NATIONAL AUDUBON SOCIETY April 2016

Summary report on Audubon's first Climate Watch pilot

Thanks to you trendsetters, we are doing important work for birds!

Audubon

Photo: Western Bluebird by Eleanor Briccetti/Audubon photography awards

January 2016 Climate Watch Summary Report

From January 15-18, 2016, more than 75 people from 11 Audubon chapters braved the brutally cold weather to look for Eastern, Western, and Mountain bluebirds in the first pilot of Audubon's Climate Watch. Thank you for participating in this effort to test Audubon's climate model predictions of future bird ranges. These chapter territories contain key areas where Audubon's climate models predict the bluebirds will gain, lose, or maintain stable wintering range over the next 15 years due to climate change.

The chapters that piloted this new program are:

Buffalo Audubon Society, NY
Jamestown Audubon Society, NY
Chemung Audubon Society, NY
Onondaga Audubon Society, NY
Gaylord Nelson Audubon Society, WI
Loess Hills Audubon Society, IA
Prairie Rapids Audubon Society, IA
Big Bluestem Audubon Society, IA
Dubuque Audubon Society, IA
Sangre de Cristo Audubon Society, NM
Central New Mexico Audubon Society, NM

Planning the first Climate Watch surveys

Chapter leads quickly identified, trained, and sent out volunteers to cover selected survey squares in each territory. Working with the national science team, they raised and helped answer insightful questions about planning survey locations in areas where bluebirds are not currently found and guided the development of the protocol and mapping resources for volunteers.

The new Climate Watch protocol involves completing a series of 12 five-minute point counts within one or more 10 x 10 km survey squares. Conducting multiple point counts within each survey square is essential, as is conducting surveys in squares with predicted stable climate. Both enable us to determine the likelihood of observing a bluebird in the field during a point count survey, and ultimately to determine whether and where bluebird wintering ranges are changing. A critical aspect of Climate Watch is that volunteers go into areas where bluebirds are not currently expected but might show up in coming years in order to identify range expansion. It's just as important for us to know where bluebirds *are absent* today as it is to know where they are already present.

