

STATE OF THE MOUNTAIN BIRDS:

Northeast 2024 Report



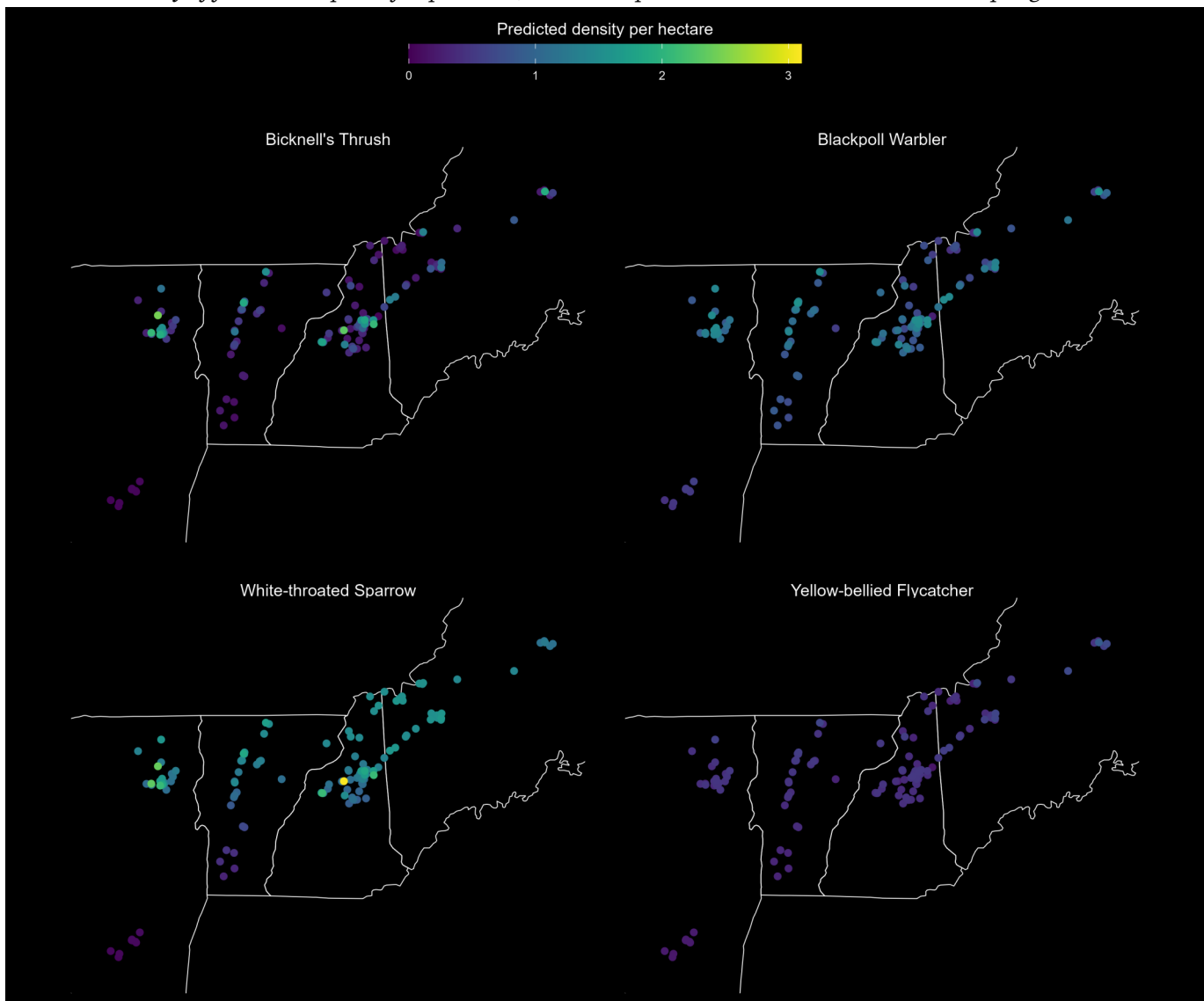
Blackpoll Warbler

© Jeff Nadler

Since 2010, many hundreds of community scientists (*Mountain Birdwatchers*) have contributed to our understanding of the population dynamics of our northeastern US montane bird communities. Hiking our mountains, they arise in the dark, and conduct point counts on one morning each June at nearly 800 long-term sampling stations across Maine, New Hampshire, Vermont and the Catskills and Adirondacks of New York. Since 2010, Mountain Birdwatchers have conducted >33,000 avian surveys at these high-elevation stations located within the spruce-fir zone: home to some of our most unique and elevation-restricted avian species. There is no other comparable dataset that provides this level of monitoring for these climate-vulnerable species.

