

CURRICULUM VITAE

PATRICK J. RUHL

April 2024

PERSONAL

Address: Department of Biology
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Harding University
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EDUCATION

Harding University	B.S. – 2012 Major: Biology Cumulative GPA: 3.94 <i>Summa Cum Laude</i>
Purdue University	M.S. – 2014 Concentration: Wildlife Science Cumulative GPA: 3.91
Purdue University	Ph.D. – 2018 Concentration: Avian Ecology Cumulative GPA: 3.91

FIELDS OF INTEREST

General: Wildlife Biology and Conservation

Specific: - Full annual cycle ecology of Worm-eating Warblers
- Impacts of modern forestry practices on breeding bird demography
- Roosting and foraging ecology of birds
- Anthropogenic impacts on wildlife populations

ACADEMIC AND RESEARCH POSITIONS

2018-Present *Assistant Professor*: Harding University, Searcy, AR
(Promoted to Associate Professor beginning August 2024)
Courses Taught: Biostatistics, Environmental Science, Ecology Lab,
Ornithology/Herpetology, Animal Behavior Lab
Administrative Role: Director of Gilliam Biological Research Station

2015 – 2018 *Research Assistant*: Purdue University, West Lafayette, IN
Research on postfledging ecology of mature forest birds in early
successional habitat

2012 – 2014 *Research Assistant*: Purdue University, West Lafayette, IN
Research on the effects of timber harvest on terrestrial salamanders

2011 *Research Technician*: Purdue University, West Lafayette, IN
Assisted with trapping and tagging small mammals
Oak Savanna Restoration Project

IN REVIEW MANUSCRIPTS

Kramer G.R., S.E. Fischer, **P.J. Ruhl**, E.S. Berz, R. Huffines, D.A. Aborn, and H.M. Streby. 2024. Temporal isolation in the migration ecology of two sympatrically breeding wood-warblers with geographically discordant population trends. *Ornithology (In Review)*

IN PRESS MANUSCRIPTS * indicates undergraduate authors

*González, M.E., *F.N. Hale, *M.J. Adams, *D.A. Kidder, and **P.J. Ruhl**. 2024. Roosting distributions and habitat associations of overwintering White-throated Sparrows (*Zonotrichia albicollis*) on the nonbreeding grounds. *Wilson Journal of Ornithology (in press)*.

PUBLISHED MANUSCRIPTS

1. *McKinney, A.B., *K.N. Barlow, *H.E. Adams, J.L. White, K.F. Kellner, and **P. J. Ruhl**. 2023. Foraging intensity of Tufted Titmice (*Baeolophus bicolor*) in response to feed type and extreme winter conditions. *Southeastern Naturalist* 22:43-56.
2. **Ruhl, P.J.**, K.F. Kellner, and J.B. Dunning Jr. 2020. Ecological factors explain habitat associations of mature-forest songbirds in regenerating forest clearcuts. *Wilson Journal of Ornithology* 132:145-158.
3. **Ruhl, P.J.**, E.A. Flaherty, and J.B. Dunning Jr. 2020. Using stable isotopes of plasma, red blood cells, feces, and feathers to assess mature-forest bird diet during the postfledging period. *Canadian Journal of Zoology* 98:39-46.
4. Kellner, K.F., **P.J. Ruhl**, J.B. Dunning Jr., K.W. Barnes, M.R. Saunders, and R.K. Swihart. 2018. Local-scale habitat components driving bird abundance in Eastern deciduous forests. *American Midland Naturalist* 180:52-65.
5. **Ruhl, P.J.**, C.D. Delancey, and J.B. Dunning Jr. 2018. Roost preference, postfledging habitat use, and breeding phenology of adult female Worm-eating Warblers (*Helmitheros vermivorum*) on the breeding grounds. *Wilson Journal of Ornithology* 130:397-409.
6. **Ruhl, P.J.**, K.F. Kellner, J.M. Pierce, J.K. Riegel, R.K. Swihart, M.R. Saunders, and J.B. Dunning Jr. 2018. Characterization of Worm-eating Warbler (*Helmitheros vermivorum*) breeding habitat at the landscape level and nest scale. *Avian Conservation and Ecology* 13:11.
7. *Homoya, W., *J.W. Moore, **P.J. Ruhl**, and J.B. Dunning, Jr. 2017. Do American Golden-Plovers (*Pluvialis dominica*) avoid wind-energy turbines in Indiana during spring migration? *The Wilson Journal of Ornithology* 129:863-871.
8. *Peele, J., *C. Nix, **P. Ruhl**, R. Chapman, P. Zollner, and M. Saunders. 2017. Effects of woody biomass harvests on a population of Plethodontid salamanders in Southeast Indiana. *American Midland Naturalist* 178:132-143.
9. **Ruhl, P.J.**, *J.M. Pierce, J.B. Dunning Jr. 2016. An efficient and inexpensive apparatus for collecting fecal samples during banding studies: revisiting an underutilized technique. *North American Bird Bander* 41:145-150.

