

Andrea R. Litt

Department of Ecology
Montana State University
P.O. Box 173460, 406B Lewis Hall
Bozeman, MT 59717

Voice: (406) 994-2332, **Fax:** (406) 994-3190
Email: andrea.litt@montana.edu
Web: www.montana.edu/litt
Podcast: <http://conservationscience.buzzsprout.com/>

Education

- **Ph.D., Wildlife and Fisheries Science, Statistics** minor, University of Arizona, 2007
Dissertation: Effects of experimental fire and nonnative grass invasion on small mammals and insects
- **M.S., Wildlife Ecology and Conservation**, University of Florida, 1999
Thesis: Herpetofaunal responses to longleaf pine sandhill restoration treatments
- **B.S., Zoology**, University of Wisconsin, 1995
- **Areas of interest:** Effects of human activities on wildlife populations and communities, especially invasive species and changes in land-use, disturbance regimes, and climatic patterns, habitat and plant-animal interactions, restoration ecology, quantitative ecology

Experience

- **Professor** *Department of Ecology, Montana State University, 2023-present*
- **Director, Fish and Wildlife Ecology and Management Program** *2021-present*
- **Associate Professor** *2016-23*
- **Assistant Professor** *2011-16*
Develop and maintain comprehensive research (40%) and teaching programs (50%) with service to the university and profession (10%). Research focuses on habitat relationships and effects of anthropogenic activities on wildlife communities and populations. Advise graduate students and undergraduate researchers and serve on graduate committees. At MSU, I have graduated 12 MS students (15 total, 3 from previous institution), supervised 1 post-doc and 1 research associate, supervised >10 undergraduate research projects, and served on numerous graduate committees.
- **Assistant Professor** *Caesar Kleberg Wildlife Research Institute, Texas A&M University-Kingsville, 2009-10*
Research (25%), teaching (25%), and statistical consulting (50%). Research focused on the effects of plant invasions on wildlife communities and populations. I graduated 3 MS students, served on graduate committees for 1 PhD and 1 MS student, and supervised 1 undergraduate research project.
- **Post-Doctoral Research Associate** *Colorado State University, 2008*
Develop optimal strategies for selecting parameters for large-scale ecological monitoring programs
- **Research Associate** *University of AZ, School of Natural Resources, 2007*
Assess efficiency of nationwide monitoring efforts for marsh birds
- **Adjunct Lecturer** *University of AZ, Dept. of Ecology & Evolutionary Biology, 2007*
Sabbatical replacement for Mammalogy; lead lectures and labs, supervise teaching assistants
- **Biostatistics Intern** *BIO5 - Institute for Collaborative Research, 2006*
Develop methods to improve estimates of abundance with sparse data

- **Lecturer** University of AZ, School of Natural Resources, 2005 and 2006
Sabbatical replacement for graduate-level course in applied statistics; lead lectures and labs, supervise teaching assistant
- **Graduate Teaching Associate** University of AZ, 2001 and 2003
Teaching assistant for Mammalogy and Applied Biostatistics
- **Graduate Research Associate** University of AZ, School of Natural Resources, 2001-07
Assess effects of nonnative grasses and fire on populations and communities of small mammals and insects
- **Science Assistant** The Nature Conservancy, Eglin Air Force Base, FL, 1999-2001
Evaluate efficacy of restoration treatments on plant and animal communities in sandhills
- **Graduate Research Assistant** University of FL, Wildlife Ecology & Conservation, 1996-1999
Assess effects of three restoration treatments on reptiles and amphibians in longleaf pine sandhills

Courses Taught

Montana State University (MSU), Department of Ecology

- BIOO 475** **Mammalogy**, 3 units, undergraduate, fall semesters, 43-64 students/semester, lecture and 3-4 lab sections, 100% responsibility
- WILD 401R** **Capstone in Fish and Wildlife Ecology and Management**, 4 units, undergraduate, spring semesters, 26-63 students/semester, lecture and 2 lab sections, team taught, research/writing intensive course (designated by MSU as a Research CORE course)
- WILD 504** **Wildlife-Habitat Relationships**, 3 units, graduate, spring semesters of even years, 8-10 students, lecture/discussions/hands-on analytical activities, 100% responsibility, focused on conceptual and quantitative content
- Guest lectures** Introduction to Fish and Wildlife Ecology (WILD 201); Biodiversity Methods (ENSC 410/LRES 510); Foundations of Ecology and Management (BIOE 594); Community Ecology (BIOL 580)
- Workshops** Strategies for Analyzing Fisheries Data, co-taught with Dr. Megan Higgs (Statistics, MSU), annual meeting of the MT Chapter of the American Fisheries Society, 2015

Previous Courses

Montana State University, Department of Ecology

- BIOB 170IN** **Principles of Biological Diversity**, 3 units, undergraduate, 200-325 students, lecture only, 33% responsibility, taught 4 times (offered every semester)

Texas A&M University – Kingsville (TAMUK), Department of Animal and Wildlife Sciences

- RWSC 4383** **Ecology of Arid and Semi-Arid Lands**, 3 units, undergraduate, 36 students, lecture only, 100% responsibility, taught once
- WSCI 6390** **Applied Regression Analysis**, 3 units, graduate, 19-21 students, lecture only, 100% responsibility, taught twice
- WSCI 6390** **Estimation and Analysis of Wildlife Populations**, 3 units, graduate, 13 students, lecture and 1 computer lab section, 100% responsibility, taught once

University of Arizona

- RNR 613** **Applied Biostatistics**, School of Natural Resources, 4 units, graduate, lecture and 2 computer lab sections, 50% responsibility, taught twice
- ECOL 485/585** **Mammalogy**, Department of Ecology and Evolutionary Biology, 3 units, undergraduate and graduate, lecture and 2 lab sections, 100% responsibility, taught once

Invited Refereed Journal Articles (* = graduate student)

- Levandowski, M. L.*, **A. R. Litt**, M. F. McKenna, S. Burson, and K. L. Legg. 2021. Multi-method biodiversity assessments from wetlands in Grand Teton National Park. *Ecological Indicators* 131:108205. <https://www.sciencedirect.com/journal/ecological-indicators/special-issue/103RXWLVGZM>) doi: 10.1016/j.ecolind.2021.108205 **Invited contribution to a special issue**: Long-term monitoring of a species suite of *Ecological Indicators*: A coordinated conservation framework for the Greater Yellowstone Ecosystem.
- Litt, A. R.**, and A. M. Ray. 2019. Surrogate Species: Piecing together the whole picture. *Vital Signs - Monitoring Yellowstone's Ecosystem Health*. *Yellowstone Science* 27(1):40-43. <https://www.nps.gov/articles/surrogate-species-piecing-together-the-whole-picture.htm> **Invited contribution**.
- Litt, A. R.**, and D. E. Pearson. 2013. Invasive plants and wildlife in the Intermountain West. *Wildlife Society Bulletin* 37:517-526. **Invited contribution**.
- Steidl, R. J., **A. R. Litt**, and W. J. Matter. 2013. Effects of plant invasions on wildlife in desert grasslands. *Wildlife Society Bulletin* 37:527-536. **Invited contribution**.
- Kahl, S. S.*, S. E. Henke, M. A. Hall, **A. R. Litt**, G. Perry, and D. Britton. 2012. Examining a potential brown treesnake transport pathway: Shipments from Guam. *Human-Wildlife Interactions* 6:204-211. **Invited contribution: special issue on brown treesnakes**.

Publications (* = graduate student, ** = undergraduate student)

In review

- Waxe, J. A.*, **A. R. Litt**, K. A. Cutting, and B. Sowell. Carry-over effects from winter habitat influence reproductive performance in a short-distant avian migrant. *Oecologia*.

Accepted or Published

- Bowersock, N. R.*, **A. R. Litt**, M. A. Sawaya, K. A. Gunther, and F. T. van Manen. 2024. Spatial variation in black bear density on Yellowstone's Northern Range. *Journal of Wildlife Management* 88: e22497. doi: 10.1002/jwmg.22497
- Hilty, S. L.*, **A. R. Litt**, B. A. Maxell, R. A. Garrott, C. N. Gower, and L. Hanauska-Brown. 2024. Characterizing diurnal roosts of male Little Brown Myotis (*Myotis lucifugus*) during summer. *Journal of Mammalogy*. doi: 10.1093/jmammal/gyae022
- Loggers, E. A.*, **A. R. Litt**, F. T. van Manen, M. Haroldson, and K. Gunther. 2024. Grizzly bear responses to restrictions of recreation in Yellowstone National Park. *Journal of Wildlife Management* 88: e22527. doi: 10.1002/jwmg.22527

- Bowersock, N. R.* , H. Okada** , **A. R. Litt**, K. A. Gunther, and F. T. van Manen. 2022. Rub tree use and selection by bears in northern Yellowstone. *Ursus* 33:e7. doi: 10.2192/URSUS-D-21-00009.3
- Lehman, C. P., Yarnall, M. J.* , **A. R. Litt**, C. T. Rota, and J. J. Rotella. 2022. Factors influencing rate of decline in a Merriam's wild turkey population. *Journal of Wildlife Management* 86: e22240. doi: 10.1002/jwmg.22240
- Litt, A. R.**, and D. E. Pearson. 2022. A functional ecology framework for understanding and predicting animal responses to plant invasion. *Biological Invasions* 24:2693–2705. 10.1007/s10530-022-02813-7
- Bowersock, N. R.* , **A. R. Litt**, J. Merkle, K. A. Gunther, and F. T. van Manen. 2021. Responses of American black bears to spring resources. *Ecosphere* 12:e03773. doi: 10.1002/ecs2.3773
- Cutting, K. A.* , J. J. Rotella, J. A. Waxe, A. O'Harra, S. R. Schroff, L. Berkley, M. Szczypinski, **A. R. Litt**, and B. K. Sowell. 2021. Resource allocation effects on the timing of reproduction in an avian habitat specialist. *Ecosphere* 12: e03700. doi: 10.1002/ecs2.3700
- Hinderer, R. K.* , **A. R. Litt**, and M. McCaffery. 2021. Habitat selection by a threatened desert amphibian. *Ecology and Evolution* 11: 536-546. doi: 10.1002/ece3.7074
- Mitchell, A. B.* , **A. R. Litt**, and F. Smith. 2021. Using locally-adapted seeds to restore native plants and arthropods after plant invasion and drought. *Rangeland Ecology and Management* 77:30-38.
- Wright, W. J., K. M. Irvine, T. J. Rodhouse, and **A. R. Litt**. 2021. Spatial Gaussian processes improve multi-species occupancy models when range boundaries are uncertain and non-overlapping. *Ecology and Evolution* 11:8516-8527. doi: 10.1002/ece3.7629
- Lula, E. S.* , B. Lowrey, K. M. Proffitt, **A. R. Litt**, J. A. Cunningham, C. J. Butler, and R. A. Garrott. 2020. Is habitat constraining bighorn sheep restoration? A case study. *Journal of Wildlife Management* 84:588–600. doi: 10.1002/jwmg.21823
- Wright, W. J., K. M. Irvine, E. S. Almborg, and **A. R. Litt**. 2020. Modelling misclassification in multi-species acoustic data when estimating occupancy and relative activity. *Methods in Ecology and Evolution* 11:71-81. doi: 10.1111/2041-210X.13315
- Yarnall, M. J.* , **A. R. Litt**, C. P. Lehman, and J. J. Rotella. 2020. Precipitation and reproduction are negatively associated with female turkey survival. *Journal of Wildlife Management* 84:1153-1163. doi: 10.1002/jwmg.21884
- Banner, K. M., K. M. Irvine, T. J. Rodhouse, D. Donner, and **A. R. Litt**. 2019. Statistical power of dynamic occupancy models to detect temporal change: Informing the North American Bat Monitoring Program. *Ecological Indicators* 105:166.176.
- Yarnall, M. J.* , **A. R. Litt**, and C. P. Lehman. 2019. Timing of vegetation sampling does not influence associations between visual obstruction and turkey nest survival in a montane forest. *Ecology and Evolution* 9:11791-11798. doi: 10.1002/ece3.5681
- Bachen, D. A.* , **A. R. Litt**, and C. Gower. 2018. Simulating cheatgrass (*Bromus tectorum*) invasion decreases access to food resources for small mammals in sagebrush steppe. *Biological Invasions* 20:2301-2311. doi: 10.1007/s10530-018-1701-8
- Banner, K. M., K. M. Irvine, T. J. Rodhouse, W. J. Wright, R. M. Rodriguez, and **A. R. Litt**. 2018. Improving geographically extensive acoustic survey designs for modeling species occurrence with imperfect detection and misidentification. *Ecology and Evolution* 8:6144-6156. doi: 10.1002/ece3.4162
- Hinderer, R. K.* , **A. R. Litt**, and M. McCaffery. 2017. Movement of imperiled Chiricahua leopard frogs during summer monsoons. *Journal of Herpetology* 51:497-503. doi: 10.1670/16-093
- Turnock, B. Y.* , **A. R. Litt**, J. Vore, and C. Hammond. 2017. Habitat characteristics of the hoary marmot:

- Assessing distribution limitations in Montana. *Ecosphere* 8:e10977. doi: 0.1002/ecs2.1977
- Andrews, T. M.*, B. B. Shepard, **A. R. Litt**, C. G. Kruse, M. L. Nelson, P. Clancey, A. V. Zale, M. L. Taper, and S. T. Kalinowski. 2016. Performance of juvenile Cutthroat Trout translocated as embryos from five populations into a common habitat. *North American Journal of Fisheries Management* 36:926-941. doi: 10.1080/02755947.2016.1165774
- Bielfelt, B.*, and **A. R. Litt**. 2016. Effects of increased *Heteropogon contortus* (tanglehead) on rangelands: The tangled issue of native invasive species. *Rangeland Ecology and Management* 69:508-512. doi: 10.1016/j.rama.2016.06.006
- Block, W. M., L. M. Conner, P. A. Brewer, P. Ford, J. Haufler, **A. Litt**, R. E. Masters, L. R. Mitchell and J. Park. 2016. Effects of prescribed fire on wildlife and wildlife habitat in selected ecosystems of North America. *The Wildlife Society Technical Review* 16-01. The Wildlife Society, Bethesda, Maryland, USA. <http://wildlife.org/wp-content/uploads/2014/05/TechManual16-01FINAL.pdf>
- Kenison, E.*, **A. R. Litt**, D. S. Pilliod, and T. E. McMahon. 2016a. Larval long-toed salamanders incur nonconsumptive effects to morphology and life-history traits in the presence of introduced trout. *Ecosphere* 7:e01258. doi: 10.1002/ecs2.1258
- Kenison, E.*, **A. R. Litt**, D. S. Pilliod, and T. E. McMahon. 2016b. The role of habitat complexity in predator-prey dynamics between an introduced fish and larval long-toed salamanders (*Ambystoma macrodactylum*). *Canadian Journal of Zoology* 94:243-249. doi: 10.1139/cjz-2015-0160
- Litt, A. R.**, and R. J. Steidl. 2016. Complex demographic responses of a common small mammal to a plant invasion. *Wildlife Research* 43:304-312. doi:10.1071/WR15147
- Mitchell, A. B.*, and **A. R. Litt**. 2016. Nonnative plant shifts arthropod functional groups following drought. *Biological Invasions* 18:1351-1361. doi: 10.1007/s10530-016-1072-y
- Zabransky, C. J.*, D. G. Hewitt, R. W. DeYoung, S. S. Gray, C. Richardson, **A. R. Litt**, and C. A. DeYoung. 2016. A detection probability model for aerial surveys of mule deer. *Journal of Wildlife Management* 80:1379-1389. doi: 10.1002/jwmg.21143
- Ray, A., A. Sepulveda, B. Hossack, D. Patla, D. Thoma, R. Al-Chokhachy, and **A. R. Litt**. 2015. Monitoring greater Yellowstone ecosystem wetlands: Can long-term monitoring help us understand their future? *Yellowstone Science* 23(1):44-53. *Special Issue on Ecological Implications of Climate Change on the Greater Yellowstone Ecosystem*
- Litt, A. R.**, E. E. Cord*, T. E. Fulbright, and G. L. Schuster. 2014. Effects of invasive plants on arthropods. *Conservation Biology* 28:1532-1549.
- Andrews, T. M.*, B. B. Shepard, **A. R. Litt**, C. G. Kruse, A. V. Zale, and S. T. Kalinowski. 2013. Juvenile movement among different populations of cutthroat trout introduced as embryos to vacant habitat. *North American Journal of Fisheries Management* 33:795-805.
- Donohue, R. N.*, D. G. Hewitt, T. E. Fulbright, C. A. DeYoung, **A. R. Litt**, and D. A. Draeger. 2013. Aggressive behavior in white-tailed deer at concentrated food sites as affected by population density. *Journal of Wildlife Management* 77:1401-1408.
- Fulbright, T. E., A. Lozano-Cavazos*, D. C. Ruthven, and **A. R. Litt**. 2013. Plant and small vertebrate composition and diversity 36-39 years after root plowing. *Rangeland Ecology and Management* 66:19-25.
- Kalinowski, S. T., M. J. Leonard, T. M. Andrews*, and **A. R. Litt**. 2013. Six classroom exercises for teaching natural selection to undergraduate biology students. *CBE Life Sciences Education* 12:483-493.
- Steen, D. A., L. L. Smith, L. M. Conner, **A. R. Litt**, L. Provencher, J. K. Hiers, S. Pokswinski, and C. Guyer. 2013. Reptile assemblage response to restoration of fire-suppressed longleaf pine sandhills.

Ecological Applications 23:148-158.

- Steen, D. A., L. L. Smith, G. Morris, L. M. Conner, **A. R. Litt**, S. Pokswinski, and C. Guyer. 2013. Response of *Aspidoscelis sexlineatus* (six-lined racerunner) to habitat restoration in fire-suppressed *Pinus palustris* (longleaf pine) sandhills. *Restoration Ecology* 21:457-463.
- Steidl, R. J., C. J. Conway, and **A. R. Litt**. 2013. Power to detect trends in abundance of secretive marsh birds: Effects of species traits and sampling effort. *Journal of Wildlife Management* 77:445-453.
- Ayala-A, F.*, J. A. Ortega-S, T. E. Fulbright, G. A. Rasmussen, D. L. Drawe, D. R. Synatzke, and **A. R. Litt**. 2012. Long-term effects of aeration and fire on invasion of exotic grasses in mixed-brush plant communities. *Rangeland Ecology and Management* 62:153-159.
- Litt, A. R.**, and R. J. Steidl. 2011. Interactive effects of fire and nonnative plants on small mammals in grasslands. *Wildlife Monographs* 176:1-31. **Outstanding Monograph – The Wildlife Society 2012**
- Litt, A. R.**, and R. J. Steidl. 2010. Insect assemblages change along a gradient of invasion by a nonnative grass. *Biological Invasions* 12:3449-3463.
- Litt, A. R.**, and R. J. Steidl. 2010. Improving estimates of abundance by aggregating sparse capture-recapture data. *The Journal of Agricultural, Biological, and Environmental Statistics* 15:228-247.
- Steidl, R. J., and **A. R. Litt**. 2009. Do plant invasions change the effects of fire on animals? *Fire Ecology* 5:56-66.
- Provencher, L., **A. R. Litt**, and D. R. Gordon. 2003. Predictors of species richness in northwestern Florida longleaf pine sandhills. *Conservation Biology* 17:1660-1671.
- Litt, A. R.**, B. J. Herring, and L. Provencher. 2001. Herbicide effects on ground-layer vegetation in southern pinelands, USA: A review. *Natural Areas Journal* 21:177-188.
- Litt, A. R.**, L. Provencher, G. W. Tanner, and R. Franz. 2001. Herpetofaunal responses to restoration treatments of longleaf pine sandhills in Florida. *Restoration Ecology* 9:462-474.
- Provencher, L., B. J. Herring, D. R. Gordon, L., H. L. Rodgers, G. W. Tanner, J. L. Hardesty, L. A. Brennan, and **A. R. Litt**. 2001. Longleaf pine and oak responses to hardwood reduction techniques in fire-suppressed sandhills in northwest Florida. *Forest Ecology and Management* 148:63-77.
- Provencher, L., **A. R. Litt**, D. R. Gordon, H. L. Rodgers, B. J. Herring, K. E. M. Galley, J. P. McAdoo, S. J. McAdoo, N. M. Gobris, and J. L. Hardesty. 2001. Restoration fire and hurricanes in longleaf pine sandhills. *Ecological Restoration* 19:92-98.
- Litt, A. R.**, L. Provencher, D. R. Gordon, B. J. Herring, J. P. McAdoo, S. J. McAdoo, J. L. Hardesty, G. W. Tanner, and L. A. Brennan. 2000. How are longleaf pines affected by different methods of hardwood reduction? *Journal of Forestry Focus Section* 98:3.
- Litt, A. R.** 1998. Response of the herpetofaunal community to three sandhill restoration treatments. *Bulletin of the Gopher Tortoise Council* 18:4.

In preparation

- Loggers, E. A.*, **A. R. Litt**, F. T. van Manen, M. Haroldson, and K. Gunther. Male and female grizzly bears differ in response to low-intensity recreation in a protected area.
- Yarnall, M. J.*, **A. R. Litt**, C. P. Lehman, and J. J. Rotella. Does hen age influence nest site selection in wild turkeys?
- Yarnall, M. J.*, **A. R. Litt**, C. P. Lehman, and J. J. Rotella. Wild turkey reproduction in the northern Black Hills, South Dakota.

Invited Refereed Book Chapters

- Litt, A. R.**, A. B. Mitchell, and D. W. Tallamy. 2024. Alien plants and insect diversity, Pages 119–142 in J. Rodríguez, A. Novoa, and P. Pyšek, editors. *Biological Invasions and Global Insect Decline*. Elsevier, San Diego, CA. **Invited contribution.**
- Litt, A. R.** 2010. Population. *Encyclopedia of Research Design*. SAGE Publications, Inc., Thousand Oaks, CA. **Invited contribution.**

Technical Reports

- Wright, W. J., K. M. Irvine, and **A. R. Litt**. 2020. Bat data from the Northern Great Plains Inventory and Monitoring Network: exploratory analysis and recommendations for future monitoring. Project report for the Northern Great Plains Inventory and Monitoring Network, National Park Service.
- Wright, W. J., K. M. Irvine, B. Reichert, C. Talbert, and **A. R. Litt**. 2019. Analysis of Colorado NABat data from 2016 and 2017. Project report for Colorado Parks and Wildlife.
<https://cnhp.colostate.edu/wpcontent/uploads/download/documents/misc/ColoradoResultsReport-BAOApproved.pdf>
- Wright, W. J., K. M. Irvine, **A. R. Litt**, and E. S. Almborg. 2019a. Study design and sampling effort recommendations for acoustic monitoring of bat populations in Montana. Project report for Montana Fish, Wildlife and Parks.
- Wright, W. J., **A. R. Litt**, and E. S. Almborg. 2019b. Modeling overall bat activity at acoustic detectors in Montana. Project report for Montana Fish, Wildlife and Parks.
- Wright, W. J., **A. R. Litt**, and E. S. Almborg. 2018. Estimating occupancy for Montana bat species prior to the arrival of white-nose syndrome. Project report for Montana Fish, Wildlife and Parks.
<http://fwp.mt.gov/fwpDoc.html?id=85655>

Press Coverage and Outreach (also posted at <http://www.montana.edu/litt/news.html>)

Written communication

- Rapp Learn, J. 2024. **Are Yellowstone recreation restrictions beneficial to bears?** The Wildlife Society News. <https://wildlife.org/jwm-are-yellowstone-recreation-restrictions-beneficial-to-bears/>
- Robinson, C. November 8, 2019. **Bats aren't just for Halloween: Insectivorous bats in North America.** <https://methodsblog.com/2019/11/08/bats-arent-just-for-halloween/>
- Montana State University News Service. 2018. **MSU College of Letters and Science faculty members to share research at April 9 roundup.** <http://www.montana.edu/news/17606>
- Schontzler, G. April 14 2018. **MSU student researchers apply lessons to real world problems.** Bozeman Daily Chronicle. pp. A3, A7 https://www.bozemandailychronicle.com/news/montana_state_university/msu-student-researchers-apply-lessons-to-real-world-problems/article_d48bf9af-38fd-5a5a-98fe-4f9f60c6b362.html
- Hoepfer, D. 2017-2018. **Ecology professor co-authors publication describing the impacts of fire on ecosystems.** Confluence 14:21. http://www.montana.edu/lettersandscience/documents/confluence_17.pdf
- Hoepfer, D. 2016. **MSU professor co-authors publication describing ways prescribed fires can affect ecosystems.** Montana State University News Service. <http://www.montana.edu/news/16572/msu-professor-co-authors-publication-describing-ways-prescribed-fires-can-affect-ecosystems>
- Boswell, E. 2015. **MSU senior searches for signs of bats in Glacier National Park.** Montana State University News Service. <http://www.montana.edu/news/15619/msu-senior-searches-for-signs-of-bats-in-glacier-national-park>

