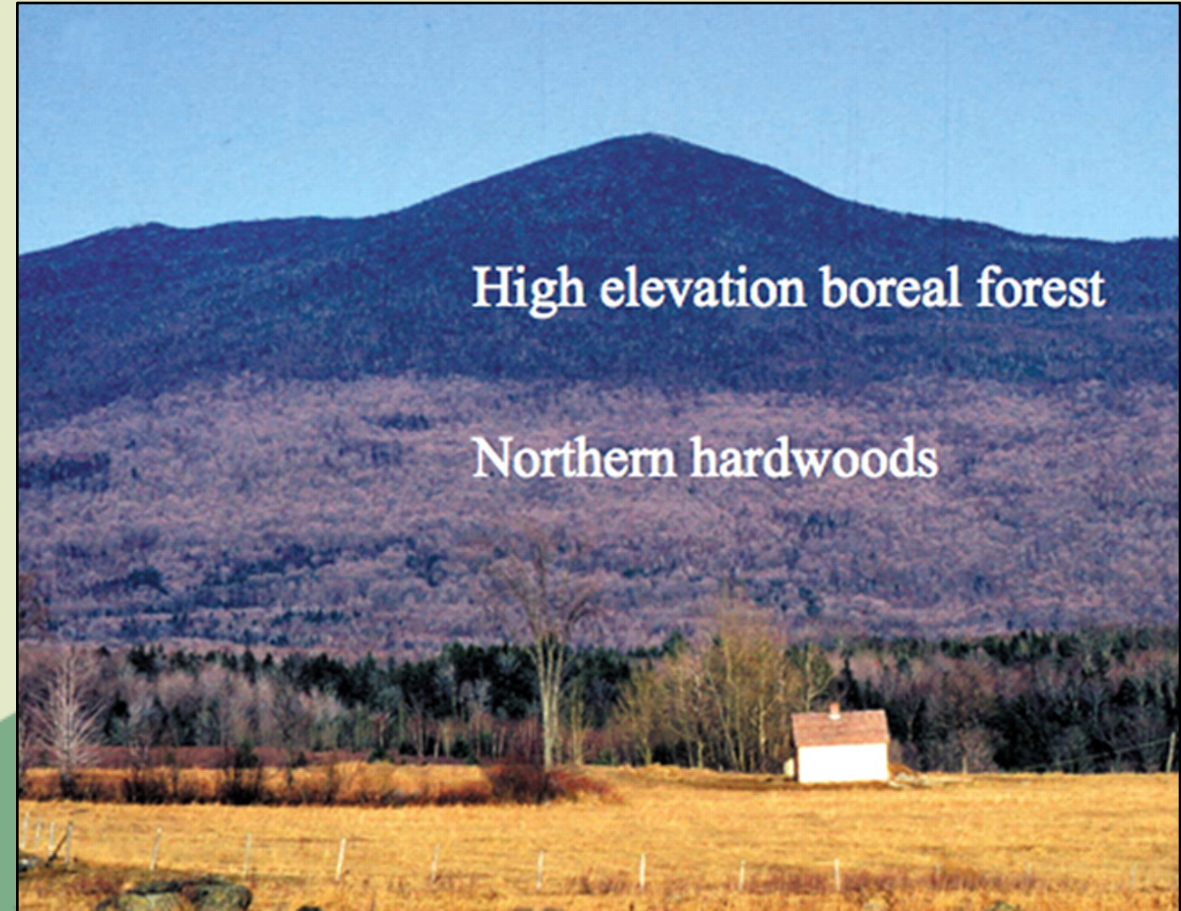




Northeastern U.S. vegetation already responding to changing climate



Fei et al. 2017

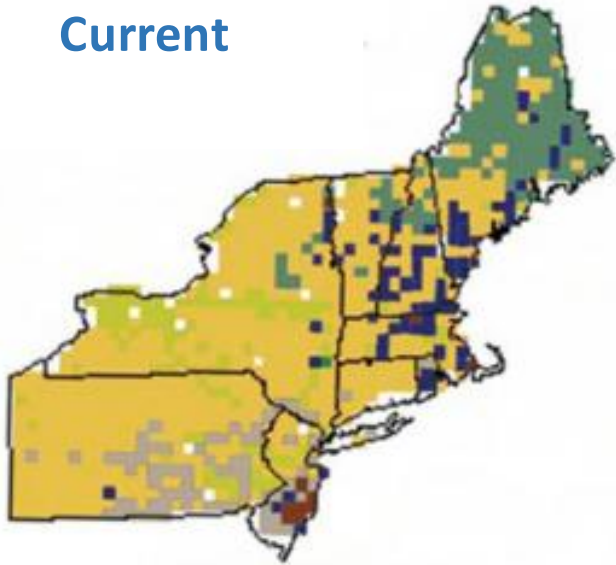


High elevation boreal forest

Northern hardwoods

Beckage et al. 2018

Current



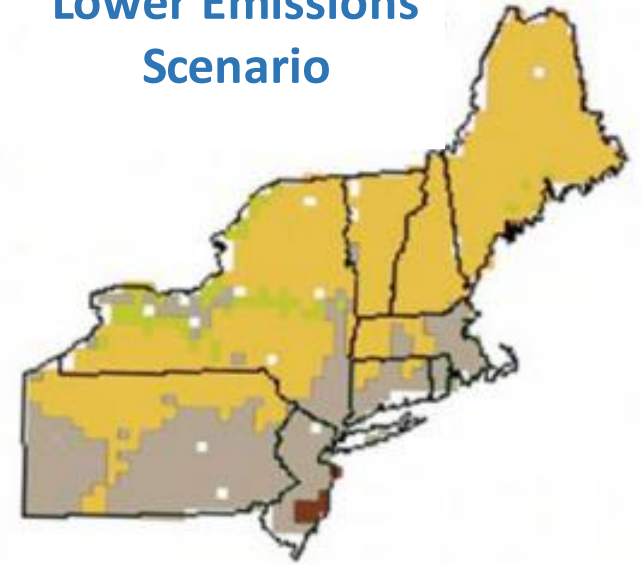
Spruce/Fir



Maple/Beech/Birch

Sensu Iverson et al. 2008
& Wang et al. 2016

Lower Emissions Scenario



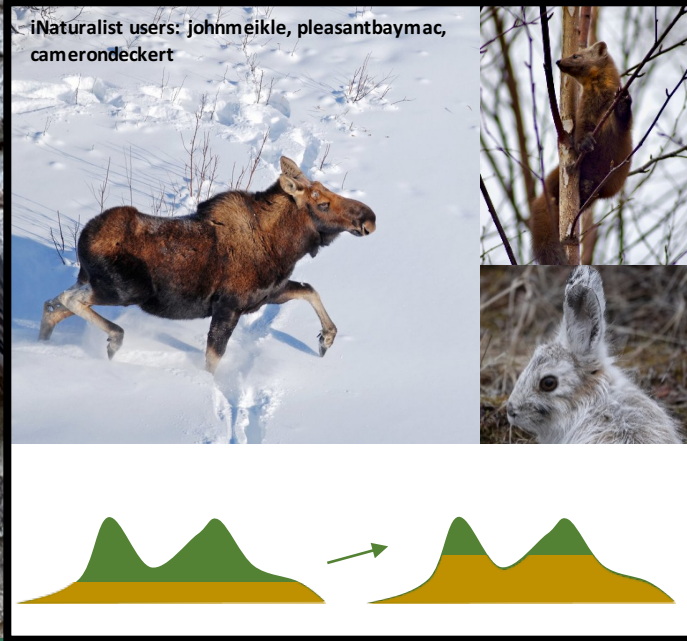
Oak/Hickory



Elm/Ash/Cottonwood



iNaturalist user: likelichenalot



iNaturalist users: johnmeikle, pleasantbaymac, camerondekert



iNaturalist users: chaffeemonell