10. Kellner K.F., **P.J. Ruhl**, J.B. Dunning Jr., J.K. Riegel, and R.K. Swihart. 2016. Multi-scale responses of breeding birds to experimental forest management in Indiana, USA. *Forest Ecology and Management* 382:64-75.
11. **Ruhl P.J.**, R.N. Chapman, and J.B. Dunning Jr. 2016. Field Testing a standard metabolic rate estimation technique for Eastern Red-Backed Salamanders. *Journal of Herpetology* 50:138-144.
12. **Ruhl P.J.**, J.B. Dunning Jr. 2015. Morphometrics of Worm-eating Warblers in South-Central Indiana: hatching-year and after hatching-year comparison. *North American Bird Bander* 40:81-84.
13. **Ruhl P.J.**, J.K. Riegel, and J.B. Dunning Jr. 2015. Confirmation of successful Chestnut-sided Warbler breeding in South-Central Indiana. *Proceedings of the Indiana Academy of Science* 124:38-42.

INVITED TALKS

1. **Patrick J. Ruhl**, *Aric B. McKinney, *Karena N. Barlow, *Hannah E. Adams, Jon L. White, and Kenneth F. Kellner. "Foraging intensity of Tufted Titmice (*Baeolophus bicolor*) in response to feed type and extreme winter conditions" -*Scholar Sip Reception for Scholar Works at Harding, Searcy, AR, March 20, 2024*
2. **Patrick J. Ruhl**, and Jared Brooke. Bird Responses to Forest Management. -*Habitat University Podcast, February 9, 2024*
3. **Patrick J. Ruhl**, Paulette Bane, and Katherine Dillon. "Interdisciplinary collaboration: Birds and the liberal arts" -*Podcast Harding Center for Teaching and Learning, Searcy, AR, October 19, 2023*
4. **Patrick J. Ruhl**. "Breeding Bird Response to Forest Management in the Hardwoods Ecosystem Experiment" - *Forestry for the Birds: Joint Meeting of the Indiana Society of American Foresters, The Nature Conservancy in Indiana, and the Indiana Chapter of the Wildlife Society, March, 24, 2022*
5. **Patrick J. Ruhl**. "Importance of Early Successional Habitat for "Mature-Forest" Birds" - *Wildlife in America Online Webinar for Purdue University Fall 2020*
6. **Patrick J. Ruhl**, Kenneth F. Kellner, John B. Dunning Jr. "Using Quantitative Methods to Understand Postfledging Associations of Mature Forest Birds" - *Harding University Mathematics Department Seminar Series, in Searcy, AR, February 11, 2020*
7. **Patrick J. Ruhl**. "Understanding the Postfledging Associations of Mature Forest Birds with Early Successional Habitat" - *Arkansas State University Biology Department Seminar Series, in Jonesboro, AR, September 19, 2018*
8. **Patrick J. Ruhl**, Kenneth F. Kellner, Elizabeth A. Flaherty, and John B. Dunning Jr. "Where Do Forest Birds Go After Nesting?" - *Monthly meeting of the Robert Cooper Audubon Society, Muncie, IN February 21, 2018*
9. **Patrick J. Ruhl**, Kenneth F. Kellner, Elizabeth A. Flaherty, and John B. Dunning Jr. "What is a Mature Forest Bird? Habitat-use of Breeding Birds in Southern Indiana" - *Wednesdays in the Wild at Lilly Nature Center, West Lafayette, IN February 7, 2018*