Madison, E. 2015. **Researchers look at genetics of marmots.** Great Falls Tribune. July 2, pp. 10, 40

Oral Communication

Bowersock, N. 2019. **Bear research in Yellowstone National Park.** Podcast - Today's Voices of Conservation Science. Season 2, Episode 2. <https://www.buzzsprout.com/144534/949881>

Hilty, S. 2018. **Bat conservation in Montana.** Podcast - Today's Voices of Conservation Science. Season 1, Episode 2.
<http://conservationscience.buzzsprout.com/144534/627548-shannon-hilty-bat-conservation-in-montana>

Levandowski, M. 2020. **Wetland Biodiversity in Grand Teton National Park.** Podcast - Today's Voices of Conservation Science. Season 2, Episode 13.
<http://conservationscience.buzzsprout.com/144534/2936920-mary-levandowski-wetland-biodiversity-in-grand-teton-national-park>

Litt, A. 2020. **Dr. Andrea Litt shares her career path and passion for wildlife science.** Podcast - Today's Voices of Conservation Science. Season 3, Episode 1.
<http://conservationscience.buzzsprout.com/144534/3143857-start-of-season-3-dr-andrea-litt-shares-her-career-path-and-passion-for-wildlife-science>

Loggers, E. 2021. **Give back to the world and Bear Management Areas in Yellowstone.** Podcast - Today's Voices of Conservation Science. Season 4, Episode 5.
<https://conservationscience.buzzsprout.com/144534/9061443-elise-loggers-give-back-to-the-world-and-bear-management-areas-in-yellowstone>

Segal, C. 2022. **Bison grazing and arthropods in Yellowstone National Park.** Podcast - Today's Voices of Conservation Science. Season 5, Episode 9.
<https://conservationscience.buzzsprout.com/144534/11723884-carlisle-segal-bison-grazing-and-arthropods-in-yellowstone-national-park>

Sutton, T. 2020. **Mesic habitat restoration.** Podcast - Today's Voices of Conservation Science. Season 3, Episode 7.
<http://conservationscience.buzzsprout.com/144534/5713348-thomas-sutton-mesic-habitat-restoration>

Waxe, J. 2019. **Sage grouse research in Montana (Red Rock Lakes National Wildlife Refuge).** Podcast - Today's Voices of Conservation Science. Season 2, Episode 7.
<https://www.buzzsprout.com/144534/1278457-james-waxe-sage-grouse-research-in-montana-red-rock-lakes-national-wildlife-refuge>

Yarnall, M. 2018. **Turkeys in South Dakota.** Podcast - Today's Voices of Conservation Science. Season 1, Episode 3. <http://conservationscience.buzzsprout.com/144534/654863-michael-yarnall-turkeys-in-south-dakota>

Grants and Contracts

Current

- | | |
|---------|--|
| 2024-25 | Behavior and nutritional condition buffer a large-endotherm from an ever-changing environment, <i>Co-Principal Investigator</i> (with Elise Loggers, graduate student, Ecology, MSU), University Of Wyoming NPS Research Center, \$5,000 |
| 2023-28 | Marten monitoring in Montana, <i>Principal Investigator</i> , Montana Fish, Wildlife, and Parks, \$612,419 |
| 2023-27 | Using camera traps to estimate density of grizzly bears in Yellowstone National Park, <i>Principal Investigator</i> , Yellowstone Forever, \$239,091 |

- 2023-27 Roost characteristics of *Myotis lucifugus* and *Myotis septentrionalis*, *Principal Investigator*, Montana Fish, Wildlife and Parks, \$30,368
- 2023-27 Current demographics and future climate scenarios for Yellowstone grizzly bears, *Principal Investigator*, Yellowstone Forever, \$282,000
- 2023-24 Deploying camera traps to estimate density of grizzly bears in Yellowstone National Park, *Principal Investigator*, Yellowstone Forever, \$27,955
- 2023-24 Characterizing day roosts of northern long-eared (*Myotis septentrionalis*) and little-brown bats (*Myotis lucifugus*) in northeastern Montana, *Co-Principal Investigator* (with Jacob Melhuish, graduate student, Ecology, MSU), Bob Berry Holohil Award, Western Bat Working Group, \$1,000
- 2021-24 Roost site selection of two bat species (*Myotis septentrionalis* and *Myotis lucifugus*) in northeastern Montana, *Principal Investigator*, 100% responsibility, Bureau of Land Management, \$227,395
- 2021-24 Measuring effects of bison grazing on arthropod and small mammal communities in Yellowstone National Park, *Principal Investigator*, 100% responsibility, National Park Service, \$70,568

Completed

- 2019-24 Building stronger relationships with communities in SW Montana: Addressing factors limiting range production in the sagebrush ecosystems around Red Rock Lakes National Wildlife Refuge, *Principal Investigator*, 100% responsibility, US Fish and Wildlife Service, \$35,000
- 2023-24 Day roost characteristics of northern long-eared bats (*Myotis septentrionalis*) and little-brown bats (*Myotis lucifugus*) in northeastern Montana, *Co-Principal Investigator* (with Jacob Melhuish, graduate student, Ecology, MSU), Montana Chapter of The Wildlife Society Small Grant, \$1,000
- 2019-23 Snowbanks to grassbanks, *Co-Principal Investigator*, 50% responsibility (with Bok Sowell, Animal and Range Sciences, MSU), Western Sustainable Agriculture and Education Program, US Department of Agriculture, \$349,709
- 2019-23 Resource selection of grizzly bears and evaluation of Bear Management Areas, *Principal Investigator*, 100% responsibility, Yellowstone Forever, \$79,000
- 2022-23 Examining the roles of human activity and diet on stress responses in brown bears, *Co-Principal Investigator* (with Elise Loggers, graduate student, Ecology, MSU), Sitka, \$2,500
- 2022-23 Factors influencing the arthropod community in American Bison (*Bison bison*)-grazed grasslands of Yellowstone National Park, *Co-Principal Investigator* (with Carly Segal, graduate student, Ecology, MSU), Sitka, \$1,500
- 2022-23 Factors influencing arthropod communities in bison-grazed grasslands of Yellowstone, *Co-Principal Investigator* (with Carly Segal, graduate student, Ecology, MSU), Montana Chapter of The Wildlife Society Small Grant, \$1,000
- 2022-23 Arthropod community diversity in grasslands grazed by American bison (*Bison bison*) in Yellowstone National Park, *Co-Principal Investigator* (with Carly Segal, graduate student, Ecology, MSU), Meg and Burt Raynes Wildlife Fund, \$5,000
- 2021-23 Enhancing visitor safety and conservation of grizzly bears: evaluating and identifying Bear

- Management Areas, *Principal Investigator*, 100% responsibility, US Geological Survey, \$36,000
- 2021-22 Resource selection of grizzly bears and evaluation of Bear Management Areas, *Co-Principal Investigator* (with Elise Loggers, graduate student, Ecology, MSU), Sitka Ecosystem Grant, \$5,000
- 2017-22 Statistical methodological development for long-term vegetation monitoring, *Co-Principal Investigator*, 50% responsibility (with Kathi Irvine – USGS), National Park Service, \$65,213
- 2020-21 Assessing the efficacy of Yellowstone’s Bear Management Areas for grizzly bears (*Ursus arctos*), *Co-Principal Investigator* (with Elise Loggers, graduate student, Ecology, MSU), Sitka Ecosystem Grant, \$5,000
- 2020-21 Enhancing visitor safety and conservation of grizzly bears: Evaluating and identifying Bear Management Areas in Yellowstone and Grand Teton National Parks, *Co-Principal Investigator* (with Elise Loggers, graduate student, Ecology, MSU), Sarah Baker Memorial Fund, Yellowstone to Yukon Conservation Initiative, \$5,000
- 2020-21 Assessing habitat quality for grizzly bears (*Ursus arctos*) in Grand Teton and Yellowstone National Parks and the efficacy of Yellowstone’s Bear Management Areas, *Co-Principal Investigator* (with Elise Loggers, graduate student, Ecology, MSU), Meg and Burt Raynes Wildlife Fund, \$5,000
- 2016-21 Effects of forest disturbances on bat habitat, *Principal Investigator*, 100% responsibility, USDA, US Forest Service, Northern Region, \$34,600
- 2016-21 Seasonal contributions to breeding in sage-grouse, co-PI (in collaboration with Bok Sowell – MSU and Kyle Cutting – USFWS), USFWS, \$45,000
- 2019-20 Mesic restoration in sagebrush communities, *Principal Investigator*, 100% responsibility, The Nature Conservancy, \$20,000
- 2018-20 Characterizing foraging areas and maternity roost sites of bat species and evaluating the effects of forest disturbance, *Principal Investigator*, 100% responsibility, Bureau of Land Management, \$40,000
- 2017-20 Abundance and foraging habits of the American black bear (*Ursus americanus*) on Yellowstone’s Northern Range, *Principal Investigator*, 100% responsibility, Yellowstone Forever, \$120,000
- 2017-19 Abundance of grizzly bears (*Ursus arctos*) on Yellowstone’s Northern Range, *Principal Investigator*, 100% responsibility, Yellowstone Forever, \$52,600
- 2017-19 Bat population monitoring and disease surveillance, *Principal Investigator* (in collaboration with Kathi Irvine - USGS and Emily Almberg – MFWP), 100% responsibility, Montana Fish, Wildlife, and Parks, \$80,000
- 2017-18 Understanding wetland response to climate change in the Greater Yellowstone Area, *co-Principal Investigator* (with Mary Levandowski, graduate student, Ecology, MSU/NPS), University of Wyoming-NPS Research Station, \$5,000
- 2016-20 Acoustic bat sampling design and analysis in support of the North American Bat Monitoring Program (NABat), *Principal Investigator* (in collaboration with Kathi Irvine - USGS and Thomas Rodhouse – NPS), 100% responsibility, USGS, \$204,569
- 2016-20 Characterizing foraging areas and maternity roost sites of bat species and evaluating the

- effects of forest disturbance – with a focus on beetle kill and salvage logging, *Principal Investigator*, 100% responsibility, Montana Fish, Wildlife, and Parks, \$74,100
- 2015-20 Survival and reproduction of Merriam’s wild turkeys in the Northern Black Hills, South Dakota, *Principal Investigator*, 100% responsibility, South Dakota Game, Fish, and Parks, \$199,541
- 2015-18 Cattle grazing strategies to sustain and enhance sage-grouse habitat, *Co-Principal Investigator*, 20% responsibility (with Jeffrey Mosley, Brent Roeder, Tracy Mosley, and J.P. Tanner), National Institute of Food and Agriculture, Agriculture and Food Research Initiative, Critical Agricultural Research and Extension, \$149,924
- 2015-18 Targeted cattle grazing strategies to enhance sage-grouse brood-rearing habitat, *Co-Principal Investigator*, 20% responsibility (with Jeffrey Mosley, Brent Roeder, Tracy Mosley, and J.P. Tanner, Lance McNew, and Dave Dahlgren), Bair Ranch Foundation, \$56,746
- 2014-16 Occupancy, genetics, and management of the hoary marmot (*Marmota caligata*) in Montana, *Co-Principal Investigator*, 50% responsibility (with Steven Kalinowski), Montana Fish, Wildlife, and Parks, \$108,386
- 2014-16 Status and trends of bat populations in southeastern Arizona: Analysis of a long-term data set and recommendations for future monitoring, *Principal Investigator*, 100% responsibility, National Park Service, Southern Arizona Group, \$21,031
- 2013-15 Population ecology and landscape use of the Chiricahua leopard frog (*Lithobates chiricahuensis*), *Principal Investigator*, 100% responsibility, Turner Enterprises, Inc., \$89,350
- 2013-14 Facilitating the coexistence of long-toed salamanders and trout through the addition of structurally complex habitat, *Principal Investigator*, 100% responsibility, Montana Fish, Wildlife, and Parks, \$4,950
- 2013-14 Soil modification to restore areas dominated by Old World Bluestems, *Principal Investigator*, 100% responsibility, Texas Parks and Wildlife Department, \$28,553
- 2012 Direct and indirect responses to herbivory in semi-arid ecosystems: Indicators of vulnerability to climate and land-use changes in the High Plains region of Montana, *Co-Principal Investigator*, 100% responsibility, Montana Institute on Ecosystems, Incubation grant, \$8,265 (plus \$3,300 to support an undergraduate fellowship)
- 2011-13 Soil modification as a restoration tool to reduce Old World bluestems, *Principal Investigator*, 100% responsibility, Student Fellowship – Rob and Bessie Welder Wildlife Foundation, \$51,300
- 2010-11 Statistical power and population trends of high conservation priority bird species, *Co-Principal Investigator*, 50% responsibility (with Leonard Brennan), Gulf Coast Joint Venture, USFWS, \$79,456
- 2010 Understanding a native invader: Effects of tanglehead (*Heteropogon contortus*) on flora and fauna, *Principal Investigator*, 100% responsibility, ExxonMobil Foundation Summer Jobs Program, \$2,500
- 2010 Understanding a native invader: Effects of tanglehead (*Heteropogon contortus*) on grassland birds, *Principal Investigator*, 100% responsibility, George and Mary Josephine Hamman Foundation, \$10,000
- 2010 Understanding a native invader: Effects of tanglehead on grassland birds, *Principal Investigator*, 100% responsibility, Harvey Weil Sportsman Conservation Award, \$7,500

