

P51 Technology Transfer



P51 Team

March 2026

Today's Agenda

➤ Program Reminders



➤ Two Presentations

1. Presentation 1

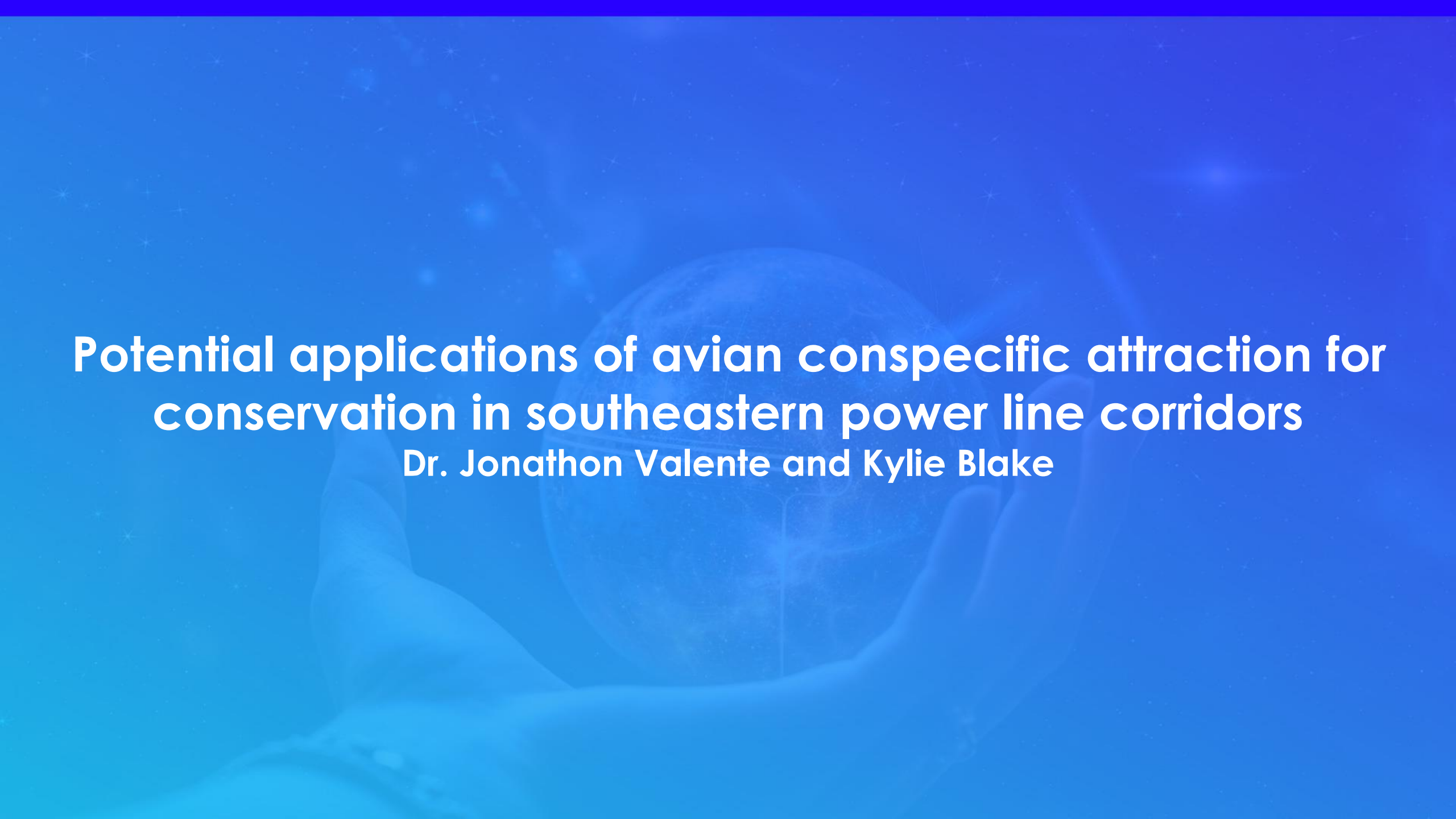
- Dr. Jonathon Valente and Kylie Blake
- Auburn University
- Avian conservation on ROWs

2. Presentation 2

- Dr. Randy Pearson and Josh Pritsolas
- Southern Illinois University Edwardsville
- GIS & remote sensing training

Coming Up.....

1. EPRI Summer Meeting
 - May 4-7
 - Tempe, Arizona
 - Registration is open
 - [HOME - EPRI Environmental Meeting - May 2026](#)
2. ROW14
 - May 12-14
 - <https://www.gotouaa.org/row-international-symposium-returns-in-2026/>
3. Next Tech Transfer
 - April 16th at 11 eastern



Potential applications of avian conspecific attraction for conservation in southeastern power line corridors

Dr. Jonathon Valente and Kylie Blake

Socially facilitated habitat selection for breeding birds

Potential applications in power line right-of-ways

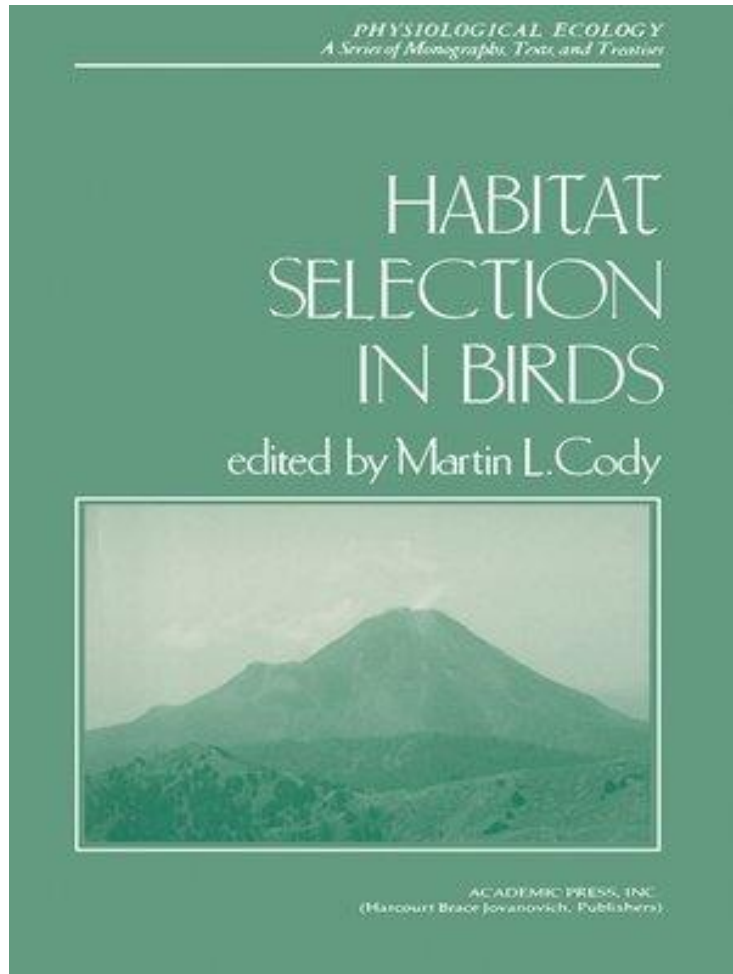


Dr. Jonathon Valente and Kylie Blake

U.S. Geological Survey, Alabama Cooperative Fish & Wildlife Research Unit, College of Forestry, Wildlife, and Environment, Auburn University



Habitat selection



Conspecific attraction

Veery



DOI: 10.1111/ddi.12635

BIODIVERSITY RESEARCH

WILEY

Diversity and
Distributions

A Journal of
Conservation
Biogeography

Using audio playback to expand the geographic breeding range of an endangered species

Nicholas M. Anich¹  | Michael P. Ward^{2,3} 



Kirtland's



The Condor 112(2):252–264
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RESEARCH NEEDS AND RECOMMENDATIONS FOR THE USE OF CONSPECIFIC-ATTRACTION METHODS IN THE CONSERVATION OF MIGRATORY SONGBIRDS

MARISSA A. AHLERING^{1,7}, DEBORA ARLT^{2,8}, MATTHEW G. BETTS³, ROBERT J. FLETCHER, JR.⁴,
JOSEPH J. NOCERA⁵, AND MICHAEL P. WARD⁶

Black



AVIAN CONSERVATION
& ECOLOGY

VOLUME 13, ISSUE 1, ARTICLE 23

Schofield, L. N., H. L. Loffland, R. B. Siegel, C. Stermer, and H. A. Mathewson. 2018. Using conspecific broadcast for Willow Flycatcher restoration. *Avian Conservation and Ecology* 13(1):23. <https://doi.org/10.5751/ACE-01216-130123>
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Research Paper

Using conspecific broadcast for Willow Flycatcher restoration

Lynn N. Schofield¹, Helen L. Loffland¹, Rodney B. Siegel¹, Chris J. Stermer² and Heather A. Mathewson³



Conservation Biology



Review

The uses and implications of avian vocalizations for conservation planning

Rebecca N. Lewis ,^{1,2*} Leah J. Williams ,² and R. Tucker Gilman ¹



Little Owl

Restoration: Field of Dreams hypothesis



“If you build it, they will come.”

Example: Eastern Egg Rock Island

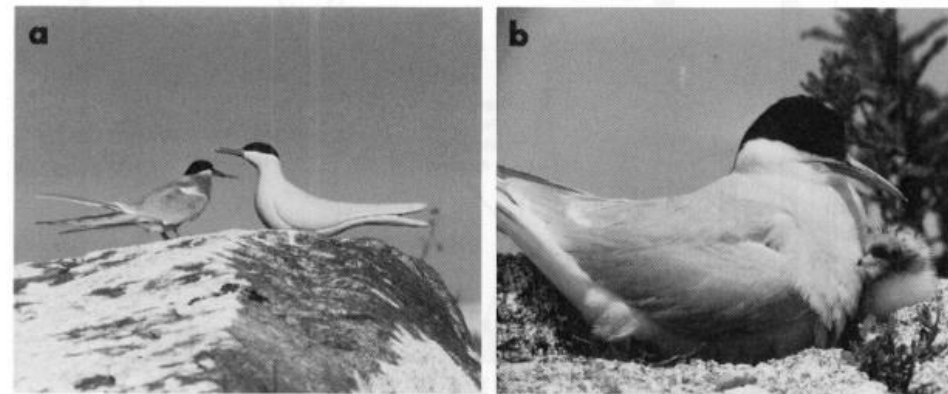
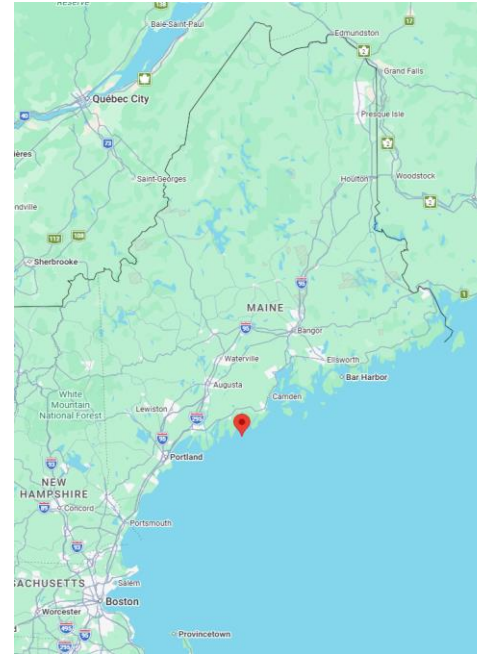


Fig. 2. Arctic Tern (Photos by S. W. Kress).

a) An Arctic Tern offering food to a decoy, b) An Arctic Tern with a chick.