10. **Patrick Ruhl**, Kenneth Kellner, Jeffery Riegel, Elizabeth Flaherty, and John Dunning Jr. "Postfledging Habitat Associations of Mature Forest Birds in Southern Indiana." - *Harding University Biology Department Seminar Series, in Searcy, AR. October 30, 2017*
11. **Patrick J. Ruhl** and John B. Dunning Jr. "Breeding Bird Response to Even-aged Management in the Central Hardwoods Region." - *Partners in Flight Central Hardwoods Joint Venture Management Board Meeting at the Hoosier National Forest Headquarters, Bedford, IN April 25, 2017*
12. **Patrick J. Ruhl**, and John B. Dunning Jr. "A Plethora of Wormies." - *The Wildlife Society North Central Section Student Conclave at Camp Tecumseh, Brookston, IN March 25, 2017*
13. **Patrick J. Ruhl**, Kenneth Kellner, John Dunning Jr., Jeffery Riegel, Robert Swihart. "Habitat Use and Seral Associations of Indiana Birds." - *Central Hardwood Oak Ecology and Wildlife Management Conference, Nashville, IN March 8, 2017*
14. **Patrick J. Ruhl**. "Worm-eating Warbler Breeding Demography and Post-fledging Habitat Use in South-Central Indiana." - *Annual Inland Bird Banding Association Meeting at Mary Gray Bird Sanctuary, Connersville, IN November 12, 2016*
15. **Patrick J. Ruhl**. "Managing Indiana Woodlands for Bird Biodiversity: A Report from the Hardwood Ecosystem Experiment." - *Indiana Forestry and Woodland Owners Association Annual Meeting Columbus, IN November 5, 2016*
16. **Patrick J. Ruhl**. "Can Salamanders Become Canaries? The Utility of Red-backed Salamanders as Bioindicators for Forest Ecosystem Health." - *Hoosier Herpetological Society Meeting at the Holliday Park Nature Center, in Indianapolis, IN. September 21, 2016*
17. **Patrick J. Ruhl**. "Forest Bird Response to Clearcutting." - *Natural Resources Teacher Institute at the Forestry Training Center, in Morgan Monroe State Forest, IN. June 24, 2016*
18. **Patrick J. Ruhl**. "The impacts of Timber Harvest on Southern Indiana Birds are not so 'Clear-cut.'" - *Ball State University Chapter of The Wildlife Society Seminar Series Muncie, IN April 14, 2016*
19. **Patrick J. Ruhl**, Chapman, R.N., and Dunning J.B.Jr. "Effects of biomass harvest on eastern red-backed salamanders (*Plethodon cinereus*)" - *Harding University Biology Department Seminar Series, in Searcy, AR. September 08, 2014*

PROFESSIONAL PRESENTATIONS

1. *M. Elisa González, *Fallon.N. Hale, *Mason J. Adams, *Dalton A. Kidder, and **Patrick J. Ruhl**. 2024. Winter Habitat Association of Roosting White-throated Sparrows (*Zonotrichia albicollis*) in Arkansas, USA. *August 9, 2023* - *Annual Meeting of the American Ornithological Society, London, ON*
2. **Patrick Ruhl**. "Migratory connectivity of Louisiana Waterthrush and Worm-eating Warbler." *October 12, 2020*

- *Harding University Biology Department Seminar Series "Bio Bit" Searcy, AR*
3. **Patrick Ruhl.** "Identifying and investigating knowledge gaps in the Worm-eating Warbler full annual cycle to inform habitat management and conservation decisions." *June 26, 2019*
- *Annual meeting of the American Ornithological Society, Anchorage, AK*
 4. **Patrick Ruhl,** Kenneth Kellner, John B. Dunning Jr. "Ecological variables explaining early-successional habitat associations of six mature-forest bird species during the breeding season." *June 27, 2019*
- *Annual meeting of the American Ornithological Society, Anchorage, AK*
 5. **Patrick Ruhl,** Kenneth Kellner, John B. Dunning Jr., Jeffery Riegel, Robert Swihart, and Elizabeth Flaherty. "Multi-scale bird community response to forest management in the Central Hardwood Region." *August 3, 2017*
- *1st annual meeting of the American Ornithological Society, Lansing, MI*
 6. **Patrick J. Ruhl,** and John B. Dunning Jr. "Nursery or buffet: to what extent are Worm-eating Warblers using early successional habitat on summer breeding grounds?" *August 19, 2016*
- *North American Ornithological Conference, in Washington, D.C.*
 7. **Patrick J. Ruhl.** "How do forest birds respond to clearcutting?"
- *Wednesdays in the Wild at Lilly Nature Center, West Lafayette, IN*
March 16, 2016
 8. **Patrick J. Ruhl.** "A Summer of bird banding in southern Indiana."
- *Monthly meeting of the Sycamore Chapter of the Audubon Society, in West Lafayette, IN*
November 12, 2015
 9. **Patrick J. Ruhl,** Chapman, R.N., and Dunning J.B.Jr. "Effects of biomass harvest on eastern red-backed salamanders (*Plethodon cinereus*)"
- *Joint meeting of Ichthyologists and Herpetologists, in Chattanooga, TN*
August 01, 2014

