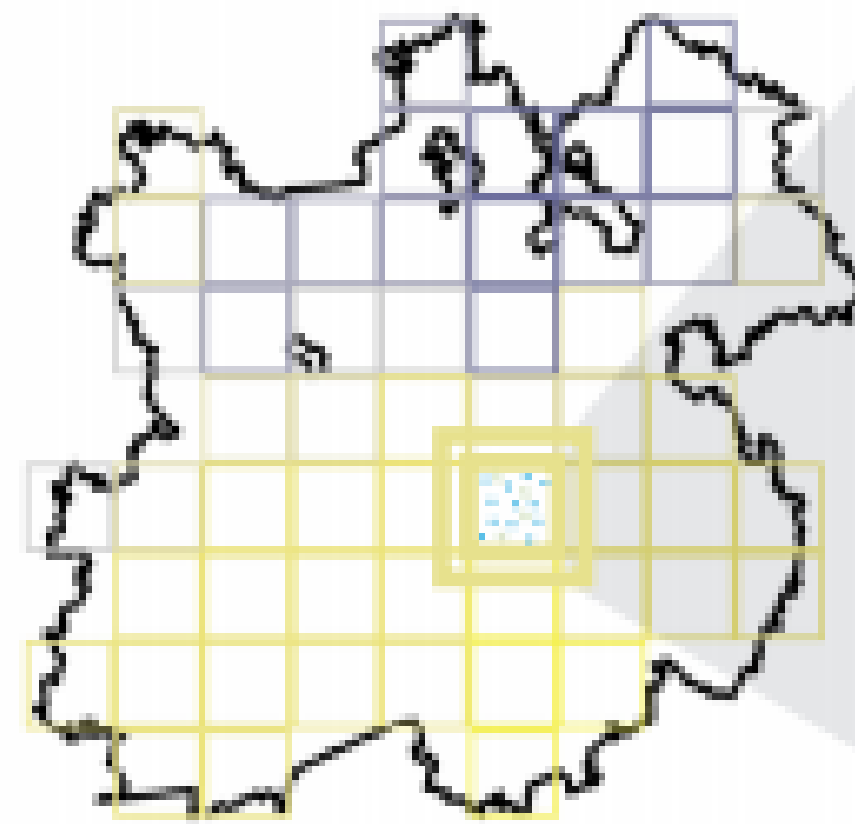
Climate Watch Protocol

1. Select a Target Species
2. Identify 10+ squares to survey per target species (over an entire area)
3. Select 12 survey points within each square (200m apart)
4. Conduct 5-minute point count at each point
 - 1-3 volunteers
 - Surveyed once during survey period
5. Submit data online (eBird) and send to Climate Watch

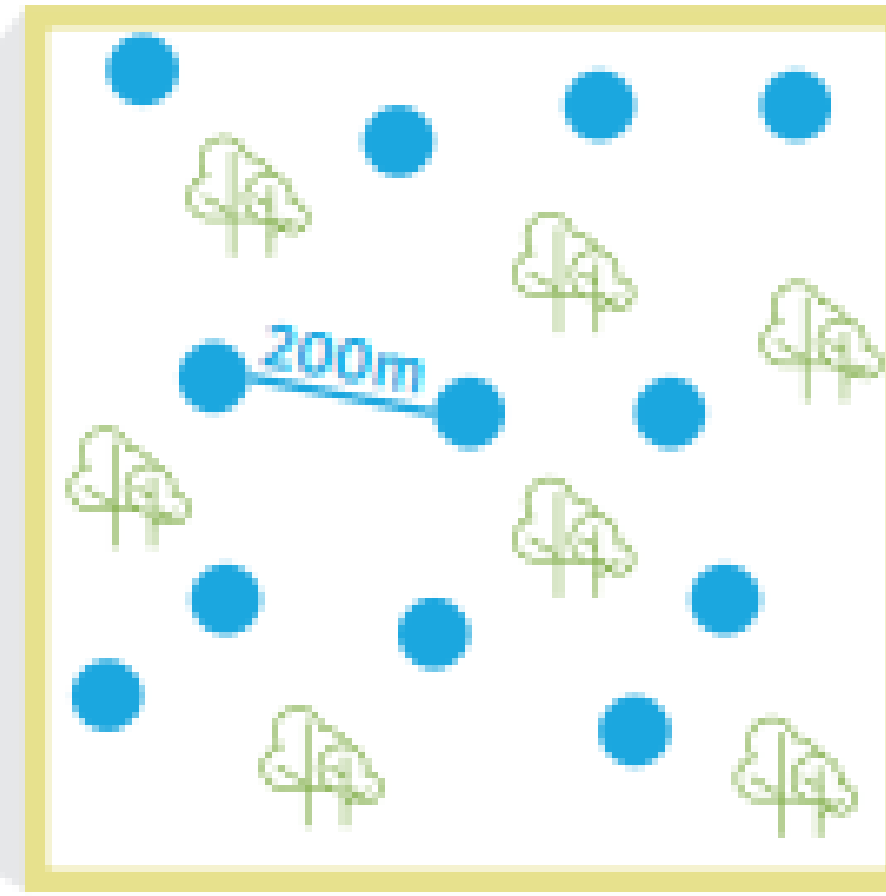
Protocol



STEP ONE




STEP TWO



STEP THREE

Are you submitting a complete checklist of the birds you were able to identify?



Stationary [Change](#)

Number of Observations [+1](#)

Duration (minutes) [Calculate](#)

Checklist Comments

Target species: White-breasted Nuthatch
Nest box within survey area

Species Reported [Add Species](#)

STEP FOUR

[illegible]

STEP FIVE

When is Climate Watch?



Winter

January 15 – February 15

Summer

May 15 – June 15



Climate Watch Resources

Climate Watch Resources

← → ↺ | climate.audubon.org/all-species

Audubon The Climate Report

Find a Bird Near You | All Species | About the Study | Donate

Join Us

Browse All Species

Search for a specific bird here


You Can Help

It's easier than you think to make a difference. Become an Audubon member today to help birds facing climate change.


Join Us

Our model predicts that 314 North American bird species are seriously threatened by climate change by the end of this century. We have separated those 314 species into two groups: climate threatened (may lose over 50% of its current range by 2080) and climate endangered (may lose over 50% of its current range by 2050).


Climate Endangered | Climate Threatened | Show All




Allen's Hummingbird




American Avocet




American Bittern




American Black Duck



American Dipper



American Golden-Plover



American Kestrel


Birds and Climate Change Report
<http://climate.audubon.org/all-species>

← → ↺ | climate.audubon.org/birds/rebnut/red-breasted-nuthatch

Audubon The Climate Report

Find a Bird Near You | All Species | About the Study | Donate

Join Us



Climate Threatened

Red-breasted Nuthatch

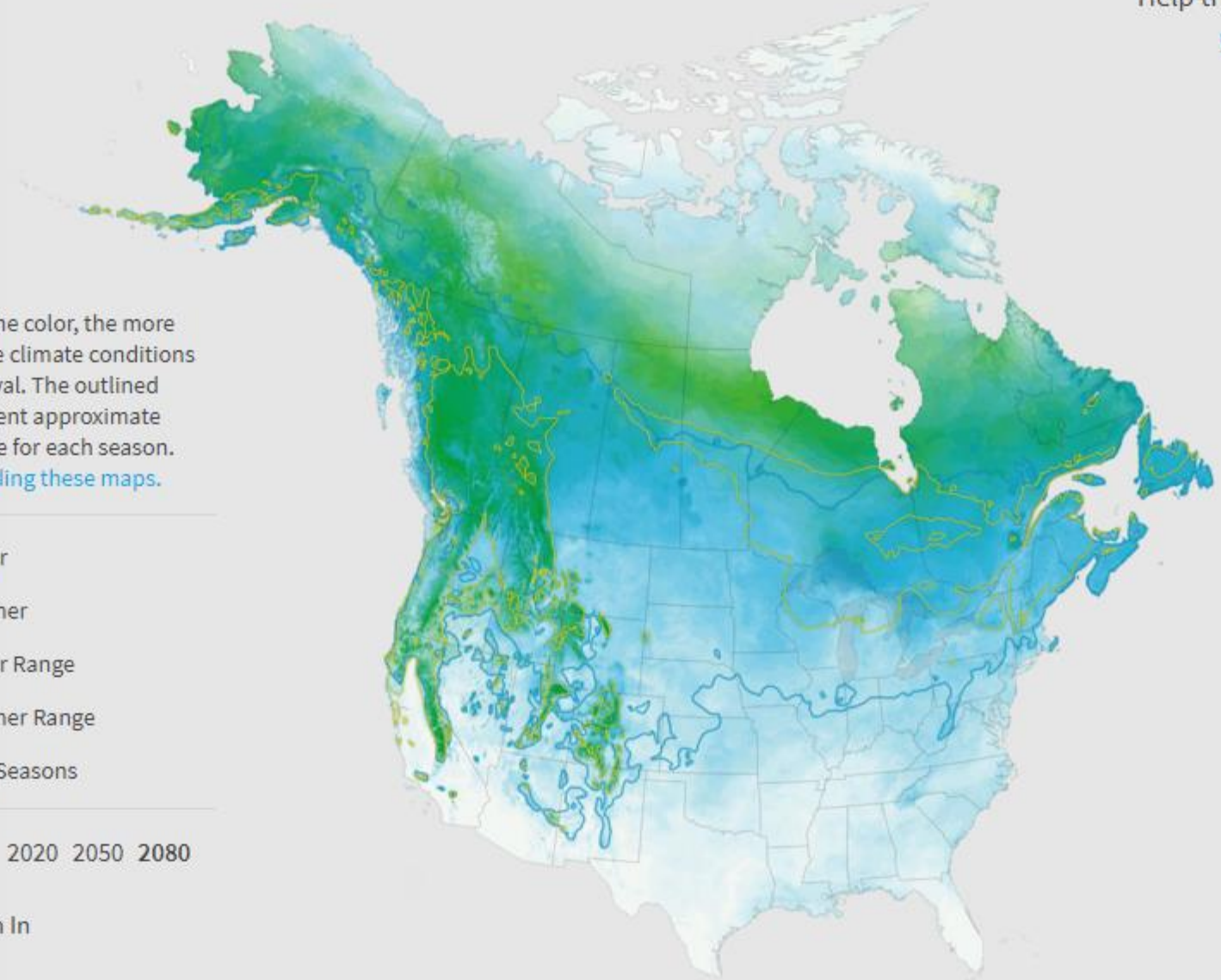
Find More Birds

You Can Help

It's easier than you think to make a difference. Become an Audubon member today to help birds facing climate change.