Example: Marbled Murrelet

Ornithology

AmericanOrnithology.org

Volume 138, 2021, pp. 1–13
DOI: 10.1093/ornithology/ukaa086

RESEARCH ARTICLE

Experimental evidence that social information affects habitat selection in Marbled Murrelets

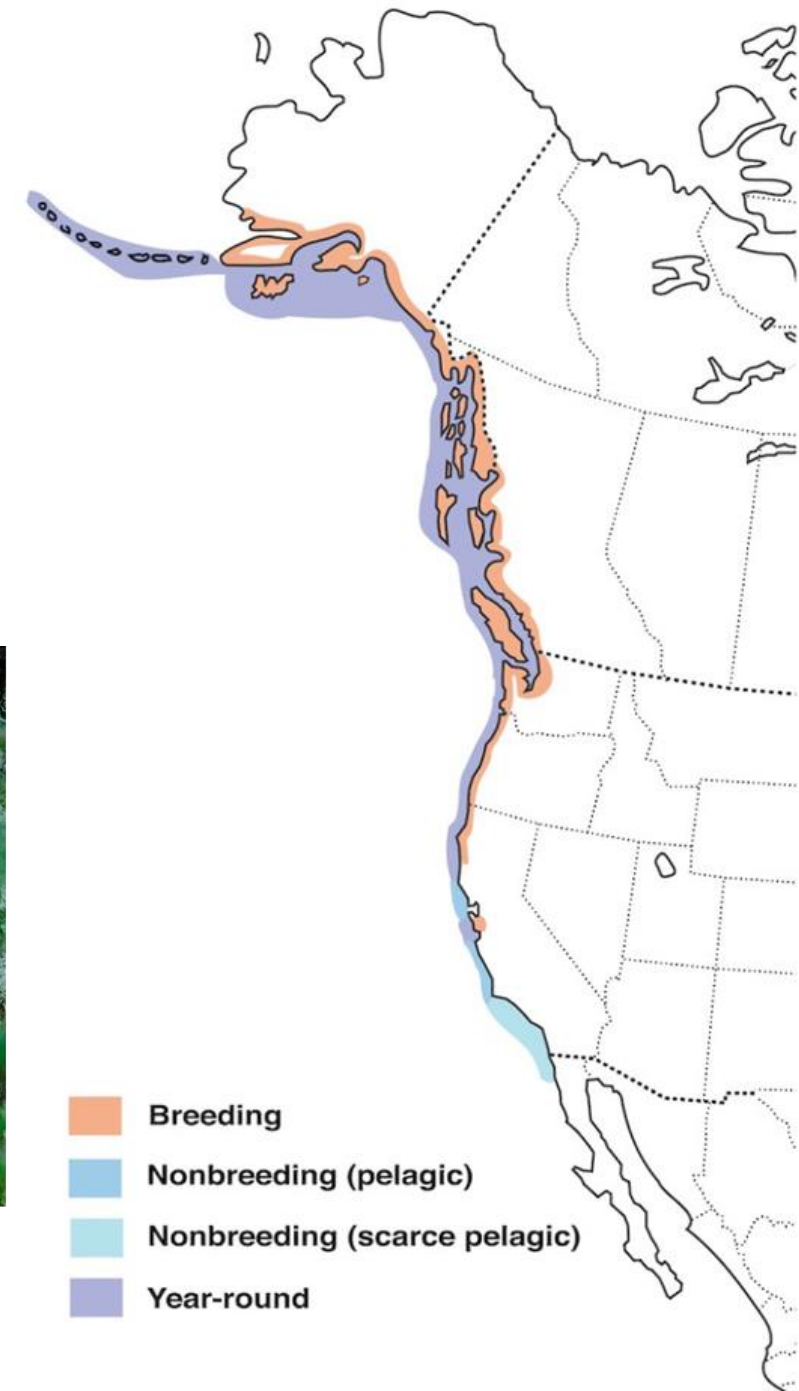
Jonathon J. Valente,^{1,2,*} S. Kim Nelson,³ James W. Rivers,^{1,10} Daniel D. Roby,^{3,10} and Matthew G. Betts^{4,*}



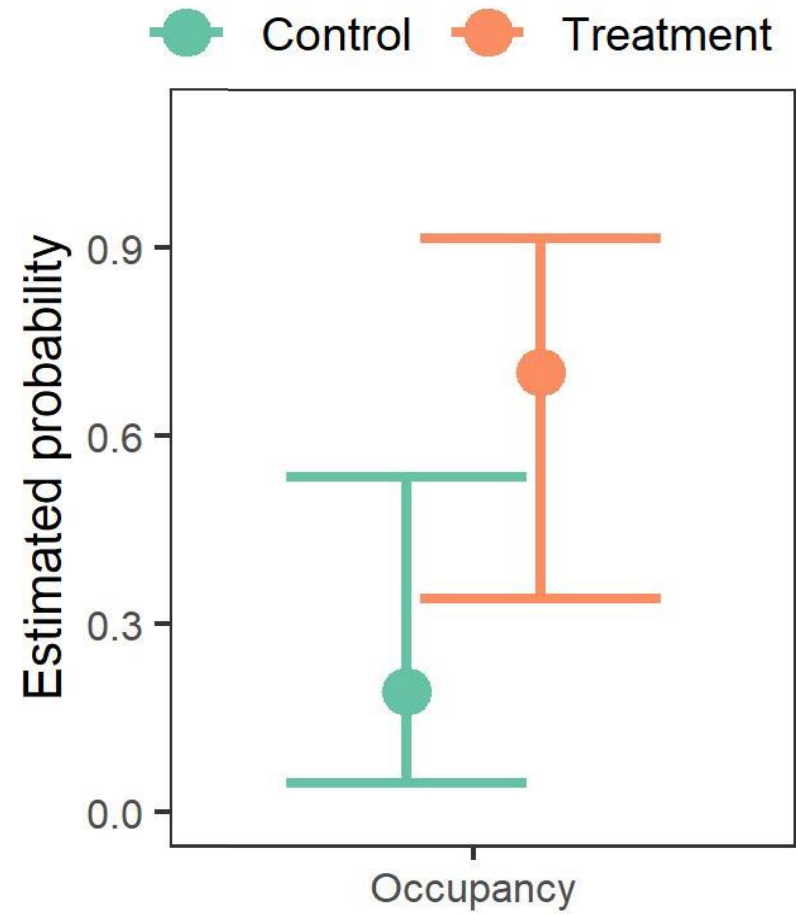
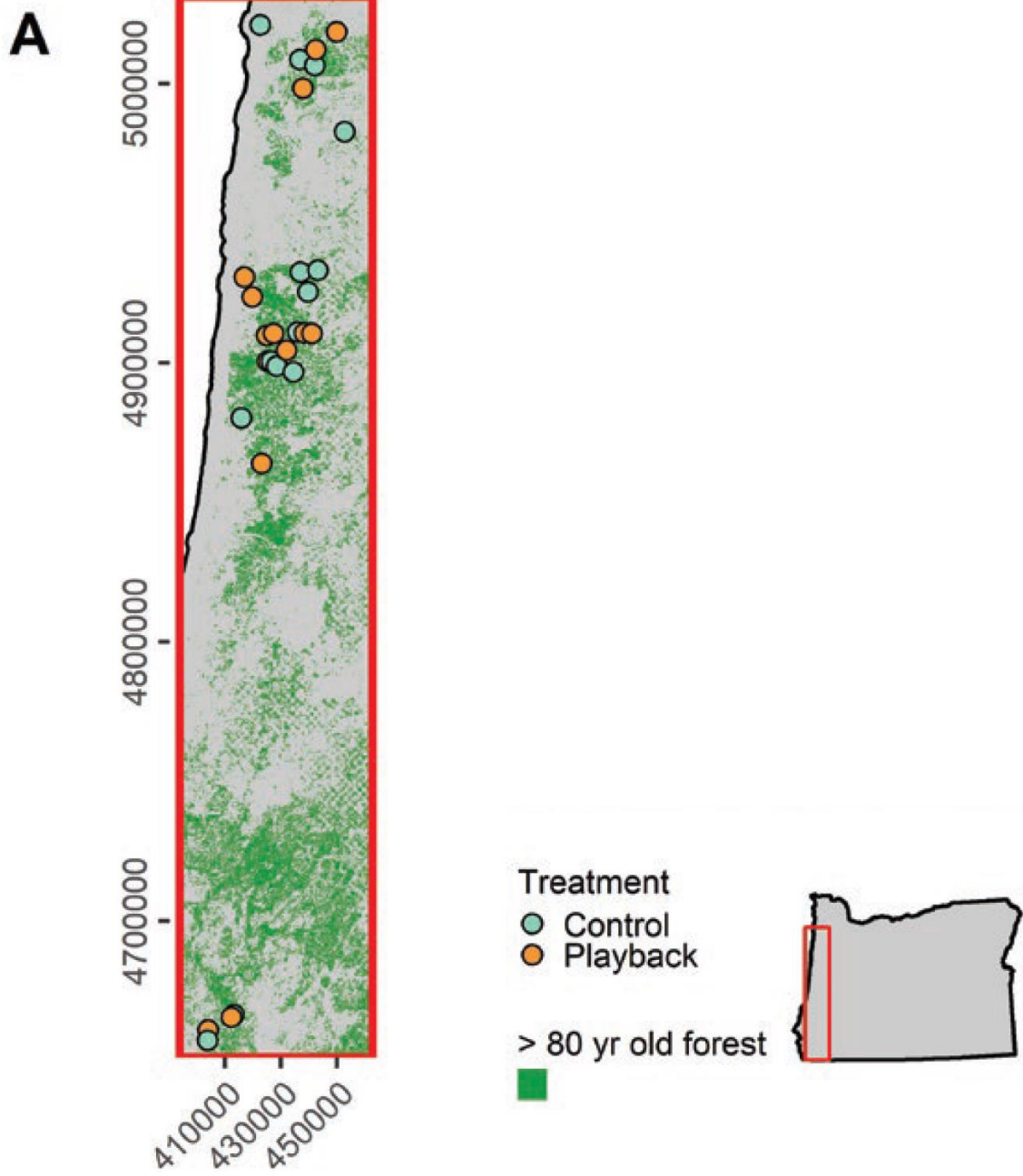
S. Kim Nelson & Dan Cushing



Brett Lovelace/OSU



- Breeding
- Nonbreeding (pelagic)
- Nonbreeding (scarce pelagic)
- Year-round



Probability of breeding
~ 4^x greater!

