

Zachery Holmes

University of Wyoming
Dept. of Zoology and Physiology
Behavioural Complexity Lab
Laramie, WY

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Profile

I am a motivated and passionate professional in the field of avian ecology and conservation. I recently graduated with a Master of Science degree from the department of Wildlife Ecology and Conservation at the University of Florida (2024). My research interests generally encompass avian ecology, behavioural science, landscape ecology, migration, and endangered species ecology and management. My career goals are to aid long-term avian species conservation efforts through research and science communication. My master's degree focused on avian biodiversity and species responses to management on south-central Florida rangelands. I am currently pursuing my Ph.D. at the University of Wyoming, in the Department of Zoology and Physiology, where I study seed-dispersal networks and frugivory patterns on O'ahu, Hawai'i.

Education

Currently – Ph.D. Student in Zoology and Physiology, University of Wyoming

- GPA: 3.8
- Expected Graduation: May 2028

2024 - M.Sc. in Wildlife Ecology and Conservation, University of Florida.

- GPA: 3.89
- Expected Graduation: May 2024
- **Thesis:** *Vegetative Characteristics and Avian Use of Working Rangelands in South-Central Florida.* (Advisor E. Hance Ellington)
- **Relevant Skills:** Proficiency in R Programming, specifically running GLM and Single Species, Multi-Season Occupancy Models; Acoustic Analysis: BirdNET; Big Data Management; ArcGIS Mapping; Vegetation Monitoring; Field Team Leader and Manager of Lab Technicians; Mist Netting and Banding

2018 - B.Sc. in Wildlife Ecology and Conservation, University of Florida.

- Graduating GPA: 3.70
- **Relevant Skills:** Acoustic Analyses; Interpreting Avian Behaviour; Mist Netting; Avian Banding; Plant Identification; Research Design; Environmental Management; Wildlife Identification; Small Mammal Trapping; Professional Scientific Writing; R Programming

2015 - A.A. in Zoology, Santa Fe Community College GPA: 3.60

Professional Positions

Ph. D. Graduate Student

2024-present

Department of Zoology and Physiology, University of Wyoming

- **Field Work:** Crew leader for avian banding, extraction, blood and fecal sample collection, vegetation sampling, plot establishment, data entry, and data management. Project oversight and large data set management. Training crew on bird handling and plant identification. Consistent coordination with PIs, local and state officials and departments, and graduate students. O'ahu, Hawai'i.
- **Lab Work:** Oversight of undergraduate volunteers and game camera review. Project design.

Biological Scientist I **2024**

Florida Fish and Wildlife Research Institute, Gainesville, FL.

Florida scrub-jay surveys, trap training, banding, bleeding, and translocations for the Florida-scrub-jay recovery team. Data management, analysis and manuscript authorship for State of the Scrub-Jay project, a state-wide census update on publicly managed lands.

M.Sc. Graduate Student **2022-2024**

Department of Wildlife Ecology and Conservation, University of Florida, Gainesville, FL.

- Field Work: Vegetation surveys, avian point counts, habitat and cattle management communications and overview, management and maintenance of Autonomous Recording Units (ARUs) and field crew coordination and management. Okeechobee and Ona, Florida
- Lab Work: Analysis and management of large acoustic data sets, manual bird identifications by sound, and analysing relevant data sets in R through GLMs and Single-Species, Multi-Season Occupancy Models. Thesis and manuscript authorship. Gainesville, FL.
- Additional Relevant Work: Management of eastern bluebird nest box program, northern bobwhite covey surveys, received funding for and implemented an American kestrel nest box program and research and publication for EDIS extension documents.

Avian Ecologist **2019-2022**

Quest Ecology Inc., Wimauma, FL.

Avian surveys, habitat assessments and management recommendations and reports, wetland and listed species permitting (local, state and federal), environmental assessments, wetland delineation and avian banding; target species include Florida scrub-jays, southeastern American kestrels, burrowing owls, sandhill cranes, northern bobwhite, wild turkey and listed shorebird species. Florida, Georgia and Oregon.

Florida Scrub-Jay Field Technician **2019**

Florida Fish and Wildlife Research Institute, Ocala National Forest and Seminole State Forest, Florida.

Florida scrub-jay translocations, radio-telemetry tracking, acclimating, banding, daily surveys, nest surveys, and monitoring. Data management and consistent communication.