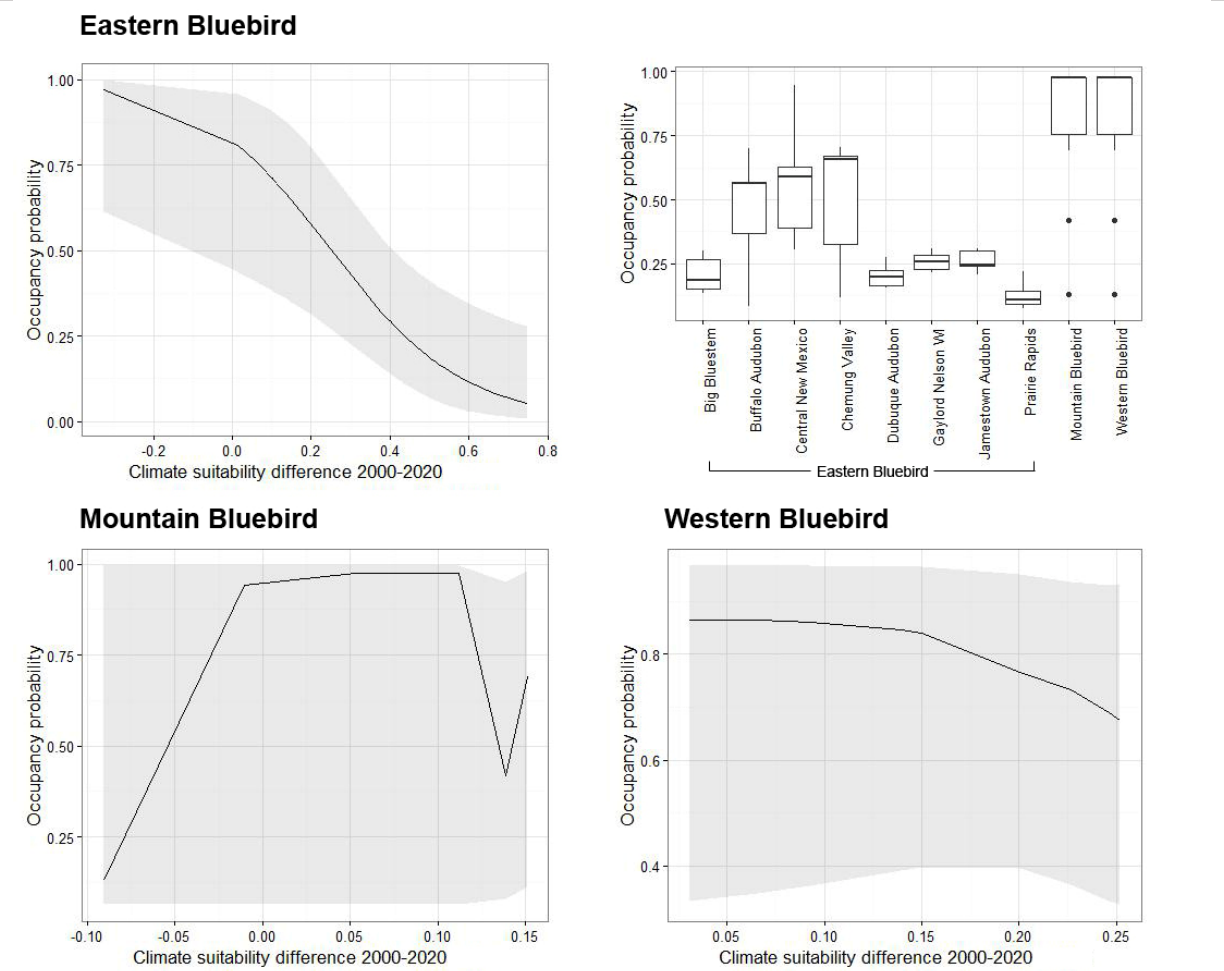
Climate Watch pilot results

Many of you braved extreme temperatures and/or forecasted snowstorms to collect this critically important data. One dedicated participant also collected extra data on temperature, wind speed and direction, habitat, and presence of overhead power lines in case the protocol asks for it in the future. We very much appreciate your passion for the birds!

The goals of this first pilot were primarily to test the program design, field test the protocol, and evaluate a new set of mapping resources. Participants collected and reported valid data, and the maps displayed at the end of this report show the results during the January 2016 pilot from the pilot chapters for all three species of bluebird. Over time, as more data are collected during the winter and summer Climate Watch count periods, we will learn how bluebird ranges are shifting.

However with just this one season of pilot data we were able to do a preliminary analysis looking at how bluebirds are already responding to climate change. National Audubon Society's climate models produced estimates of the predicted change in climate suitability during 2000-2020 for each grid cell that you surveyed. We analyzed the relationship between this change in climate suitability and occupancy probability, or the probability that one or more bluebirds of each species would occur in each grid cell. As predicted mountain bluebirds appear to be more likely to occur in areas that are becoming more climatically suitable. Interestingly, eastern and western bluebirds appear to actually be slightly *less* likely to occur in areas that are becoming

more climatically suitable. This could be because these species have not yet moved to areas that are more suitable, or due to other factors such as habitat availability or species interactions. We don't have enough data yet to be sure about any of these patterns, but with your help collecting this valuable data we can learn more about how bluebirds are responding to climate change.



Occupancy analysis of three species of bluebirds surveyed during January 2016 Climate Watch pilot.

Your feedback

In February and March we elicited feedback from chapter leads and volunteers through discussions and an online survey. Your feedback helped us assess the program design—what worked, what should be changed, and what could be helpful to people participating in the future. In response, we're updating the program and it's supporting materials to make participation clearer, easier, and more accessible.

Main takeaways and next steps based on the survey feedback include:

- A four-day count period was not enough time to avoid bad weather during bluebird surveys, especially in winter. As a result we plan to expand the count period to 15 days to give volunteers two full weekends to complete their surveys.
- The amount of time that volunteers wanted to put into the Climate Watch program was evenly split between spending two to four hours on surveys and spending multiple full days on each season. Two to four hours is the minimum amount of time it takes to complete 12 five-minute surveys within a grid square.

- We plan to update the protocol document in response to your comments. First, we will split the protocol into two sections that will clearly define the roles of both chapter leaders and volunteers in participating in Climate Watch. We also plan to include your many great suggestions for how you planned your survey locations.
- Many of you also indicated that you could use additional written and online training on collecting GPS locations and entering data into eBird. We'll work to develop additional resources for these aspects during the next phase of the program pilot.
- Your feedback on your use of the maps we provided was also helpful. While you were about evenly split between using paper/PDF maps and online maps for planning, those of you that used the online maps found them more useful than those using the paper/PDF maps found those to be. We will continue developing and refining both sets of maps based on feedback from chapter leads and volunteers.
- Finally, many of you indicated in the survey that you would be interested in surveying for additional focal species of climate concern during Climate Watch. As a result, we will continue to plan for the expansion of the program to test the predictions of our climate models for different species once the program logistics are more fully developed.

Thanks again for all of your efforts in collecting and submitting data as well as providing feedback.

Next Steps:

The next edition of Climate Watch will occur June 1-15, 2016. We would very much like to have your chapters continue to participate in the pilot program! We will also be engaging a few additional chapters to pilot the program in different parts of the country. Your experience in the first pilot is especially valuable, and we hope you will be interested in continuing your involvement.