Annual Review of Ecology, Evolution, and Systematics

Interacting Effects of Global Change on Forest Pest and Pathogen Dynamics

Allison B. Simler-Williamson,¹ David M. Rizzo,¹ and Richard C. Cobb²



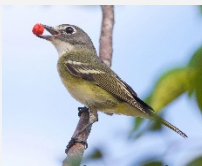
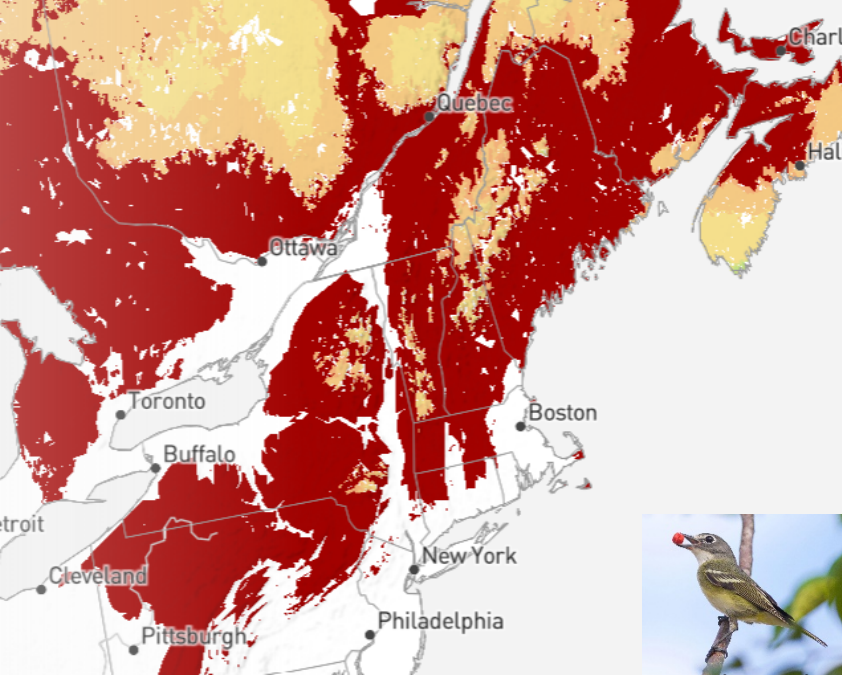
iNaturalist user: Hill_JasonM



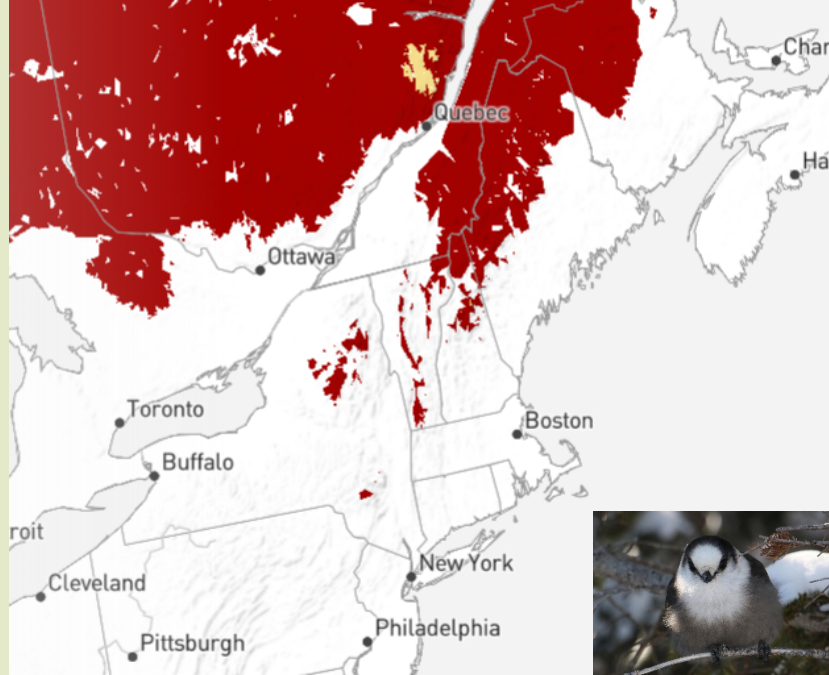
iNaturalist users: picbor & nlblock



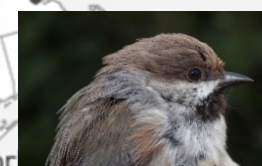
iNaturalist users: mayessj



Brandon Trentler

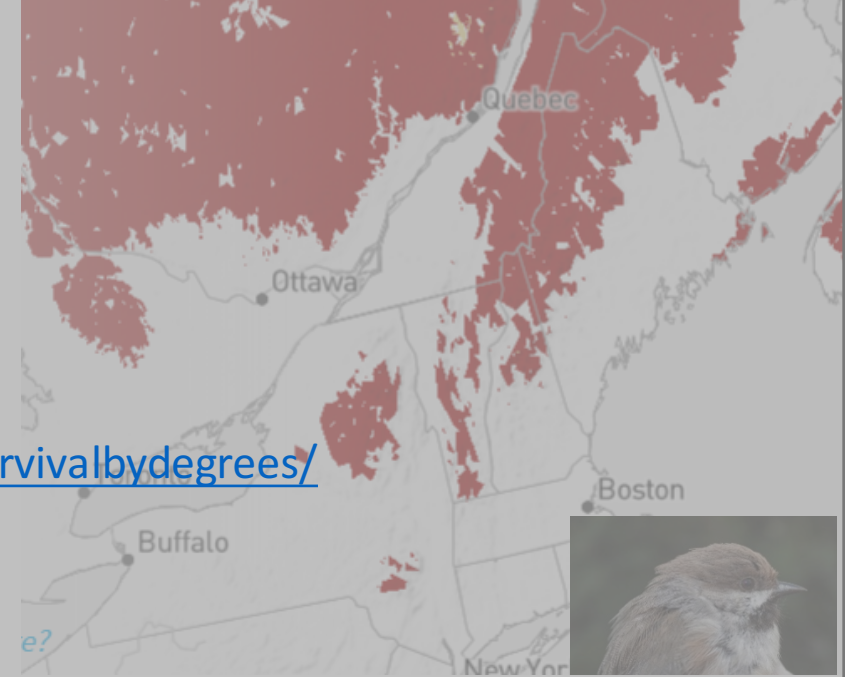
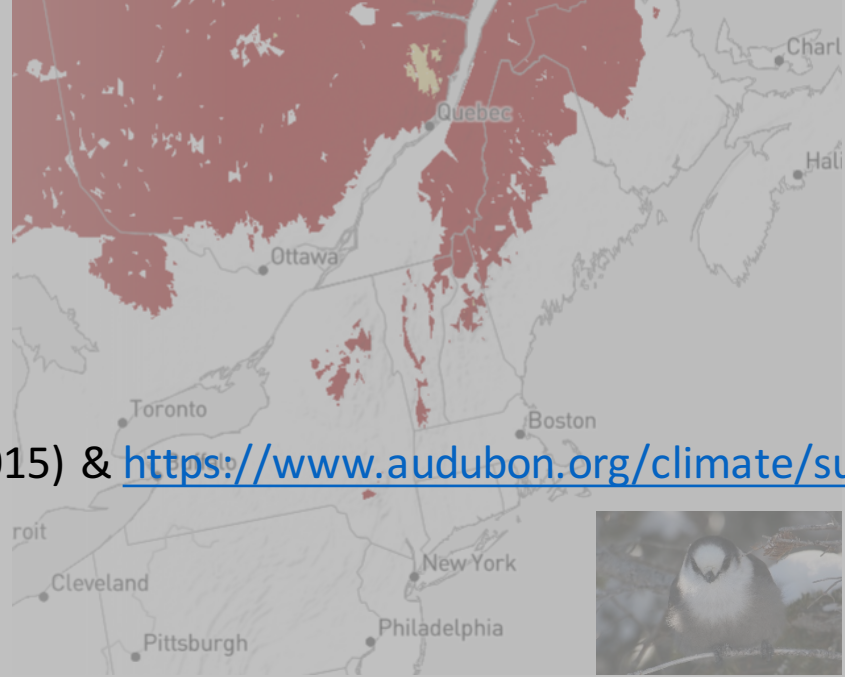
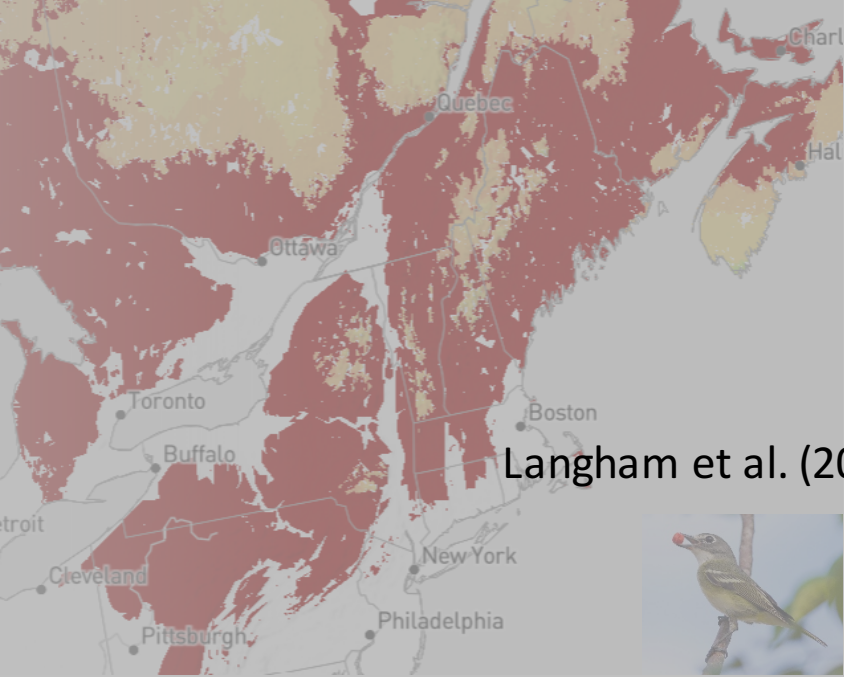