Example: Black-capped Vireo

- Ft. Hood tried to attract vireos for 12 years
- Scrub oak habitat



- 2001, broadcast songs March-July
- Two control sites (0 settlement)
- 5 experimental sites (73 vireos!)



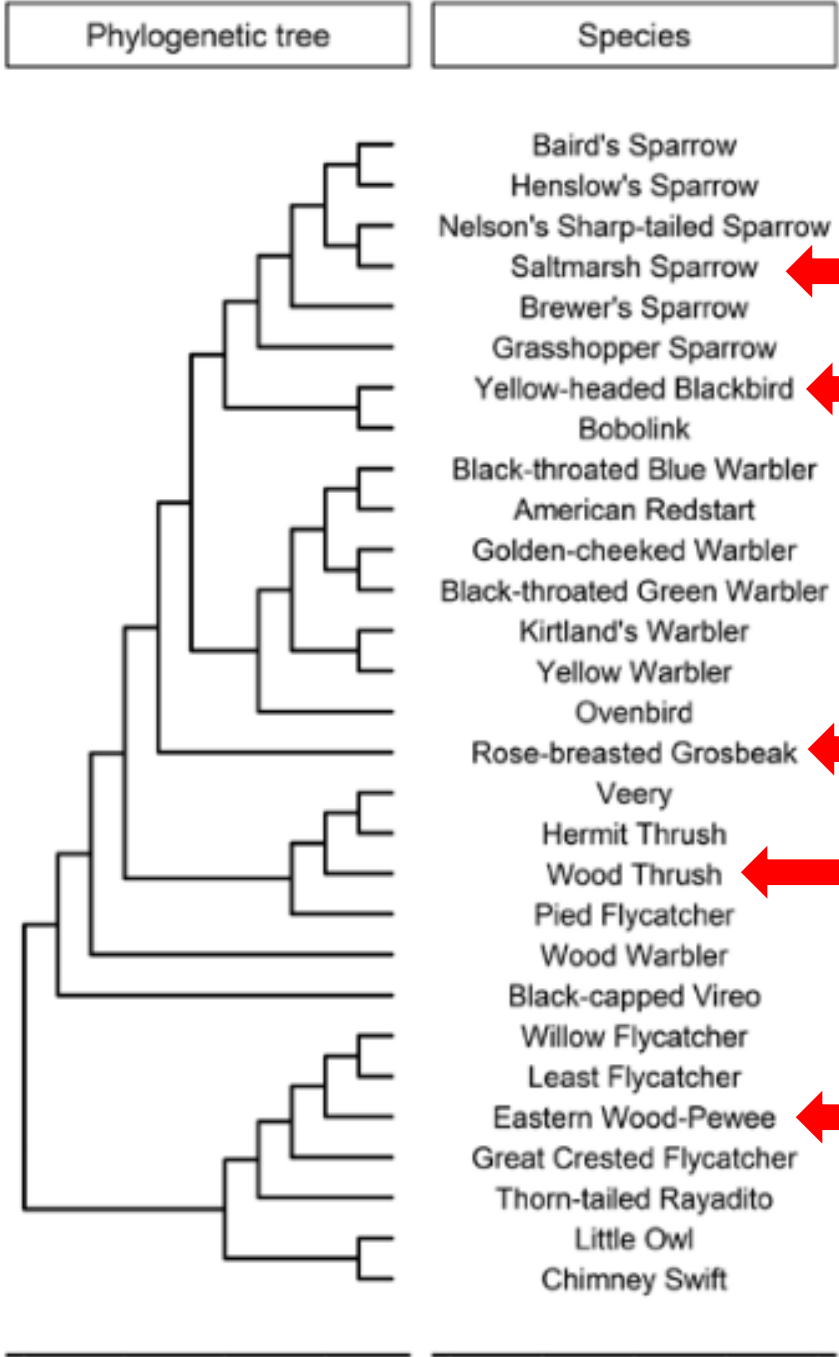
Conspecific Attraction and the Conservation of Territorial Songbirds

MICHAEL P. WARD*‡ AND SCOTT SCHLOSSBERG†

*Department of Animal Biology, University of Illinois, Urbana-Champaign, 201 Shelford Vivarium, 606 E. Healey Street, Champaign, IL 61820, U.S.A., email mpward@uiuc.edu

†Program in Ecology and Evolutionary Biology, University of Illinois, Urbana-Champaign, 201 Shelford Vivarium, 606 E. Healey Street, Champaign, IL 61820, U.S.A., email schlossbr@uiuc.edu





Pretty common strategy!

RESEARCH ARTICLE

Conspecific attraction for conservation and management of terrestrial breeding birds: Current knowledge and future research directions

Jonathon J. Valente,^{1,2,*} Christa L. LeGrande-Rolls,³ James W. Rivers,^{1,•} Anna M. Tucker,^{4,•} Richard A. Fischer,³ and Matthew G. Betts^{5,•}



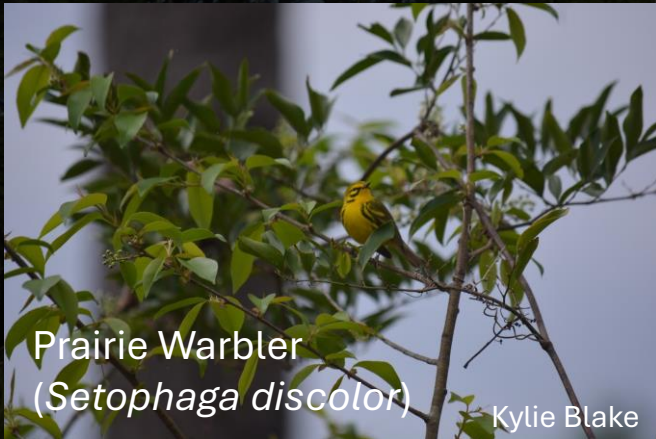
Loss of early successional / pine savannas