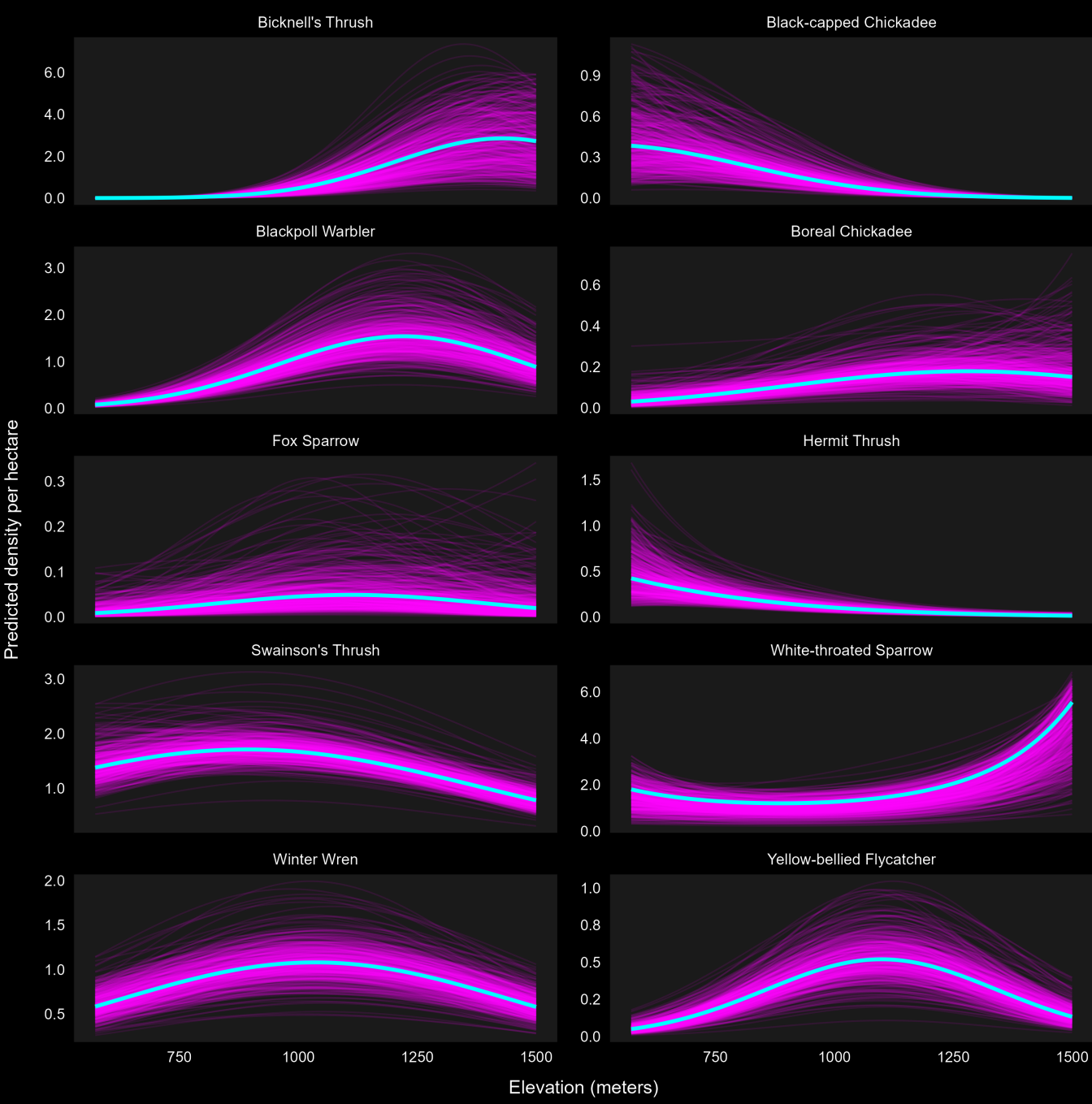
The 2024 report shows a continued decline of the spruce-fir specialists monitored by Mountain Birdwatch, including White-throated Sparrow (52% decline; see the map below), Bicknell's Thrush and Blackpoll Warbler (48% declines), and Yellow-bellied Flycatcher (32% decline). Those declines are most pronounced at lower elevations and lower latitudes. Those four species have all declined in the Catskills (their southernmost breeding location) along Mountain Birdwatch routes since 2010 by more than 55%, with White-throated Sparrows having declined there by a staggering 93% within 15 years. The drivers of these declines (e.g., diminishing reproductive output or reduced food availability on the wintering grounds) are still undetermined.

