



Christopher M. Lituma

Education

The University of Tennessee, Knoxville, TN: May 2014

Doctor of Philosophy in Natural Resources

GPA 3.87

Texas A&M University, College Station, TX: May 2009

Master of Science in Wildlife and Fisheries Sciences

GPA 4.0

Millersville University of Pennsylvania, Millersville, PA: May 2005

Bachelor of Science in Biology: Environmental Option

GPA 3.1

Major GPA 3.33

Deans List several semesters

Professional Experience

Avian Ecologist

West Virginia University, Morgantown, West Virginia

July 2016 – Present

Assistant Professor

Energy Development, Grazing, and Forest Regeneration: Impacts on Grassland and Early Successional Bird Life-Cycles and Populations

- Recruited a Master's student to experimentally examine factors affecting loggerhead shrike detection probabilities, and improve survey design in West Virginia and Virginia
- Master's student will also conduct avian point count surveys in West Virginia on newly acquired and restored reclaimed mine-sites prior to elk reintroduction

Appalachian birds and Lyme disease: Can birds act as a reservoir and vector for human transmission?

- Co-advising a Master's student to determine prevalence, and frequency of Lyme disease in neotropical migratory songbirds in the Appalachians, and relate results to habitat and species-specific variables

Planning for the future: Ensuring clean water on working farms and landscapes subject to climate change and natural gas development perturbation

- Planning proposal funded to collaboratively develop a multi-state and multi-institutional effort to ask research questions at the interface of natural gas development, water and soil quality, dairy cattle production, and wildlife impacts.

The Center for Native Grassland Management

The University of Tennessee, Knoxville, Tennessee

March 2014 – June 2016

Postdoctoral Research Associate

Multi-scale Assessment of Wildlife Sustainability in Switchgrass Biofuel Feedstock Production

- Supervised a research project in three states (Kansas, Pennsylvania, and Tennessee) to evaluate the differences in avian density and species richness, avian nest survival, and insect species richness and relative abundance between switchgrass biofuel fields and reference (matrix) fields

- Partnered with private landowners, and grass seed companies to gain access to research fields
- Hired, trained, and supervised activities of 24 research technicians (1 crew leader and 3 crew members per research site) over 2 years
- Hired and supervised an entomologist for insect identification
- Composed and submitted an annual report to National Institute of Food and Agriculture
- Managed budget expenditures

Restoring Imperiled Grassland Birds through Grazing Innovation in the Eastern United States

- Supervised a research project in two states (Kentucky and Tennessee) to provide insight about the impacts of patch-burn-grazing management on avian density, avian nest success, and vegetation characteristics
- Partnered with University of Tennessee Dairy Research and Education Center, The University of Kentucky, and Kentucky Department of Fish and Wildlife Resources Agency at the Bluegrass Army Depot
- Analyzed preliminary data using occupancy models and daily nest survival models
- Hired, trained, and supervised activities of 16 research technicians over 2 years
- Managed budget expenditures

Grazing eastern gamagrass and sudex with beef heifers

- Collected, dried, grinded, and analyzed via Near Infrared Spectroscopy gamagrass and sudex pasture samples in east Tennessee to assess forage quality and cattle stocking rates

The University of Tennessee, Knoxville, Tennessee

December 2009 – December 2013

Dissertation Research

Regional Assessment of the Effects of Conservation Practices on Grassland Bird Populations in the Central Hardwoods Bird Conservation Region

- Led a three-year research project in cooperation with the Central Hardwoods Joint Venture to evaluate high-priority grassland and early successional bird populations in relation to local and regional conservation and management practices using a roadside based survey across a broad multi-state landscape
- Currently involved in developing grassland bird conservation plans for the Central Hardwoods Joint Venture
- Analyzed roadside data utilizing hierarchical multi-season occupancy models
- Designed research projects to examine species-specific roadside occupancy and detection probability effects using Royle-Nichols occupancy models
- Hired and supervised 15 research technicians for three research seasons
- Cooperated with multiple state and federal agencies
- Composed and submitted annual reports to Natural Resources Conservation Service, East Gulf Coastal Plain Joint Venture, and Central Hardwoods Joint Venture