Study Area



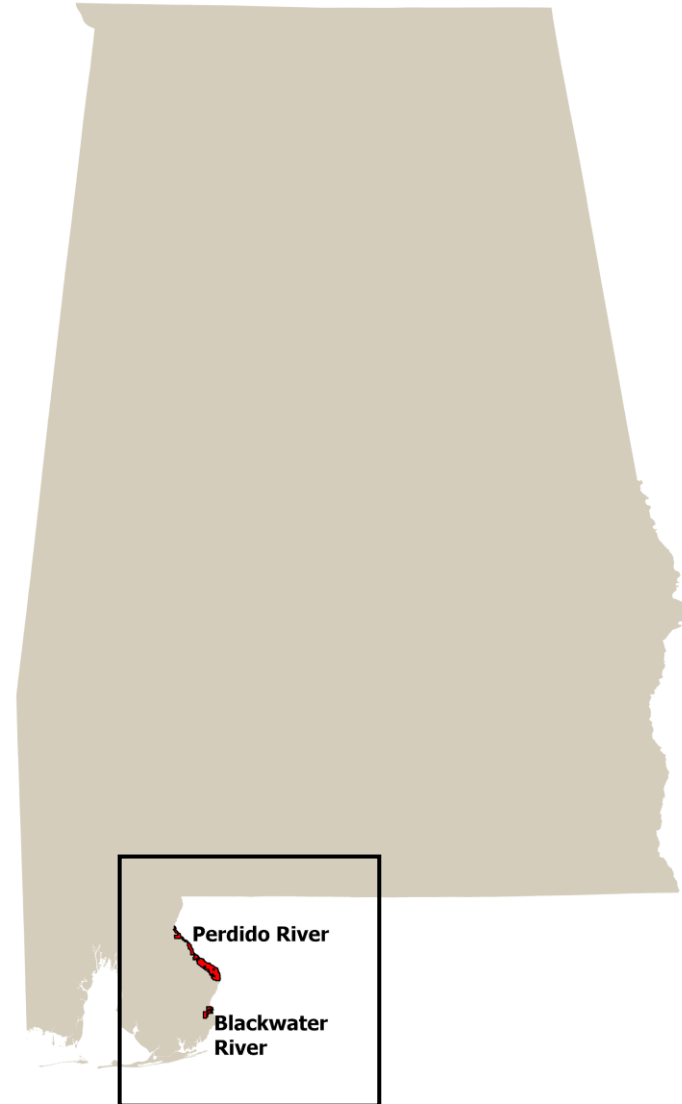
Kylie Blake



Kylie Blake



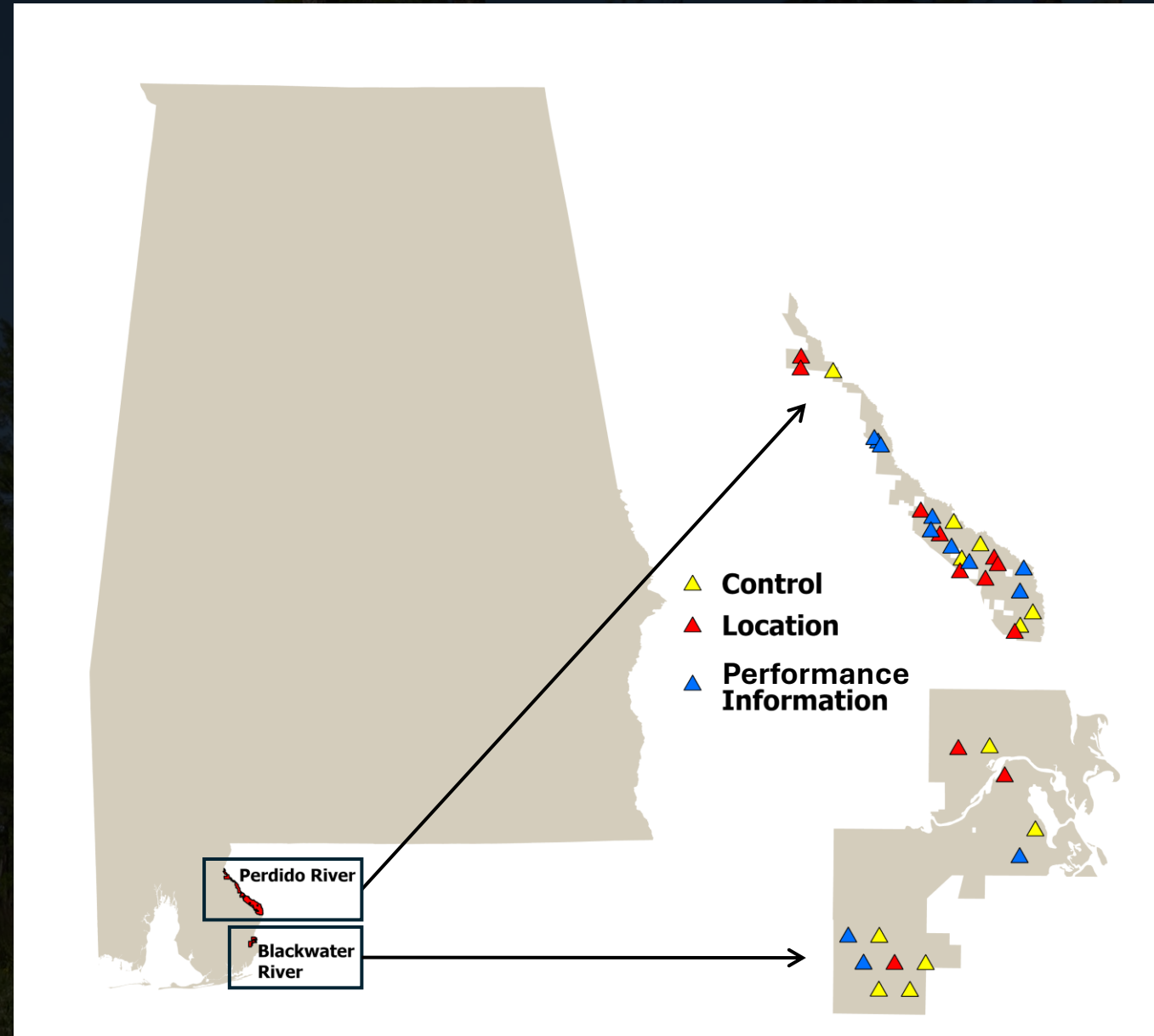
Northern Bobwhite
(*Colinus virginianus*)



Study Area

Treatment Type	Description	Number of Treatment Sites
Control	Recording only (no broadcast)	12

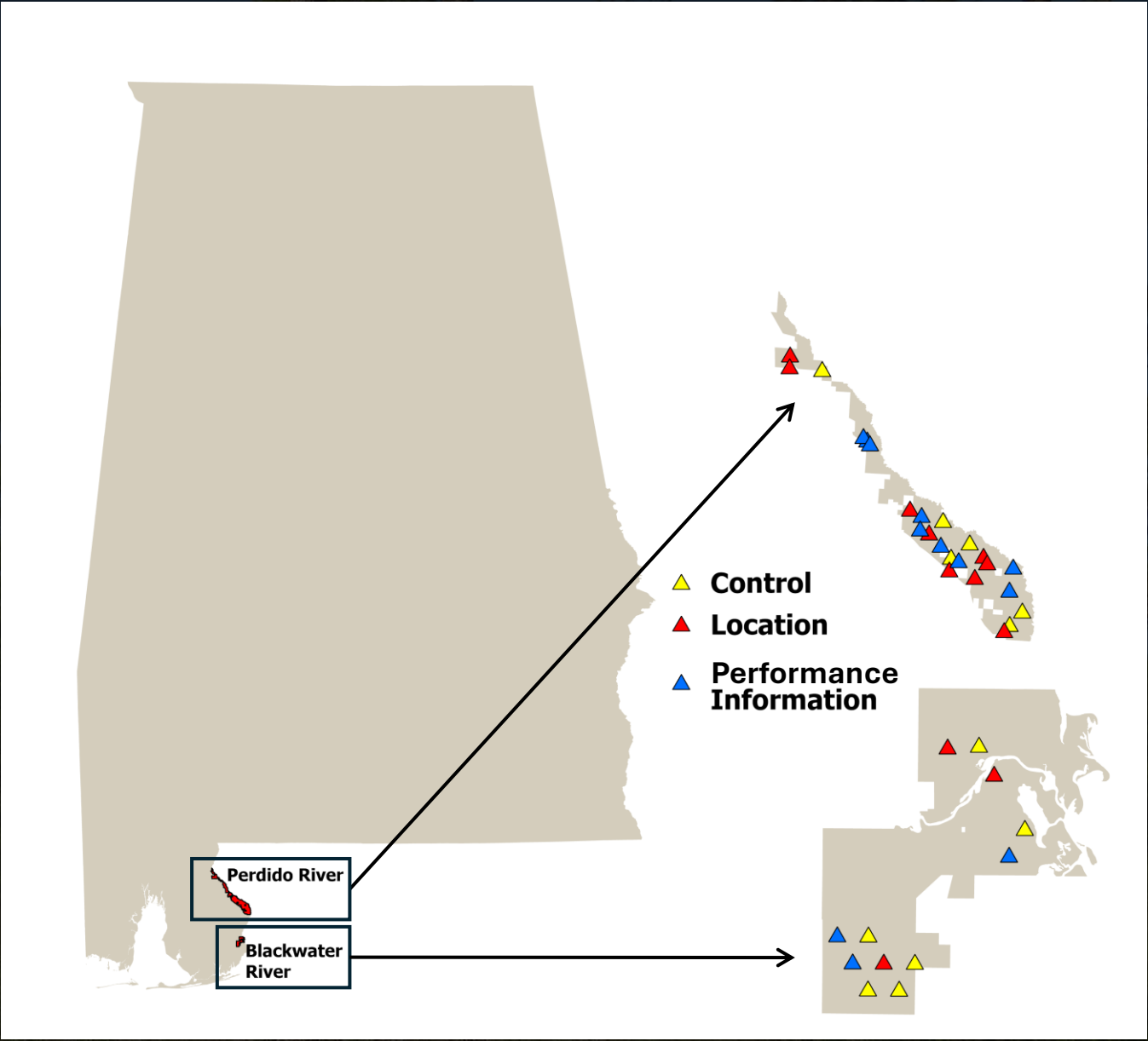
Total = 36 treatment sites



Study Area

Treatment Type	Description	Number of Treatment Sites
Control	Recording only (no broadcast)	12
Location cue (LC)	Playback of male song simulating conspecific presence	12