Predicted density of four avian spruce-fir specialists; each dot represents a Mountain Birdwatch sampling route.



Elevation is a key predictor of the abundance of montane species. The Hermit Thrush mostly occurs in the hardwoods, for example, and Blackpoll Warbler is restricted to the spruce-fir zone. However, these relationships vary with latitude and are shifting with climate change. Global research, including Mountain Birdwatch, document that many of these species are moving upslope and poleward as the climate warms. Additionally, some lower-elevation species more readily move upslope when there is substantial human presence or modification. For example, Black-capped chickadees typically breed at lower elevations, but they breed atop Mounts Washington and Mansfield around human structures. They do not, however, appear to breed atop lower-elevation mountains with a smaller human footprint (e.g., Carter Dome and Mt. Carrigain).

Predicted relationship between abundance and elevation for Mountain Birdwatch species. These relationships also vary with latitude (not shown here). Blue lines are the mean predicted relationship between abundance and elevation, while purple lines show less-likely alternative estimates. Note that the y-axes differ between panels.



Mountain Birdwatch data are collected each June via four consecutive 5-minute point counts conducted at every sampling location. These fixed locations were selected via a spatially-balanced randomization process in 2010 throughout the montane regions of Maine, New Hampshire, Vermont, and eastern New York (Catskills and Adirondacks). These locations mainly occur within the spruce-fir zone atop our tallest mountains, with fewer locations existing (by design) within the upper boundaries of the hardwood zone. Mountain Birdwatch data are primarily analyzed using hierarchical, binomial N-mixture models within a Bayesian framework. These models (and the repeated count protocol) allow us to account for the imperfect detection ability of humans, while tracking the abundance and occurrence of these populations through time.

