

A photograph of a grassy field under a cloudy sky. The field is green and appears to be a grassland. In the distance, there are some trees and a few utility poles. The sky is overcast with grey clouds.

Distribution and spatiotemporal variability of breeding habitat in three grassland sparrows

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Geography

Biodiversity Institute

Background

Henslow's Sparrows return inconsistently to breeding areas from year to year compared to other grassland sparrows
(Dornak 2010, Dornak et al. 2013)

Objectives

Are there differences in year-to-year habitat suitability that may explain observations of nomadism in Henslow's Sparrow?

Henslow's Sparrow
Ammodramus henslowii



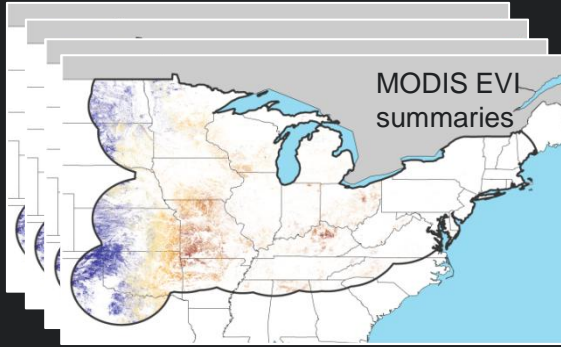
Savannah Sparrow
Passerculus sandwichensis