Daron Tansley



Kent McFarland

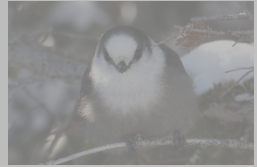
Langham et al. (2015) & <https://www.audubon.org/climate/survivalbydegrees/>



Langham et al. (2015) & <https://www.audubon.org/climate/survivalbydegrees/>



Brandon Trentler



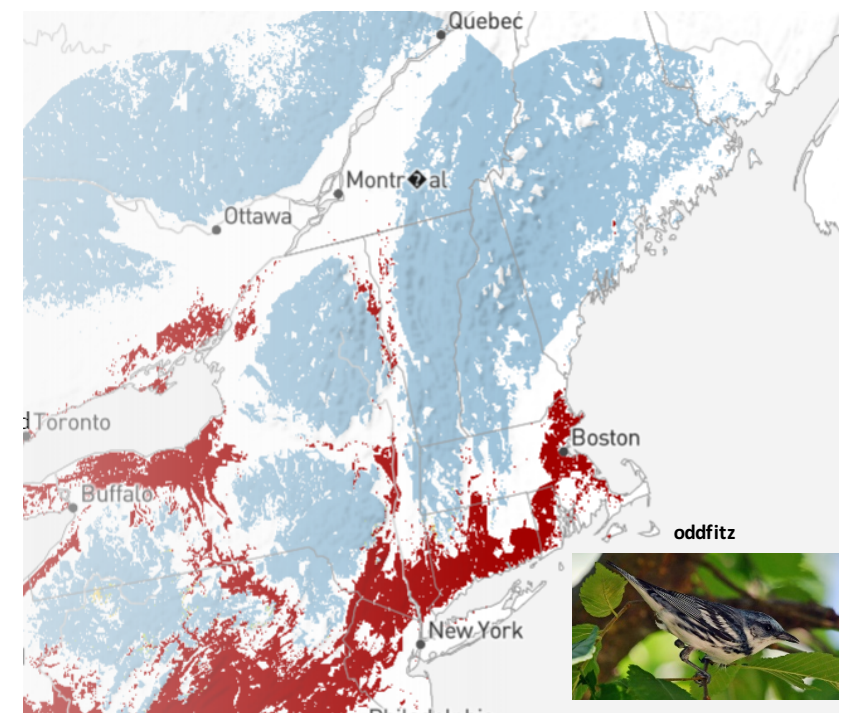
Daron Tansley



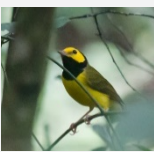
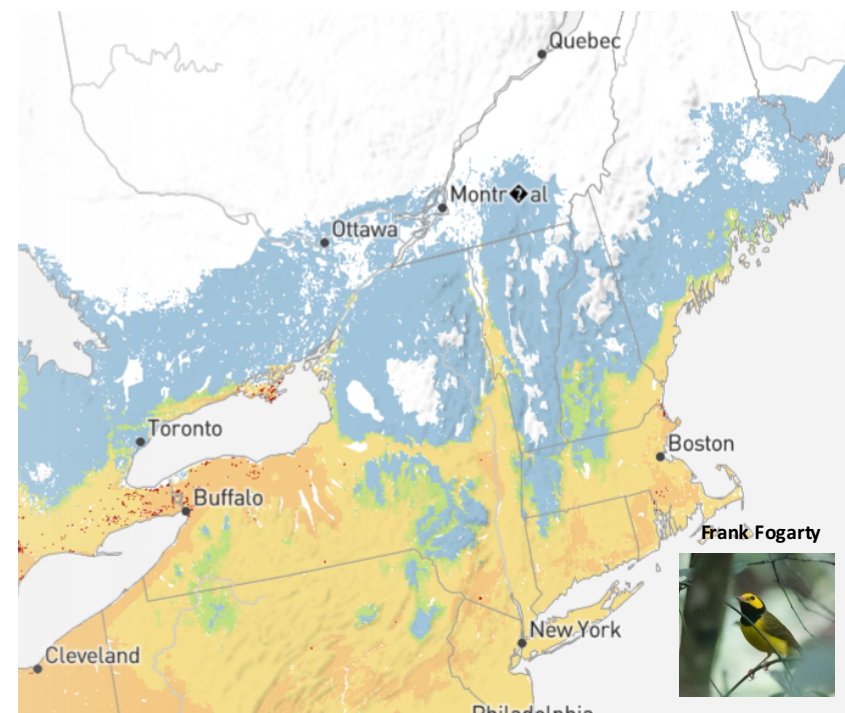
Kent McFarland