Join Us


Help this map take flight.





The darker the color, the more favorable the climate conditions are for survival. The outlined areas represent approximate current range for each season.


More on reading these maps.

 Winter


 Summer

 Winter Range


 Summer Range

 Both Seasons

 2000 2020 2050 2080

 Zoom In

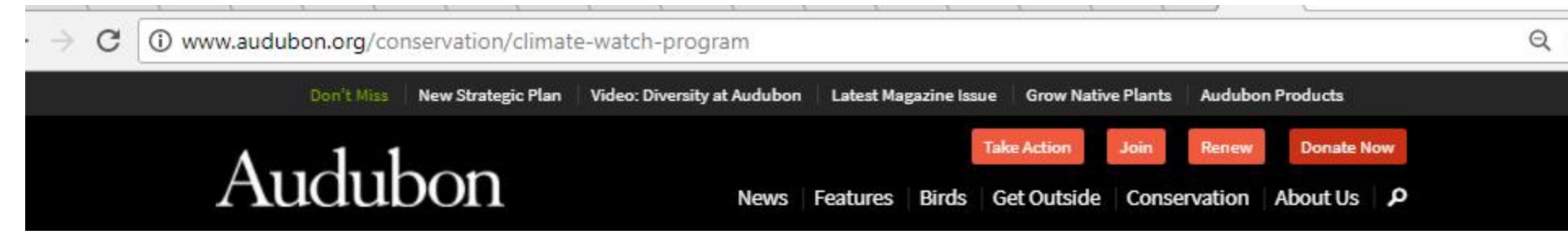
As long as there are conifers, breeding season Red-breasted Nuthatches are contented. They can be found in dry ponderosa pine foothills, in moist boreal bogs, around tree line in the mountains, at sea level, and even in planted Christmas tree plantations. Audubon's climate model shows an overall northward drift of the species' range, with more disruption and range loss in summer than in winter. This nuthatch is a habitat generalist in winter, so summer climate is the chief concern going forward. How and whether the species adapts in the decades ahead will be determined in large part by conifer forest health in a changing climate.



Climate Watch Resources

Climate Watch Website

www.audubon.org/climatewatch



Climate

Climate Watch Program

Climate change is the biggest threat to birds around the world. Learn how you can help by counting climate-threatened species.



Eastern Bluebird. Photo: John Larson/Audubon Photography Awards

Audubon's [Birds and Climate Change Report](#) predicts that over half of North American bird species will lose more than 50 percent of their current climatic range by 2080. To test these predictions, Audubon is running the new citizen and community science project [Climate Watch](#). Climate Watch aims to document species' responses to climate change by having volunteers in the field look for birds where Audubon's climate models project they should be in the 2020s.

The next survey will take place **June 1-15, 2017** and is open to all interested Audubon chapters and centers, in addition to organized groups with an interest in birds. Please email climatewatch@audubon.org if your chapter, center, or local group is interested in participating.

Target Species

The Climate Watch survey will focus on specific species for which our climate models have strong predictions and which have a high detectability in the field. For 2017 we will focus on two groups of species: **bluebirds** and **nuthatches**. Specifically, Climate Watch participants are asked to survey for Eastern, Western, and Mountain bluebirds and/or White-breasted, Red-breasted, Brown-headed, and Pygmy nuthatches.

Climate Watch Resources

Climate Watch Website
www.audubon.org/climatewatch




Climate Watch Protocol Overview

Goal
Climate Watch documents birds’ responses to climate change by having volunteers in the field look for birds where Audubon’s climate models project they should be in the 2020s.

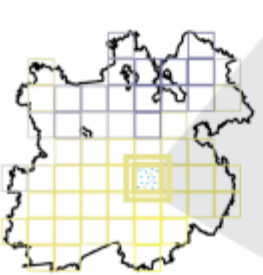
Time Period
Climate Watch occurs over two 15-day periods each year, in the winter (January 15-30) and in the breeding season (June 1-15).

Protocol



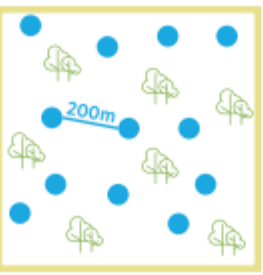
STEP ONE

Work with a local coordinator to select a Climate Watch target species to survey: Eastern, Western, and Mountain bluebirds and/or White-breasted, Red-breasted, Brown-headed, and Pygmy nuthatches



STEP TWO

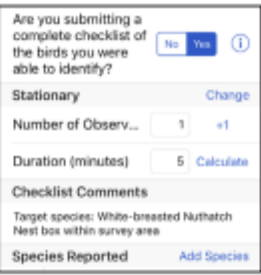
Work with a local coordinator to select one (or more) 10 x 10 km square from the Climate Watch maps to survey



STEP THREE

Identify 12 points that represent the best accessible habitat for the target species within a given square


Points should be at least 200 meters apart to avoid double-counting the same areas



STEP FOUR

Conduct 5-minute stationary point counts at each of the 12 points

Record observations with eBird, with each point count as an individual checklist



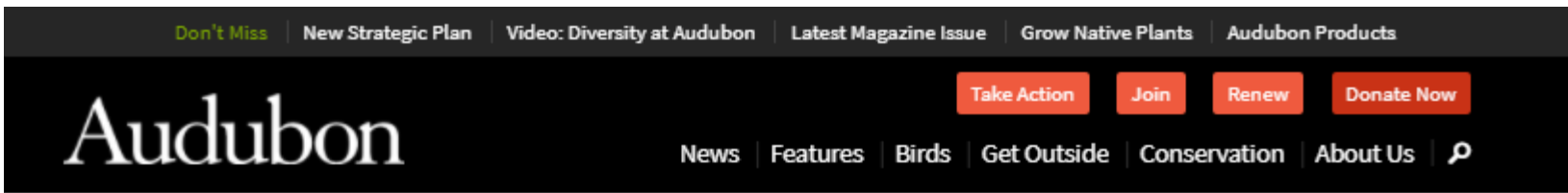
STEP FIVE

Email your 12 eBird checklist URLs to climatchwatch@audubon.org

FOR EACH CHECKLIST, PLEASE RECORD:		NOTES:	
<ul style="list-style-type: none">Start time and duration (surveys should be exactly 5 minutes)Number of observers (1 or 2)Latitude and longitude	<ul style="list-style-type: none">Number of each species (target species and other birds you identify) that you see or hear within 100 meters of your location	<ul style="list-style-type: none">In the comments, write the target species you were surveying for (bluebirds or nuthatches)	<ul style="list-style-type: none">Submit your data whether or not you saw any target species at a given point.All point counts should be conducted as stationary counts for exactly 5 minutes.Be sure to answer "yes" to the question "Are you submitting a complete checklist of the birds you were able to identify?"Make note of any nest boxes or feeders within your survey areas in the checklist comments.

For more in-depth instructions, please refer to our [Climate Watch Manual](#).
Brooke Bateman, Director of Climate Watch, bbateman@audubon.org, 608-609-5743
Zach Slavin, Program Manager, zslavin@audubon.org, 202-600-7962