- 2009 Understanding a native invader: Effects of tanglehead on grassland birds, *Principal Investigator*, 100% responsibility, University Research Awards, TAMUK, \$25,000
- 2009-11 Small mammal and avian response to high-intensity wildfire, *Principal Investigator*, 100% responsibility, Texas Parks and Wildlife Department, \$204,742
- 2006 *Biostatistical Internship*, BIO5 Institute for Collaborative Research, University of AZ, \$8,000
- 2003-6 Fire as a tool to restore biodiversity in ecosystems dominated by invasive grasses, *Co-PI*, Legacy Resource Management Program, Department of Defense, \$437,820

Students and Staff

Major advisor – In progress

Oscar Dalling, M.S. student, spring 2024 – present, Using camera traps to estimate density of Yellowstone grizzly bears

- *Collaborators*: Dr. Frank van Manen, USGS; Kerry Gunther, NPS - Yellowstone National Park; Dr. Anna Moeller, Oklahoma State University
- *Funding*: Yellowstone Forever

Nolan Helmstetter, Ph.D. student, fall 2023 – present, Marten (*Martes spp.*) monitoring to inform management across Montana

- *Collaborators*: Drs. Jessy Coltrane and Nick DeCesare, Montana Fish, Wildlife and Parks
- *Funding*: Montana Fish, Wildlife and Parks

Elise Loggers, Ph.D. student, fall 2022 – present, Current demographics and future climate scenarios for Yellowstone grizzly bears

- *Collaborators*: Dr. Frank van Manen, USGS; Kerry Gunther, NPS - Yellowstone National Park
- *Funding*: Yellowstone Forever; Montana Institute on Ecosystems; University of Wyoming-NPS Research Station
- *Awards*: Yellowstone Doctoral Scholars Fellowship, Montana Institute on Ecosystems; Jim Posewitz Memorial Scholarship, MSU

Jacob Melhuish, M.S. student, spring 2022 – summer 2024, Characterizing roosts for two *Myotis* species

- *Collaborators*: Mike Borggreen, BLM; Heather Harris, Montana Fish Wildlife and Parks
- *Funding*: Bureau of Land Management; Montana Fish, Wildlife and Parks; Montana Chapter of The Wildlife Society
- *Awards*: Bob Berry Holohil Award, Western Bat Working Group

Carly Segal, M.S. student, fall 2021 – summer 2024, Assessing the influence of bison disturbance on biodiversity

- *Collaborators*: Dr. Chris Geremia, NPS; Dr. Bill Hamilton, Washington and Lee University
- *Funding*: Yellowstone National Park, National Park Service; Montana Chapter of The Wildlife Society; Meg and Burt Raynes Wildlife Fund; Sitka Ecosystem Grant
- *Awards*: Conservation Nation Grant; John H. Rumely Award, Don C. Quimby Graduate Wildlife Research Scholarship, MSU

Committee member – In progress

Laura Dykstra, Ph.D. student, Animal and Range Science, Advised by Lance McNew.

Elisabeth Krieger, M.S. student, Ecology, MSU, Advised by Jay Rotella.

Parker Levinson, M.S. student, Ecology, Advised by Jay Rotella.

Colleen Piper, Ph.D. student, University of Montana, Advised by Lisa Eby/Blake Hossack.

Post-doctoral and other researchers – Completed

Katharine Banner, Ph.D., spring 2017 – summer 2018, Post-doctoral Research Associate, Characterizing and quantifying uncertainty in species identification from acoustic recordings of bats

- *Collaborators*: Dr. Kathi Irvine, USGS and Dr. Tom Rodhouse, NPS
- *Funding*: US Geological Survey
- *Current position*: Associate Professor, Department of Mathematical Sciences, Montana State University

Wilson Wright, M.S., fall 2017 – summer 2020, Research Associate, Data analysis for structured population monitoring and disease surveillance for bats

- *Collaborators*: Dr. Kathi Irvine, USGS; Dr. Emily Almberg, MFWP; Dr. Tom Rodhouse, NPS; Dr. Brian Reichert, USGS
- *Funding*: Montana Fish, Wildlife, and Parks (MFWP), USGS NABat
- *Current position*: Ph.D. student, Department of Statistics, Colorado State University

Major advisor – Completed (reverse chronological order of completion)

James Waxe, M.S. student, spring 2017 – summer 2022, Carry-over effects in partially migratory Greater Sage-grouse, southwest Montana

- *Collaborators*: Dr. Bok Sowell, MSU; Dr. Kyle Cutting, USFWS
- *Funding*: US Fish and Wildlife Service
- *Scholarships*: Isotopes in Spatial Ecology and Biogeochemistry (SPATIAL Short Course), NSF Macrosystems Biology Project Inter-University Training in Continental-scale Ecology (ITCE)
- *Awards*: Graduate Enhancement Award, Montana Institute on Ecosystems; Jim Patton Wildlife Management Scholarship, MSU
- *Current position*: High Divide Headwaters Land Steward and Science Manager, The Nature Conservancy

Elise Loggers, M.S. student, fall 2019 – spring 2022, Evaluating Bear Management Areas for grizzly bears in Yellowstone National Park

- *Collaborators*: Dr. Frank van Manen, USGS; Kerry Gunther, NPS - Yellowstone National Park; and Dr. Dave Gustine NPS - Grand Teton National Park
- *Funding*: Yellowstone Forever, USGS - Natural Resource Preservation Program, Meg and Burt Raynes Wildlife Fund, SITKA Ecosystem Grant, Sarah Baker Memorial Fund
- *Awards*: Daniel Goodman Conservation Biology Scholarship, MSU; Conservation Nation Grant; Jim Patton Wildlife Management Scholarship, MSU, Wynn Freeman Award, Montana chapter of The Wildlife Society, 2022
- *Current position*: PhD student, Montana State University

Mary Levandowski, M.S. student, fall 2016 – spring 2022, Dynamics and species use of wetlands

- *Collaborators*: Kristin Legg and Dr. Andy Ray, NPS
- *Funding*: National Park Service, American Association of University Women, University of Wyoming-NPS Research Station
- *Awards*: Student Scholarship, Biennial Scientific Conference of the Greater Yellowstone

Ecosystem

Thomas Sutton, M.S. student, spring 2019 – spring 2022, Efficacy of water conservation structures to create food resources for sage-grouse

- *Collaborators:* Dr. Kyle Cutting, USFWS; Dr. Bok Sowell, MSU; Sean Claffey and Jim Berkey, TNC
- *Funding:* Western Sustainable Agriculture and Education Program (USDA-NIFA), US Fish and Wildlife Service (USFWS), The Nature Conservancy (TNC)
- *Current position:* Area Biologist, Montana Fish, Wildlife, and Parks

Nate Bowersock, M.S. student, fall 2016 – spring 2020, Habitat use and abundance of black bears in the Northern Range of Yellowstone National Park

- *Collaborators:* Dr. Frank van Manen, USGS and Kerry Gunther, NPS
- *Funding:* Yellowstone Forever
- *Awards:* Student Scholarship, Biennial Scientific Conference of the Greater Yellowstone Ecosystem; Kenneth D. Lorang Memorial Award, MSU; Jack Creek Preserve Wildlife Scholarship, MSU
- *Previous position:* Research Associate, University of Wyoming
- *Current position:* Furbearer/Black Bear Biologist, Missouri Department of Conservation

Shannon Hilty, M.S. student, fall 2016 – spring 2020, Characterizing foraging areas and roost sites for bats across a gradient of forest disturbance

- *Collaborators:* Dr. Claire Gower, MFWP
- *Funding:* Montana Fish, Wildlife, and Parks, USDA Forest Service – Northern Region, Bureau of Land Management
- *Awards:* Small Grant Award, Montana chapter of The Wildlife Society; Student Travel Grant, College of Letters and Science, MSU, 2018, 2019; Don C. Quimby Graduate Wildlife Research Scholarship, MSU; Wynn Freeman Award, Montana chapter of The Wildlife Society, 2020
- *Previous positions:* Wildlife Biologist, Westech Environmental, Inc.; Nongame Biologist, Montana Fish, Wildlife, and Parks
- *Current position:* State Bat Biologist, Montana Fish, Wildlife, and Parks

Michael Yarnall, M.S. student, fall 2015 – fall 2018, Survival and reproduction of Merriam's wild turkeys in the northern Black Hills, South Dakota

- *Collaborators:* Dr. Chad Lehman, SDGFP
- *Funding:* South Dakota Game, Fish, and Parks, Pittman-Robertson Funds
- *Awards:* Student Travel Grant, College of Letters and Science, MSU, 2017, 2018; Student Scholarship, Shikar-Safari Foundation
- *Previous positions:* Research Associate, MSU; Research Associate, Glacier National Park
- *Current position:* Area Biologist, Montana Fish, Wildlife, and Parks

Ben Turnock, M.S. student, summer 2014 – fall 2016, Characterizing habitat relationships and establishing monitoring strategies for an alpine obligate, Co-advised with Steven Kalinowski

- *Collaborators:* Chris Hammond, MFWP
- *Funding:* Montana Fish, Wildlife, and Parks
- *Awards:* Don C. Quimby Graduate Research Scholarship, MSU; Wynn Freeman Award, Montana chapter of The Wildlife Society
- *Previous positions:* Research Technician, Weddell Seal Project in Erebus Bay, Antarctica; Research Associate, Montana State University; Assistant District Biologist, Washington

Department of Fish and Wildlife

- *Current position:* Priority Habitats and Species Shrubsteppe Biologist, Washington Department of Fish and Wildlife

Ross Hinderer, M.S. student, spring 2013 – summer 2015, Habitat selection and movement of Chiricahua leopard frogs during dispersal

- *Collaborators:* Dr. Magnus McCaffery, Turner Endangered Species Fund
- *Funding:* Turner Endangered Species Fund, Turner Enterprises, Inc.
- *Previous positions:* Research Technician, Weddell Seal Project in Erebus Bay, Antarctica; Associate Environmental Scientist, Quad-Knopf Inc.; Field Biologist, National Park Service; Field Biologist, Western EcoSystems Technology, Inc.; Ph.D. candidate, University of Montana
- *Current position:* Post-doctoral Research Associate, University of Montana

Adam Mitchell, M.S. student, summer 2011 – summer 2014, Soil modification as a tool to reduce Old World bluestems and restore vegetation and arthropod communities

- *Collaborators:* Forrest Smith, Texas Natives
- *Funding:* Welder Wildlife Foundation and Texas Parks and Wildlife Department
- *Awards:* Welder Wildlife Fellow, Welder Wildlife Foundation; Graduate Enhancement Grant, Montana Institute on Ecosystems
- *Previous position:* Ph.D. candidate, University of Delaware
- *Current position:* Assistant Professor, Tarleton State University

Daniel Bachen, M.S. student, fall 2011 – spring 2014, Cheatgrass invasion of sagebrush steppe: Impacts of vegetation structure on small mammals

- *Collaborators:* Dr. Claire Gower, MFWP
- *Funding:* Montana Fish, Wildlife, and Parks, Montana Institute on Ecosystems, Montana chapter of The Wildlife Society, and Montana State University
- *Awards:* Outstanding Teaching Assistant, Department of Ecology, MSU; Don C. Quimby Graduate Research Scholarship, MSU; Kenneth D. Lorang Memorial Award, MSU; Counter Assault Grant, Montana chapter of The Wildlife Society; Best Student Poster, Montana chapter of The Wildlife Society; Graduate Enhancement Grant, Montana Institute on Ecosystems; Student Travel Grant, College of Letters and Science, MSU
- *Previous positions:* Wildlife Biologist, Montana Natural Heritage Program; Biologist, USGS and Montana Institute on Ecosystems
- *Current position:* Senior Zoologist, Montana Natural Heritage Program