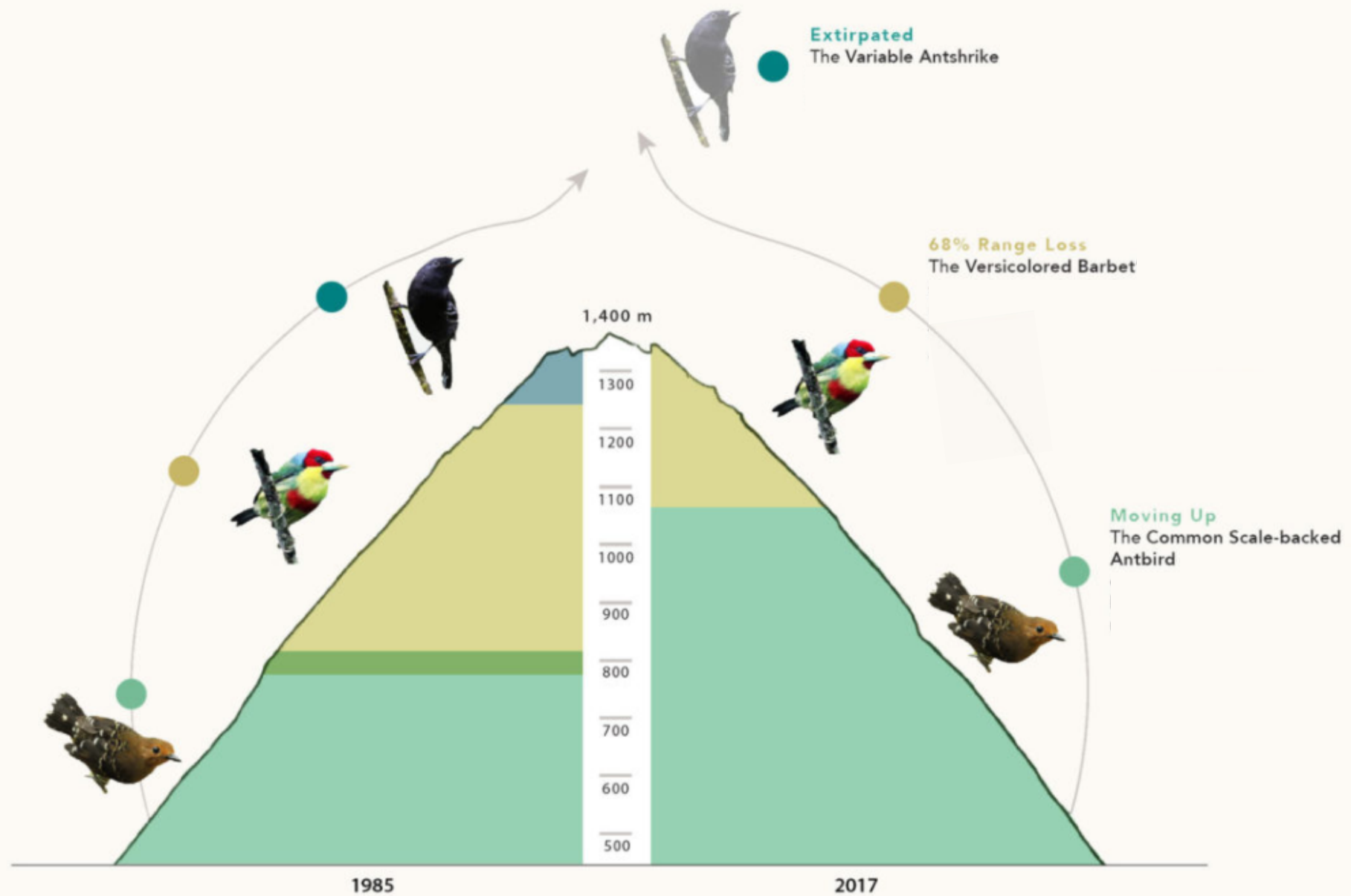
Adam Wardsell



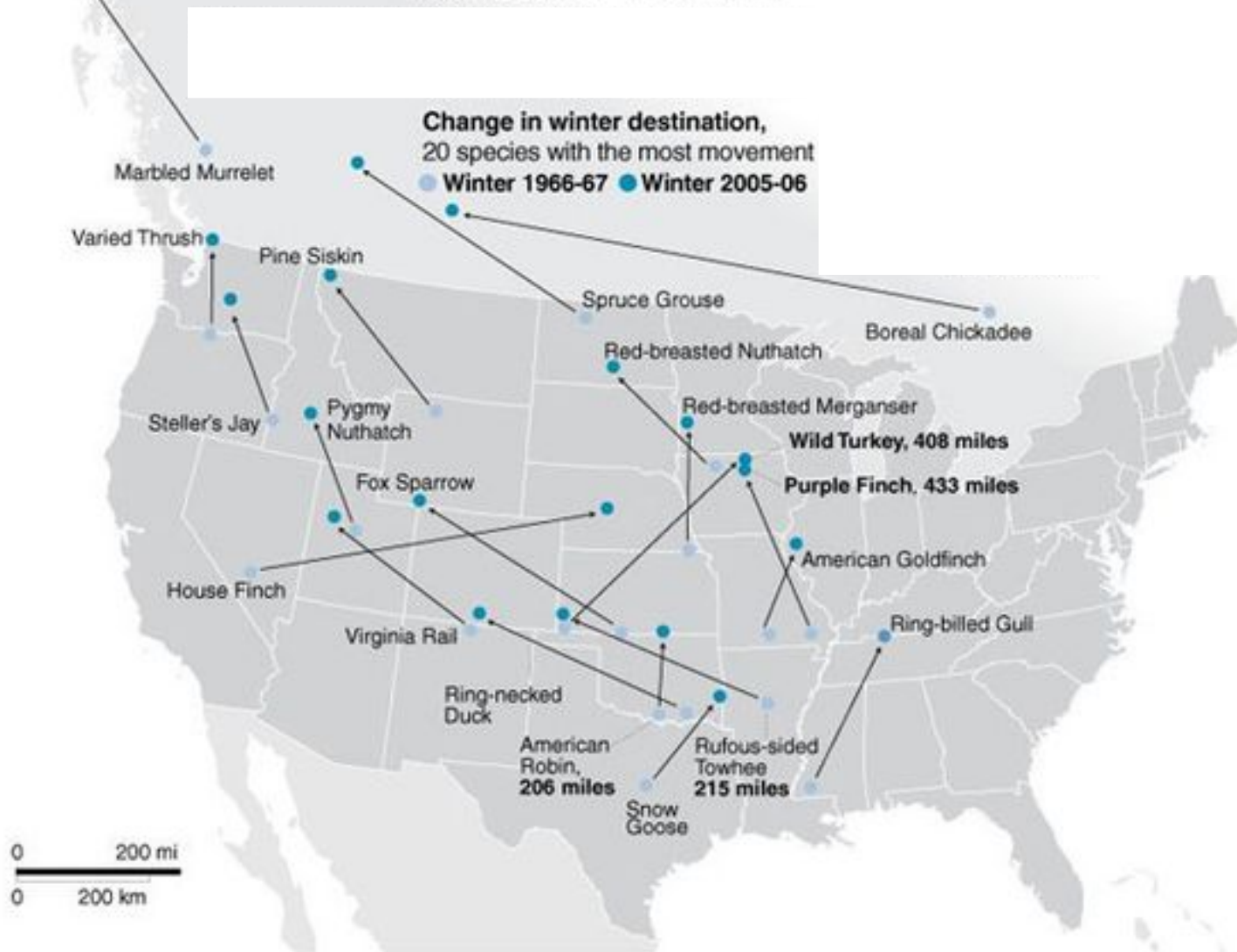
oddfitz



Frank Fogarty



Spending winter farther north



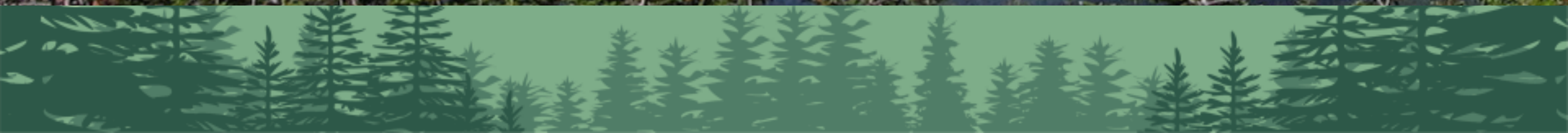
0 200 mi
0 200 km

Sources: Audubon Society; NOAA

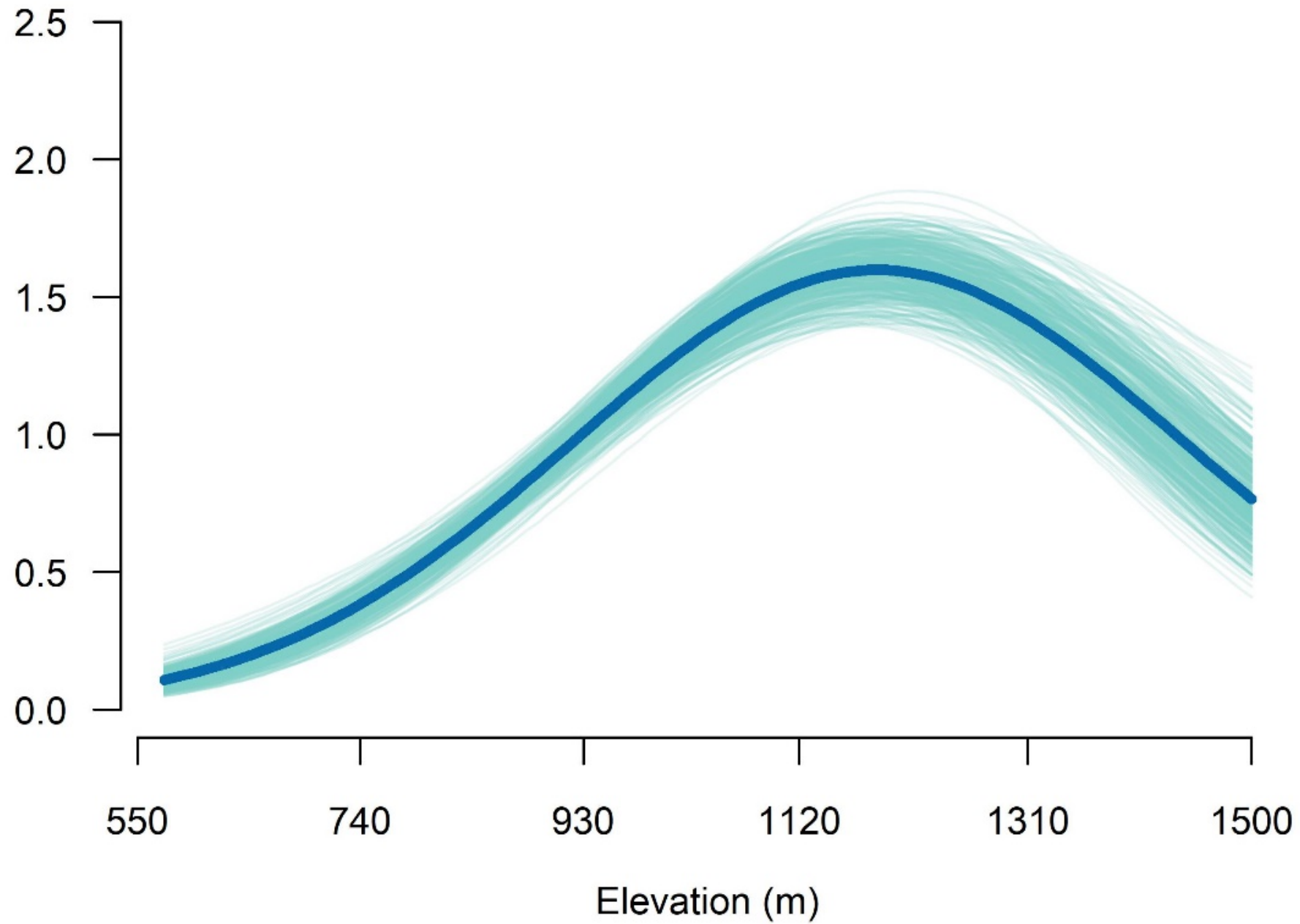