audubon.org/climatewatch



Climate Watch FAQ's

Frequently asked questions about Audubon's Climate Watch program

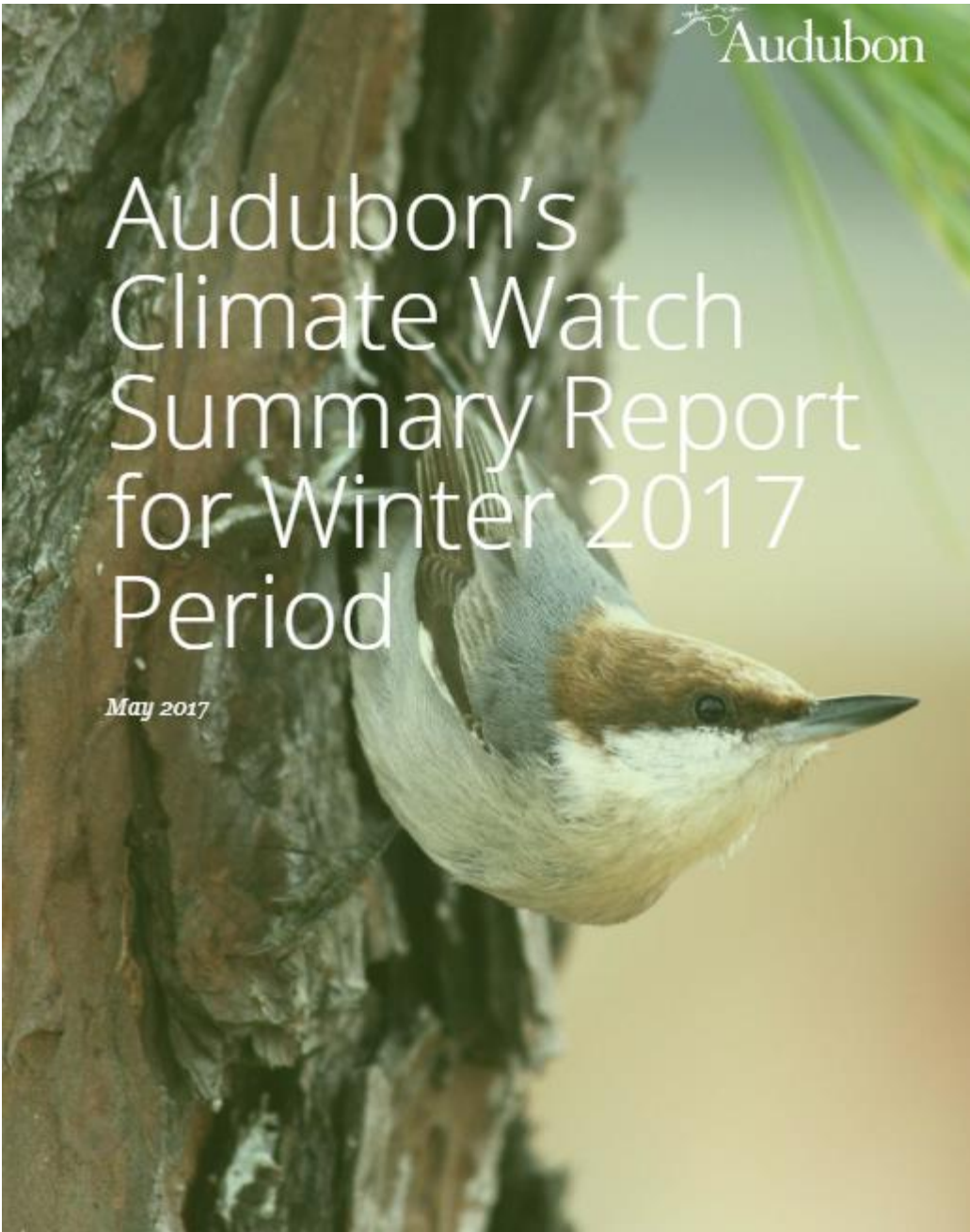
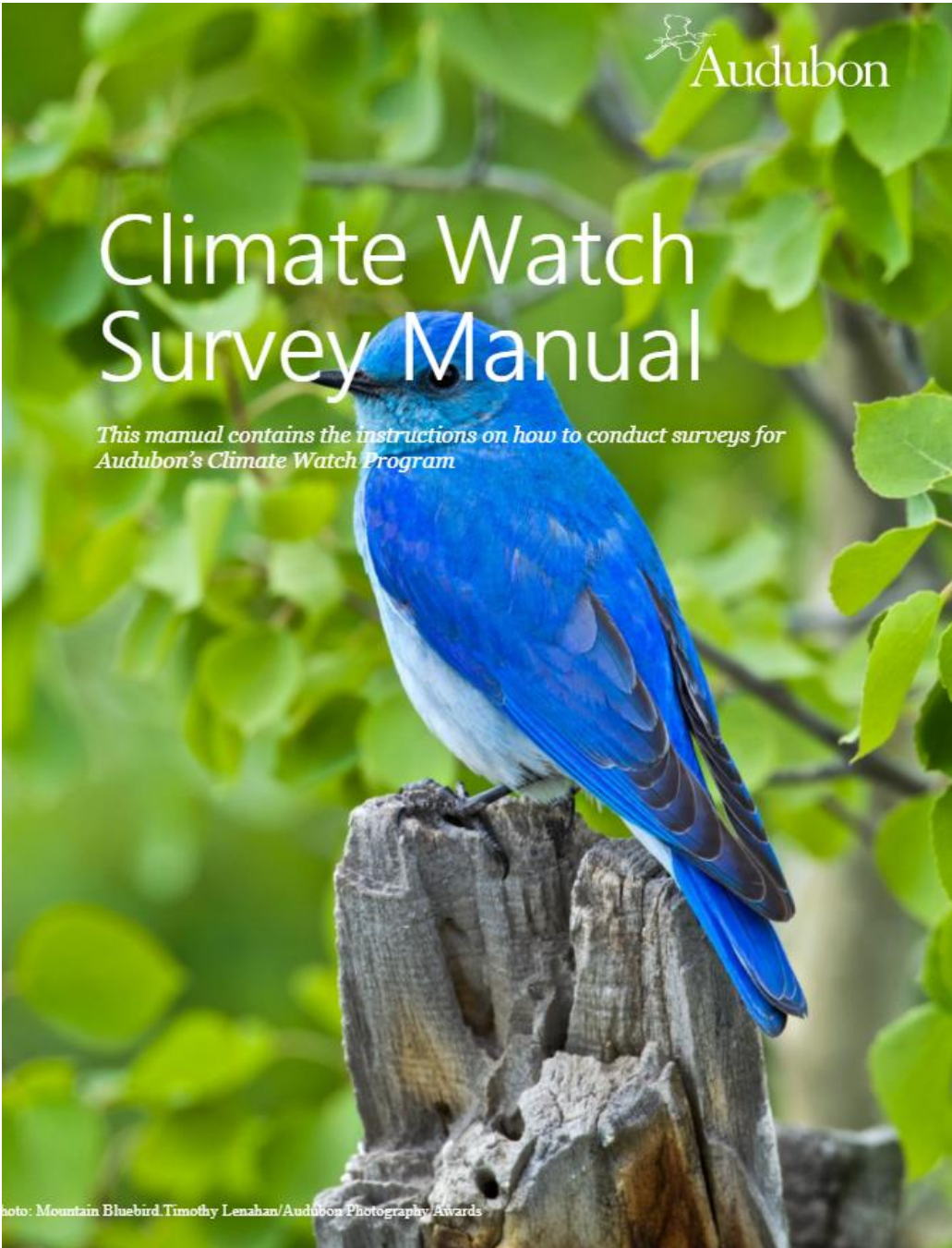
General
[What does the Audubon Birds and Climate Report say about the impact of climate change on birds?](#)
[How does Climate Watch benefit birds?](#)
[Why does Climate Watch take place in January and June?](#)

Selecting Squares
[Why are the squares where they are and can they be moved?](#)
[What do the predictions of gain, loss, and stasis mean for the target species in those squares?](#)
[What factors should I consider when selecting squares to survey?](#)
[Should I survey the same squares across different seasons and years of Climate Watch?](#)
[Should I focus on covering the same areas where Christmas Bird Counts \(CBC\) or Breeding Bird Surveys \(BBS\) were conducted or avoid those areas?](#)

Selecting Survey Points
[What factors should I consider when selecting survey points?](#)
[How should I identify habitat for the target species?](#)
[Should survey points be distributed evenly throughout the square?](#)
[Should I survey the same points across different seasons and years of Climate Watch?](#)
[When and how should I move survey points from previous seasons?](#)
[How important is it that each survey area be completely within the boundaries of the square?](#)

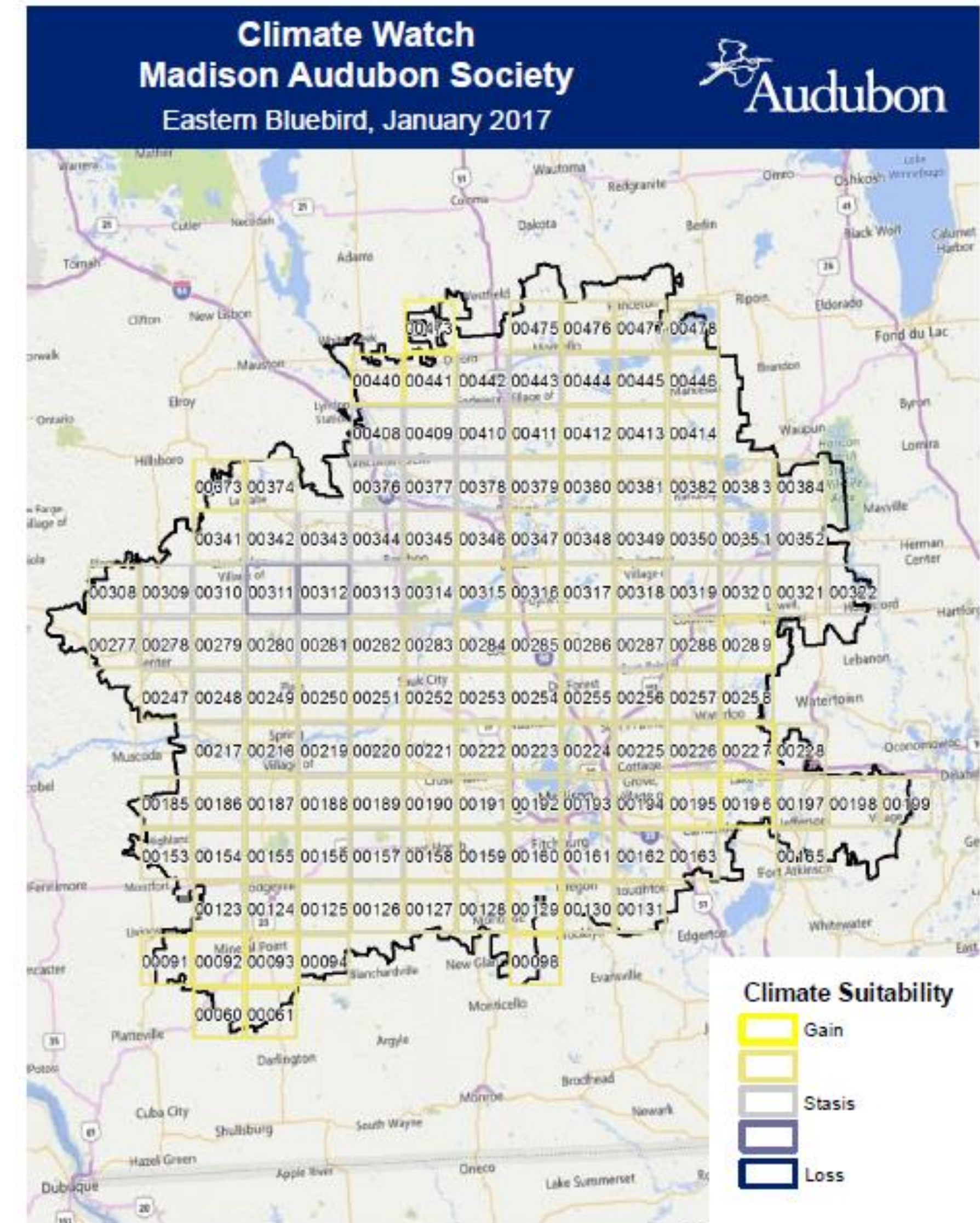
Conducting Surveys
[Should I conduct surveys in poor weather?](#)
[How many people should participate in conducting a Climate Watch survey?](#)
[Why count five minutes?](#)
[Can I bird for longer than five minutes?](#)
[Is it necessary to wait after arriving at a survey location before starting the five-minute survey?](#)
[Over what area should I count birds?](#)
[Can I survey in areas with bluebird nest boxes?](#)
[Can we use bird call playback or other sound-based attractants in our Climate Watch survey?](#)
[How long will it take to complete surveying all 12 points within a square?](#)
[How do I capture location data?](#)
[The Climate Watch period is just after the Christmas Bird Count, can I run Climate Watch surveys during the CBC?](#)

Entering Data
[If I do not see any target species on my survey should I still submit my data?](#)
[What data do I need to submit for each survey?](#)
[What does the question “are you reporting all of the species you were able to identify” mean and why should I always answer “yes” for Climate Watch surveys?](#)