Erin Kenison, M.S., spring 2012 – spring 2014, Investigating predator-prey interactions between introduced trout and long-toed salamanders and ways to mitigate non-consumptive effects

- *Funding:* Montana Fish, Wildlife, and Parks, Montana Institute on Ecosystems, Montana chapter of The Wildlife Society, and Montana State University
- *Awards:* Wynn Freeman Award, Montana chapter of The Wildlife Society; Best Student Presentation, Montana chapter of The Wildlife Society; Nongame Research Stipend, Montana Fish, Wildlife, and Parks; Matthew F. Clow Memorial Scholarship, MSU; Counter Assault Grant, Montana chapter of The Wildlife Society; Student Travel Grant, College of Letters and Science, MSU; Graduate Enhancement Grant, Montana Institute on Ecosystems; Best Student Poster, Western Division of the American Fisheries Society
- *Previous position:* Ph.D. candidate, Purdue University; Fish and Wildlife Biologist, USFWS, Boise, ID

- *Current position:* Hydro Branch Chief, USFWS, Boise, ID

Brian Bielfelt, M.S., CKWRI, TAMUK, 2009–2012, Invasion by a native grass: Implications of tanglehead (*Heteropogon contortus*) for grassland birds

- *Funding:* Texas A&M University - Kingsville, Harvey Weil Conservation Award, and the Hamman Foundation
- *Awards:* American Ornithologist's Union student award; Cooper Ornithological Society student award; Houston Safari Club Scholarship
- *Previous position:* Wildlife Biologist, Sapphos Environmental
- *Current position:* Terrestrial Biologist, Southern California Edison

Mark Witecha, M.S., CKWRI, TAMUK, 2009–2011, Effects of high-intensity wildfire on small mammal communities

- *Funding:* Texas Parks and Wildlife Department
- *Awards:* Houston Safari Club Scholarship
- *Previous positions:* Wildlife Biologist, Pheasants Forever; Upland Wildlife Ecologist and Farm Bill Specialist, Wisconsin Department of Natural Resources
- *Current position:* Soil and Watershed Management Section Chief, Wisconsin Department of Agriculture, Trade and Consumer Protection

Erin Cord, M.S., CKWRI, TAMUK, 2009–2011, Changes in arthropod abundance and diversity with invasive grasses

- *Funding:* Texas A&M University - Kingsville
- *Awards:* Student presentation award – Third place, Texas Chapter of The Wildlife Society; President's Award for Best Oral Presentation, TAMUK; Outstanding Graduate Student – College of Agriculture, TAMUK
- *Previous positions:* Director, Wildlife Austin, Austin Parks & Recreation Department; Natural Resources Biologist, Travis County, TX; Community Programs Coordinator, Keep Austin Beautiful
- *Current position:* Bat Walk Network Coordinator, Bat Conservation International

Committee member – Completed (reverse chronological order of completion)

Kaitlin Macdonald, Ph.D., 2024, Ecology, MSU, Patterns and drivers of variation in Weddell seal survival rates, and population implications of unobserved individual heterogeneity in vital rates, Advised by Jay Rotella.

Aaron O'Harra, M.S., 2023, Animal and Range Sciences, MSU, Greater sage-grouse (*Centrocercus urophasianus*) nest survival and nest predator response to fence modifications in a grazing modified landscape, Advised by Bok Sowell.

Kyle Cutting, Ph.D., 2021, Ecology, MSU, Breeding ecology of greater sage-grouse in southwestern Montana, Advised by Jay Rotella.

Cierra Keith, M.S. student, 2020-2021, Wildlife Biology, University of Montana, Advised by Lisa Eby and Blake Hossack, changed degree programs.

Colleen Detjens, M.S., 2020, Ecology, MSU, Use of eDNA to estimate abundances of spawning Yellowstone cutthroat trout in Yellowstone National Park, Wyoming, USA, Advised by Al Zale.

Jason Marsh, M.S., 2020, Ecology, MSU, Fish assemblage response to habitat restoration in Elk Springs Creek, Montana: Implications for Arctic Grayling (*Thymallus arcticus*) restoration, Advised by Al Zale.

- Shane Petch**, M.S., 2020, Ecology, MSU, Investigating diverse sources of variation in the amount of time Weddell seal (*Leptonychotes weddellii*) pups spend in the water during the lactation period, Advised by Jay Rotella.
- Ethan Lula**, M.S., 2019, Ecology, MSU, Is habitat constraining bighorn sheep (*Ovis canadensis*) distribution and restoration: A case study in the Greater Yellowstone Ecosystem. Advised by Robert Garrott.
- Brent Cascaddan**, M.S., 2018, Ecology, MSU, Effects of mountain pine beetle on elk habitat and nutrition in the Elkhorn Mountains of Montana, Advised by Robert Garrott.
- Kaitlin Macdonald**, M.S., 2018, Ecology, MSU, Sources of variation in maternal allocation to offspring during lactation in the Weddell seal, Advised by Jay Rotella.
- Adam Mitchell**, Ph.D., 2018, Entomology and Wildlife Ecology, University of Delaware, Restructuring of arthropod trophic relationships in response to plant invasion, Advised by Doug Tallamy.
- Jarrett Payne**, M.S., 2018, Animal and Range Sciences, Can targeted cattle grazing increase abundance of forbs or arthropods in sage-grouse brood-rearing habitat?, Advised by Jeff Mosley.
- Allison Stringer**, M.S., 2018, Ecology, Status of dace in Montana prairie streams -- Effects of non-native piscivores. Advised by Bob Bramblett and Al Zale.
- Carson Butler**, M.S., 2017, Ecology, MSU, Assessing respiratory pathogen communities and demographic performance of bighorn sheep: A framework to develop management strategies for respiratory disease, Advised by Robert Garrott.
- Mike Ebinger**, M.S., 2016, Ecology, MSU, Varying nonlinear dependencies in habitat selection: Estimating instead of imposing functional forms, Advised by Robert Garrott.
- Adam Kehoe**, M.S., 2016, Ecology, MSU, Space use and foraging patterns of the white-headed woodpecker in western Idaho, Advised by Vicki Saab and Jay Rotella.
- Matthew Dresser**, M.S., 2015, Ecology, MSU, Demographic responses of three woodpecker assemblages in relation to a mountain pine beetle epidemic in the Elkhorn Mountains of Montana, Advised by Vicki Saab and Jay Rotella.
- Andrew Gilham**, M.S., 2015, Ecology, MSU, Relationships between variable intensity livestock grazing and trout biomass in headwaters of east front Rocky Mountain streams, Montana, Advised by Brad Shepard and Al Zale.
- Ryan Lamb**, M.S., 2015, Ecology, MSU, Relating tubificid communities to the transmission of *Myxobolus cerebralis*, the cause of salmonid whirling disease, Advised by Billie Kerans and David Roberts.
- Erin Shanahan**, M.S., 2015, Ecology, MSU, Whitebark pine in the Greater Yellowstone Ecosystem, Advised by David Roberts.
- Brandi Skone**, M.S., 2014, Ecology, MSU, An assessment of the usefulness of winter wheat for nesting dabbling ducks in North and South Dakota, Advised by Jay Rotella.
- Jennifer Korn**, Ph.D., 2013, CKWRI, Genetic pedigree and prey dynamics of ocelots and fine-scale movement patterns of bobcats in south Texas, Advised by Mike Tewes.
- Megan O'Reilly**, M.S., 2013, Ecology, MSU, Development of occupancy surveys for mountain ungulates, Advised by Robert Garrott.
- Katie Tierney**, M.S., 2013, Animal and Range Sciences, MSU, Effects of training on cattle grazing spotted knapweed and Canada thistle, Advised by Bret Olson.
- Michele de Verteuil**, M.S., 2011, CKWRI, Texas A&M University – Kingsville, Impacts of wildfire on

local avian communities of the Rio Grande Plains, Advised by William Kuvlesky.

Undergraduate research advisor – Completed (reverse chronological order of completion)

Jackson Connors, undergraduate MSU, spring – fall 2022, Relationship between remotely sensed NDVI and soil moisture in Yellowstone National Park

- *Funding*: Undergraduate Scholars Program, MSU
- *Collaborators*: Carly Segal, MSU

Sarah Deaton, undergraduate MSU, spring 2021, Using hunting data to assess changes in bighorn sheep and mountain goats in Montana

- *Funding*: Kevin Hurley Wild Sheep Biology Internship

Ethan Palen, undergraduate MSU, fall 2020, Effects of low-tech restoration structures on activity of Coleoptera in sagebrush steppe

- *Funding*: Undergraduate Scholars Program, MSU
- *Collaborators*: Thomas Sutton, MSU

Monique Metz, undergraduate student, MSU, summer 2018-fall 2018, How does bat activity change with mountain pine beetle?

- *Funding*: Undergraduate Scholars Program, MSU
- *Collaborators*: Shannon Hilty, MSU

Hitomi Okada, undergraduate student, MSU, spring 2018- fall 2018, Characteristics of bear rub trees in Yellowstone National Park's Northern Range

- *Funding*: Undergraduate Scholars Program, MSU (research funding in spring & summer 2018)
- *Collaborators*: Nate Bowersock, MSU

Jacob Melhuish, undergraduate student, MSU, summer 2017-spring 2018, Comparing nest site characteristics of juvenile and adult wild turkeys

- *Funding*: Undergraduate Scholars Program, MSU (research funding in summer 2017, travel grant in spring 2018)
- *Collaborators*: Michael Yarnall, MSU
- *Awards*: Wynn Freeman Award, Montana chapter of The Wildlife Society, 2019

Megan Heinemann, undergraduate student, MSU, summer – fall 2017, Estimating recovery rates of PIT tags consumed by American White Pelicans (*Pelecanus erythrorhynchos*)

- *Funding*: Montana Fish, Wildlife, and Parks, the Howard Johnson fund, and Undergraduate Scholars Program, MSU
- *Collaborators*: Mike Lance and Al Zale, MSU, Jason Mullen and Katie Vivian, MFWP

Thomas Sutton, undergraduate student, MSU, summer 2016 – spring 2017, Nest site characteristics and nest survival of Merriam's turkeys

- *Funding*: Undergraduate Scholars Program, MSU (research funding in summer and fall 2016, travel grant in spring 2017)
- *Collaborators*: Michael Yarnall, MSU
- *Awards*: Wynn Freeman Award, Montana chapter of The Wildlife Society

Adam Starecheski, undergraduate student, MSU, spring – fall 2015, Decreasing snowpack and shifting flow regimes in western Montana: Current and future effects on the hoary marmot

- *Funding*: Undergraduate Scholars Program, MSU

- *Collaborators:* Ben Turnock, MSU

Cheyenne Stirling, undergraduate student, MSU, summer – fall 2015, Bats in buildings: Assessing human structures as roost sites in Glacier National Park

- *Funding:* Jerry O’Neal National Park Service Student Fellowship
- *Collaborators:* Lisa Bate, National Park Service

Niall Clancy, undergraduate student, MSU, spring 2015 – fall 2016, Amphibians and ecosystems (independent study)

- *Co-advisor:* Wyatt Cross, MSU

Noah Bosworth, undergraduate, MSU, spring – summer 2014, Developing and testing a key for Montana shrews based on morphology of dorsal hairs

- *Funding:* Undergraduate Scholars Program, MSU
- *Collaborators:* Dan Bachen, MSU

Bryan Cossairt, undergraduate student, MSU, summer 2013, Understanding factors affecting vulnerability of wetlands and associated species in the Greater Yellowstone Area

- *Funding:* Montana Institute on Ecosystems
- *Collaborators:* Andy Ray, David Thoma, Rob Daley, and Kristin Legg, NPS

Jayme Feyhl-Buska, undergraduate student, MSU, summer 2012, Examination of current and previous research related to herbivory in semi-arid ecosystems in the High Plains of Montana

- *Funding:* Montana Institute on Ecosystems
- *Collaborators:* Ray Callaway and Solomon Dobrowski, University of Montana, Erik Beaver, USGS

Taylor Garrison, undergraduate student, TAMUK, 2011. Avian associations with mesquite motte characteristics

- *Funding:* Student travel grant, The Wildlife Society
- *Collaborators:* Brian Bielfelt, CKWRI

Presentations (reverse chronological order, underlined = presenter, * = graduate student author, ** = undergraduate student author)

Invited presentations

Loggers, E. A.*, **A. R. Litt**, M. Haroldson, F. T. van Manen, and K. Gunther. 2024. Evaluating Bear Management Areas in Yellowstone National Park. *Invited webinar* for the North American Bear Expert Team.