The Associated Press

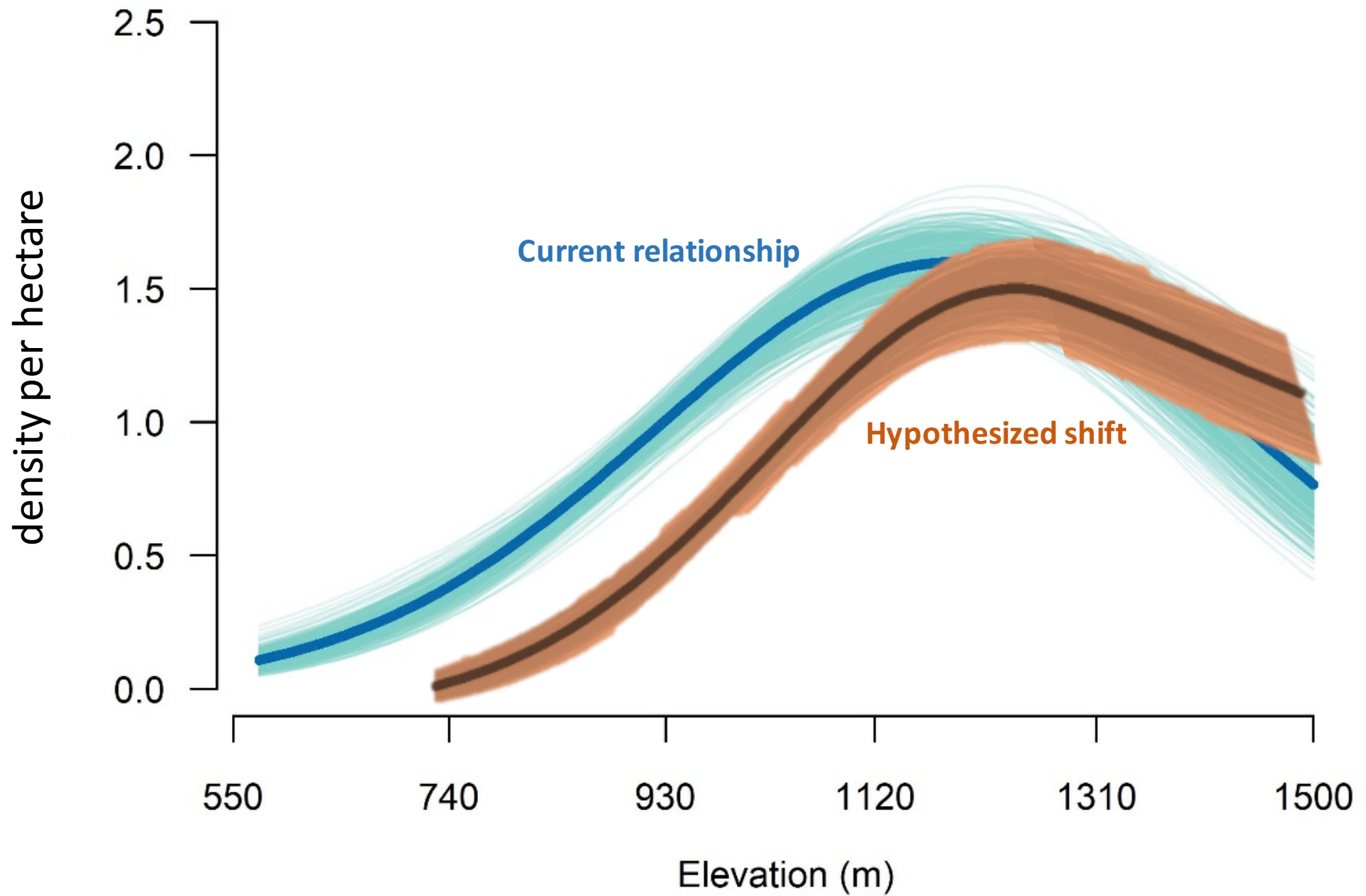
Mountain Birdwatch: mountainbirdwatch.org

Yellow-bellied Flycatcher
Bicknell's Thrush
Hermit Thrush
Swainson's Thrush
Boreal Chickadee
Black-capped Chickadee
Winter Wren
Blackpoll Warbler
White-throated Sparrow
Fox Sparrow
(Red Squirrel)