Climate Watch Resources

Mapping Printable Maps

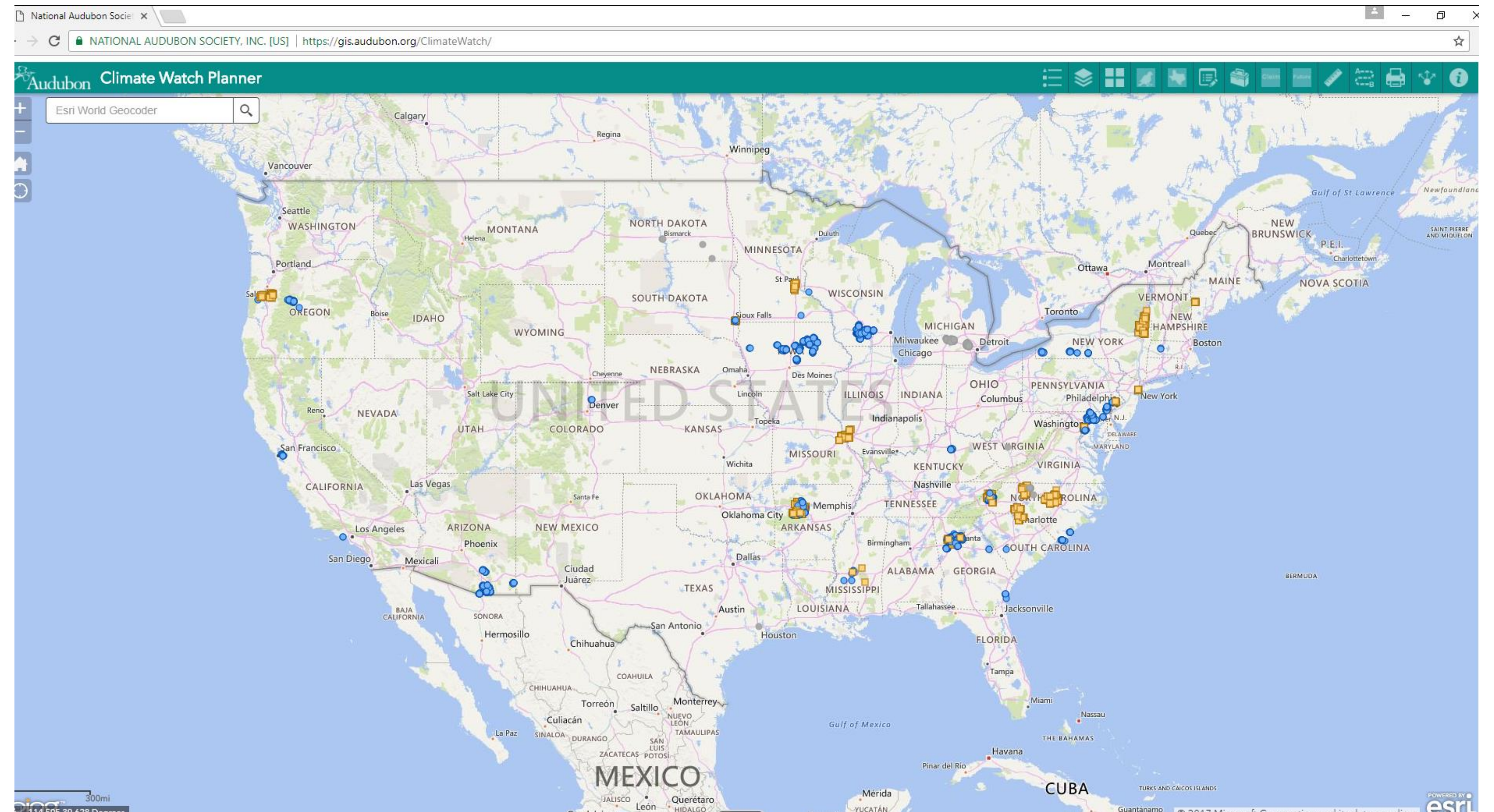


Predicted change in winter climate suitability for Eastern Bluebird by 2025.

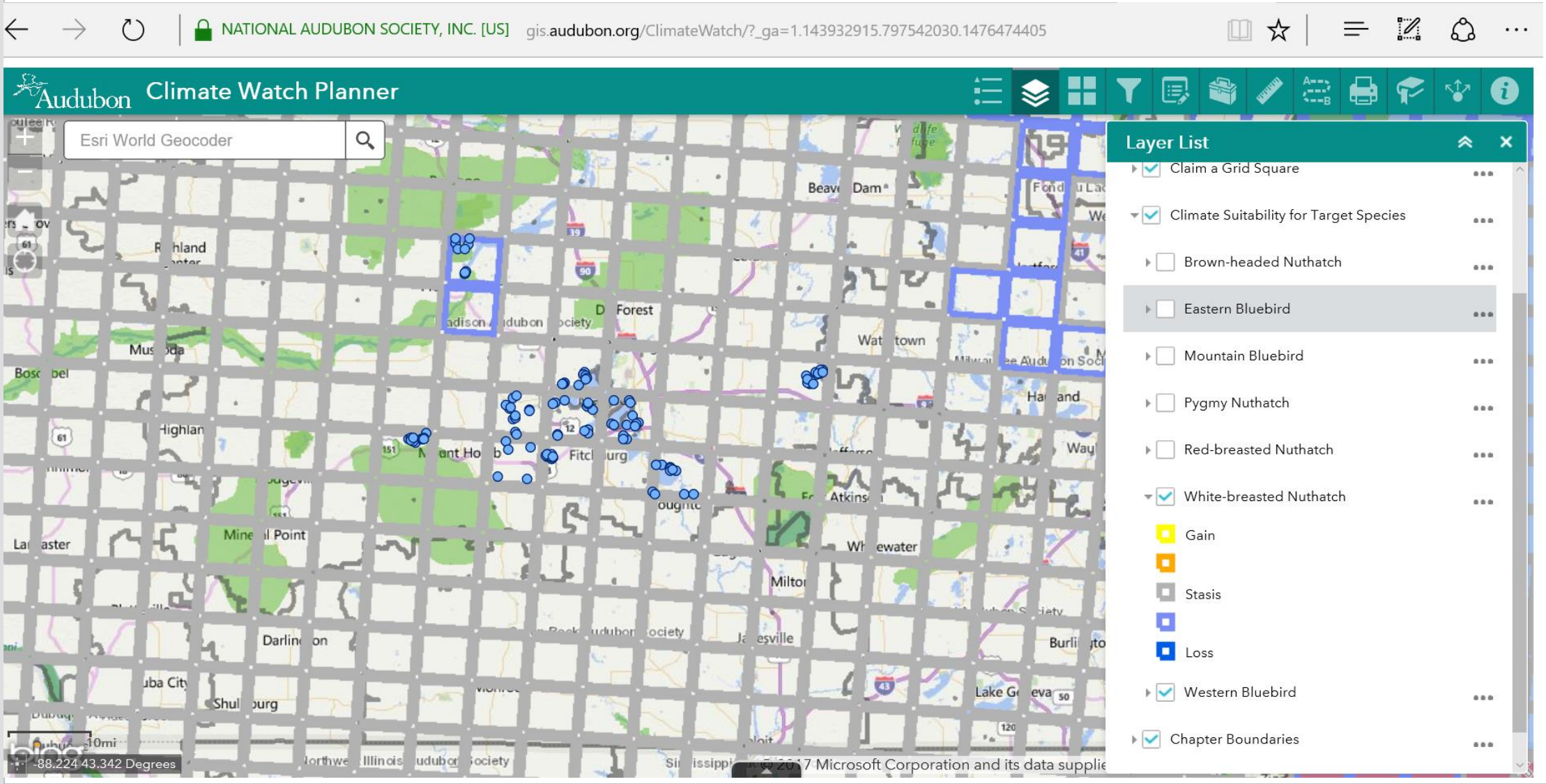
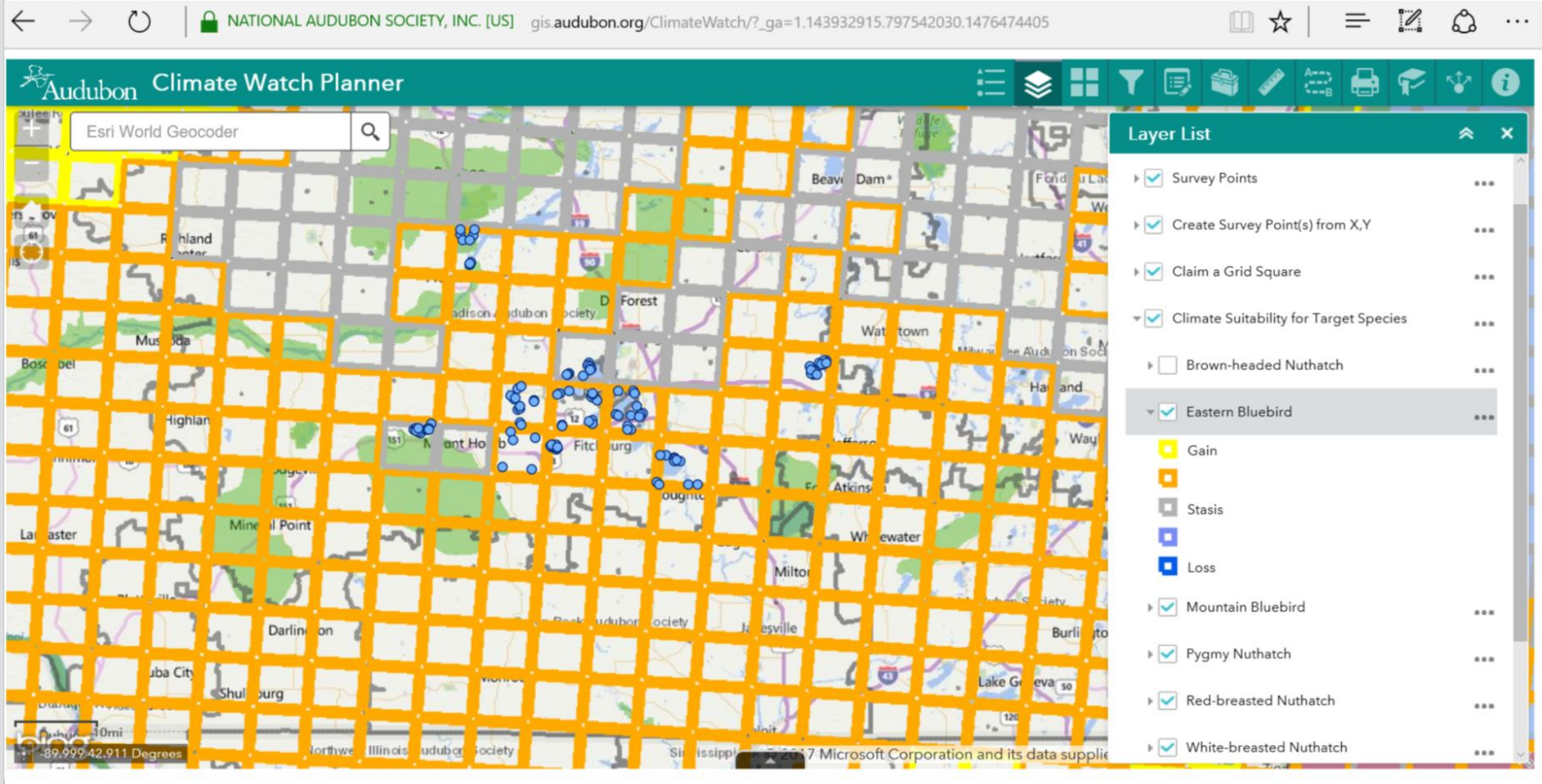
Climate Watch Resources