Loggers, E. A.*, and **A. R. Litt**. 2023. Flexible Foragers? Grizzly bears in a changing ecosystem. *Invited seminar*, Rough Cut Science Seminar Series, Montana Institute on Ecosystems, Bozeman, MT.

Mitchell, A.B., **A.R. Litt**, and D.W. Tallamy. 2023. Biological invasions and global insect decline: What can we learn from alien plant invasion? *Invited seminar*, Native Plant Society of Texas Cross Timbers Chapter Meeting, Weatherford, TX.

Litt, A. R. 2022. Think habitat: Exploring habitat relationships to inform conservation and management. *Invited seminar*, Departmental Seminar Series, Department of Natural Resources and the Environment, University of Connecticut, Storrs, CT.

Litt, A. R. 2022. Ecology and conservation of Montana’s bats. *Invited seminar*, Lewis and Clark Caverns State Park, Whitehall, MT.

- Litt, A. R.** 2021. Going to bat for bats: Informing bat conservation at three scales. *Invited seminar*, Dr. Dave Otis Speaker Series, Department of Fish, Wildlife, and Conservation Biology, Colorado State University, Fort Collins, CO.
- Banner, K. M., K. M. Irvine, T. J. Rodhouse, W. J. Wright, and A. R. Litt.** 2020. Bats and stats: Improving our understanding of North American bats through listening in the dark. *Invited seminar*, Department of Mathematics and Statistics, Washington State University, Pullman, WA.
- Litt, A. R.** 2020. Developing a conceptual framework to understand and predict animal responses to plant invasion (and other sabbatical adventures). *Invited seminar*, Department of Ecology, Montana State University, Bozeman, MT.
- Litt, A. R.** 2020. Going to bat for bats: Informing bat conservation at three scales. *Invited seminar*, Wildlife Biology Program, University of Montana, Missoula, MT.
- Litt, A. R.** 2020. Understanding effects of anthropogenic change on animals. *Invited seminar*, Agora presentation, USDA-USFS Rocky Mountain Research Station, Missoula, MT.
- Litt, A. R.** 2019. Mathematical modeling in wildlife ecology. *Invited presentation*, Montana Models: Connecting Local and Disciplinary Practices through University-Community Partnerships, modeling-based summer program for middle/high school students. National Science Foundation and Montana State University, Bozeman, MT.
- Litt, A. R.** 2019. Hands-on learning in Ecology. *Invited presentation*, Leadership MSU, Montana State University, Bozeman, MT.
- Wright, W. J., K. M. Irvine, E. S. Almberg, and A. R. Litt.** 2019. Modeling species classification errors when estimating occupancy and relative activity rates with acoustic data. *Invited symposium presentation*, Model-based approaches for addressing false positive detection errors in fish and wildlife studies, organized by Paige Ferguson, Brittany Mosher, and David Miller, Annual meeting of The Wildlife Society, Reno, NV.
- Irvine, K. M., W. J. Wright, T. J. Rodhouse, E. S. Almberg, J. Gude, L. Hanauska-Brown, and A. R. Litt.** 2018. NABat and Stats: Estimating species-level occupancy and overall activity of Montana bats prior to the arrival of white-nose syndrome, *Invited plenary presentation*, Disease Surveillance and Diagnostics Plenary Session, White Nose Syndrome National Meeting, Tacoma, WA.
- Irvine, K. M., K. Banner, W. J. Wright, T. J. Rodhouse, and A. R. Litt.** 2018. NABat and Stats – Improving the search for cryptic mammals in the dark. *Invited plenary presentation*, NABat Plenary Session, White Nose Syndrome National Meeting, Tacoma, WA.
- Litt, A. R.** 2018. Going to bat for bats: Informing bat conservation at three scales. *Invited seminar*, Distinguished Lecturer Series, Montana Institute on Ecosystems, Montana State University, Bozeman, MT. <http://montanaioe.org/video/going-bat-bats-informing-bat-conservation-three-scales>
- Litt, A. R.** 2018. Science sleuth: Collecting clues to track changes in abundance and distribution of animals. *Invited presentation*, College of Letters and Science Rising Stars Research Roundup, Montana State University, Bozeman, MT.
- Irvine, K. M., W. J. Wright, T. J. Rodhouse, R. Rodriguez, S. Reif, P. Ormsbee, K. Banner, A. R. Litt, and J. Barnett.** 2017. NABat and Stats: Exploring and improving statistical guidance in “the Plan”. *Invited symposium presentation*, Special Symposium on NABat Monitoring Program, Western Bat Working Group Biennial Meeting and Workshop, Fort Collins, CO.
- Litt, A. R.** 2016. Nonnative species: Changing the rules for native animals. *Invited presentation* – Meeting of the Sacajawea chapter of the Montana Audubon Society, Bozeman, MT.
- Litt, A. R.** 2015. Influence of patch size and neighborhood composition on arthropod communities in the face of plant invasion. *Invited symposium presentation* – Arthropod Mediated Associational Effects

Among Native and Non-Native Plants, organized by Sarah O'Neill and Carl Clem, Annual meeting of the Entomological Society of America, Minneapolis, MN.

Mitchell, A. B.*, and **A. R. Litt**. 2015. Arthropods as indicators of restoration success: lessons from an invaded grassland. *Invited symposium presentation* – Use of Arthropods in Wildlife and Applied Ecology: Recognition of Our Common Goals, organized by Steven Grodsky and Adam Mitchell, Annual meeting of the Entomological Society of America, Minneapolis, MN.

Litt, A. R. 2014. Using a mathematical toolbox to understand nature. *Invited presentation*, Girls' Adventures in Mathematics, Engineering, and Science (summer camp for middle school girls), Math Association of America and Montana State University, Bozeman, MT.

Litt, A. R. 2014. Nonnative plants have complex effects on animal populations. *Invited seminar*, Science Wednesday, USFWS, Red Rock Lakes National Wildlife Refuge, MT.

Litt, A. R. 2013. Dynamics of animal populations and communities in invaded ecosystems. *Invited departmental seminar*, School of Natural Resources and the Environment, University of Arizona, Tucson, AZ.

Litt, A. R. 2013. Plant invasions and disturbance regimes: Complex consequences for wildlife populations and communities. *Invited symposium presentation* – Indirect Effects of Invasive Species, organized by the Invasive Species Working Group, Annual meeting of The Wildlife Society, Milwaukee, WI.

Litt, A. R., and R. J. Steidl. 2013. Restoration in light of ecological changes: Complex consequences for wildlife populations and communities. *Invited symposium presentation* – Challenges and opportunities for western rangeland restoration under a changing climate, organized by Paulette Ford and Justin Derner, Annual meeting of the Society for Ecological Restoration, Madison, WI.

Litt, A. R. 2011. Invasive plants: Changing the rules for populations, communities, and ecosystems. *Invited seminar*, EcoLunch seminar series, USGS Northern Rocky Mountain Science Center, Bozeman, MT.

Litt, A. R., and F. C. Bryant. 2009. Invasive plants in south Texas: An ecologist's perspective. *Invited presentation*, Annual meeting of the Texas Invasive Plant and Pest Council, San Antonio, TX.

Litt, A. R., and R. J. Steidl. 2008. Restoring fire to grasslands invaded by nonnative plants: consequences for small mammals. *Invited presentation*, Mammal Research Symposium, Tucson, AZ.

Litt, A. R. 2006. Reliably quantifying wildlife populations with limited information. *Invited symposium presentation*, BIO5 Symposium, Tucson, AZ.

Provencher, L., K. E. M. Galley, **A. R. Litt**, D. R. Gordon, L. A. Brennan, G. W. Tanner, and J. L. Hardesty. 2000. Fire, herbicide, and chainsaw felling effects on arthropods in fire-suppressed longleaf pine sandhills at Eglin Air Force Base, FL. *Invited symposium presentation*, Annual meeting of The Wildlife Society, Nashville, TN.

Contributed presentations

Mitchell, A. B., **A. R. Litt**, and D. Tallamy. 2024. Invasive plants and insect diversity: Implications for wildlife and global insect decline, Contributed paper, Annual meeting of The Wildlife Society, Baltimore, MD.

Loggers, E. A.*, **A. R. Litt**, F. T. van Manen, M. Haroldson, and K. Gunther. 2024. Grizzly bears change their behavior near recreation sites in a protected area. Contributed paper, 28th Conference of the International Association for Bear Research and Management, Edmonton, AB, Canada.

Melhuish, J.*, **A. R. Litt**, H. Harris, and M. Borggreen. 2023. Characterizing day roosts of *Myotis septentrionalis* in northeastern Montana. Contributed poster, Biannual meeting of the Western Bat Working Group, Victoria, BC, Canada.

Grusing, E. C., K. A. Cutting, **A. R. Litt**, and B. F. Sowell. 2023. Switching sagebrush types influences survival of sage-grouse broods in a grazed landscape. Contributed poster, Annual meeting of the Montana

Chapter of The Wildlife Society, Helena, MT.

Loggers, E. A.*, **A. R. Litt**, F. T. van Manen, M. Haroldson, and K. Gunther. 2022. What can individual variation teach us when managing wildlife? Contributed paper, Annual meeting of The Wildlife Society, Spokane, WA.

Loggers, E. A.*, **A. R. Litt**, F. T. van Manen, M. Haroldson, and K. Gunther. 2021. Refuge within a refuge: Do bears respond to limiting human access? Contributed paper, Annual meeting of The Wildlife Society, virtual.

Palen, E.**, T. Sutton*, and **A. R. Litt**. 2021. Effects of low-tech restoration structures on activity of Coleoptera in sagebrush steppe, Contributed poster, National Conference on Undergraduate Research, virtual.

Bowersock, N. R.*, **A. R. Litt**, K. Gunther, J. Merkle, and F. T. van Manen. 2020. Do American black bears track resource waves in Yellowstone National Park? Contributed paper, Annual meeting of the Montana Chapter of The Wildlife Society, Butte, MT.

Hilty, S. L.*, **A. R. Litt**, B. A. Maxell, R. A. Garrott, C. N. Gower, and L. Hanauska-Brown. 2020. Characterizing summer roosts of male little brown myotis in lodgepole pine-dominated forests. Contributed paper, Annual meeting of Montana Chapter of The Wildlife Society, Butte, MT.

Litt, A. R., Yarnall, M. J.*, and C. Lehman. 2020. Roles of vegetation and age on nest site selection by wild turkeys. Contributed paper, Annual meeting of The Wildlife Society, virtual conference.

Bowersock, N. R.*, **A. R. Litt**, K. Gunther, J. Merkle, and F. T. van Manen. 2019. Do American black bears track resource waves in Yellowstone National Park? Contributed paper, Annual meeting of The Wildlife Society, Reno, NV.

Hilty, S. L.*, **A. R. Litt**, B. A. Maxell, R. A. Garrott, C. N. Gower, and L. Hanauska-Brown. 2019. Characterizing summer roosts of male little brown myotis in lodgepole pine-dominated forests. Contributed paper, Annual meeting of The Wildlife Society, Reno, NV.

Hilty, S. L.*, **A. R. Litt**, B. A. Maxell, R. A. Garrott, C. N. Gower, and L. Hanauska-Brown. 2019. Characterizing summer roosts of male little brown myotis in lodgepole pine-dominated forests. Contributed paper, Annual meeting of the Western Bat Working Group, Tulsa, OK.

Irvine, K. M., W. J. Wright, K. Banner, T. J. Rodhouse, and **A. R. Litt**. 2019. Uncovering statistical idiosyncrasies of acoustic bat data. Contributed paper, Joint Statistical Meeting, Denver, CO.

Levandowski, M.*, **A. R. Litt**, and K. Legg. 2019. Complementing visual surveys with wildlife cameras for long-term wetland monitoring. Contributed paper, Annual meeting of the Montana chapter of The Wildlife Society, Helena, MT.

Metza, M. L.**, S. L. Hilty, and **A. R. Litt**. 2019. Effects of mountain pine beetle on bat activity in western Montana. Contributed poster, Annual meeting of the Montana chapter of The Wildlife Society, Helena, MT.

Waxe, J. A.*, **A. R. Litt**, K. A. Cutting, and B. Sowell. 2019. Influence of pre-breeding body condition on reproductive metrics of Greater Sage-grouse. Contributed paper, Annual meeting of the Montana chapter of The Wildlife Society, Helena, MT.