We will keep in touch to distribute revised materials and invite you to discussions and webinars to organize the June pilot. Please look out for these invitations and feel free to contact the Climate Watch chapter support team if you have questions about Climate Watch.

Climate Watch Planning and Implementation team:

Elizabeth Bergstrom
Kathy Dale
Caitlin Jensen
Gary Langham
Geoff LeBaron
Nicole Michel
John Rowden
Connie Sanchez
Zach Slavin
Lynsy Smithson-Stanley
John Takekawa
Lotem Taylor
Chad Wilsey

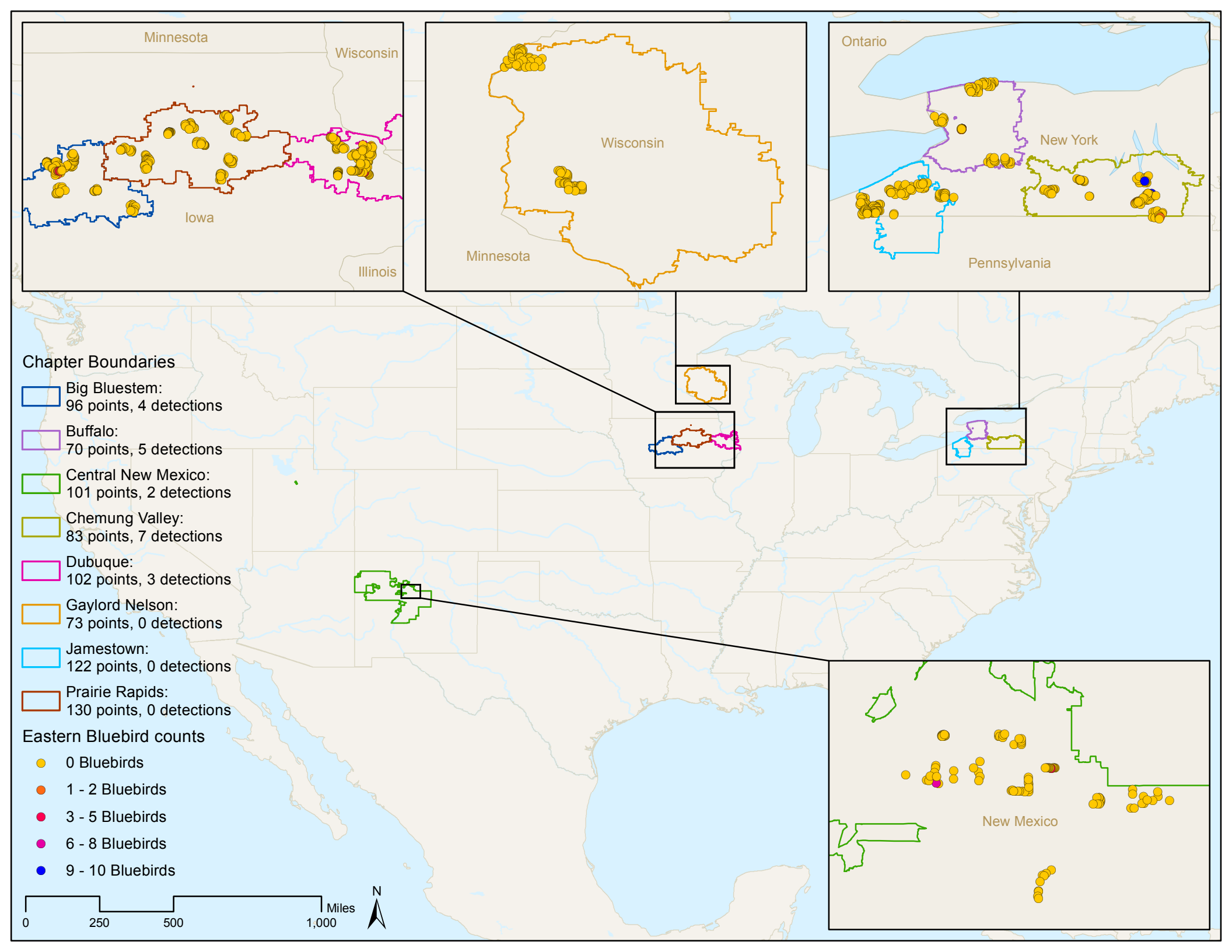
Climate Watch Chapter Support Team:

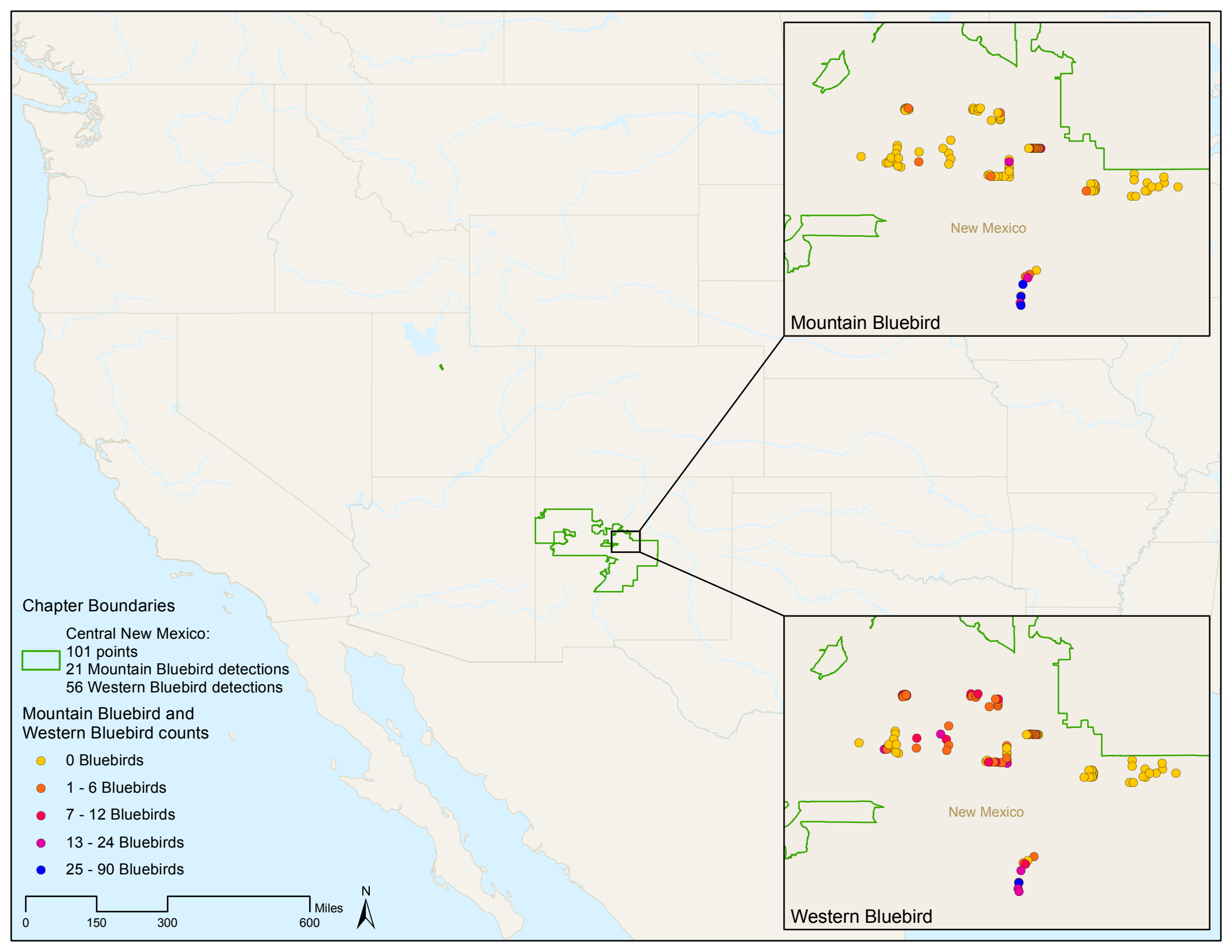
Kathy Dale
Director of Citizen Science
610-563-0323
kdale@audubon.org

John Rowden
Director of Community Conservation
212-920-1883
jrowden@audubon.org

Geoff LeBaron
Director of the Christmas Bird Count
413-268-9372
glebaron@audubon.org

Zach Slavin
Program Manager
202-600-7962
zslavin@audubon.org


Minnesota
Wisconsin
Iowa
Illinois
Wisconsin
Minnesota
Ontario
New York
Pennsylvania
New Mexico
Chapter Boundaries
Big Bluestem:
96 points, 4 detections
Buffalo:
70 points, 5 detections
Central New Mexico:
101 points, 2 detections
Chemung Valley:
83 points, 7 detections
Dubuque:
102 points, 3 detections
Gaylord Nelson:
73 points, 0 detections
Jamestown:
122 points, 0 detections
Prairie Rapids:
130 points, 0 detections
Eastern Bluebird counts
0 Bluebirds
1 - 2 Bluebirds
3 - 5 Bluebirds
6 - 8 Bluebirds
9 - 10 Bluebirds
0
250
500
1,000
Miles
N


Mountain Bluebird
New Mexico
Western Bluebird
New Mexico
Chapter Boundaries
Central New Mexico:
101 points
21 Mountain Bluebird detections
56 Western Bluebird detections
Mountain Bluebird and
Western Bluebird counts
0 Bluebirds
1 - 6 Bluebirds
7 - 12 Bluebirds
13 - 24 Bluebirds
25 - 90 Bluebirds
0
150
300
600
Miles
N