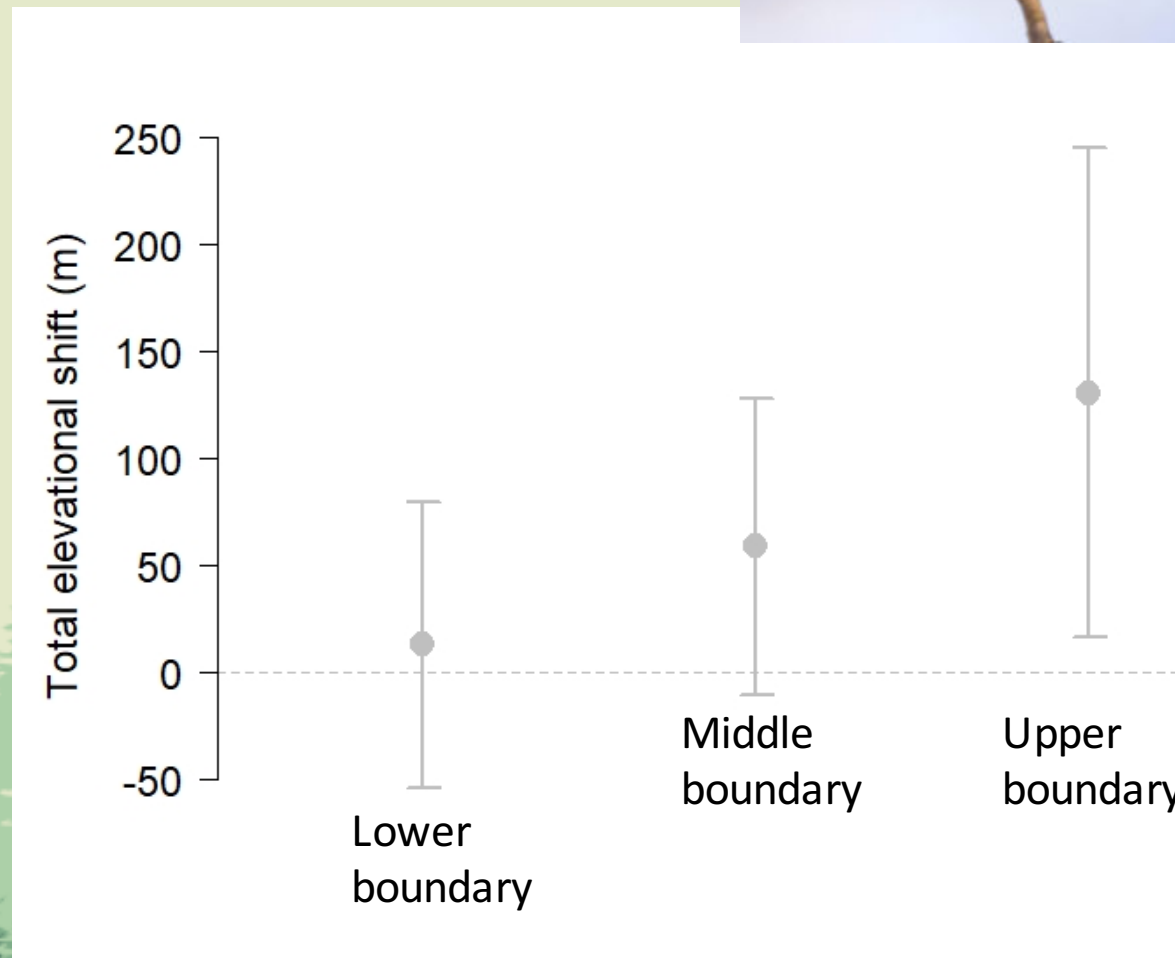
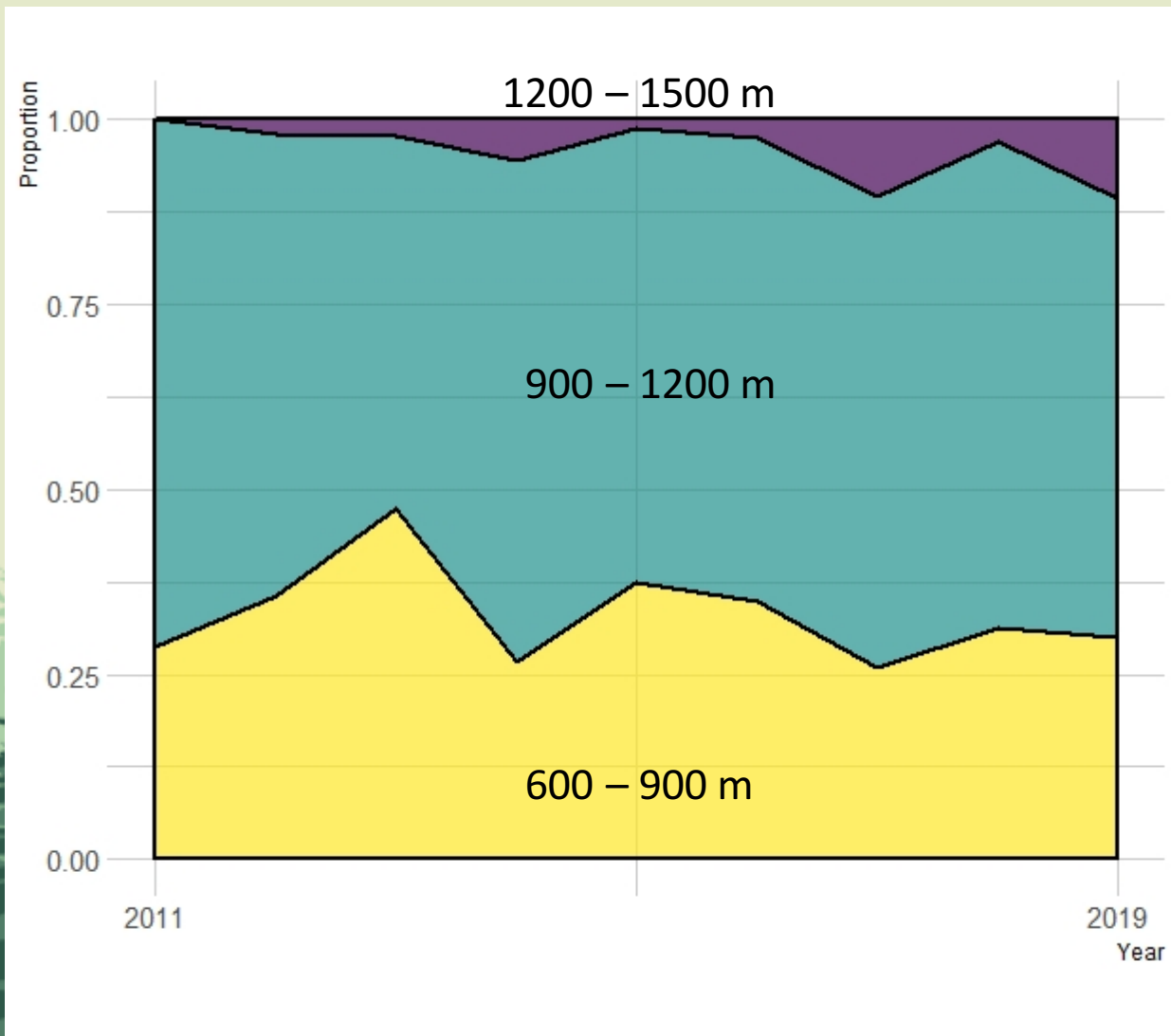