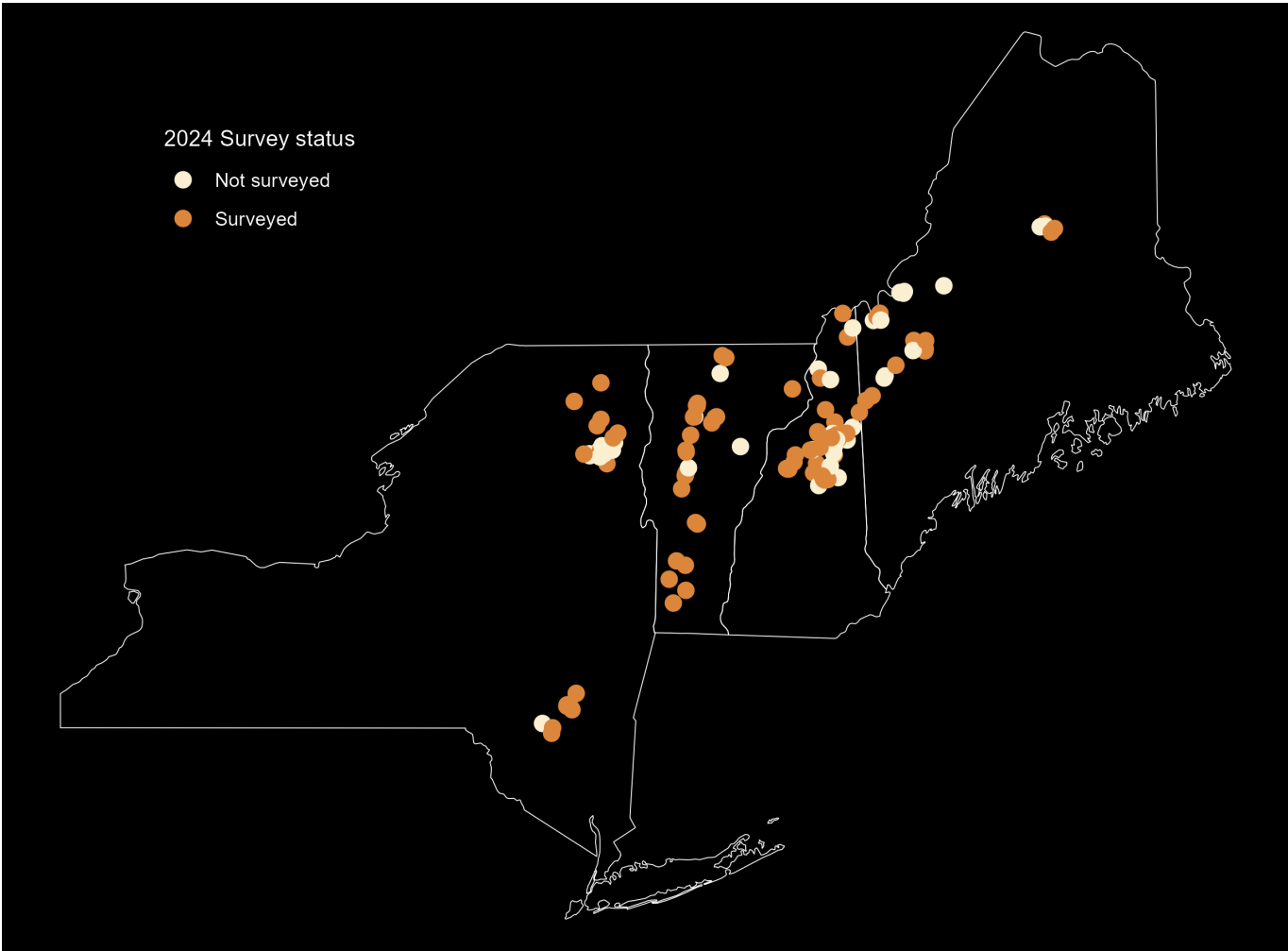
Mean annual trends and population change (with 80% Bayesian credible intervals [CRI]) for the 10 avian species and Red Squirrel (an important nest predator of montane bird species) monitored through Mountain Birdwatch from 2010 through 2024. Dot color indicates the direction and strength of evidence of the mean annual trend: ● (strong evidence for a negative trend), ● (weak evidence for a negative trend), ● (weak evidence for a positive trend), or ● (strong evidence for a positive trend). Strong evidence is suggested for a trend when the 80% CRI does not contain zero.