Mapping Resources-ESRI Climate Watch Planner Tool

<https://gis.audubon.org/ClimateWatch/>

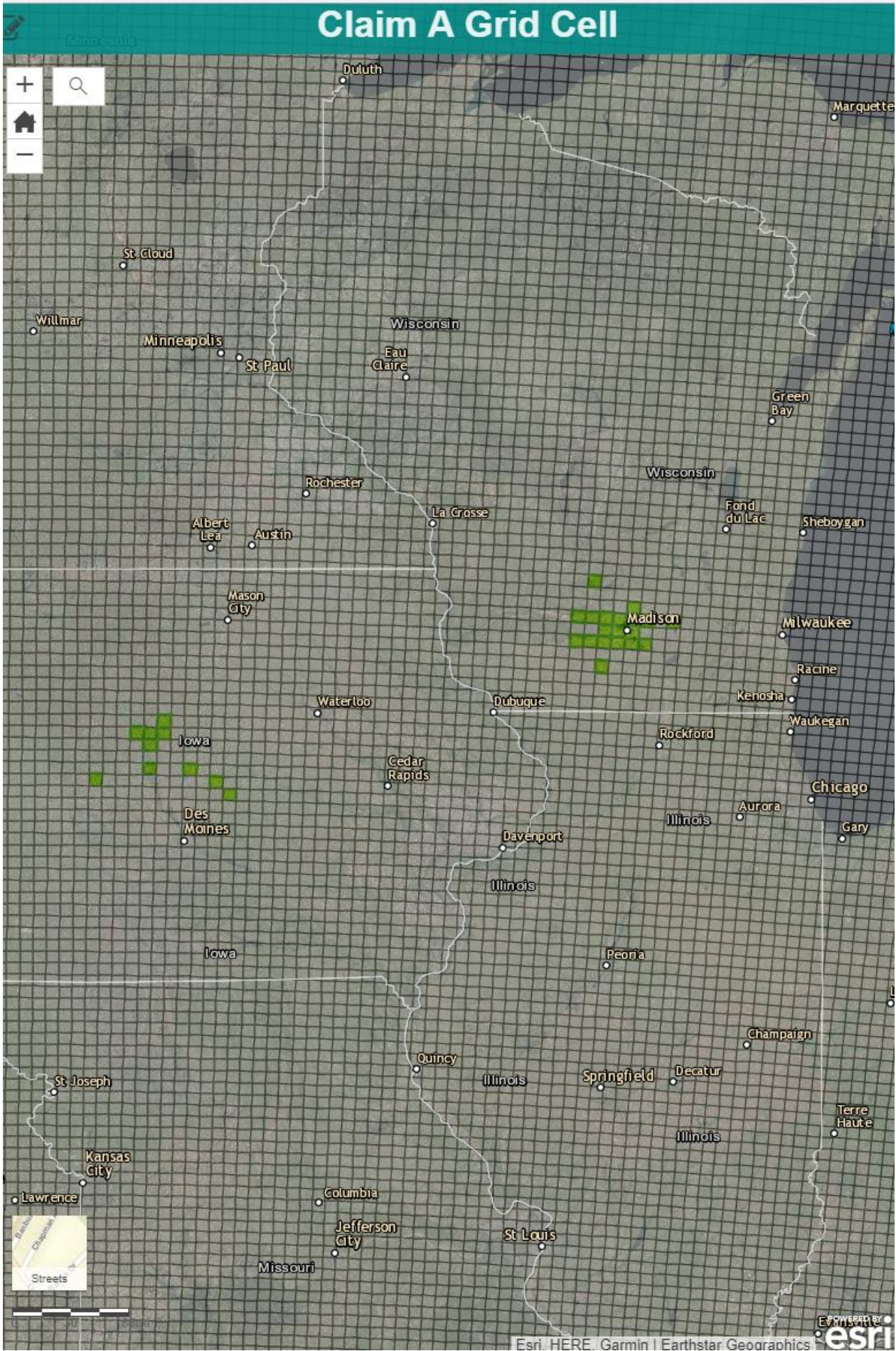
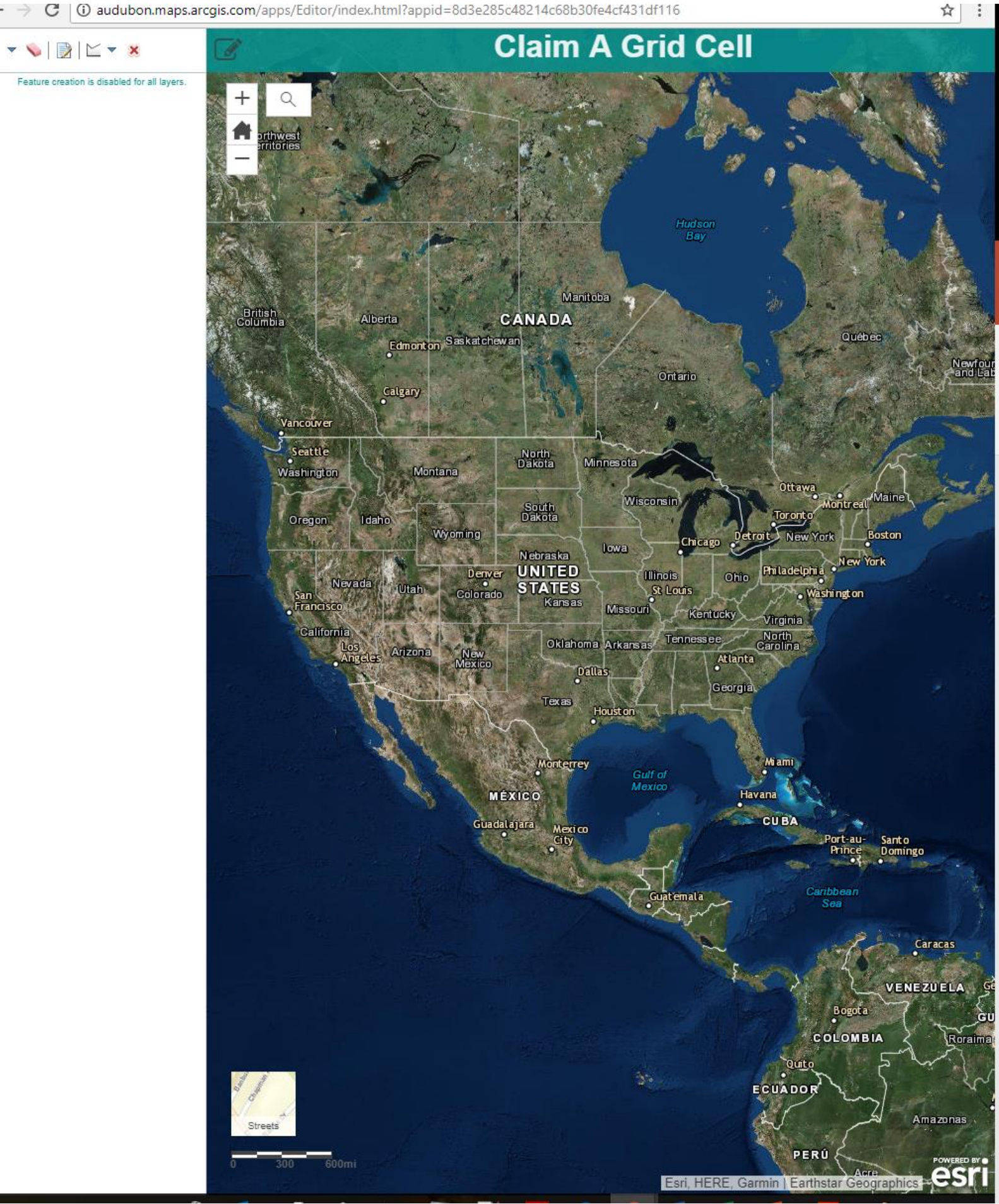


Climate Watch Resources



Climate Watch Resources

ESRI Climate Watch Claim a Grid Cell



Climate Watch Roles and Engagement

What is the Coordinators Role?

- Local knowledge
- Recruitment
- Pass on science information
- Coordinate efforts and data submission
- Point of contact with the national Climate Watch team
- Provide feedback



What is a participants role?

- Identify the target species (or the desire to learn!)
- Available to conduct point counts for at least one day during count period
- Communicate with the chapter coordinator to plan surveys
- Submit data



Recruiting Volunteers

- Participants in other citizen science programs
- Facebook and other social media channels
- Master naturalist programs
- Local birding groups, garden clubs, land trusts
- Website sign-up portals



Recruiting Volunteers

Climate Watch is open to birders of all levels!