Research Technician **2018-2019**

Florida Museum of Natural History: Ordway Swisher Lab, Gainesville, FL.

Passerine nest data analysis (Source: Ohio) and avian acoustic analysis (Source: Peru). wintering mixed-flock dynamics surveys and species identification.

Field Technician **2018**

Tall Timbers Research Station, Tallahassee, FL.

Bachman's sparrow and northern bobwhite point count and resight surveys, nest surveys, mist net extracting, banding, avian predator point count surveys, radio telemetry tracking, camera trap installation and review, small mammal trapping and handling.

Research Technician **2018**

University of Florida: Avian Bioacoustics Laboratory, Gainesville, FL.

Avian acoustic analysis of North American parids and semi-automatic detection analysis of eastern North American raptors.

Additional Relevant Experience

Field Assistant, WYOBIRD

2024-2025

University of Wyoming, Laramie, WY.

Annual site preparation, mist net extraction, banding of passerines and near passerines, net management, and education of interns for banding and extraction practices. Education of visiting groups and WYOBIRD outreach day.

PI and Field Lead, Prothonotary Warbler Nest Box Monitoring Project 2023-2024

Alachua Audubon Society, Gainesville, FL.

Founded and awarded funding to create and monitor a prothonotary warbler nest box project on Newnan's Lake State Forest, Gainesville, FL. Installed and monitored 40 nest boxes in 2023 and 2024 breeding season and conducted avian point and vegetation surveys for later analysis.

Field Assistant, Prairie Creek Bird Banding Laboratory 2019-2024

Alachua Audubon Society and University of Florida, Gainesville, FL.

Annual site preparation, mist net extraction, banding of passerines and near-passerines, net management, and education of interns of banding and extraction practices. Education of visiting groups on banding practices and avian migration.

Field Assistant, Caladeesi Island Bird Banding Station 2020-2021

Florida Avian Conservation, Dunedin, FL.

Bird bander and mist net extractor for avian passerines and near-passerines.

Avian Surveyor and PI 2020-2021

Florida Scrub-Jay Conservation Society, SW Region Counties, Florida.

Florida scrub-jay surveys through rural and suburban neighbourhoods to aid regional understanding of Florida scrub-jay populations and locations.

Shorebird Monitor and Steward 2019-2021

Manatee County Audubon Society, Anna Maria Island, FL.

Nesting shorebird surveys, stewardship and public education. Target species included black skimmers, snowy plovers, American oystercatcher, and Wilson's plover.

Field Technician, Umatilla Depot Burrowing Owl Project 2020

Global Owl Project, Umatilla, OR.

Burrowing owl bander, extractor, and surveyor. Installed artificial burrows and maintained a grid of 120 artificial burrows.

Volunteer 2018

Ocala National Forest, FL.

Red-cockaded woodpecker surveys and banding.

Volunteer 2017-2018

Florida Fish and Wildlife Conservation Commission, Levy and Marion Counties, FL.

Southeastern American kestrel nest box monitoring program and banding.

Skills Summary

- Research Design and Implementation
- Proficient in the following programs: R, VORTEX, DISTANCE, ArcGIS, RAVEN, BirdNET, Kaleidoscope, Adobe, Microsoft Package
- Large Data Set Management
- AI Systems Facilitation

- Solo Birds Banded (Passerines and Near-Passerines, NOBO, BUOW, AMKE): 407, Handled/Extracted/Translocated: 647
- Avian Blood Sampling via Brachial Method: 104
- Avian surveys and behaviour interpretation across many taxa (Point Counts and Playback)
- Endangered species surveys and handling
- Small mammal trapping
- Herpetofauna sampling and identification
- Vegetation survey techniques and identification
- Floral and fruit sampling