Species	Mean annual trend (%) with 80% CRI	Probability of decrease	Population change (%) 2010-2024 with 80% CRI
Yellow-bellied Flycatcher	● -2.67 (-4.29, -1.05)	>0.99	-31.51 (-40.64, -20.80)
Black-capped Chickadee	● 1.87 (-2.80, 6.49)	0.20	29.61 (-13.25, 90.52)
Boreal Chickadee	● 4.11 (0.13, 7.90)	0.02	75.81 (23.98, 141.11)
Winter Wren	● -2.52 (-4.88, -0.23)	0.98	-30.08 (-43.77, -13.70)
Bicknell's Thrush	● -4.52 (-6.01, -3.07)	>0.99	-47.64 (-54.47, -39.89)
Swainson's Thrush	● -2.23 (-3.46, -1.06)	>0.99	-27.13 (-34.46, -18.91)
Hermit Thrush	● -6.50 (-10.05, -2.94)	>0.99	-60.96 (-72.24, -45.63)
Blackpoll Warbler	● -4.56 (-5.52, -3.56)	>0.99	-48.00 (-52.54, -43.08)
White-throated Sparrow	● -5.14 (-6.69, -3.57)	>0.99	-52.21 (-58.59, -44.91)
Fox Sparrow	● 4.27 (0.77, 7.86)	0.01	79.59 (23.98, 141.11)
Red Squirrel	● 9.09 (-0.82, 19.08)	0.03	238.15 (45.47, 650.46)

The 2024 Mountain Birdwatch Season Snapshot

Despite rain (and a little snow), 78 28 new observers—another record! Collectively, those 78 high-elevation hikers conducted 2,072 5-minute point counts at 518 locations and made approximately 6200 detections of montane birds and Red Squirrels. Mountain Birdwatchers adopted 95% (a record high!) of active routes, and successfully surveyed 71% of them in June during 2024. Team Mountain Birdwatch also welcomed

Region	Number of current, active routes	Number of routes surveyed in 2024	Surveyed (%)
New Hampshire	44	31	70
New York	30	20	67
<i>(Catskills)</i>	<i>(9)</i>	<i>(8)</i>	<i>(89)</i>
<i>(Adirondacks)</i>	<i>(21)</i>	<i>(12)</i>	<i>(57)</i>
Maine	28	18	64
Vermont	29	24	83
Overall	131	93	71



2024 Mountain Birdwatcher Photo Highlights



Jay Peak © Cassie Davis



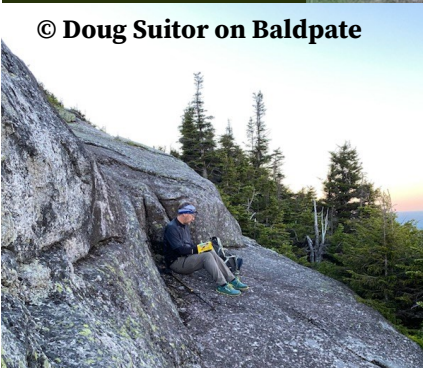
Spruce Grouse
© Nancy Eaton



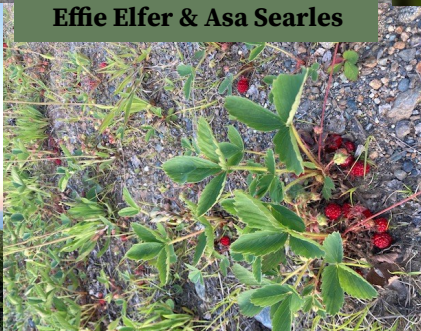
Moose and strawberries ©
Effie Elfer & Asa Searles