Blackpoll Warbler
density per hectare

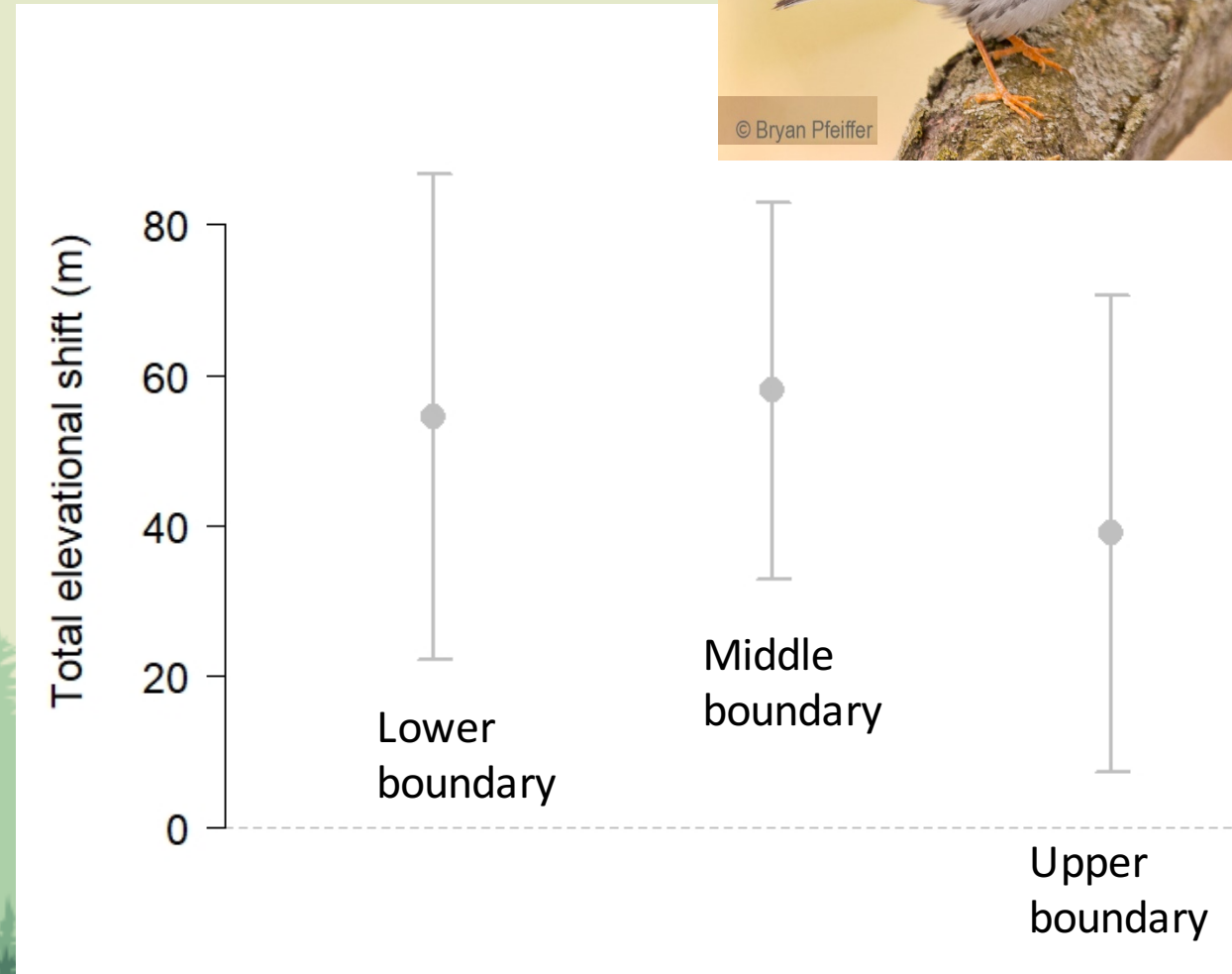
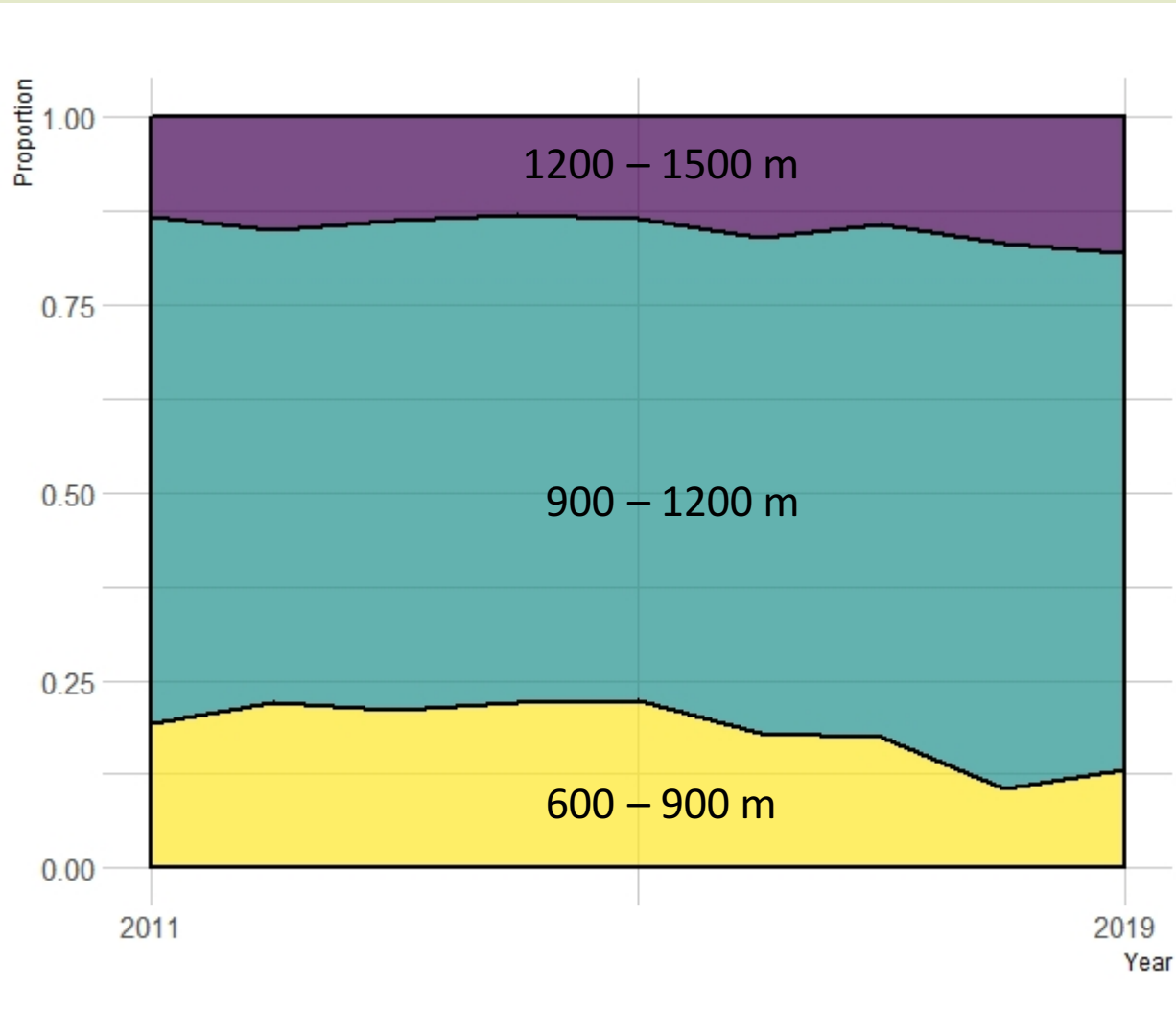