Institute of Renewable Natural Resources, College Station, Texas

February 2009 – November 2009

Project Leader

Led and hired 7 research technicians for the Highway 71 project outside of Austin, TX through the Institute of Renewable Natural Resources

- Organized the crew, all daily activities and tasks
- Conducted territory mapping, nest searching, and fledgling searching for the federally endangered golden-cheeked warbler and black-capped vireo
- Set-up Audio Recording Units and decibel meters to assess road noise impact
- Set up nest cameras to record warbler nest behavior and to assess road noise impacts

- Organized point count surveys to be conducted on private land in surrounding counties
- Composed and submitted annual reports to Texas Department of Transportation (TXDOT)
- Travelled throughout Texas to acquire land-owner parcel information from counties

Texas A&M University, College Station, Texas
Master's Thesis

August 2006 – January 2009

Effects of grassland restoration on avian assemblage characteristics and dickcissel nesting success in Texas

- Developed and led a multi-year thesis research project in the Blackland Prairie Ecoregion of Texas that evaluated grassland bird nest success, abundance, and diversity between non-native grass dominated sites and restored tallgrass prairie sites
- Hired and supervised 4 technicians for two field seasons
- Worked with Texas Parks and Wildlife Department (TPWD) and private landowners
- Composed and submitted annual reports to TPWD

Texas A&M University, College Station, Texas
Biological Technician

February 2006 – July 2006

Worked on the Leon River Restoration Project administered by Texas A&M University and assisted graduate student research projects in central Texas

- Conducted point counts and managed data
- Monitored breeding activity of the federally endangered black-capped vireo, which included locating and checking nests and relocating fledglings
- Monitored breeding activity of other co-occurring breeding songbirds
- Monitored nests for brown-headed cowbird parasitism
- Radio-tracked and relocated white-eyed vireo fledglings
- Conducted territory mapping and fledgling searches for the federally endangered golden-cheeked warbler

Millersville University, Millersville, Pennsylvania
Departmental Honors Thesis

May 2004 – March 2005

The impact of riparian restoration on avian communities along Hammer Creek in Lancaster County, PA

- Conducted a year-long thesis project that included monitoring avian community responses to a restored riparian system

Publications

Lituma, C. M., D. A. Buehler, E. P. Tanner, A. M. Tanner, P. D. Keyser, C. A. Harper. 2016. In Prep. Factors affecting availability for detection: A case example using radio-collared Northern Bobwhite (*Colinus virginianus*). *The Condor: Ornithological Applications*.

Lituma, C. M., and D. A. Buehler. 2016. Minimal bias in surveys of grassland birds from roadsides. *The Condor: Ornithological Applications* 118:715-727.

Keyser, P. D., E. D. Holcomb, J. C. Waller, G. E. Bates, and **C. M. Lituma**. 2016. Forage attributes and animal performance from native grass pastures inter-seeded with red clover. *Agronomy Journal* 108: 373-383.

West, A. S., P. D. Keyser, **C. M. Lituma**, D. A. Buehler, R. D. Applegate, J. Morgan. 2016.

Grasslands bird occupancy of native warm-season grass. *Journal of Wildlife Management* 80: 1081-1090.

Campomizzi, A. J., H. A. Mathewson, M. L. Morrison, **C. M. Lituma.**, T. J. Conkling, M. C. Cocimano, S. L. Farrell, R. N. Wilkins, and J. A. Butcher. 2013. Understanding nest success and brood parasitism in the endangered black-capped vireo: Comparison with two sympatric songbirds. *The Wilson Journal of Ornithology* 125: 709-720.