Wright, W. J., K. M. Irvine, **A. R. Litt**, and E. S. Almberg. 2019. Estimating occupancy and activity of Montana bat species prior to the arrival of white-nose syndrome. Contributed paper, Annual meeting of the Montana chapter of The Wildlife Society, Helena, MT.

Yarnall, M. J.*, **A. R. Litt**, C. Lehman, and J. Rotella. 2019. Timing of vegetation sampling does not influence associations between visual obstruction and turkey nest survival in a montane forest. Contributed paper, Annual meeting of The Wildlife Society, Reno, NV.

- Yarnall, M. J.*, **A. R. Litt**, and C. Lehman. 2019. Precipitation and reproductive effort alter survival of turkeys hens in the Northern Black Hills, SD. Contributed paper, Annual meeting of the Montana chapter of The Wildlife Society, Helena, MT.
- Banner, K., K. Irvine, T. Rodhouse, W. Wright, R. Rodriguez, and **A. R. Litt**. 2018. Improving geographically extensive acoustic survey designs for modeling species occurrence with imperfect detection and misidentification. Contributed paper, White Nose Syndrome National Meeting, Tacoma, WA.
- Banner, K., K. Irvine, T. Rodhouse, and **A. R. Litt**. 2018. Survey design tools for monitoring species distributions over time using a dynamic occupancy model. Contributed paper, Montana Chapter of the American Statistical Association, Bozeman, MT.
- Banner, K., K. Irvine, T. Rodhouse, and **A. R. Litt**. 2018. Survey design tools and considerations for sustaining large-scale monitoring programs. Contributed paper, Joint Statistical Meeting, Vancouver, BC, Canada.
- Detjens, C.*, A. V. Zale, T. M. Koel, **A. R. Litt**, and M. K. Schwartz. 2018. Use of eDNA to monitor the abundance of spawning Yellowstone Cutthroat Trout in tributaries to Yellowstone Lake. Contributed poster, Annual meeting of the Montana chapter of the American Fisheries Society, Butte, MT.
- Heinemann, M.T.**, **A. R. Litt**, M. J. Lance, K. Vivian, J. Mullen, and A. Zale. 2018. Characterizing rearing habitat of American white pelicans using PIT tags from consumed fish. Contributed poster, Annual meeting of the Montana chapter of The Wildlife Society, Butte, MT.
- Heinemann, M.**, **A. R. Litt**, M. Lance, K. Vivian, J. Mullen, and A. Zale. 2018. Estimating detection probability of PIT tags consumed by white pelicans to improve Inferences in fish movement and avian predation studies. Contributed poster, Annual meeting of the Montana chapter of the American Fisheries Society, Butte, MT.
- Hilty, S.L.*, **A. R. Litt**, C. N. Gower, B. A. Maxell, R. A. Garrott, and L. Hanauska-Brown. 2018. Characterizing summer roosts of little brown myotis and evaluating the effects of mountain pine beetle disturbance. Contributed poster, Annual meeting of the Montana chapter of The Wildlife Society, Butte, MT.
- Levandowski, M.*, **A. R. Litt**, and K. Legg. 2018. Acoustic monitoring in wetlands offers opportunities for partnership, citizen science and research on climate change. Contributed poster, 14th Biennial Scientific Conference on the Greater Yellowstone Ecosystem, Big Sky, MT.
- Litt, A. R.**, W. J. Wright, E. S. Almborg, and K. M. Irvine. 2018. Estimating occupancy and activity of Montana bat species prior to the arrival of white-nose syndrome. Contributed paper, Annual meeting of The Wildlife Society, Cleveland, OH.
- Lula, E. S.*, J. A. Cunningham, K. M. Profitt, **A. R. Litt**, and R. A. Garrott. 2018. Is habitat constraining bighorn sheep (*Ovis canadensis*) distribution and restoration? A case study in the Greater Yellowstone Ecosystem. Northern Wild Sheep and Goat Council Biennial Symposium, Whitefish, MT.
- Melhuish, J.**, M. J. Yarnall *, **A. R. Litt**, and C. P. Lehmann. 2018. Understanding differences in nest site characteristics between juvenile and adult turkeys. Contributed poster, Annual meeting of the Montana chapter of The Wildlife Society, Butte, MT.
- Okada, H.**, N. Bowersock*, and **A. R. Litt**. 2018. Characteristics of bear rub trees in Yellowstone National Park's Northern Range. Contributed poster, Annual Student Research Celebration, Montana State University, Bozeman, MT.
- Payne, J.*, J. C. Mosley, **A. R. Litt**, B. L. Roeder, T. K. Mosley, L. B. McNew, and H. B. Goosey. 2018. Can targeted cattle grazing increase abundance of forbs or arthropods in sage-grouse brood-rearing habitat? Contributed presentation, Annual meeting of the Montana chapter of The Wildlife Society, Butte, MT.

- Payne, J.*, J. C. Mosley, **A. R. Litt**, B. L. Roeder, T. K. Mosley, L. B. McNew, and H. B. Goosey. 2018. Targeted cattle grazing to enhance sage-grouse brood-rearing habitat. Contributed presentation, Annual meeting of the Society for Range Management, Reno, NV.
- Waxe, J. A.*, **A. R. Litt**, K. A. Cutting, and B. Sowell. 2018. Tracking Greater Sage-grouse migration and identifying wintering origin by combining radio-telemetry and stable isotopes. Contributed poster, Wildlife Migration Symposium, Jackson, WY.
- Yarnall, M. J.*, and **A. R. Litt**. 2018. Hen, nest, and poult survival of Merriam's wild turkeys in the northern Black Hills. Contributed paper, Annual meeting of the Montana chapter of The Wildlife Society, Butte, MT.
- Banner, K., K. Irvine, **A. R. Litt**, T. Rodhouse, W. Wright, and R. Rodriguez. 2017. Challenges in addressing sources of uncertainty in species classifications of acoustic bat calls used for monitoring. Contributed paper, Joint Statistical Meeting, Baltimore, MD.
- Banner, K., K. Irvine, T. Rodhouse, W. Wright, and **A. R. Litt**. 2017. New methods to account for false positive detection errors in occupancy models with application to acoustic surveys of bats. Contributed paper, 2nd International Symposium on Bat Echolocation Research: Tools, Techniques, and Analysis, Tucson, AZ.
- Bowersock, N. R.*, **A. R. Litt**, K. Gunther, and F. T. van Manen. 2017. Use of camera collars to reassess the foraging strategies of bears in Yellowstone National Park. Contributed paper, Annual meeting of the Montana chapter of The Wildlife Society, Helena, MT.
- Levandowski, M.*, A. Ray, **A. R. Litt**, A. Sepulveda, and S. Burson. 2017. Using emerging technologies to bolster long-term monitoring of wetlands. Contributed poster, Annual meeting of the Montana chapter of The Wildlife Society, Helena, MT.
- Mitchell, A. B.*, **A. R. Litt**, and D. Tallamy. 2017. Shifts in arthropod trophic structure following plant invasion: Lessons from restored grasslands, Contributed paper, Annual meeting of the Ecological Society of America, Portland, OR.
- Payne, J.*, J. C. Mosley, **A. R. Litt**, B. L. Roeder, T. K. Mosley, L. B. McNew, and H. B. Goosey. 2017. Targeted cattle grazing to enhance sage-grouse brood-rearing habitat. Contributed paper, Annual meeting of the Montana chapter of The Wildlife Society, Helena, MT.
- Payne, J.*, J. C. Mosley, **A. R. Litt**, B. L. Roeder, T. K. Mosley, L. B. McNew, and H. B. Goosey. 2017. Targeted cattle grazing to enhance sage-grouse brood-rearing habitat. Contributed poster, Montana Nutrition Conference, Bozeman, MT.
- Payne, J.*, J. C. Mosley, **A. R. Litt**, B. L. Roeder, T. K. Mosley, L. B. McNew, and H. B. Goosey. 2017. Targeted cattle grazing to enhance sage-grouse brood-rearing habitat. Contributed poster, Annual meeting of the Society for Range Management, St George, UT.
- Sutton, T.**, M. J. Yarnall*, and **A. R. Litt**. 2017. Understanding how characteristics of the nest site affect nest success of wild turkeys. Contributed poster, Annual meeting of the Montana chapter of The Wildlife Society, Helena, MT.
- Turnock, B.*, **A. R. Litt**, C. Hammond, and J. Vore. 2017. Habitat characteristics of the hoary marmot: Assessing distribution limitations in Montana. Contributed paper, Annual meeting of The Wildlife Society, Albuquerque, NM.
- Turnock, B.*, **A. R. Litt**, C. Hammond, and J. Vore. 2017. Monitoring hoary marmots: Matching objectives and available effort. Contributed paper, Annual meeting of the Montana chapter of The Wildlife Society, Helena, MT.
- Waxe, J.*, **A. R. Litt**, and K. Cutting. 2017. Combining radio-telemetry with stable isotope techniques to determine wintering origin of Greater Sage-grouse. Contributed poster, Annual meeting of the

Montana chapter of The Wildlife Society, Helena, MT.

Yarnall, M.*, **A. R. Litt**, and C. Lehman. 2017. Survival and reproduction of wild turkeys in the northern Black Hills of South Dakota. Contributed paper, Annual meeting of the Montana chapter of The Wildlife Society, Helena, MT.

Bowersock, N. R.*, **A. R. Litt**, K. Gunther, and F. T. van Manen. 2016. Use of camera collars to reassess the foraging strategies of grizzly bears in Yellowstone National Park. Contributed paper, 13th Biennial Scientific Conference of the Greater Yellowstone Ecosystem, Jackson Lake, WY.

Clancy, N. G.**, **A. R. Litt**, and W. F. Cross. 2016. Impacts of larval amphibians on freshwater fisheries. Contributed poster, Annual meeting of the Montana chapter of the American Fisheries Society, Helena, MT.

Levandowski, M.*, A. Ray, **A. R. Litt**, A. Sepulveda, and S. Burson. 2016. Using emerging technologies to bolster long-term monitoring of wetlands. Contributed poster, 13th Biennial Scientific Conference of the Greater Yellowstone Ecosystem, Jackson Lake, WY.

Litt, A. R. 2016. What governs responses of animals to plant invasions? Contributed paper, Annual meeting of The Wildlife Society, Raleigh, NC.

Payne, J.*, J. C. Mosley, **A. R. Litt**, B. L. Roeder, T. K. Mosley, L. B. McNew, and H. B. Goosey. 2016. Targeted cattle grazing to enhance sage-grouse brood-rearing habitat. Fall meeting of the International Mountain Section of the Society for Range Management, Bozeman, MT.

Power, A. R.**, B. Y. Turnock*, and **A. R. Litt**. 2016. Influence of boulder size on occupancy and detection of hoary marmots. Contributed poster, Annual meeting of the Montana chapter of The Wildlife Society, Missoula, MT.

Stirling, C. E.**, **A. R. Litt**, and L. Bate. 2016. Bats in buildings: Assessing human structures as roost sites in Glacier National Park. Contributed poster, Annual meeting of the Montana chapter of The Wildlife Society, Missoula, MT.

Turnock, B. Y.*, and **A. R. Litt**. 2016. Seeking out the hoary marmot: Habitat characteristics of an alpine obligate. Contributed paper, Annual meeting of the Montana chapter of The Wildlife Society, Missoula, MT.

Bosworth, N. P.**, D. A. Bachen*, and **A. R. Litt**. 2015. Can Montana shrews be identified using morphology of dorsal guard hairs? Contributed paper, Annual meeting of the Montana chapter of The Wildlife Society, Helena, MT.

Hinderer, R.*, **A. R. Litt**, and M. McCaffery. 2015. Dispersal and habitat selection by Chiricahua leopard frogs during summer monsoons, Contributed paper, Annual meeting of the Society for the Study of Amphibians and Reptiles, Lawrence, KS.

Hinderer, R.*, **A. R. Litt**, and M. McCaffery. 2015. Habitat selection by Chiricahua leopard frogs during summer monsoons, Contributed paper, Annual meeting of the Montana chapter of The Wildlife Society, Helena, MT.

Mitchell, A.*, and **A. R. Litt**. 2015. Invasive herbivores dominate arthropod community following plant invasion and drought, Contributed paper, Annual meeting of the Entomological Society of America, Minneapolis, MN.

Mitchell, A.*, and **A. R. Litt**. 2015. Invasive herbivores dominate arthropod community following plant invasion and drought, Contributed paper, Annual meeting of the Eastern Branch of the Entomological Society of America, Rehoboth Beach, DE.