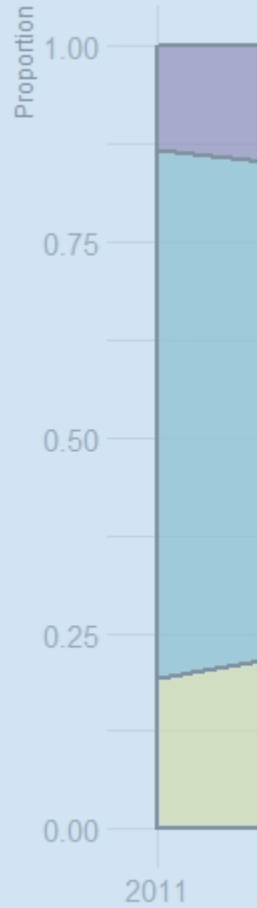


9-Year Elevational Shifts: Black-capped Chickadee

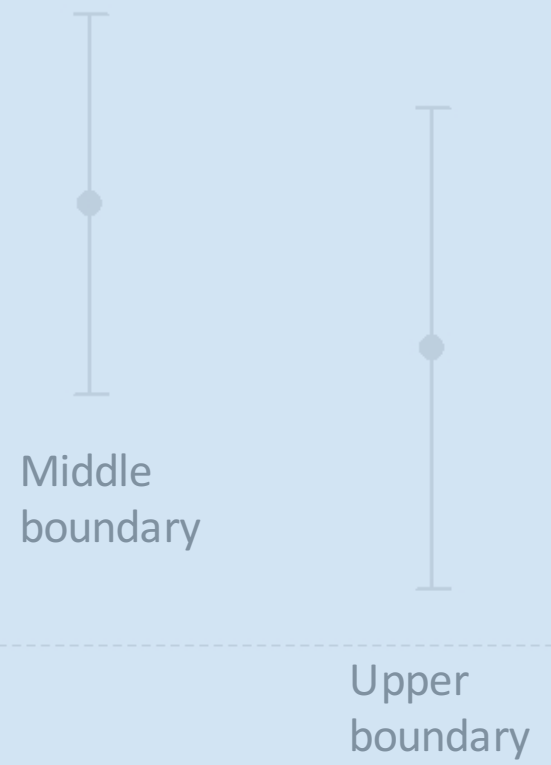
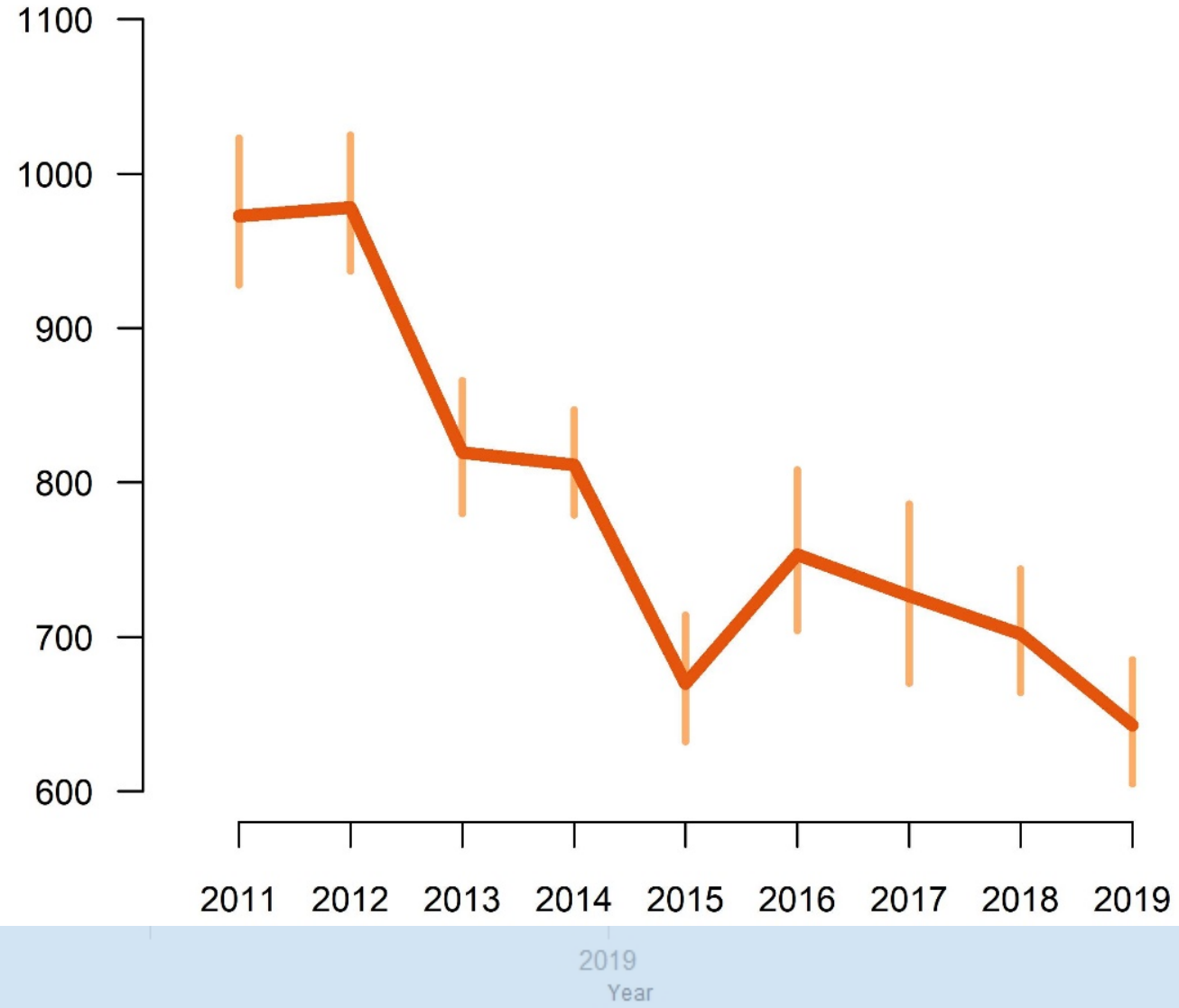


9-Year Elevational Shifts: Blackpoll Warbler

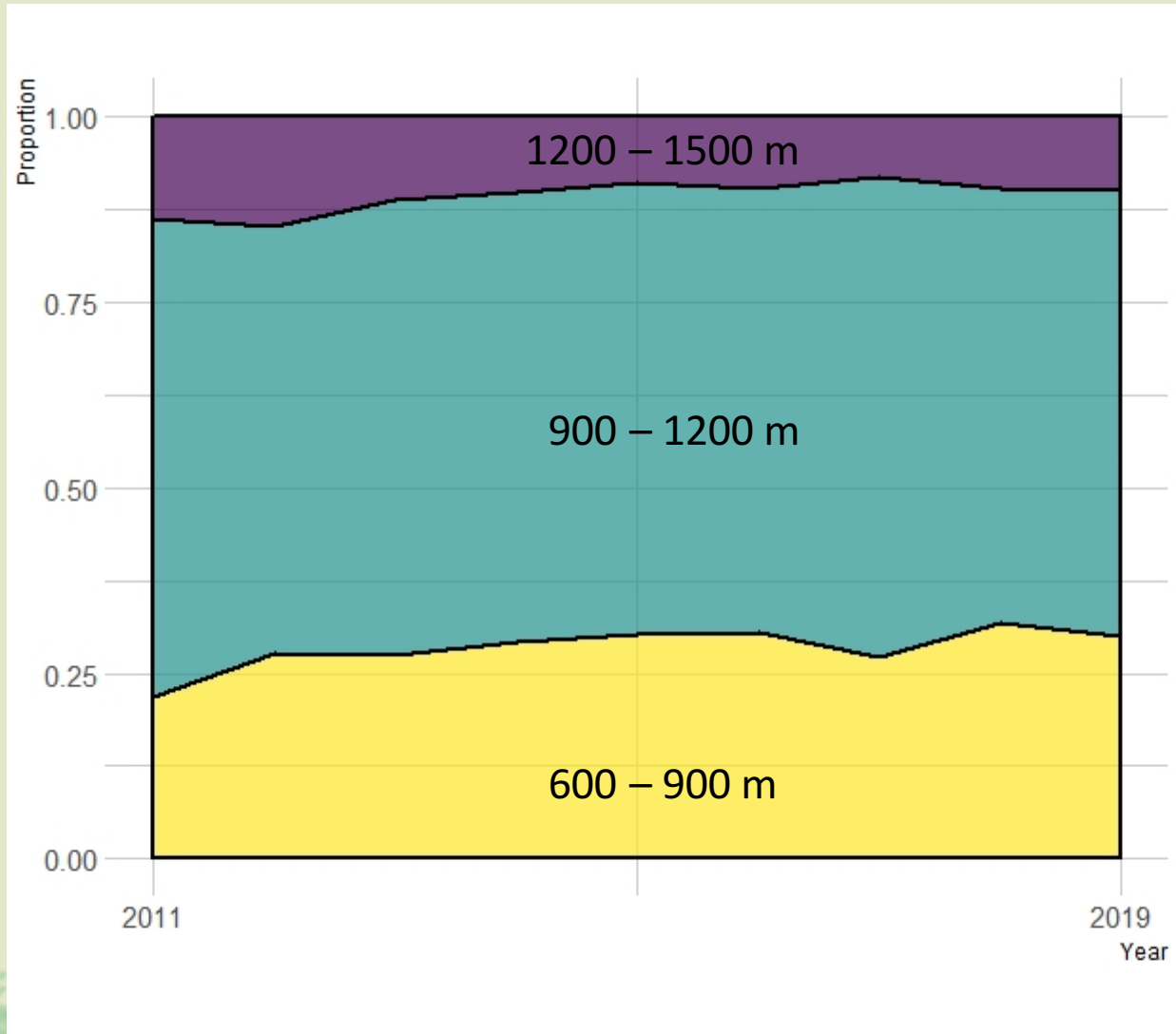




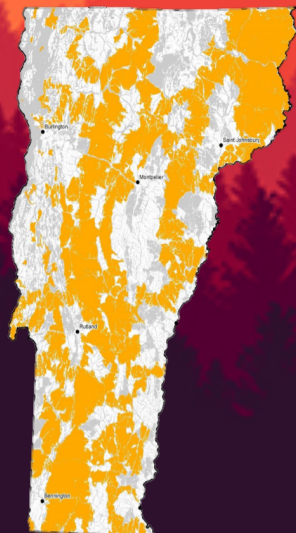
Blackpoll Warbler abundance within study area



9-Year Elevational Shifts: Swainson's Thrush



Littlefield et al. (2019); doi:10.1002/fee.2043



Vermont Wildlife Action Plan (2015)

MountainBirdwatch.org: Hike mountains, count birds, be merry.



Reach me at jhill@vtecostudies.org

**Thank you Mountain
Birdwatchers!**

Funding & support generously provided: FEMC, U.S. Fish and Wildlife Service Region 5, U.S. Forest Service, the National Fish and Wildlife Foundation, the National Park Service, the Canadian Wildlife Service, the Vermont Agency of Natural Resources, Plum Creek, the Cullman Foundation, the New York State Department of Environmental Conservation, and numerous private donors.