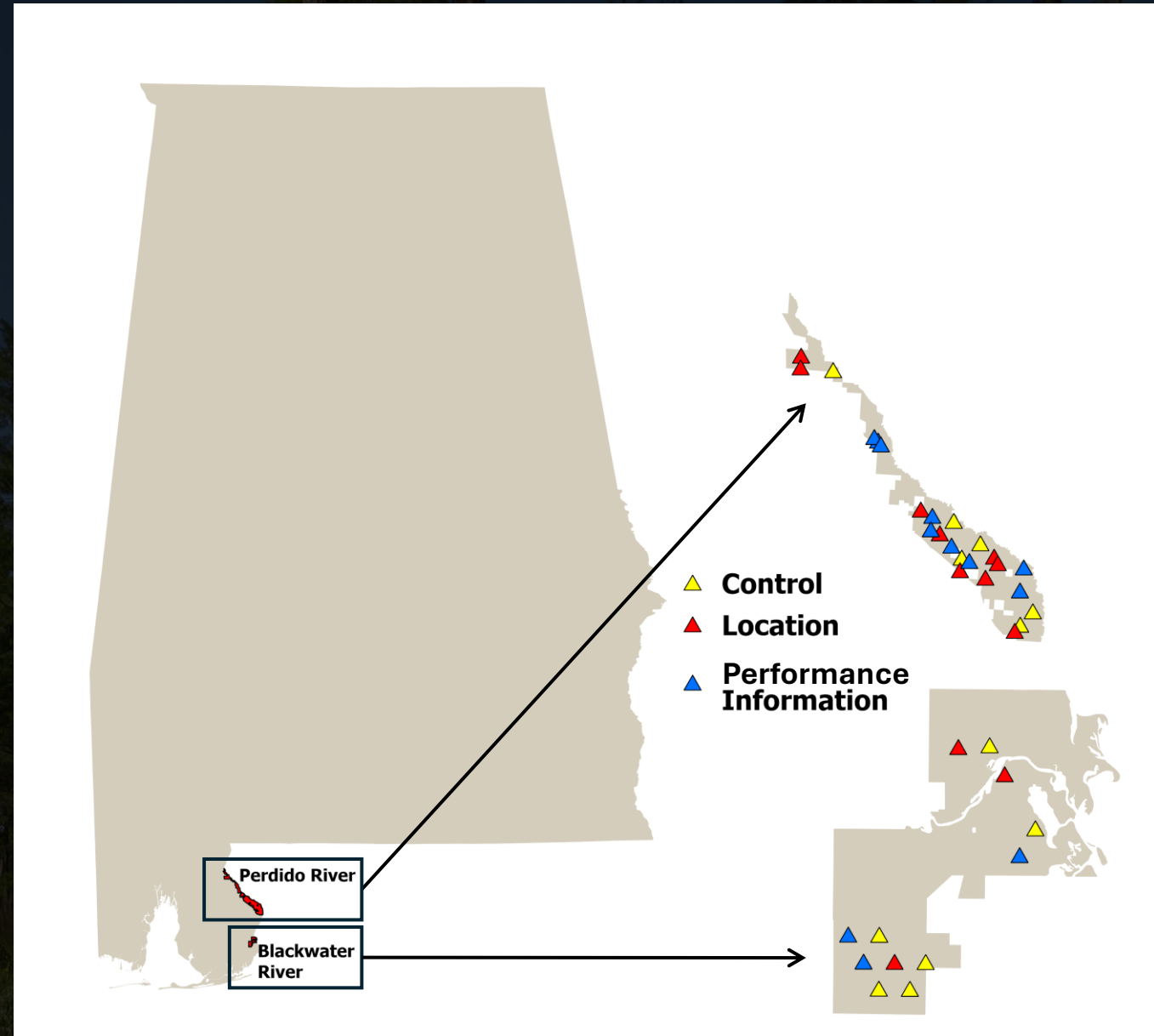
Total = 36 treatment sites



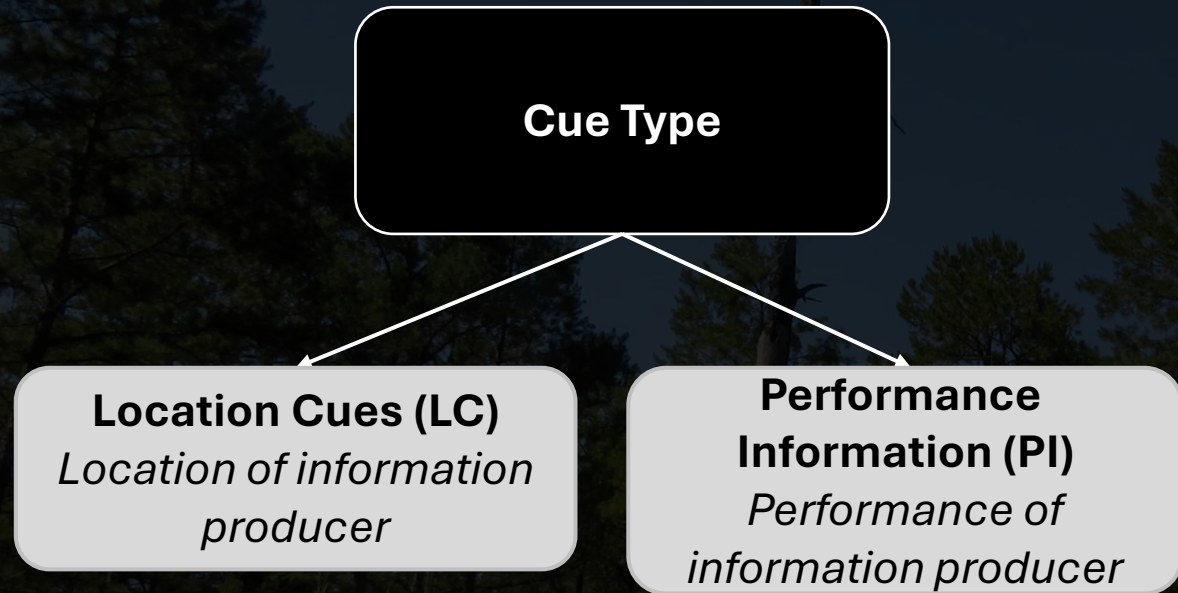
Study Area

Treatment Type	Description	Number of Treatment Sites
Control	Recording only (no broadcast)	12
Location cue (LC)	Playback of male song simulating conspecific presence	12
Performance information (PI)	Playback of male song + female and fledgling calls simulating reproductive success	12

Total = 36 treatment sites



Why does vocalization and time of year matter?

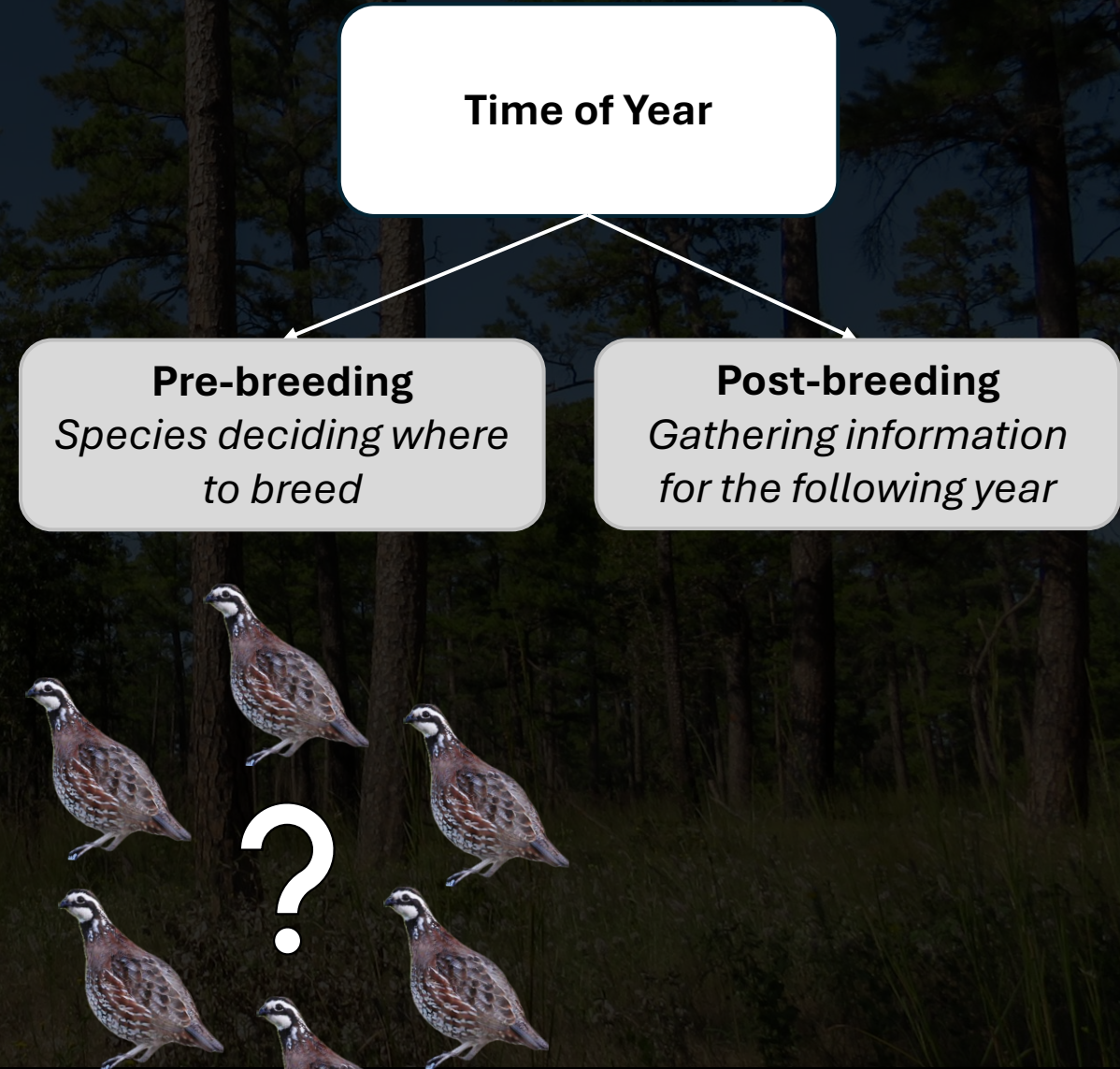


- Many studies only test one or merge cue types into a single playback treatment
- **We cannot isolate how each cue independently influences settlement decisions**



Why does vocalization and time of year matter?

- Playback increases bird presence in all seasons: pre-, during, and post-breeding.
- Few studies test **how timing itself alters the strength or function of social attraction**



Study Objective

- Test *when* and *how* birds select breeding habitat:
 - Pre-breeding: Apr–May 15, 2026
 - Post-breeding: Jul–Aug 8, 2025
- Isolate social cue types:
 - LC: male song
 - Pl: male + female + begging calls



Study Objective

- Test *when* and *how* bobwhites select breeding habitat:
 - Pre-breeding: Apr–May 15, 2026
 - Post-breeding: Jul–Aug 8, 2025
- Isolate social cue types:
 - LC: male song
 - Pl: male + female + begging calls