Lituma, C. M., M. L. Morrison and J. D. Whiteside. 2012. Restoration of grasslands and nesting success of dickcissels (*Spiza americana*). *The Southwestern Naturalist* 57: 138-143.

Lituma, C. M., D. A. Buehler, E. P. Tanner, A. M. Unger, J. J. Morgan, P. D. Keyser and C. A. Harper. 2012. Monitoring northern bobwhite breeding populations in the Central Hardwoods Bird Conservation Region. *Proceedings of the National Quail Symposium* 7:135-136.

Butcher, J. A., J. E. Groce, **C. M. Lituma**, M. C. Cocimano, Y. Sanchez-Johnson, A. J. Campomizzi, T. L. Pope, K. S. Reyna, and A. C. S. Knipps. 2007. Persistent controversy in statistical approaches in wildlife sciences: A perspective of students. *Journal of Wildlife Management* 71: 2142-2144.

Published Abstracts

- **Lituma, C. M.** 2016. Grazing and grassland birds: What we have learned so far. The Wildlife Society 23rd Annual Conference, Raleigh, NC, USA. Symposium Presentation.
- **Lituma, C. M.**, P. D. Keyser, C. Kwit, J. D. Clark, and E. D. Holcomb. 2016. Multi-scale assessment of wildlife sustainability in switchgrass biofuel feedstock production. United States International Association of Landscape Ecology, Asheville, NC, USA. Presentation.
- **Lituma, C. M.**, P. D. Keyser, C. Kwit, J. D. Clark, and E. D. Holcomb. 2014. Multi-scale assessment of wildlife sustainability in switchgrass biofuel feedstock production. USDA-NIFA AFRI sustainable bioenergy annual project director (PD) meeting, Arlington, VA, USA. Presentation.
- **Lituma, C. M.**, P. D. Keyser, C. Kwit, J. D. Clark, and E. D. Holcomb. 2014. Multi-scale assessment of wildlife sustainability in switchgrass biofuel feedstock production. The Wildlife Society 21st Annual Conference, Pittsburgh, PA, USA. Presentation.
- Keyser, P. D., **C. M. Lituma**, and T. Mulliniks. 2014. Grazing eastern gamagrass with bred heifers: Preliminary results. 9th Eastern Native Grass Symposium, Mobile, AL, USA. Presentation.
- **Lituma, C. M.**, P. D. Keyser, C. Kwit, J. D. Clark, and E. D. Holcomb. 2014. Multi-scale assessment of wildlife sustainability in switchgrass biofuel feedstock production. 9th Eastern Native Grass Symposium, Mobile, AL, USA. Presentation.
- **Lituma, C. M.**, P. D. Keyser, C. A. Harper, J. Morgan, and E. D. Holcomb. 2014. Restoring imperiled grassland birds through grazing innovation in the eastern United States. 132nd American Ornithologists' Union Annual Meeting held in conjunction with 84th Annual Meeting of the Cooper Ornithological Society, Estes Park, CO, USA. Presentation.
- **Lituma, C. M.** and D. A. Buehler. 2013. Assessment of roadside survey bias for high priority grassland bird species in the Central Hardwoods Bird Conservation Region. The Wildlife Society 20th Annual Conference, Milwaukee, WI, USA. Presentation.
- **Lituma, C. M.** and D. A. Buehler. 2013. Effects of conservation practices on grassland birds. 131st American Ornithologists' Union Annual Meeting held in conjunction with 83rd Annual Meeting of the Cooper Ornithological Society, Chicago, IL, USA. Presentation.