Presentations

- 2026** – Range Cattle Research and Education Center, Ona Highlight, Talk Titled: *Understanding how cattle management strategies influence vegetative heterogeneity and grassland avian species occupancy* (Invited)
- 2025** – The Wildlife Society, Talk Titled: *Using AI to test how cattle management strategies impact avian species occupancy*
- 2025** - American Ornithological Society, Talk Titled: *Using AI to test how cattle management strategies impact avian species occupancy*
- 2024** – The Florida Wildlife Society, Talk Titled: *Using AI to determine the impact of cattle management strategies*
- 2023** – The Wildlife Society, Talk Titled: *Using AI to understand land and cattle management impacts on Florida rangeland avifauna*
- 2023** – UF|IFAS Extension Program, Talk Titled: *How to Make an Effective Poster*
- 2023** – Florida Audubon Assembly, Panel Titled: *Perspectives from the Next Generation of Conservationists* (Invited)
- 2023** – American Ornithological Society, Talk Titled: *Avian Biodiversity in Working Rangelands*
- 2023** – UF|IFAS Range Cattle Research and Education Center, Field Day. Poster Titled: *Avian Biodiversity in Florida Rangelands: Using AI to determine the impact of Cattle and Land Management Strategies.*
- 2022** – Florida Ornithological Society, Talk Titled: *Avian Biodiversity in Working Rangelands*
- 2022** – Florida Birding and Nature Festival, Talk Titled: *The Story and Conservation Status of the Southeastern American Kestrel* (Invited)
- 2022** – American Ornithological Society, Poster Titled: *Avian Biodiversity in Working Rangelands*
- 2018** – UF/FWC Co-Operative Research Summit, Poster Titled: *Detecting Presence of Raptor Species with Kaleidoscope: Initial Cluster Analysis*

Publications (Non-Peer Reviewed)

1. **Holmes, Z.B.**, A. Hodgson, and Florida Ornithological Society. 2025. "Black-necked Stilt (*Himantopus mexicanus*)". Family 04: Recurvirostridae. (In review).
2. **Holmes, Z.B.**, A. Hodgson, and Florida Ornithological Society. 2025. "Common Yellowthroat (*Geothlypis trichas*)". Family 10: Parulidae. (In review).
3. **Holmes, Z.B.**, A. Hodgson, and Florida Ornithological Society. 2025. "Great-horned Owl (*Bubo virginianus*)". Family 01: Strigidae. (In review).
4. **Holmes, Z.B.**, A. Hodgson, and Florida Ornithological Society. 2025. "Painted Bunting (*Passerina ciris*)". Family 01: Cardinalidae. (In review).
5. **Holmes, Z.B.**, A. Hodgson, and Florida Ornithological Society. 2025. "Red-tailed Hawk (*Buteo jamaicensis*)". Family 01: Accipitridae. (In review).

6. **Holmes, Z.B.**, A. Hodgson, and Florida Ornithological Society. 2025. "Ruby-throated Hummingbird (*Archilochus colubris*)". Family 02: Trochilidae. (In review).
7. **Holmes, Z.B.**, A. Hodgson, and Florida Ornithological Society. 2025. "Willet (*Tringa semipalmata*)". Family 05: Scolopacidae. (In review).
8. **Holmes, Z.B.**; Hodgson, Ann; and Florida Ornithological Society, "Blue-Winged Teal (*Spatula discors*)" (2023). Family 01: Anatidae. 6. https://digitalcommons.usf.edu/bba2_anatidae/6
9. **Holmes, Z.B.**; Hodgson, Ann; and Florida Ornithological Society, "Fulvous Whistling-Duck (*Dendrocygna bicolor*)" (2023). Family 01: Anatidae. 2. https://digitalcommons.usf.edu/bba2_anatidae/2
10. **Holmes, Z.B.**; Hodgson, Ann; and Florida Ornithological Society, "Wood Duck (*Aix sponsa*)" (2023). Family 01: Anatidae. 18. https://digitalcommons.usf.edu/bba2_anatidae/18
11. **Holmes, Z.B.** and E.H. Ellington. (2023) Avian Biodiversity on Florida's rangelands. The Florida Cattleman and Livestock Journal.

Publications (Peer Reviewed)

1. Meliane, M.K., **Z.B. Holmes**, B. Wight, and E. H. Ellington. 2025. The Eastern bluebird's nest box use in rural south-central Florida. Southeastern Naturalist, 24(4):394-402. <https://doi.org/10.1656/058.024.0404>
2. Meliane, M.K., N. Rita, **Z.B. Holmes**, J.M. Guthrie, and E.H. Ellington. Nocturnal at noon? Addressing false positives in activity pattern data. Ecology and Evolution.