Trevor Longnecker

Methods: Applying Treatment



Step 1: Apply broadcast / recording treatment

Methods: Applying Treatment



Step 1: Apply broadcast/recording treatment



Step 2: Record song

Methods: Applying Treatment



Step 1: Apply broadcast/recording treatment

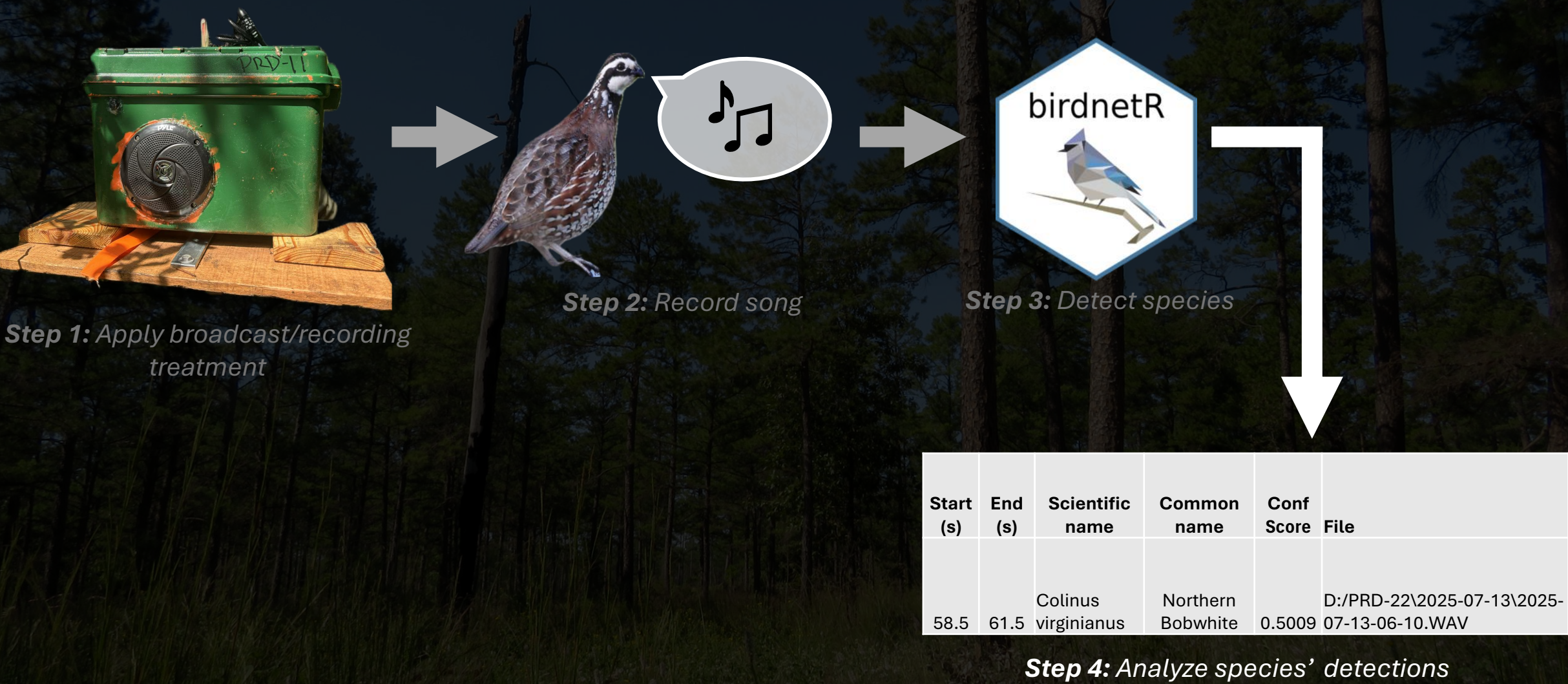


Step 2: Record song



Step 3: Detect species

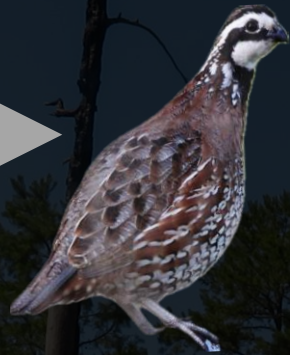
Methods: Applying Treatment



Methods: Applying Treatment



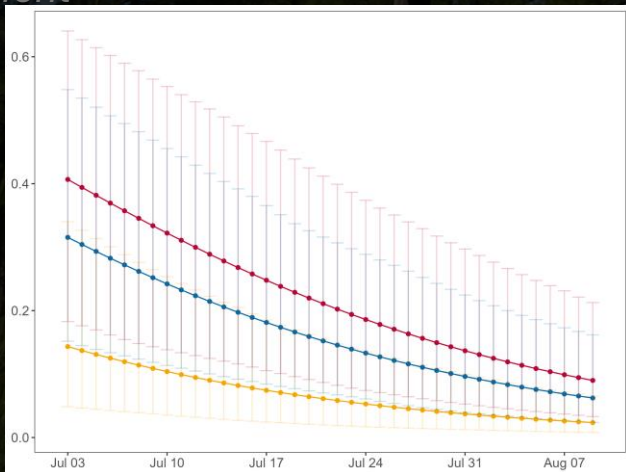
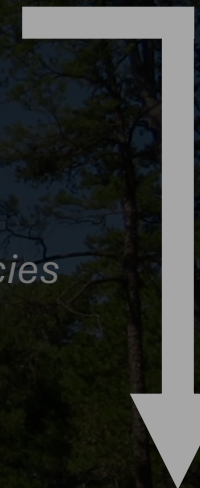
Step 1: Apply broadcast/recording treatment



Step 2: Record song



Step 3: Detect species



Step 5: Model detection probability



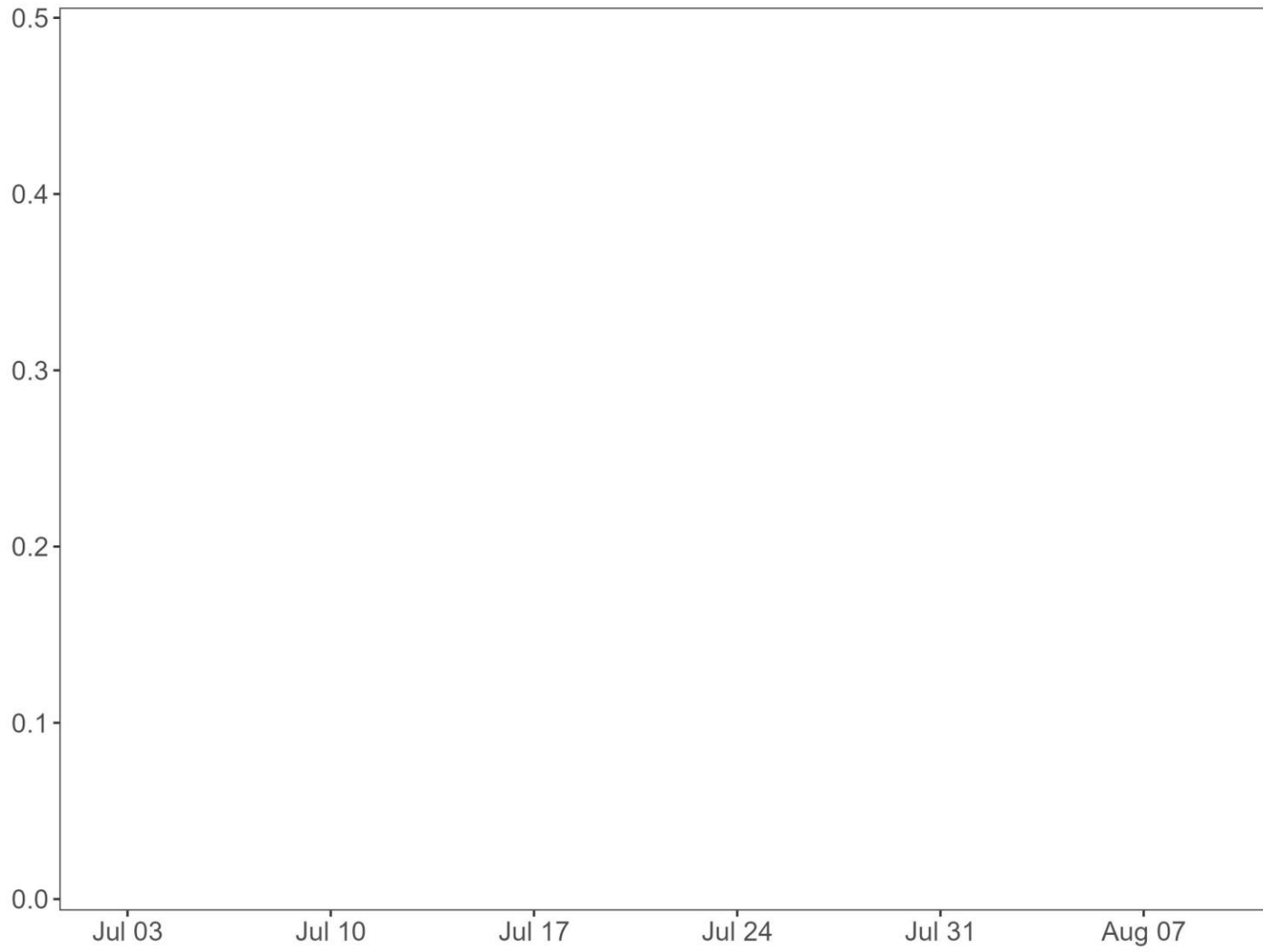
Start (s)	End (s)	Scientific name	Common name	Conf Score	File
58.5	61.5	Colinus virginianus	Northern Bobwhite	0.5009	D:/PRD-22\2025-07-13\2025-07-13-06-10.WAV

Step 4: Analyze species' detections

Preliminary Results

Presence ~ treatment + day of year + (1 | pointID)

Probability of NOBO Detection



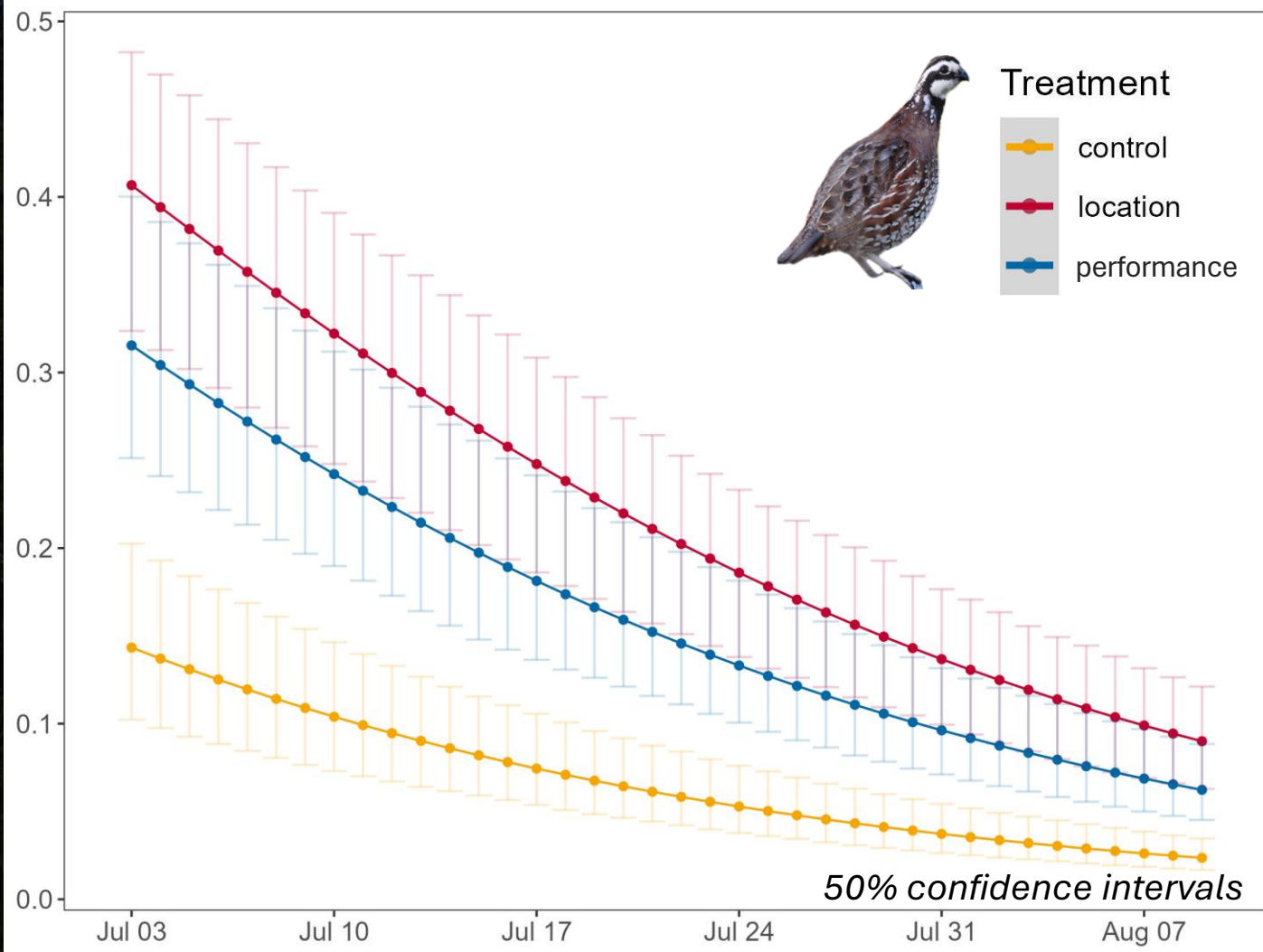
Date (July 3 – August 8, 2025)