Grasshopper Sparrow
Ammodramus savannarum



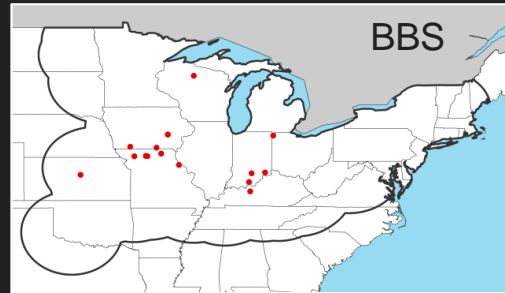
**Environmental conditions
time 1**



mean, max, range, green-up, brown-down, diff-green-up, diff-brown-down

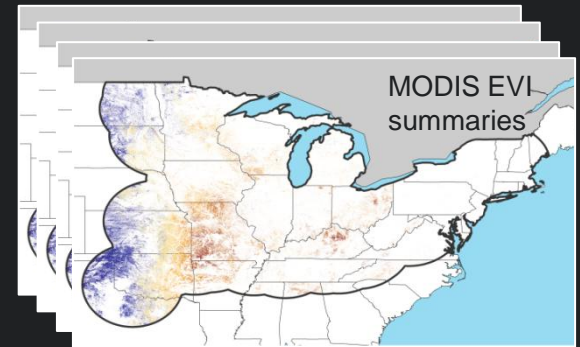
Training

**Species occurrence data
time 1**



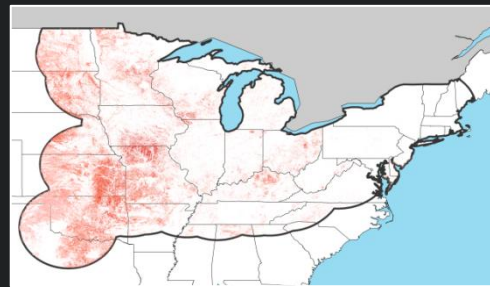