- Partner inexperienced and experienced birders
- Partner inexperienced eBirders with more tech savvy
- Coordinator can help select survey points
- Study target species id marks and calls prior to survey



Climate Watch Program Preliminary Results

Climate Watch Results



2016

- Focused on 3 species of bluebird
- 12 groups participating
- 200+ participants
- 2,000 surveys

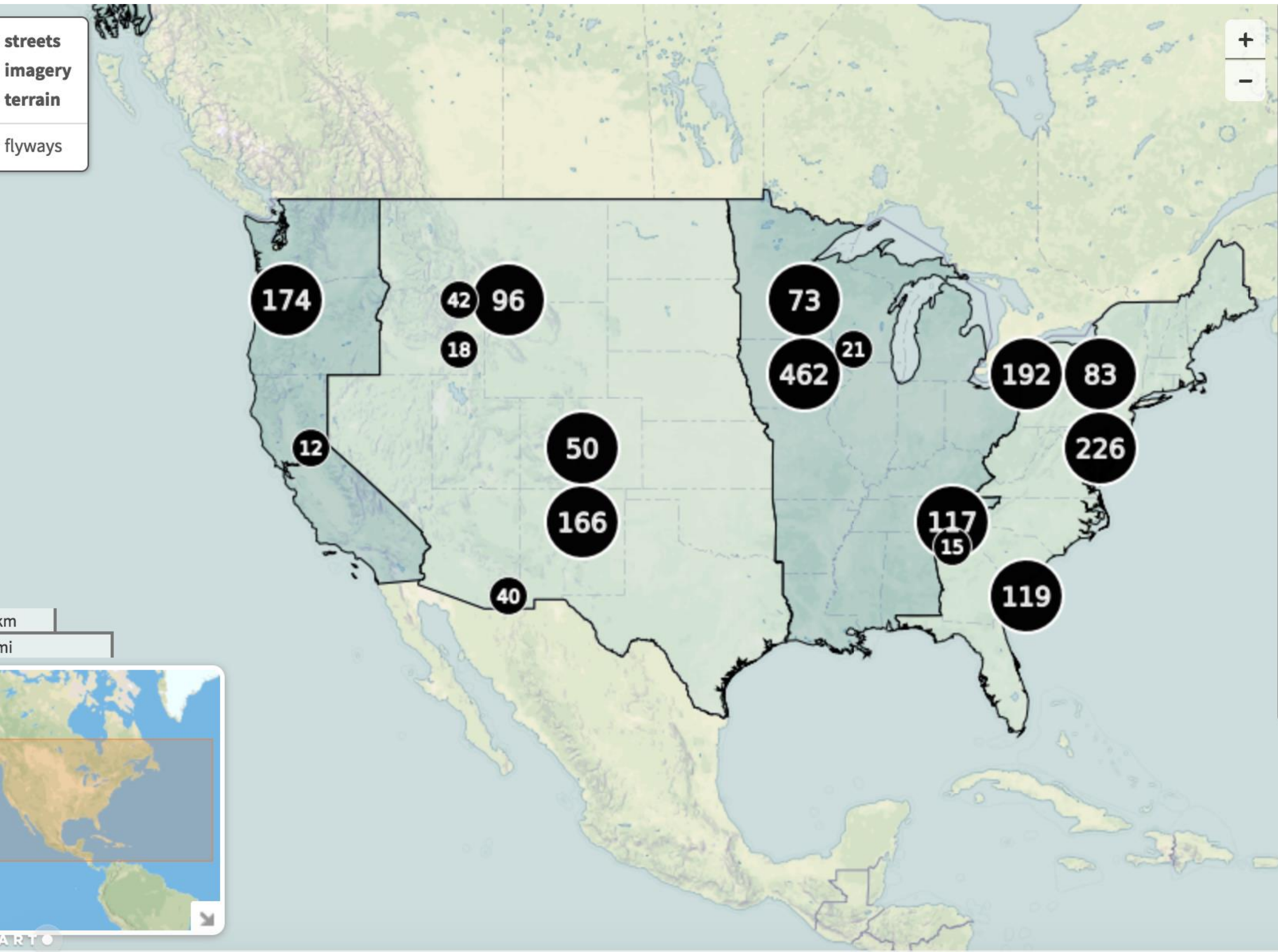


2017

- Addition of 4 species of nuthatch
- 39 groups participating
- 600+ participants
- 6,700 surveys