Preliminary Results

Presence ~ treatment + day of year + (1 | pointID)

Probability of NOBO Detection



Treatment

control

location

performance

50% confidence intervals

Date (July 3 – August 9, 2025)

- **Treatment Effect:** 3-4 times greater probability of detecting a NOBO at treatment sites (LC = 20.1%, PI = 14.4% , C = 5.7%)
- **Day of Year:** detection significantly decreased over the study period (p=1.34e-09)

Discussion

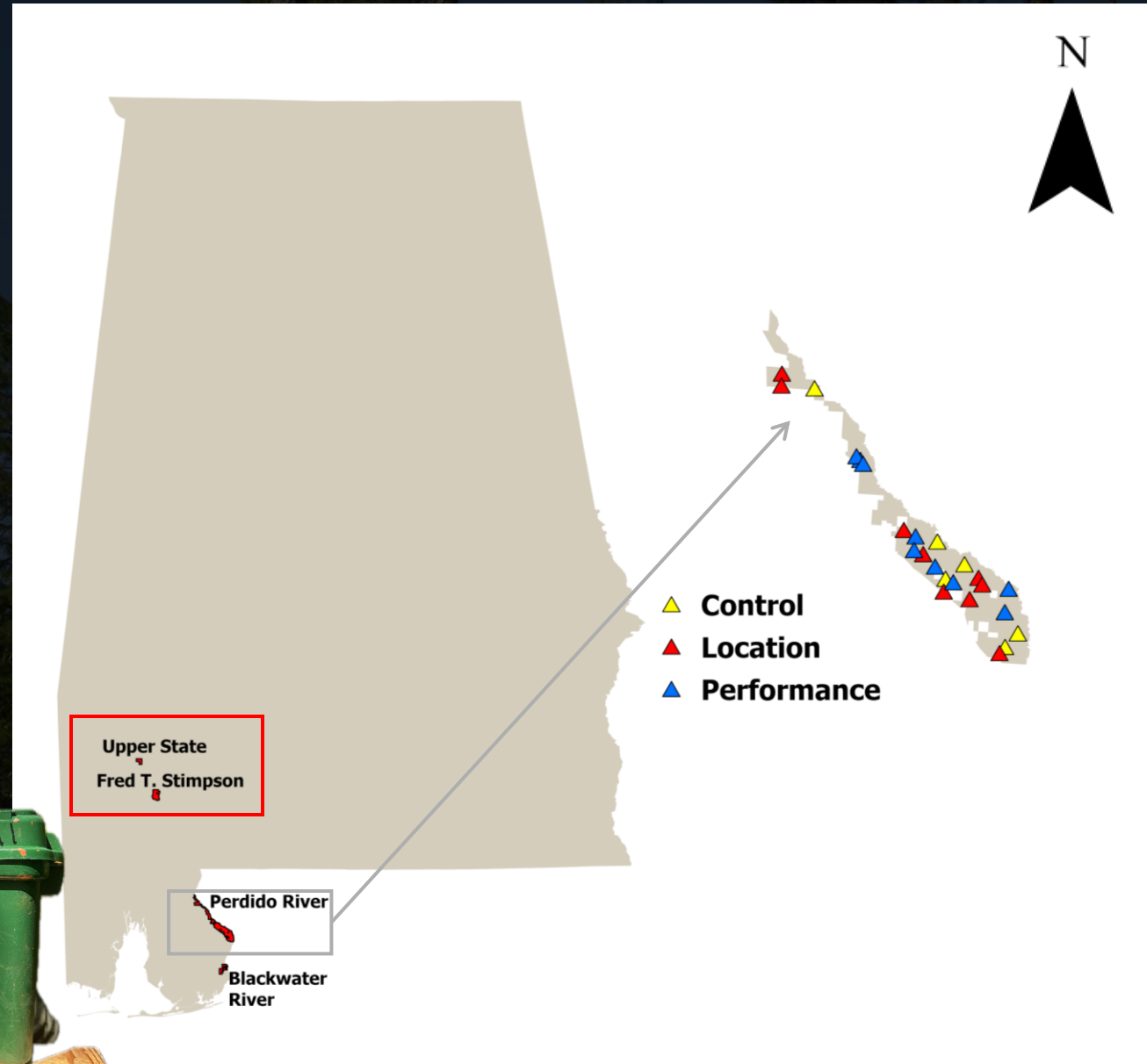
- **Prospecting $\uparrow$ Treatment**
 - NOBO detection higher at treatment sites, indicating greater prospecting activity
- **Day of Year Matters**
 - Vocalizations decreased as the season progressed away from peak breeding season
 - Potential habituation to broadcast?



Plans for 2026



Lucas Parvin



Link with EPRI



- **Questions**

- Usable habitat?
- Conspecific attraction?
- Ecological traps?



Questions?

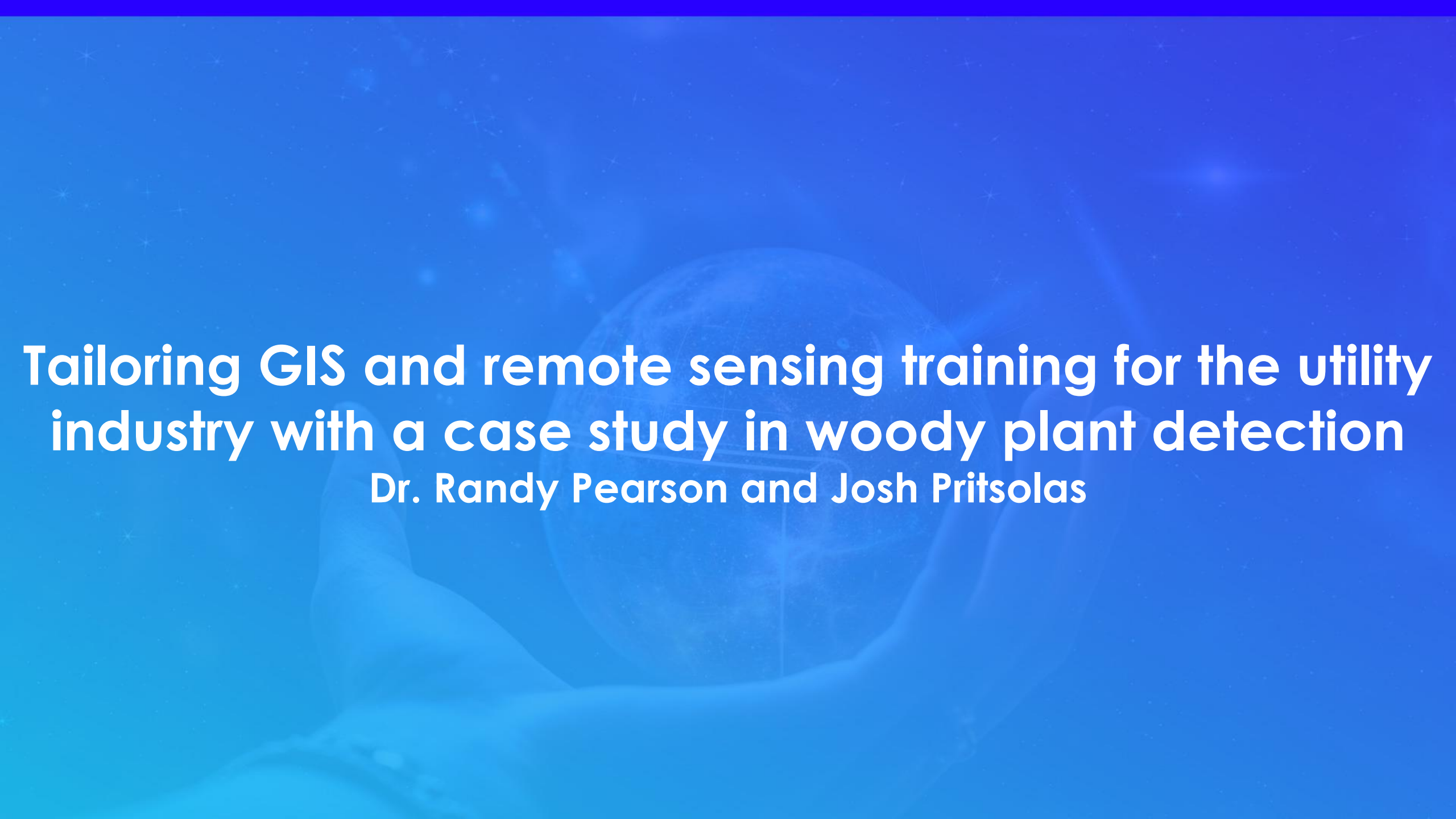
Thank you!

Contact us!
(Scan QR Code)



Kylie Blake
kzb0180@auburn.edu





Tailoring GIS and remote sensing training for the utility industry with a case study in woody plant detection

Dr. Randy Pearson and Josh Pritsolas

Closing the Gap Between Geospatial Innovation and Industry Application

- GeoMARC has spent years advancing remote sensing geospatial analysis for environmental monitoring
- We work across satellite, aircraft, and drone **systems** using RGB, multispectral, and LiDAR
- Today's message is simple:

“We’re very good at delivering results... but have not spent much time at transferring how those results are achieved”

Closing the Gap Between Geospatial Innovation and Industry Application

Problem 1: We Deliver the “What,” Not the “How”

- We provide:
 - Maps
 - Analytics
 - Reports
- But we rarely provide:
 - Workflows
 - Decision Logic
 - Replicable methods

Without the “how,” our work is difficult—if not impossible—to reproduce or scale.

Closing the Gap Between Geospatial Innovation and Industry Application

Problem 2: The Technology is Moving Too Fast

- Rapid evolution in:
 - Data Sources
 - Software platforms
 - Algorithms (especially AI / ML)
- Even academic programs struggle to keep up
- GeoMARC often:
 - Move beyond commercial tools
 - Develop custom python

If GeoMARC struggles to stay current, industry faces an even steeper challenge.

Closing the Gap Between Geospatial Innovation and Industry Application

Problem 3: The Hype vs. Reality Gap

- New tools—especially in GeoAI—are often:
 - Oversold
 - Under-tested
- Common Issues
 - They require specific data
 - Only work under narrow conditions
 - Not operationally ready

Industry loses time and resources chasing solutions that aren't yet practical.