**Modeling algorithm
(Maxent)**

Environmental conditions time 2



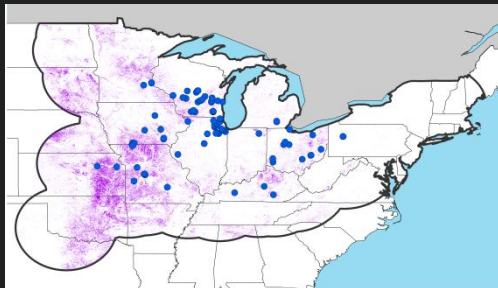
Projection

Suitable areas time 2



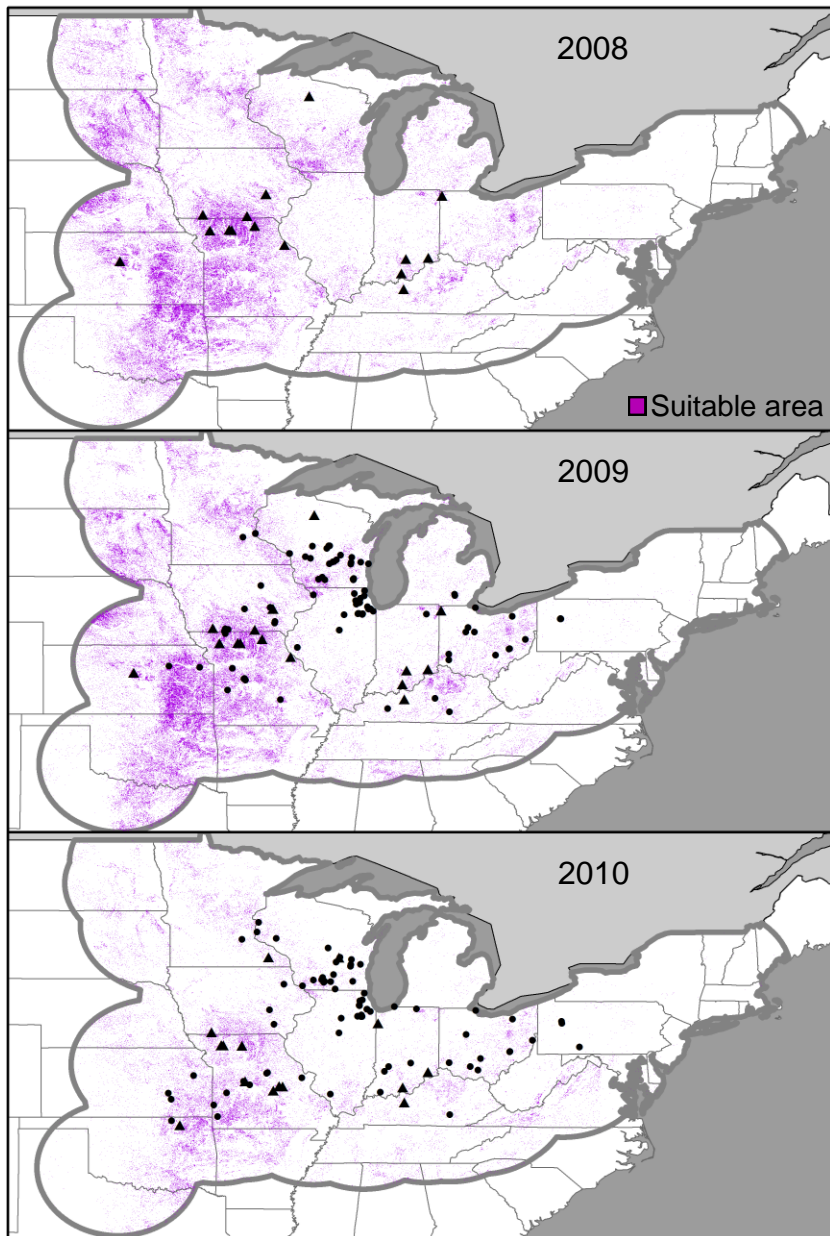
Threshold by 5%

Model evaluation

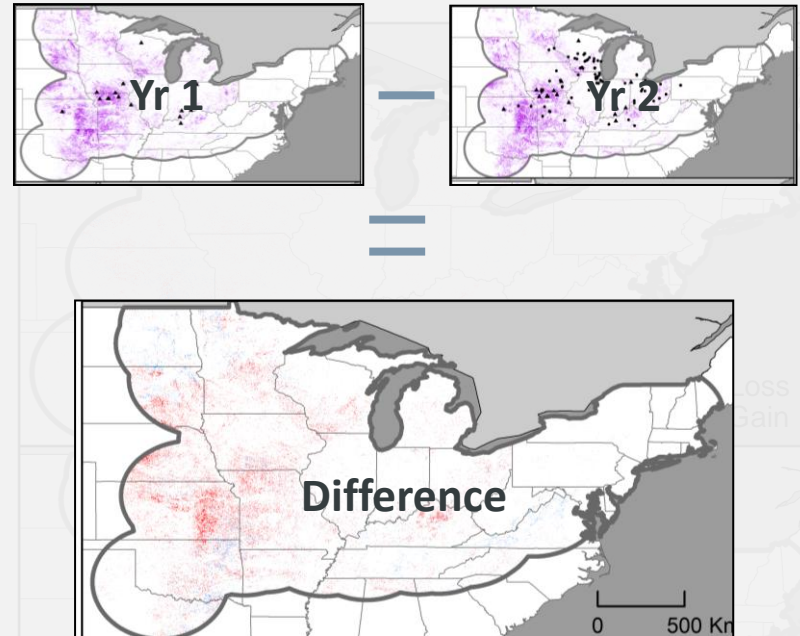


eBird occurrence data time 2
Cumulative binomial probability

Methods (pt. 1)