- **Lituma, C. M.** and D. A. Buehler. 2012. Spatially balanced monitoring for priority grassland birds in the Central Hardwoods Bird Conservation Region. The Wildlife Society 19th Annual Conference, Portland, OR, USA. Presentation.
- **Lituma, C. M.** and D. A. Buehler. 2012. Spatially balanced monitoring for priority grassland birds in the Central Hardwoods BCR. 5th North American Ornithological Conference, Vancouver, B.C., Canada. Presentation.
- **Lituma, C. M.**, D. A. Buehler, E. P. Tanner, A. M. Unger, J. Morgan, P. D. Keyser, C. A. Harper. 2012. Monitoring northern bobwhite breeding populations in the Central Hardwoods Bird Conservation Region. Southeast Partners in Flight Meeting, Raleigh, NC, USA. Presentation.
- **Lituma, C. M.**, D. A. Buehler, E. P. Tanner, A. M. Unger, J. Morgan, P. D. Keyser, C. A. Harper. 2012. Monitoring northern bobwhite breeding populations in the Central Hardwoods Bird Conservation Region. Quail VII National Symposium, Tucson, AZ, USA. Presentation.
- **Lituma, C. M.** and D. A. Buehler. 2011. Lessons learned from monitoring grassland birds in the Central Hardwoods BCR. 2011 Southeast Partners in Flight Meeting, Lexington, KY, USA. Presentation.
- **Lituma, C. M.** and D. A. Buehler. 2010. A regional assessment of the effects of conservation practices on grassland bird populations. 7th Eastern Native Grass Symposium, Knoxville, TN, USA. Presentation.
- Buehler, D. A. and **C. M. Lituma**. 2009. Grassland bird monitoring of the Central Hardwoods BCR. Midwest Fish and Wildlife Conference, Springfield, IL, USA. Presentation.
- **Lituma, C. M.** and M. L. Morrison. 2009. Effects of grassland restoration on dickcissel nesting success in Texas. American Ornithologists' Union Annual Conference, Philadelphia, PA, USA. Presentation.
- **Lituma, C. M.** 2009. The effects of grassland restoration on avian assemblage characteristics and dickcissel nesting success in Texas. Annual Conference of the Texas Chapter of the Wildlife Society, Lubbock, TX, USA. Cottam Award Presentation.
- **Lituma, C. M.** 2008. Effects of grassland restoration on avian assemblage characteristics and nesting success in Texas. Annual Conference of the Texas Chapter of the Wildlife Society, San Antonio, TX, USA. Presentation.
- **Lituma, C. M.** 2007. Effects of grassland restoration on avian assemblage characteristics and nesting success in Texas. Annual Conference of the Texas Chapter of the Wildlife Society, Beaumont, TX, USA. Presentation.

Professional and Invited Presentations

- **Lituma, C. M.**, P. D. Keyser, C. Kwit, J. D. Clark, and E. D. Holcomb. 2015. Multi-scale assessment of wildlife sustainability in switchgrass biofuel feedstock production. Center for BioEnergy Sustainability Forum at Oak Ridge National Laboratory, Oak Ridge, TN, USA. Invited Presentation
- **Lituma, C. M.** and D. A. Buehler. 2013. Spatially balanced monitoring for priority grassland birds in the Central Hardwoods Bird Conservation Region. Eastern and Inland Bird Banding Association, Fall Creek Falls State Park, TN, USA. Invited Presentation.
- **Lituma, C. M.** and D. A. Buehler. 2013. Spatially balanced monitoring for priority grassland birds in the Central Hardwoods Bird Conservation Region. Central Hardwoods Joint Venture Steering Meeting, Webinar, Knoxville, TN, USA. Invited Presentation.

- **Lituma, C. M.** and D. A. Buehler, E. P. Tanner, A. M. Unger, P. D. Keyser, and C. A. Harper. 2013. Monitoring northern bobwhite breeding populations in the Central Hardwoods Bird Conservation Region. National Bobwhite Technical Committee meeting, Roanoke, VA, USA. Poster.
- **Lituma, C. M.** and D. A. Buehler. 2011. Monitoring northern bobwhite breeding populations in the Central Hardwoods Bird Conservation Region. Tennessee Ornithological Society, Chattanooga, TN, USA. Invited Presentation.
- **Lituma, C. M.** 2007. The effects of grassland restoration on avian assemblage characteristics and nesting success in Texas. The Wildlife Society 14th Annual Conference, Tucson, AZ, USA. Poster.
- **Lituma, C. M.** and D. A. Zegers. 2005. The impact of riparian restoration on avian communities along Hammer Creek in Lancaster County, PA. Commonwealth of Pennsylvania University Biologists (CPUB) conference, Millersville, PA, USA. Poster.