TEACHING EXPERIENCE

Courses Taught

Ornithology/Herpetology	2022
Biostatistics	2018–Present
Ecology Lab	2020–Present
Environmental Science	2020–Present
Animal Behavior Lab	2019

Graduate Teaching Assistant Positions

Wildlife Techniques	2017
Ornithology (Guest Lecturer)	2014 – 2017
Ornithology Lab	2016
Herpetology Lab	2013 – 2014

Undergraduate Teaching Assistant Positions

Microbiology Lab	2010 – 2012
Chemistry Lab	2009

UNIVERSITY SERVICE

Elected Member of the Faculty Welfare Committee	2023–Present
Environmental Science Curriculum Committee	2022–Present
Harding University ROTC Committee	2022–Present
Chair of the Gilliam Biological Research Station Oversight Committee	2018–Present

PROFESSIONAL DEVELOPMENT/TRAINING

Association of College and University Educators (ACUE) Teaching Certification*Course in Effective Teaching Practices 2019-2020***ARCGIS***Completed ESRI ArcGIS desktop course; experience with ArcGIS Spatial Analyst***Google Drive***Completed Google Drive and Google Team Drive Training 8/23/2019***Microteaching Workshop***Teaching Professional Development 2012***PROFESSIONAL SOCIETY MEMBERSHIP**

The Wildlife Society (current)

American Ornithological Society (current)

National Audubon Society (current member and past board member local chapter)

American Studies Institute (current)

Alpha Chi National College Honors Scholarship Society (current)

Society for the Study of Amphibians and Reptiles (past)

REVIEWER FOR

*Avian Conservation and Ecology, Ecology and Evolution, Ecosphere, Forest Ecology and Management, Forests, Sustainability, Landscape Ecology, PeerJ, Ornithological Applications, Wilson Journal of Ornithology, Acta Ornithologica, American Midland Naturalist, North American Bird Bander, Arkansas Academy of Science, American Woodcock Proceedings***EXTENSION AND OUTREACH**

- Served as master bander at weekly bird banding station
-Gilliam Biological Research Station, AR 2018-Present
- Biology/Ornithology Instructor for 5-day 3rd-8th grade STEM Camp
-Harding University STEM Camp, Searcy, AR August 8-12, 2022
- Facilitated a collaborative research project with Southwest Middle School 4th graders using Harding Biology Department live stream bird feeder data
-Southwest Middle School STEAM Collaboration, Searcy, AR Fall 2020
- Recorded a wildlife extension video for elementary school ESL students
-Sydney Deener Elementary School, Searcy, AR October 5, 2020
- Presented wildlife extension program to elementary school ESL students
-Sydney Deener Elementary School, Searcy, AR October 29, 2019
- Represented Harding Biology Department at Southwest Middle School Annual S.T.E.A.M. Day. Discussed biological research with 1,100 4th-6th graders
-Southwest Middle School, Searcy, AR October 1, 2019

- Presented research to state legislators (1 Senator and 4 District Representatives) concerning breeding bird response to Indiana forest management:
-*Morgan-Monroe State Forest, IN 2018*
- Taught bird identification to Kindergarteners and 2nd graders, and helped develop a bird-friendly nature area for a local Elementary School
-*Mayflower Mill Elementary School, Lafayette, IN 2016-17*
- Assisted with a field day on birding and bird banding with the Tippecanoe County chapter of Indiana Master Naturalists
- *Purdue Wildlife Area September 8, 2017*
- Presented research and demonstrated bird sampling techniques for a Hardwood Ecosystem Experiment field day
-*Morgan Monroe State Forest, Morgan County, IN October 2, 2015*
- Presented research on the effects of biomass harvest for cellulosic biofuel on eastern red-backed salamanders at the Southeast Purdue Agricultural Center Field Day
-*Jennings County, IN May 31, 2014*

Extension Publications

- Kellner K.F., **P. J. Ruhl**, J. B. Dunning Jr., and R. K. Swihart. (2017). Managing Forests for Birds in Indiana. *Indiana Woodland Steward* 25:7-8.
- **Patrick Ruhl**. Grouse! Researchers interact with ruffed grouse in Southern Indiana's managed Hardwood Ecosystem Experiment. *Ruffed Grouse Society Magazine*. Spring 2017 Volume 29, Issue 1, Page 59.