Closing the Gap Between Geospatial Innovation and Industry Application

GeoMARC can help bridge this gap. We propose a structured knowledge transfer, focused on practical applications not theory

- Potential Areas of Knowledge Transfer:
 - Remote Sensing Data – What to use and when to use it
 - Satellite vs Drone Multispectral vs RGB Passive vs Active
 - Data Quality/Integrity
 - Critical but often overlooked
 - AI / Deep Learning
 - Cutting through the noise
 - Time Series Analysis
 - Very valuable, but difficult to prepare and interpret data
 - Vegetation Indices - What are they and how are they used?
 - Intelligent Sampling Strategies

Closing the Gap Between Geospatial Innovation and Industry Application

Proposed Solution:

We don't want to deliver results – we want to enable capability!

- Short Focused Training/Learning Modules (On-demand videos)
- Hands-on Workshops (EPRI Conferences)
 - Real world data sets
 - Practical Workflows
- Ongoing Knowledge Updates
 - Virtual Briefings
 - What's working and what's not

If we can effectively share the “how,” we multiply the value of every project we do.

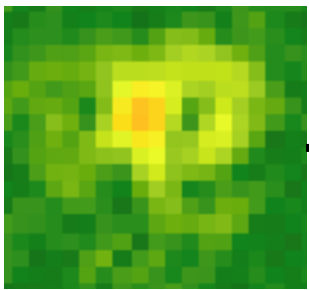
Multispectral Texture-based Woody Vegetation Detection

- Most woody vegetation detection with remote sensing uses LiDAR or stereoscopic mapping techniques to develop DEMs
 - Mostly collected by drone platforms to be highly effective with smaller woody vegetation
- Other techniques using satellite data would be beneficial for multiple reasons:
 - Scalability, data volume, processing complexity, etc.

Multispectral Texture-based Woody Vegetation Detection

- **Gradient Magnitude** and **Spectral Variance** Filters on SkySat 0.5m
 - High gradient and structurally busy = **woody vegetation** structure
 - Low gradient and structurally smooth = **grassy vegetation** structure

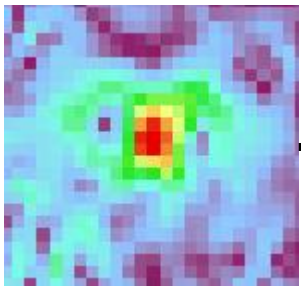
Grad Mag Filter



Aggregate
to larger
size, e.g.,
5m

Normalized
by field
statistics

Spec Var Filter



Aggregate
to larger
size, e.g.,
5m

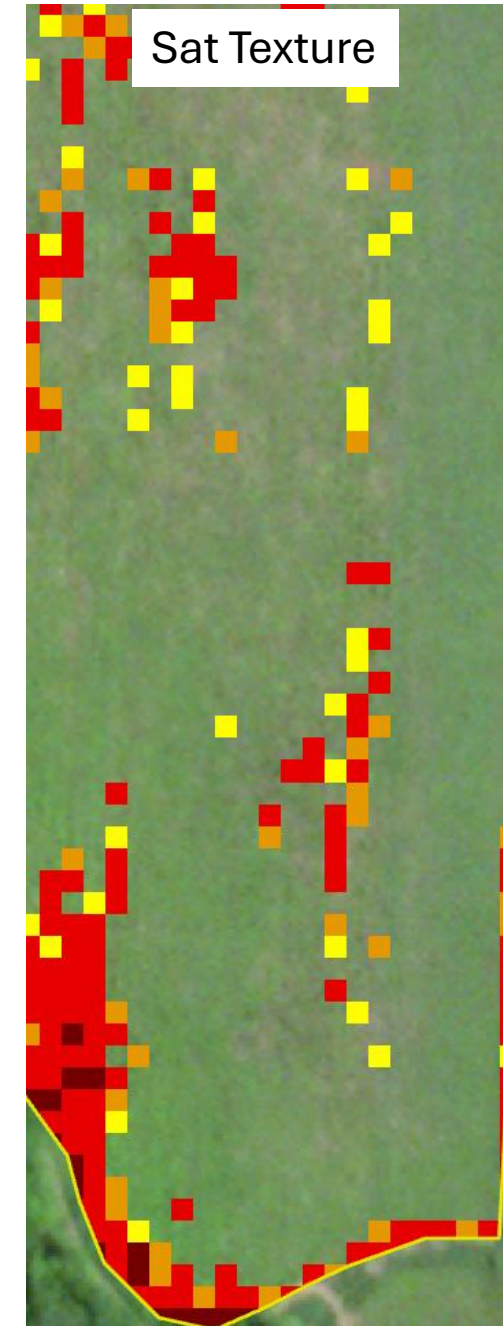
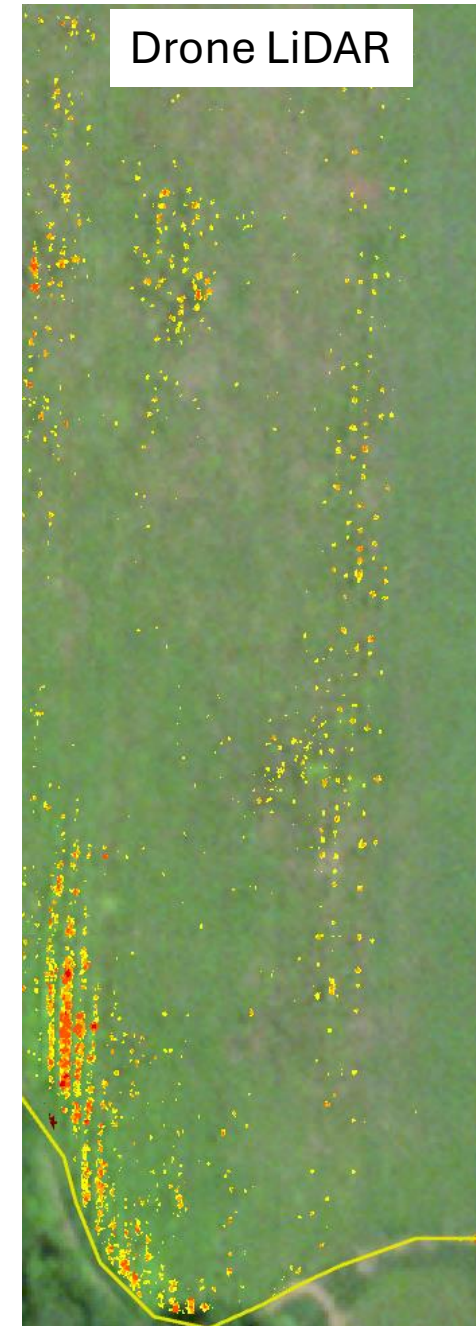
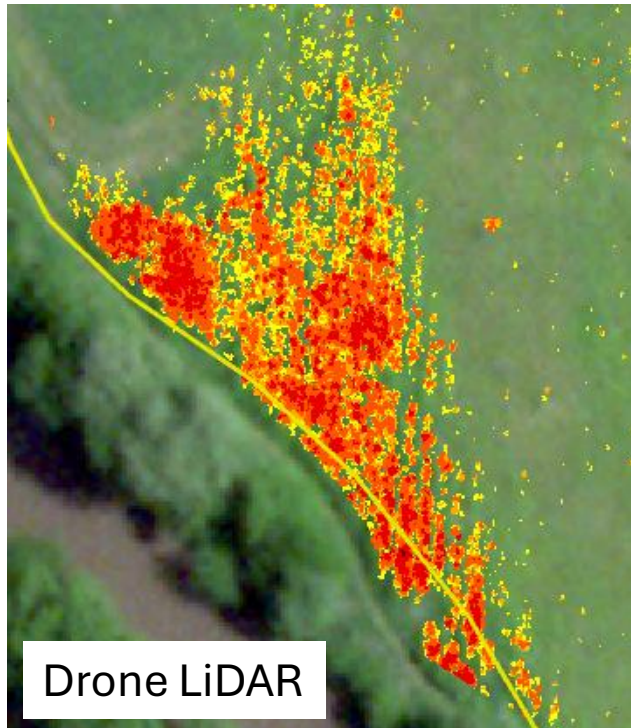
Normalized
by field
statistics

**Normalized Composite
Index**

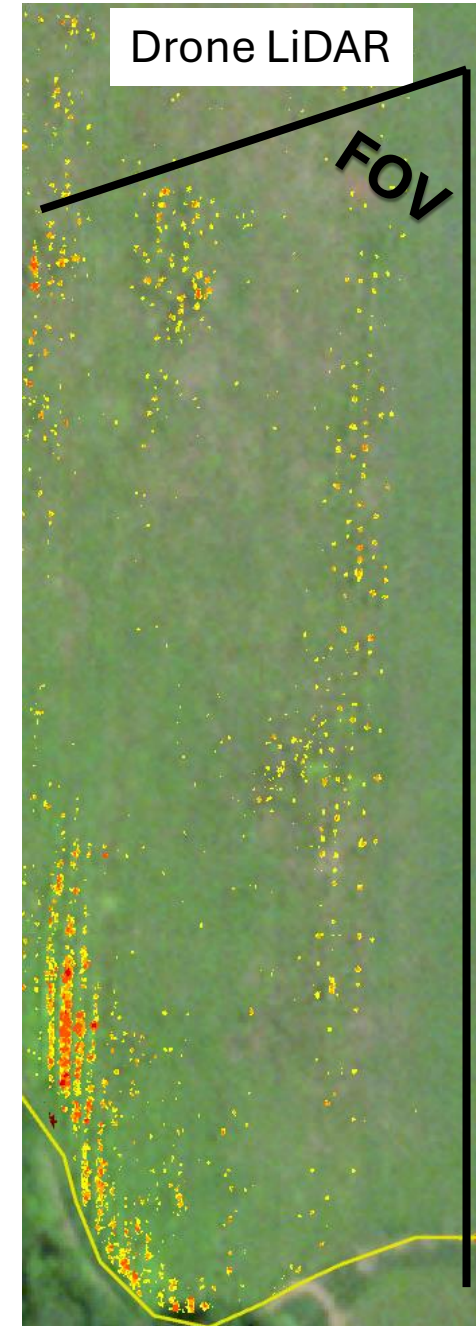
Combines zone
roughness and variability
to create a relative with-in
field score for woody
detection

Multispectral Texture-based Woody Vegetation Detection:

LiDAR vs Texture-based Approach



Multispectral Texture-based Woody Vegetation Detection:



Discussion



Image was AI generated

Questions:

1. What training topics would be of most interest?
2. What formats would you prefer
 - Videos, self-directed, in-person
3. What would the best method for sharing new technology?