Climate Watch Results



CLIMATE

REPORTS

MAP

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MAP LEGEND


HOW TO GUIDE

Bluebird Sightings


JS chart by amCharts



301
Western



363
Mountain



436
Eastern

of sightings in map window

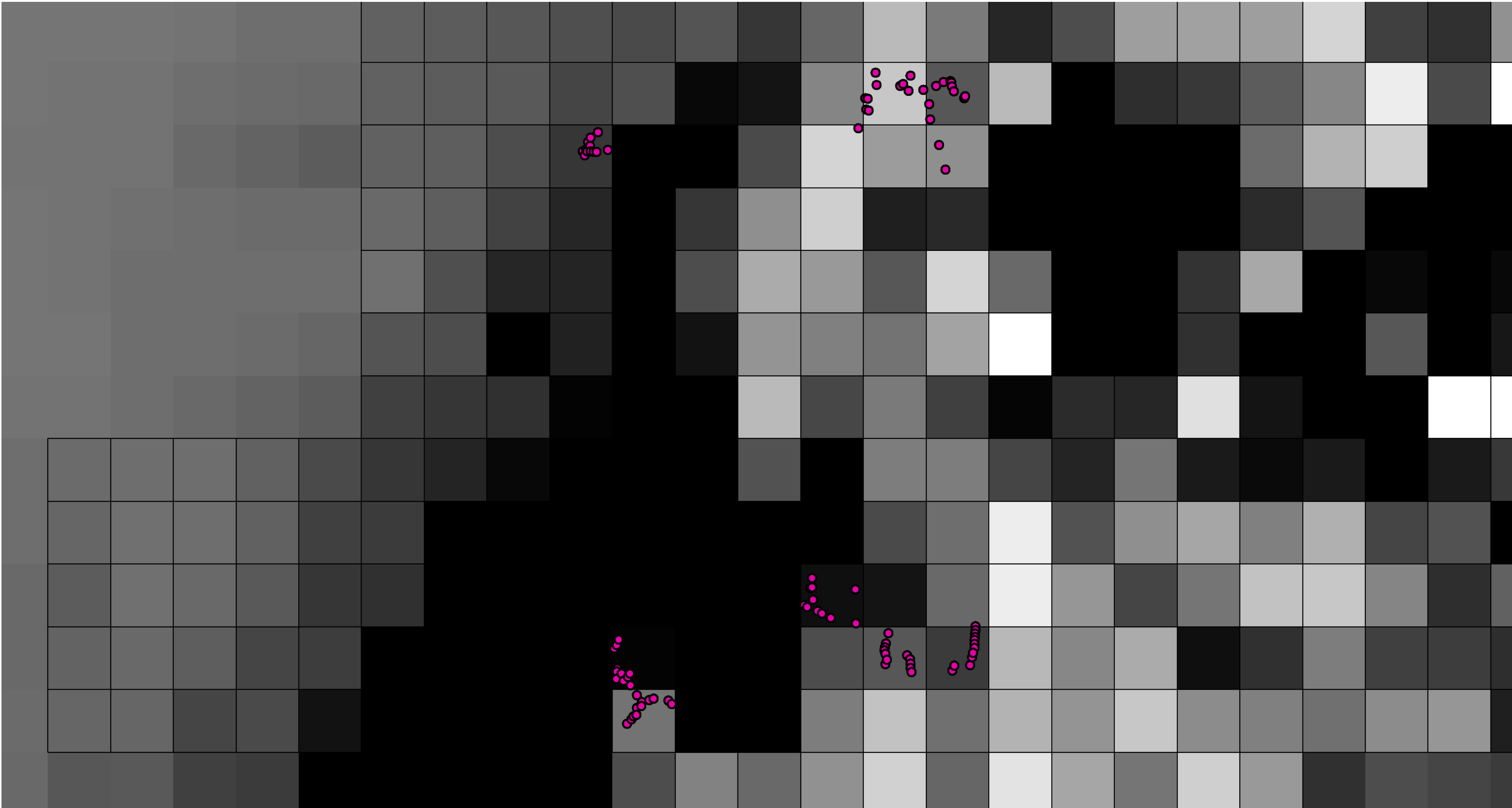
Nuthatch Sightings

Climate Watch Results

Occupancy Estimation Winter 2017



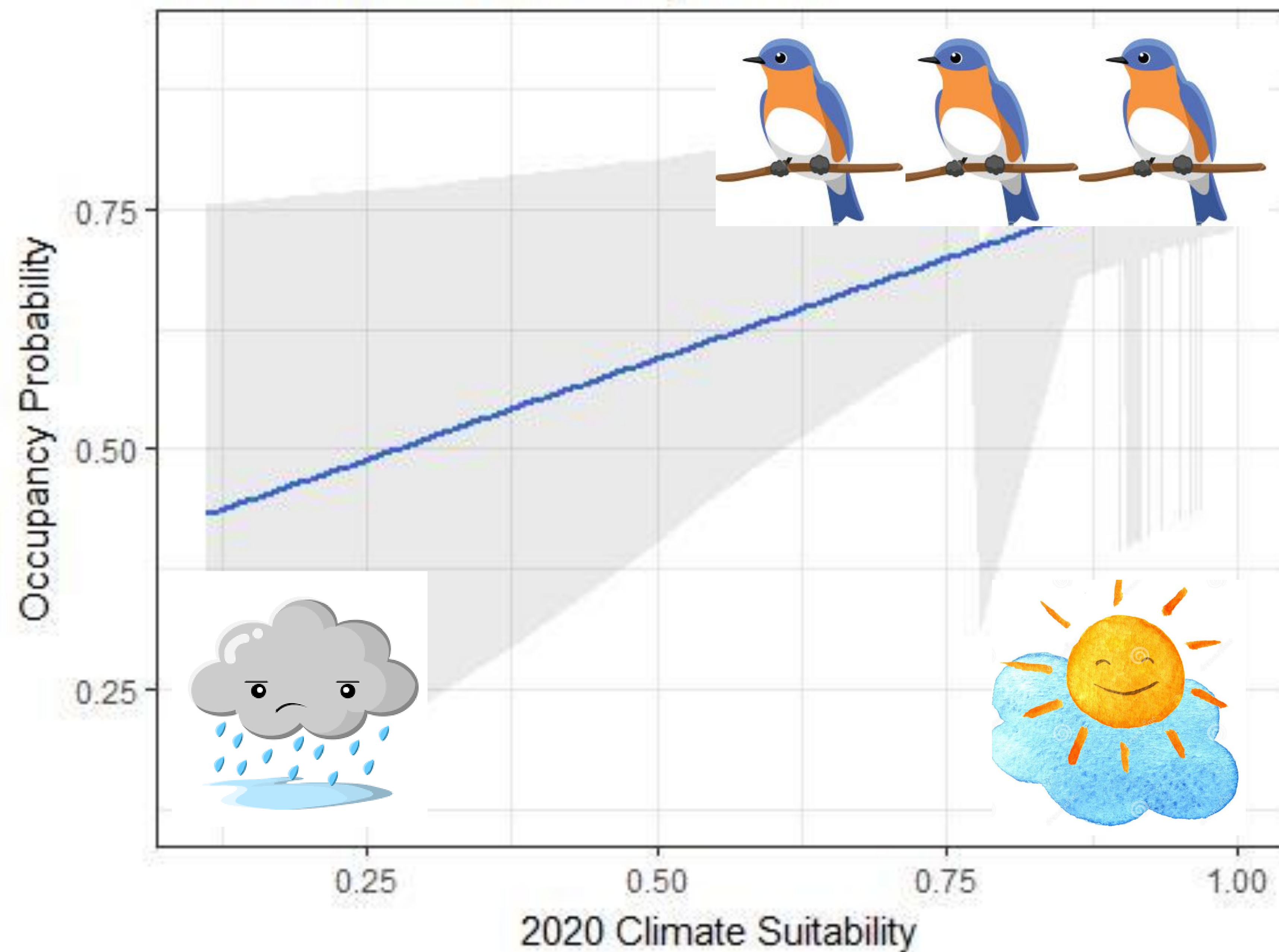
Mountain Bluebird





Eastern Bluebird

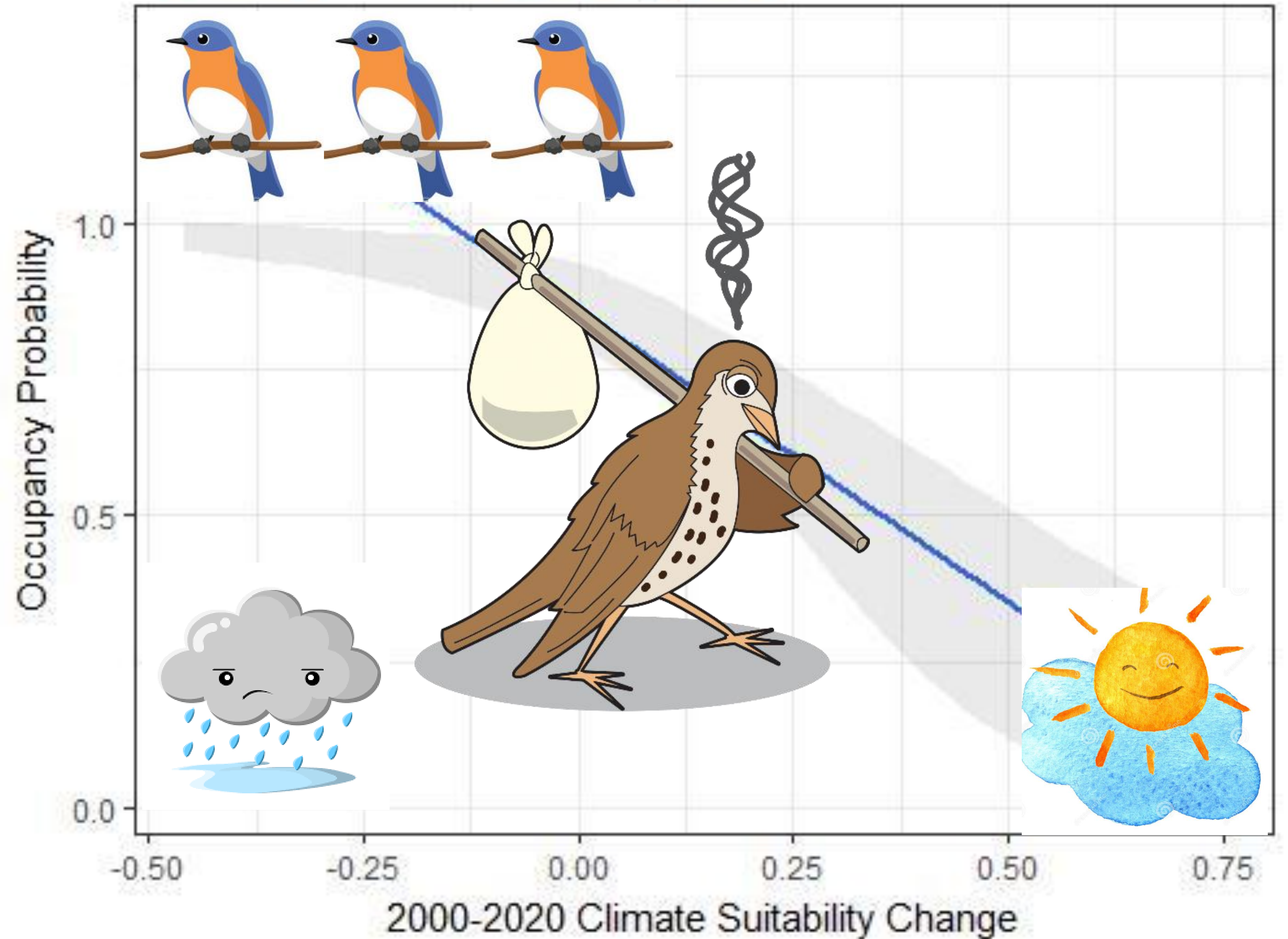
Eastern Bluebird, January 2017



Eastern Bluebird, January 2017



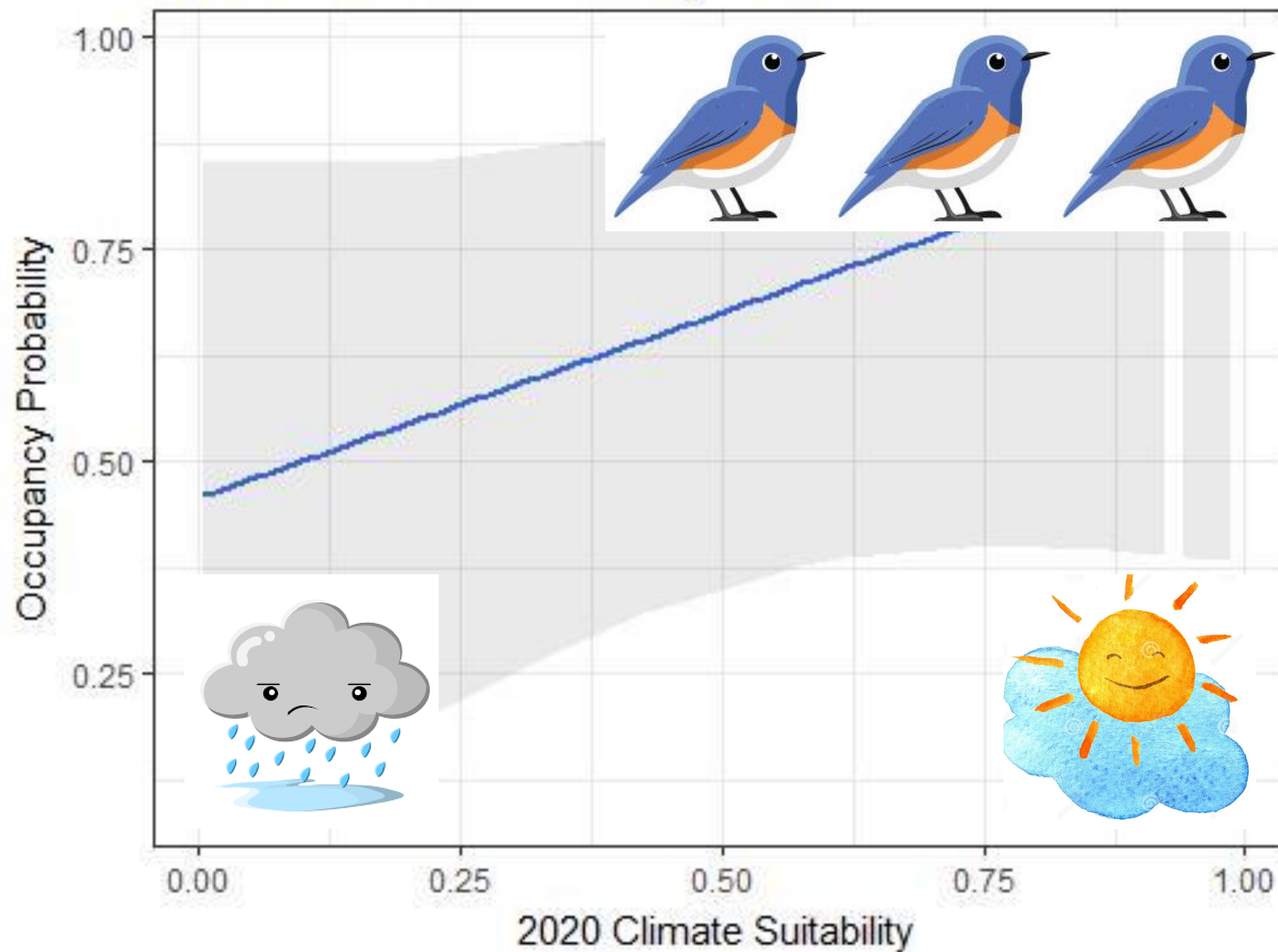
Eastern Bluebird





Western Bluebird

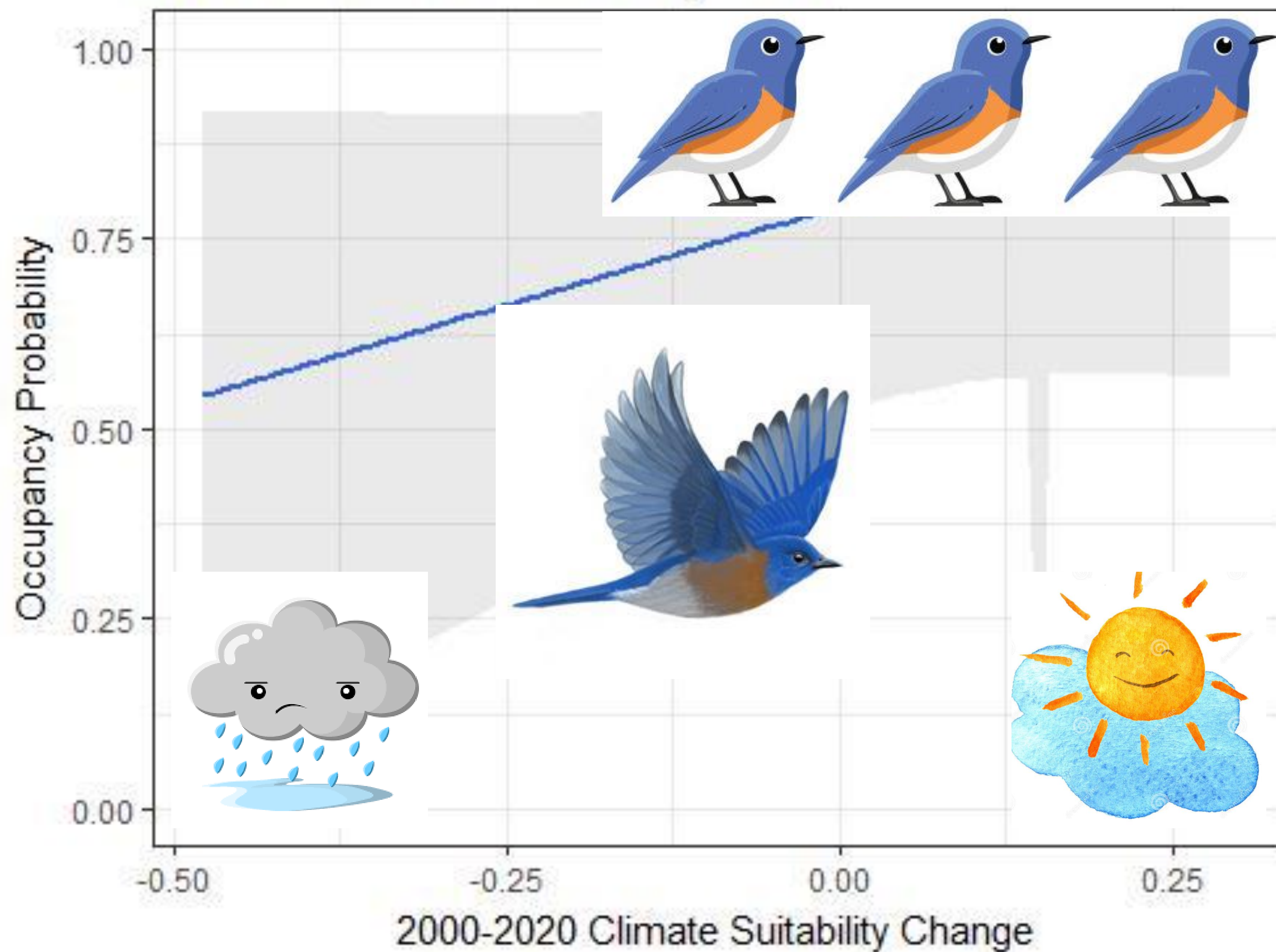
Western Bluebird, January 2017





Western Bluebird

Western Bluebird, January 2017





What Climate Watch volunteers say...

“I liked be able to participate to help collect data and be a part of this very important research - it helps me feel like I can contribute or make a difference.”

“I liked being part of the team that is showing a better picture of what effect climate change is having on specific species.”

“We like the fact that we're contributing, even in a small way, to a scientific effort that will, hopefully, benefit the birds we love to watch.”