Grants

- Anderson, J. T., P. Drohan, H. Gall, M. Laba, **C. M. Lituma**, J. Song. 2016. Planning for the future: Ensuring clean water on working farms and landscapes subject to climate change and natural gas development perturbation. Northeast Regional Association of state Agricultural Experiment Station Directors Planning Grant Proposal 16-1. \$7,000, Funded.
- Keyser, P. D., G. Bates, **C. M. Lituma**, R. Smith, D. Ditsch, J. Morgan, S. Schaeffer, and C. Harper. 2015. Grazing innovation: Improving grassland wildlife and soil health in eastern forage production systems. Natural Resources Conservation Service, Conservation Innovation Grant. \$520,000. Proposal not funded.
- Keyser, P. D., **C. M. Lituma**, R. Smith, J. Morgan, T. Edwards, N. White, T. Keene. 2015. Innovative grazing technologies for DoD lands: Improved Bobwhite, grassland bird, and biofuel stewardship. Department of Defense Environmental Security Technology Certification Program. \$1.9 million. Pre-proposal not funded.
- Keyser, P. D., G. Bates, R. L. Kallenbach, R. Smith, J. Jennings, **C. M. Lituma**, T. Mulliniks, S. Schaeffer, J. Morgan, A. Griffith, 2015. Enhancing grassland ecosystem sustainability. \$8.4 million. Proposal not funded.
- **Lituma, C. M.** and M. L. Morrison. 2008. A study of grassland birds on Rey Rosa ranch in Texas. \$1,000, Braun & Associates. Funded.

Restoration Plans and Book Chapters

- Anderson, M., L. Hayes, P. D. Keyser, **C. M. Lituma**, R. D. Sutter, and D. Zollner. 2015. Shortleaf pine restoration plan. Shortleaf Pine Initiative.
- Lituma, C.**, S. Farrell, A. Calixto and J. Cannon. 2009. Restoring small and isolated populations: The San Joaquin kangaroo rat at Lemoore Naval Air Station. Pages 273–285 *in* M. L. Morrison, editor. Restoring wildlife: Ecological concepts and practical applications. Island Press, Washington DC, USA.

Teaching

Instructor for Vertebrate Natural History (WMAN 224), Fall 2016, West Virginia University

- Developed course curriculum
- Delivered all lecture and lab materials
- Organized all field trips
- Developed and graded all lecture and lab exam materials

Co-instructor for Seminar: Natural Resources (FWF 612), Spring 2015, The University of Tennessee

- Co-developed grading criteria with Dr. Matthew Gray
- Attended and graded all seminars for Spring 2015 Semester
- Oversaw in-class discussions about grades

Co-instructor for Avian Ecology and Conservation Science (FWF 515), Fall 2014, The University of Tennessee

- Co-developed course material and topics with Dr. David Buehler
- Lectured on Nest Survival Analysis, Occupancy Analysis, and Detection Probability

Teaching Assistant for Ecology and Management of Wildbirds (WFS 445), Spring 2010-2013, The University of Tennessee

- Organized and delivered lab lecture material
- Organized field trips
- Developed and evaluated student examinations
- Developed in-class student power point exercises

Instructor of record for Principles in Wildlife and Fisheries Management (FWF 317), Fall 2012, The University of Tennessee

- Organized and delivered wildlife focused lecture material
- Developed and evaluated student examinations
- Developed student assignments to supplement in-class material

Teaching Assistant for Principles in Wildlife and Fisheries Management (FWF 317), Fall 2010, The University of Tennessee

- Graded student writing assignments

Teaching Assistant for General Ornithology (WFSC 302), Spring 2009. Texas A&M University

- Substitute lectured for the professor on record
- Taught labs, led field trips, and administered lab exams

Showcased the patch-burn-grazing research project to 13 secretaries from the Department of Interior, Office of Surface Mining and Reclamation Enforcement, and Department of Natural Resources from Washington, D.C. during a field tour of research on reclaimed minelands on May 29, 2015, Paul Van Booven Wildlife Management Area, KY.