RELEVANT SKILLS

Wildlife Sampling

*Mist netting and bird banding (~4000 birds banded) and avian blood collection
Radio Telemetry and Geolocation – direct tracking and triangulation
Passive Integrated Transponder (PIT) tagging for Radio Frequency Identification
Amphibian sampling and marking techniques - Visible Implant Elastomers (VIEs)
Small mammal live-trapping and ear tagging*

Statistical Analysis

Experience with: STATISTICA, SAS, SYSTAT, and Program R

VOLUNTEER EXPERIENCE

Harding Chi Sigma Alpha Social Club -Served as a sponsor	2019-2023
Peripatetic Lecture on Aristotle and Biology -Guest lecture for Harding University Western Civ. Students	2019-2023
Ball State Cerulean Warbler Research Group -Assisted Clayton Delancey with Cerulean Warbler Roost Telemetry	2017
Sycamore Chapter of the Audubon Society -Served as Secretary	2016-2017
Lafayette Regional Science and Engineering Fair -Judged science fair projects for students 5 th -12 th grade	2014, '15, '17
Purdue FNR/Indiana DNR -Performed nest searches for Hellbender conservation	2013

Indiana DNR (Jasper/Pulaski) - <i>Banded wood ducks</i>	2011
Purdue FNR American Chestnut Restoration Project - <i>Helped plant 1000+ saplings</i>	2010
Bald Knob Wildlife Refuge Deer Check station - <i>Checked in deer took measurements and jawbone samples</i>	2008

GRANT FUNDING

- Roosting Ecology of White-throated Sparrows on the Wintering Grounds **\$3000**
Margaret M. Plummer Memorial Research Fund - 2022
- Quantifying Seasonal Fluctuations in Blood Profile Relative to Singing Ability in Avian Species **\$350**
Arkansas Audubon Society- 2019
- Postfledging Association of Mature Forest Birds with Early Successional Habitat in South-Central Indiana **\$3,000**
Amos Butler Audubon Society Birdathon Grant - 2017
- Using Stable Isotope Analysis to Determine Avian Foraging Preference During the Postfledging Period in Southern Indiana **\$3,000**
Indiana Academy of Sciences Senior Research Grant - 2016
- Worm-eating Warbler Breeding Demography in South-Central Indiana **\$3,000**
Amos Butler Audubon Society Birdathon Grant - 2016
- Post Fledgling Association of Mature Forest Birds with Early Successional Habitat in South-Central Indiana **\$3,000**
Amos Butler Audubon Society Birdathon Grant - 2015

ACADEMIC AWARDS & HONORS

College of Sciences Teacher Achievement Award Recipient	2023
Chase S. Osborn Award in Wildlife Conservation	2022
Charles M. Kirkpatrick Outstanding FNR Graduate Student Award	2018
FNR Teaching Academy Graduate Teaching Award	2018
Ray Kinslow Science Award	2012
Harding Academic Scholarship	2009-2012
Pryor Science Scholarship	2011-2012
James W. Pugh Scholarship	2010-2012
Science/Nursing Convocation Award	2009-2010
Undergraduate Deans List	2008-2012

RELEVANT GRADUATE COURSEWORK

Forest Resources Seminar	2012-2016
Quantitative Methods for Ecologists	Spring 2016
Landscape Ecology	Fall 2015
Introduction to University Teaching	Fall 2015
Conservation Biology I	Fall 2015
Advanced Ornithology	Spring 2015
Evolution of Behavior	Spring 2015
Modern Applied Statistics	Spring 2015

Disturbance Ecology	Spring 2014
Analyzing Ecological Data	Spring 2014
Ecological Statistics	Fall 2013
GIS Application	Fall 2013
Applied Regression Analysis	Spring 2013
Conservation Biology II	Fall 2012
Soundscape Ecology	Fall 2012
Research Ethics	Fall 2012
Statistical Methods	Fall 2012