Community Science Matters

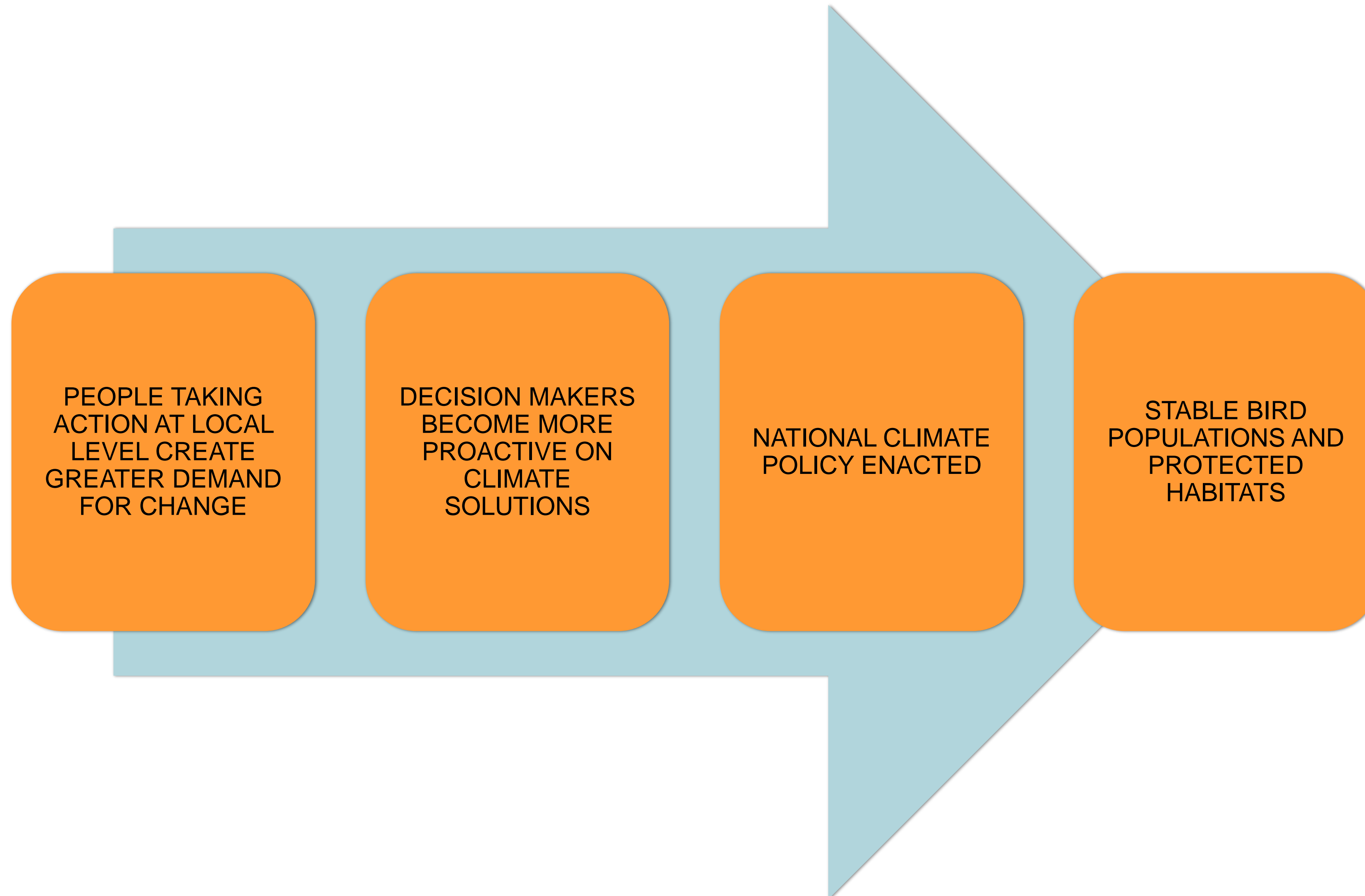
As a citizen scientist, or community scientist, you become an expert on local birds and the threats they are facing, such as climate change and habitat loss.

You can share your knowledge and experience to make an even bigger difference for climate-threatened birds



How do we build from local actions

to broader change that helps birds?



Your Public Officials Want to Hear From You, Too

Another meaningful step you can take as a Climate Watch volunteer is to let decision makers know that you care about birds and climate change.

Invite your public officials out on a Climate Watch survey and start the conversation!

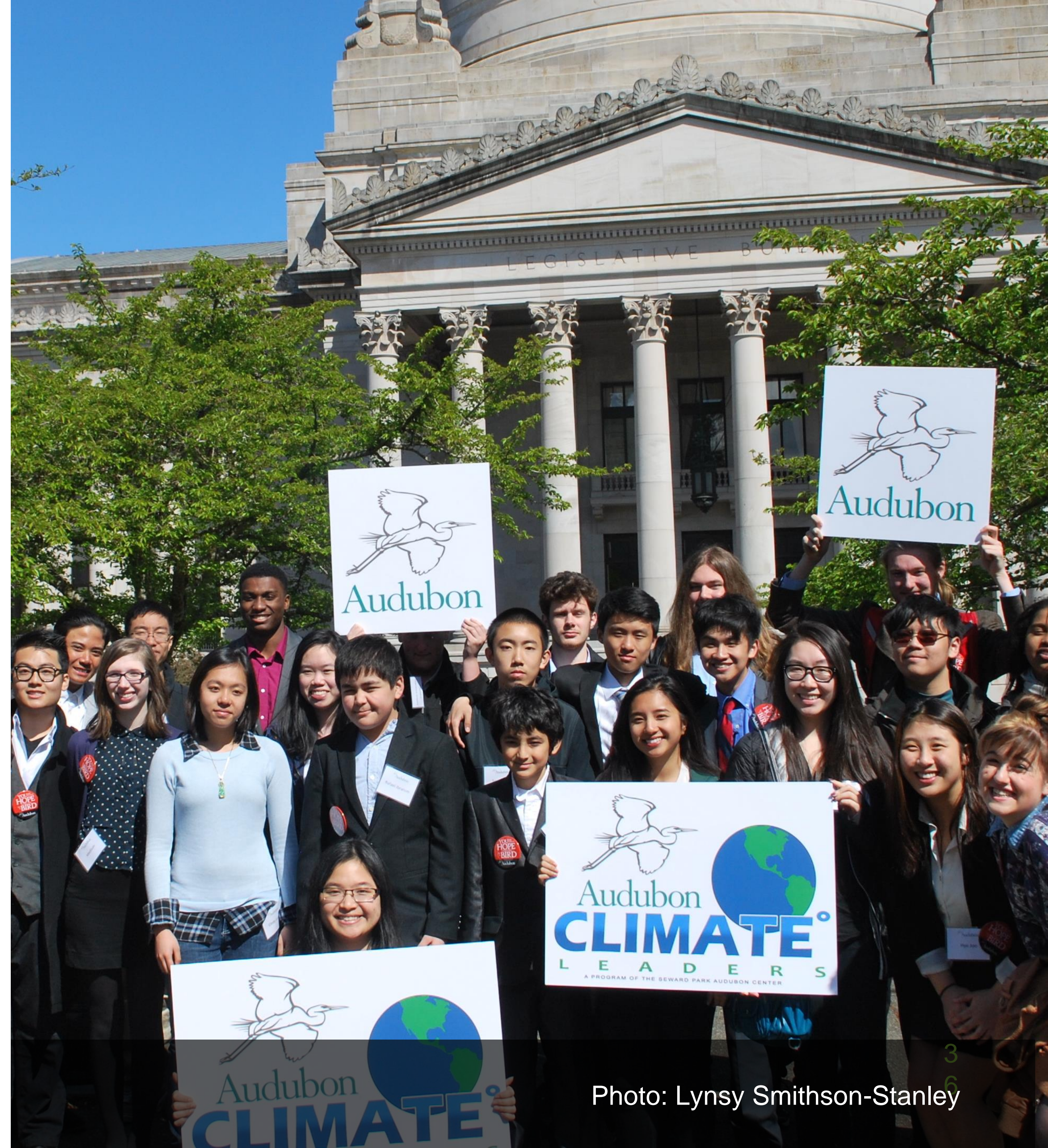


Photo: Lynsy Smithson-Stanley

Next Steps

Sign up at audubon.org/climate-watch to receive coordinator updates and maps for target species in your area:

Get Involved

Please [sign up here](#) if your chapter, center, or local group is interested in participating and email climatewatch@audubon.org with any questions.

Email us at climatewatch@audubon.org with any questions.



bbateman@audubon.org
climatewatch@audubon.org
www.audubon.org/climatewatch