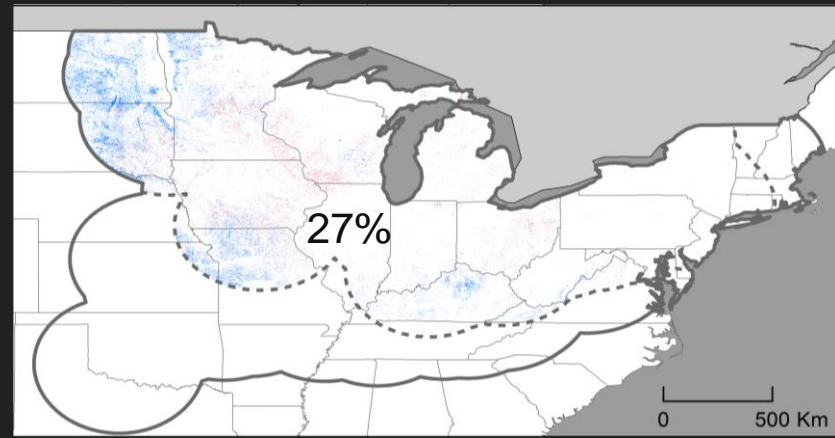
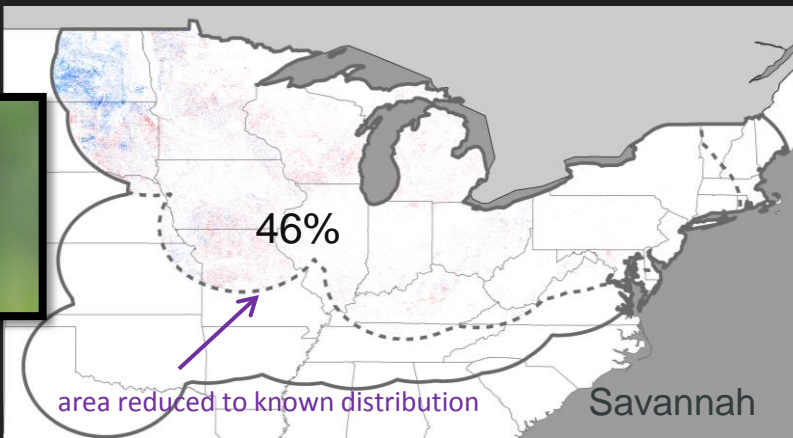
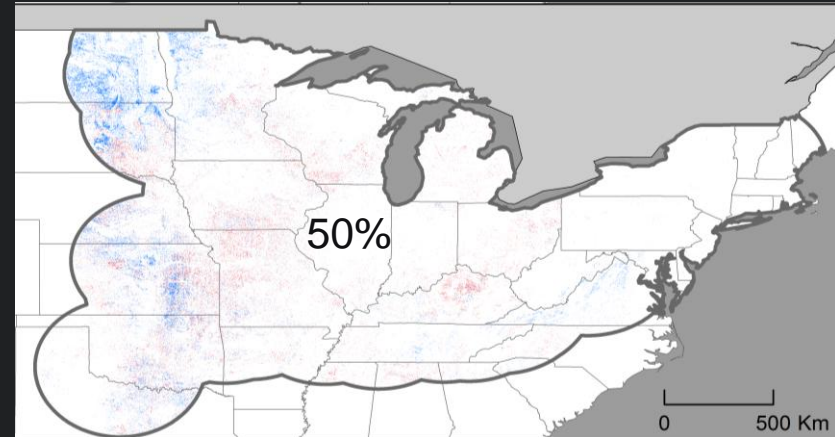
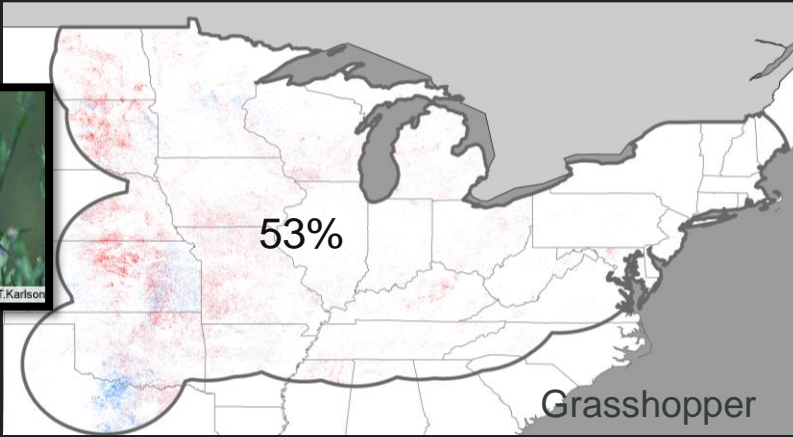
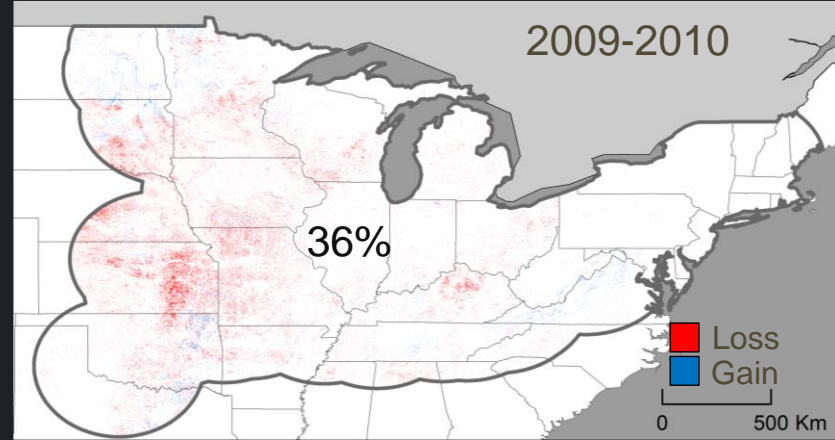
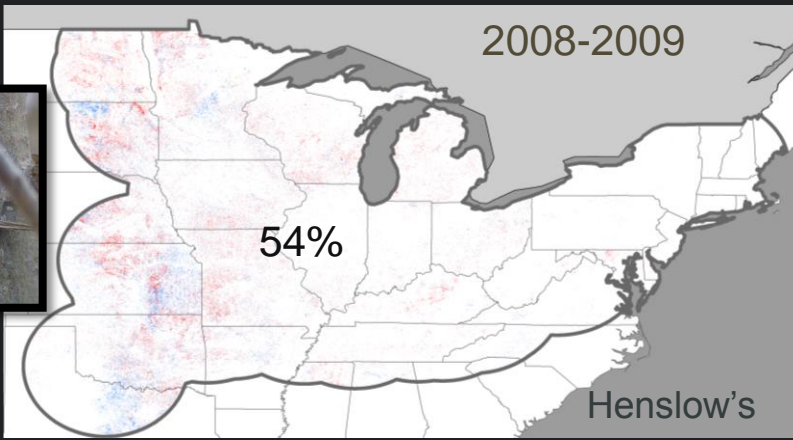