Publications (In Review)

1. Koen, E.L., Meliane, M.K., Miller, K.E., Barichivich, W.J., Dedeban, E., First, A., **Holmes, Z.B.**, Imeri, M., Niebanck, P.E., Nunn, S., Pearson, K., Rita, N., Ryver, B., Shaffer, D., Walls, S.C., and Ellington, E.H. How wildlife respond to tropical cyclones: short-term tactics and long-term impacts. Biological Reviews (**In Review**).
3. **Holmes, Z.B.**, Lashley, M. A., and Ellington, E.H. Classifying pasture types by vegetation structure and composition on south-central Florida cow-calf operations. Rangeland Ecology and Management. (**In Review**).
4. **Holmes, Z.B.** N. Rita, K.E. Miller, and E.H. Ellington. Grassland bird responses to grazing intensity on active cow-calf operations in south-central Florida. Avian Conservation and Ecology (**In Review**).

Peer Reviews

1. Todaro, H.M., Protzman, Z.E., Buehler, L.M., and Duchardt, C.J. (2024). Beyond point count surveys: Estimating Loggerhead Shrik (*Lanius ludovicianus*) occupancy with camera traps across large spatial scales. The Wilson Journal of Ornithology. (**Reviewer**)

Grants

2026 – Michael and Linda Tiernan Research Fund, Dep. of Zoology and Physiology. \$3000.00
2026 – WEST Graduate Student Enrichment Fund for Quantitative Research. \$2500.00
2026 – Titley Scientific Equipment Loan Grant
2024 – WEST Graduate Student Enrichment Fund for Quantitative Research.. \$3000.00
2023 - Cruickshank Research Award, Florida Ornithological Society. \$2000.00
2023 - Florida Vegetation Management Association Scholarship: \$1000.00
2023 - Jennings Memorial Scholarship. University of Florida. \$1700.00
2022 - Wildlife Graduate Student Association Travel Award. \$500.00
2022 - Florida Wildlife Federation Grant. \$1,000.00
2018 - Natural Area Teaching Lab Mini-grant. \$500.00
2017 - Florida Wildlife Federation Scholarship. \$1,000.00

Awards and Honors

2018 - University of Florida, Department of Wildlife Ecology and Conservation Undergraduate of Outstanding Professional Promise
2018 - Graduate Cum Laude, University of Florida
2015 - Graduate Magna Cum Laude, Santa Fe Community College

Teaching Experience

2021-2022 - Lead, Manatee County Bird Identification Course, Manatee County Audubon Society
2020-2021 - Internship Coordinator and Founder, Wildlife and Land Management Internship, Manatee County Audubon Society
2017 - Teaching Assistant, ORH3513C - Environmental Plant Identification and Use under Dr. Bart Schutzman
2017 - Teaching Assistant, WIS3402 - Wildlife of Florida under Dr. Steve Johnson

Professional Memberships

- National, Florida, and Hawaii Audubon Society
- American and Florida Ornithological Society
- American Birding Association
- American Bird Conservancy
- Society for Ecological Restoration
- National, Florida and Wyoming Wildlife Society

Community Activism

- American Ornithological Society
 - Student Council Representative, Term: 2025-2027
 - Student Affairs Committee Lead Coordinator, Term: 2025-2027
 - BRIDGE Sub-Committee Co-Chair, AOS Annual Conference, 2024-2026
 - Volunteer Sub-Committee Chair, AOS Annual Conference, 2023-2026
 - Meeting Coordination Committee, AOS Annual Conference 2023-2026
- Graduate Student Representative, Department of Zoology and Physiology, University of Wyoming. Term: 2025-2026
- Graduate Student Taskforce Representative and Graduate Student Council Alternate, Term: 2024-2026
- Board Member, Alachua Audubon Society 2022-2024
- Vice President, Land Use Chair, and Internship Coordinator for Manatee County Audubon Society 2019-2022.

- Eagle Watch County Coordinator, Florida Audubon, Center for Birds of Prey. 2021.
 - Planning and Selection Committee Lead, Florida Audubon, Conservation Leadership Initiative (CLI), state-wide and regional events. 2018-2022.
 - Founder and Elected President of University of Florida Audubon Campus Chapter: GREBE (Gators Ready for Exceptional Birding Experiences) 2018.
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References

Dr. Karl Miller, Florida Wildlife Research Institute

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