Showcased the patch-burn-grazing research project to 90 members of the American Society of Mining and Reclamation and Appalachian Regional Reforestation Initiative during a field tour of research on reclaimed minelands on June 9, 2015, Paul Van Booven Wildlife Management Area, KY.

Delivered extension material about grazing native warm-season grasses and impacts on grassland birds to 54 biologists and professionals for the Center for Native Grasslands Management at Native Grass and Forage Biologist Workshop on June 23, 2015, Knoxville, TN.

Attended and interacted with 60 cattlemen from Madison County, KY about native warm-season grasses as summer forages on August 11, 2015, Richmond, KY.

Professional Service and Development

Reviewer

- Journal of Wildlife Management
- PlosONE
- Sustainability
- Western North American Naturalist
- The Condor: Ornithological Applications
- Agriculture, Ecosystems and Environment
- Restoration Ecology
- National Quail Symposia Proceedings

National Bobwhite Technical Committee: Grassland and grazing lands committee member

Session moderator at the The Wildlife Society 23rd Annual Conference, Raleigh, NC

Session moderator at the The Wildlife Society 20th Annual Conference, Milwaukee, WI

Session moderator at the 132nd American Ornithologists' Union Annual Meeting held in conjunction with 84th Annual Meeting of the Cooper Ornithological Society, Estes Park, CO

University of Tennessee Quiz Bowl Committee

- Helped to organize and write quiz bowl questions for the 2012 Southeastern Wildlife Conclave

Science Olympiad

- Helped to organize and write questions for the 2010 and 2011 Tennessee Science Olympiad ornithology section

Completed and received certificate for the Best Practices in Teaching Program at The University of Tennessee Graduate School

Special Skills

- Proficient in field identification of songbirds, tree taxonomy, forb taxonomy, and grass taxonomy
- Extensive nest searching and point count experience
- Experience in mist-netting and bird banding; experience in small mammal trapping and marking
- Radio-telemetry experience: homing and triangulation
- Experience with Near Infrared Spectroscopy (NIR) analysis procedures
- Prescribed burning experience at Little Bluestem Valley Farm, North Cumberland Wildlife Management Area, and Catoosa Wildlife Management Area. Used a drip-torch to set head and back fires and a hand rake to combat spot-fires: approximately 36 hrs
- Proficient in Microsoft Office Suite, ArcGIS Mapping Software, SPSS Statistical Package, Program R, Program MARK, Program PRESENCE, Program DISTANCE, and Garmin GPS Units
- Fifth-wheel trailer towing experience, 4X4 truck experience and ATV experience
- Knowledgeable of USFWS Habitat Evaluation Procedures

Professional Memberships

- The Wildlife Society

- American Ornithologists' Union
- Cooper Ornithological Society
- Wilson Ornithological Society

Languages

Bilingual: Ability to read, write and speak in English and Spanish

Scholarships and Awards

- Recipient of the American Ornithologists' Union Student Travel Award for \$312 in 2013
- Nominated for Outstanding Graduate Student Teaching Award of Merit at The University of Tennessee College of Agricultural Sciences and Natural Resources
- Recipient of the University of Tennessee Graduate Student Travel award for \$200 in 2012
- Recipient of the Keever Scholarship for research for \$200 in 2005
- Board of Governors Scholarship. Full tuition paid for while at Millersville University of Pennsylvania 2001-2005.