White-throated Sparrow ©Lauren Pasniewski



Junco © Lauren Pasniewski

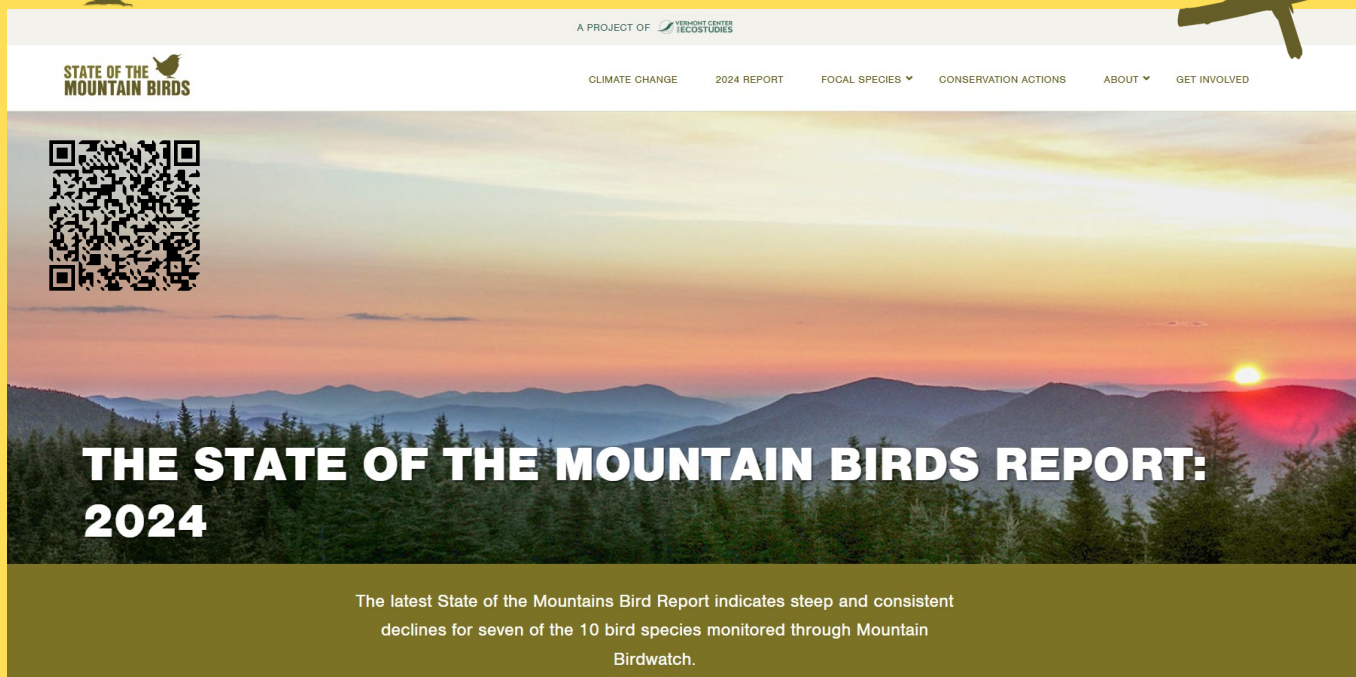


Nelson Crag © Ann Speth



Mount Coe © Paul Mulholland

The State of the Mountain Birds Report is a dual-medium document, and you are currently interacting with (what is essentially) the Executive Summary. For full trends, methods, further figures and analysis results updated throughout the year, visit the [State of the Mountain Birds web site](#), or scan the QR code below.



To adopt a route please visit our [Mountain Birdwatch Community Science webpage](#), or email Mountain Birdwatch Program Leader, Jason Hill (jhill@vtcostudies.org). Mountain Birdwatch takes place every June throughout the Northeast, on a day of the observer's choice, when they conduct an early-morning, high-elevation survey for just 10 bird species and one loud, chattering mammal (Red Squirrel). Mountain Birdwatch is a supportive community, with simple protocols, concise training materials, online data entry, and personalized help one text, email or phone call away. We like to say: *you don't have to be an expert, just enthusiastic*. Your data contribute to the only extensive monitoring program in existence for these at-risk species in the Northeast.