Henslow's Sparrow



- ▲ Training BBS data
- Testing eBird data





Methods (pt. 2)

Measure degree of clustering

Quadrat based point pattern analysis

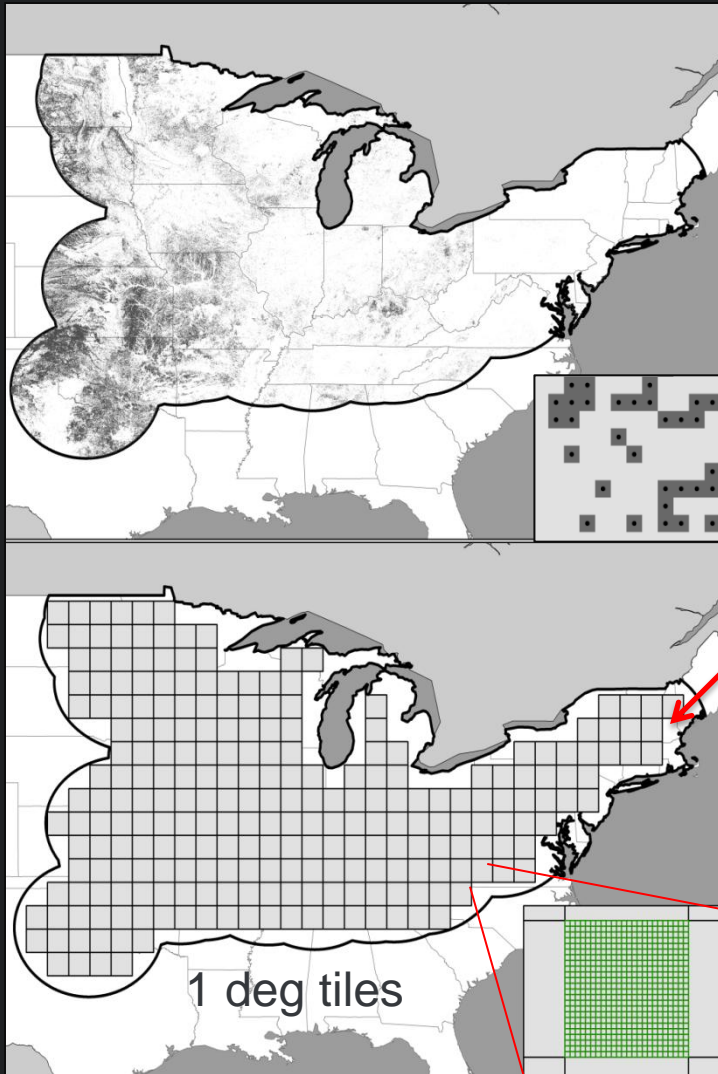
Converted raster cells to points

Created tiles to manage points

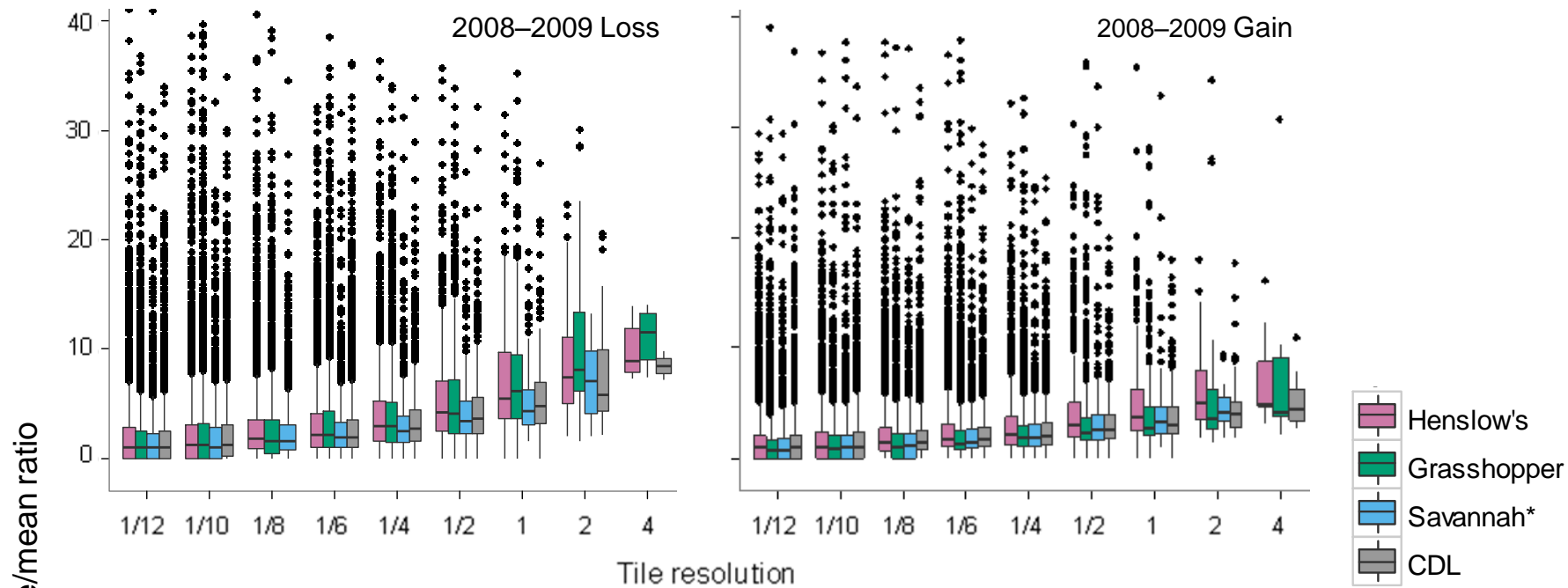
Tested dispersion across 9 resolutions

1/12 – 4 deg

Assessed with variance: mean within each tile

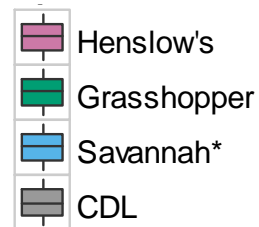


Clustering



Variance/mean ratio

Tile resolution



Coarser resolution

Findings

Stability in some areas

Broad-scale turnover

Turnover fluctuated between years and species

In dynamic years

- Henslow's losses were greater than both species
- Henslow's losses and gains were more clustered

Questions?

Thank you!

Conclusions

What does it mean for nomadism?

How does this knowledge affect management decisions?