The Vermont Center for Ecostudies advances wildlife conservation across the Americas through research, monitoring, and community engagement. We envision a society that sustains healthy ecosystems through science-based decision making. Started in 2000, Mountain Birdwatch consists of >130 long-term sampling routes, and provides the only comprehensive assessment of the montane bird community within the northeastern US (Maine, New Hampshire, Vermont, and eastern New York).

Suggested Citation: Hill, J.M., and D.M. Williams. 2024. State of the Mountain Birds Report: Northeast 2024. Vermont Center for Ecostudies, White River Junction, VT. <https://mountainbirds.vtecostudies.org/>.

How to contribute in three ways or less

1. [Adopt a route](#) or help a friend and conduct a survey along a hiking trail on any morning in June.
2. Use our data or collaborate! Mountain Birdwatch data are [Open Data](#).
3. Contribute photos for us to use in our publications, reports, and website.

Authors: Jason Hill (jhill@vtecostudies.org) is a quantitative ecologist and program leader of Mountain Birdwatch. Dana Williams (dwilliams@vtecostudies.org) is the Community Science Coordinator at the Vermont Center for Ecostudies.

2024 Mountain Birdwatchers: Amy Bloomfield, Ryan Rebozo, Brendan Doyle, Lauren Pasniewski, Katie Manaras, Kevin Nye, Effie Elfer, Eric Myskowski, Tom Danielson, Tii McLane, Jackie Lavoie, Joshua Philips, Sean Lawson, Craig Repasz, Anne Bloomfield, Brianna Denoncour, Kristin Pennock, Joan Collins, Nancy Olmstead, Abbie Castriotta, Matt Hallahan, Steve Chorvas, Ashley Meyer, Erica Duda, Nathan Hawkins, Cassandra Knudsen, Emily Calder, Gavin Young, Eric Hanson, Matt Cote, Daron Tansley, Margaret Snell, Kevin O., Rich Merritt, Jeremy Kirchman, Laura Deming, Dave Hof, James Longo, Tim O'Donoghue, Ann Speth, Jake Cambbell, Dan Calder, Meghan Oberkircher, Kevin Peterson, Tim Flight, Jesse Carlson, Brad Joubert, Kate McKay, Kate Yard, Elliot Siegreest-Jones, Mik Oyler, Nancy Eaton, Garrett Higgins, John Berkholtz, Kate Locke, Tim Duclos, Sydney Speir, Michelle Sczpanski, Carla Lizana, Matt Denoncour, Jessica Glant, Evan Sullivan, Alison Violette, Laura Newman, Jordon Tourville, Beth Cooper, Asa Searles, Katherine Leone, Ann Chalmers, Jonathan Hawkins, Jason Ball, Kit Farnsworth, Alex DrieHaus, Josh Gagne, Denise Hawkins, Lucy McKay, Johnny Moore, Matt Roos, Nigel Bates, Rebecca Lovejoy, Anne Calder, Chris Gagnon, Sean Walsh, Beagle Bourgault, Brett Hillman, Ben Litchfield, Jason Crooks, Ginger Wallis, Emily Zimmermann, Linda Gionti, Cassie Davis, Clint Parrish, Brigid O'Donnell, Randy Dettmers, Matt Walter, Logan Reidsma, Giovanni Pambianchi, Joe Bopp, Susan Pike, Leighlan Prout, Tom Moran, Kateri Kosek, Nelson Hawkins, Paul Mulholland, Janiene Licciardi, Ben Jones, Doug Sutor, Wanda Rice, Mistie Boule, Will Durkin, and Dean Grover!

Special thanks: We are grateful to the Forest Ecosystem Monitoring Cooperative, Appalachian Mountain Club, Randolph Community Forest, New York Department of Environmental Conservation, Northeast Wilderness Trust, Cassandra Knudsen and Baxter State Park, American Forest Management, Whiteface Mountain Ski Center, Vermont Land Trust, Smokey House Center, Mount Equinox Skyline Drive, and the Adirondack Mountain Club.