Mitchell, A.*, and **A. R. Litt**. 2015. Modifying soil properties to restore plant communities for arthropods following plant invasion and drought, Contributed paper, Annual meeting of the Mid-Atlantic

Chapter of the Society for Ecological Restoration, Newark, DE.

- Starecheski, A.**, B. Turnock*, and **A. R. Litt**. 2015. Habitat preferences of the Hoary marmot: The importance of water in alpine environments, Contributed poster, Annual meeting of the Montana chapter of the Society for Conservation Biology, Missoula, MT.
- Turnock, B., **A. R. Litt**, J. Vore, C. Hammond, and S. Kalinowski. 2015. Investigating habitat characteristics important to hoary marmots (*Marmota caligata*) in Montana, Contributed paper, Annual meeting of the Montana chapter of The Wildlife Society, Helena, MT.
- Bachen, D.*, **A. R. Litt**, C. Gower, and M. Higgs. 2014. Indirect effects of nonnative brome grasses on small mammals in sagebrush steppe ecosystems. Contributed paper, Annual meeting of the Montana chapter of The Wildlife Society, Bozeman, MT.
- Hinderer, R.*, **A. R. Litt**, M. McCaffery, and R. Garrott. 2014. Understanding movement patterns of Chiricahua leopard frogs (*Lithobates chiricahuensis*) to promote species persistence in desert ecosystems. Contributed paper, Annual meeting of the Montana chapter of The Wildlife Society, Bozeman, MT.
- Kenison, E.*, **A. R. Litt**, D. Pilliod, and T. McMahon. 2014. Investigating direct and indirect effects of introduced fish predators on long-toed salamander larvae. Contributed paper, Joint meeting of Ichthyologists and Herpetologists, Chattanooga, TN.
- Kenison, E.*, **A. R. Litt**, D. Pilliod, and T. McMahon. 2014. Investigating coexistence between trout and long-toed salamanders and the indirect effects of fish predators. Contributed paper, Annual meeting of the Montana chapter of The Wildlife Society, Bozeman, MT. **Awarded Best Student Presentation.**
- Kenison, E.*, **A. R. Litt**, D. Pilliod, and T. McMahon. 2014. Investigating coexistence between trout and long-toed salamanders and the indirect effects of fish predators. Contributed paper, Annual meeting of the Montana chapter of the American Fisheries Society, Chico, MT.
- Shanahan, E.*, D. Roberts, K. M. Irvine, **A. R. Litt**, and K. Legg. 2014. Whitebark pine growth release potential following overstory disturbance. Contributed poster, International Union of Forest Research Organizations Conference, Fort Collins, CO.
- Shanahan, E.*, D. Roberts, K. M. Irvine, **A. R. Litt**, and Greater Yellowstone Whitebark Pine Monitoring Working Group. 2014. Monitoring trends in white pine blister rust infection in the Greater Yellowstone Ecosystem. Contributed paper, International Union of Forest Research Organizations Conference, Fort Collins, CO.
- Bachen, D.*, **A. R. Litt**, C. Gower, and M. Higgs. 2013. Effects of nonnative brome grasses: Moving toward a mechanistic understanding of small mammal declines. Contributed paper, Annual meeting of The Wildlife Society, Milwaukee, WI.
- Bachen, D.*, **A. R. Litt**, and C. Gower. 2013. How do nonnative plants affect small mammals? Effects of vegetation structure on escape ability of small mammals. Contributed paper, Annual meeting of the Montana chapter of The Wildlife Society, Whitefish, MT.
- Cossairt, B.**, **A. R. Litt**, A. Ray, D. Thoma, R. Daley, and K. Legg. 2013. Monitoring wetlands in the Greater Yellowstone Area to assess vulnerability to climate change. Contributed poster, Undergraduate Research Symposium, Bozeman, MT.
- Cossairt, B.**, **A. R. Litt**, A. Ray, D. Thoma, R. Daley, and K. Legg. 2013. Monitoring wetlands in the Greater Yellowstone Area (GYA) to assess vulnerability to climate change. Contributed poster, Montana Institute on Ecosystems Summit, Helena, MT.
- Hinderer, R.*, **A. R. Litt**, M. McCaffery, and R. Garrott. 2013. Understanding movement of Chiricahua leopard frogs (*Lithobates chiricahuensis*) to promote species persistence in desert ecosystems. Contributed poster, Annual meeting of the Montana chapter of the Society for Conservation Biology,

Bozeman, MT.

- Kenison, E.*, **A. R. Litt**, D. Pilliod, and T. McMahon. 2013. Investigating coexistence between trout and long-toed salamanders. Contributed poster, Annual meeting of the Montana chapter of the Society for Conservation Biology, Bozeman, MT.
- Kenison, E.*, **A. R. Litt**, D. Pilliod, and T. McMahon. 2013. In a game of hide-and-seek with fish, where are long-toed salamanders found? Contributed poster, Annual meeting of the Montana chapter of The Wildlife Society, Whitefish, MT.
- Kenison, E.*, **A. R. Litt**, D. Pilliod, and T. McMahon. 2013. Where are long-toed salamanders found in a game of hide-and-seek with trout? Contributed poster, Annual meeting of the Western Division of the American Fisheries Society, Boise, ID. **Awarded Best Student Poster.**
- Litt, A. R.** 2013. Plant invasions and disturbance regimes: Complex consequences for wildlife populations and communities. Contributed paper, Annual meeting of the Montana chapter of the Society for Conservation Biology, Bozeman, MT.
- Mitchell, A.*, **A. R. Litt**, A. Falk, and F. Smith. 2013. Litter composition and drought severity influence on arthropod communities in Gulf Coastal prairies. Contributed poster, Annual meeting of the Montana chapter of the Society for Conservation Biology, Bozeman, MT.
- Mitchell, A.*, **A. R. Litt**, A. Falk, and F. Smith. 2013. Shifts in plant and arthropod communities following plant invasion and drought: Impacts of Old World bluestem grasses. Contributed paper, Annual meeting of The Wildlife Society, Milwaukee, WI.
- Mitchell, A.*, **A. R. Litt**, A. Falk, and F. Smith. 2013. Decreased plant and arthropod richness in landscapes dominated by Old World bluestem grasses: Implications for wildlife. Contributed paper, Annual meeting of the Montana chapter of The Wildlife Society, Whitefish, MT.
- Bachen, D.*, **A. R. Litt**, and C. Gower. 2012. Mechanisms driving nonnative plant-mediated changes in small mammal populations and communities. Contributed poster, Annual meeting of the Montana chapter of The Wildlife Society, Great Falls, MT. **Awarded Best Student Poster.**
- Mitchell, A.*, **A. R. Litt**, A. Falk, and F. Smith. 2012. Effects of nonnative plants on vegetation and arthropod communities. Contributed poster, Annual meeting of the Montana chapter of The Wildlife Society, Great Falls, MT.
- Mitchell, A.*, **A. R. Litt**, A. Falk, and F. Smith. 2012. A sea of grass: Decreased plant and arthropod richness with Old World bluestem grasses. Contributed paper, Annual meeting of the Montana chapter of the Society for Conservation Biology, Bozeman, MT.
- Ayala-A, F.*, J. A. Ortega-S, T. E. Fulbright, G. A. Rasmussen, D. L. Drawe, D. R. Synatzke, and **A. R. Litt**. 2011. Effect of a wildfire on old aerated and prescribed burned sites: Vegetation diversity and exotic grasses. Contributed poster, Annual meeting of the Society for Range Management, Billings, MT.
- Ayala-A, F.*, J. A. Ortega-S, T. E. Fulbright, G. A. Rasmussen, D. L. Drawe, D. R. Synatzke, and **A. R. Litt**. 2011. Long-term effects of aeration and fire on invasion of exotic grasses in mixed-brush plant communities. Contributed presentation, Annual meeting of the Society for Range Management, Billings, MT.
- Ayala-A, F.*, J. A. Ortega-S, T. E. Fulbright, G. A. Rasmussen, D. L. Drawe, D. R. Synatzke, and **A. R. Litt**. 2011. Long-term effects of aeration and fire on invasion of exotic grasses in mixed-brush plant communities. Contributed presentation, Annual meeting of the Texas Chapter of The Wildlife Society, San Antonio, TX.
- Bielfelt, B. J.*, **A. R. Litt**, F. C. Bryant, L. A. Brennan, and T. Langschied. 2011. A native plant becomes invasive: Wintering birds respond to increased *Heteropogon contortus*. Contributed paper, Annual meeting of the American Ornithologist's Union, Jacksonville, FL.

- Bielfelt, B. J.*, **A. R. Litt**, F. C. Bryant, L. A. Brennan, and T. Langschied. 2011. Are wintering grounds for grassland birds threatened by a native invasive grass? Contributed paper, Annual meeting of the Cooper Ornithological Society, Kearney, NB.
- Bielfelt, B. J.*, **A. R. Litt**, F. C. Bryant, L. A. Brennan, and T. Langschied. 2011. Does a native invasive grass affect breeding birds in grasslands? Contributed poster, Annual meeting of the Cooper Ornithological Society, Kearney, NB.
- Bielfelt, B. J.*, **A. R. Litt**, F. C. Bryant, L. A. Brennan, and T. Langschied. 2011. Understanding a native invader: Implications of tanglehead (*Heteropogon contortus*) on plants and birds in desert grasslands. Contributed paper, Annual meeting of the Ecological Society of America, Austin, TX.
- Cord, E. E.*, **A. R. Litt**, T. E. Fulbright, and G. L. Schuster. 2011. Changes in abundance and diversity in an arthropod community with invasive grasses. Contributed paper, Annual meeting of the Ecological Society of America, Austin, TX.
- Cord, E. E.*, **A. R. Litt**, T. E. Fulbright, and G. L. Schuster. 2011. Changes in arthropod abundance and diversity with invasive grasses. Cottam competition entry, Annual meeting of the Texas Chapter of The Wildlife Society, San Antonio, TX. **Received third place award – Cottam (student presentation) competition.**
- Cord, E. E.*, **A. R. Litt**, T. E. Fulbright, and G. L. Schuster. 2011. Effects of invasive grasses on vegetation structure and composition. Contributed poster, Annual meeting of the Texas Chapter of The Wildlife Society, San Antonio, TX.
- DeVerteuil, M.*, W. P. Kuvlesky, **A. R. Litt**, L. A. Brennan, J. F. Gallagher, and D. P. Walker. 2011. Impacts of wildfire on avian communities of South Texas. Cottam competition entry, Annual meeting of the Texas Chapter of The Wildlife Society, San Antonio, TX.
- DeVerteuil, M.*, W. P. Kuvlesky, **A. R. Litt**, L. A. Brennan, J. F. Gallagher, and D. P. Walker. 2011. Impacts of wildfire on avian communities of South Texas. Contributed paper, Annual meeting of the Cooper Ornithological Society, Kearney, NB.
- Garrison, T. A.**, B. J. Bielfelt*, and **A. R. Litt**. 2011. Avian associations with mesquite motte characteristics. Contributed poster (undergraduate), Annual meeting of The Wildlife Society, Kona, HI.
- Garrison, T. A.**, B. J. Bielfelt*, and **A. R. Litt**. 2011. Avian associations with mesquite motte characteristics. Contributed poster (undergraduate), Annual meeting of the Texas Chapter of The Wildlife Society, San Antonio, TX.
- Litt, A. R.** 2011. Complex demographic responses of a small mammal to a plant invasion. Departmental seminar, Department of Ecology, MSU.
- Litt, A. R.** 2011. Nonnative plants function as an ecological trap for a native mammal. Contributed paper, Annual meeting of The Wildlife Society, Kona, HI.
- Redd, K.*, M. DeVerteuil*, W. P. Kuvlesky, **A. R. Litt**, and D. P. Walker. 2011. Impacts of wildfire on vegetation in a mixed-brush community in South Texas. Contributed poster (undergraduate), Annual meeting of the Texas Chapter of The Wildlife Society, San Antonio, TX.
- Sands, J. P.*, L. A. Brennan, **A. R. Litt**, S. J. DeMaso, and B. Wilson. 2011. Detecting trends for birds in the Gulf Coast Joint Venture with Breeding Bird Survey and Christmas Bird Count data. Contributed poster, Annual meeting of the Southeastern Working Group of Partners in Flight, Lexington, KY.
- Witecha, M. J.*, **A. R. Litt**, T. E. Fulbright, S. M. Cooper, and D. P. Walker. 2011. Effects of high-intensity wildfire on small mammal abundance and species richness. Contributed paper, Annual meeting of the American Society of Mammalogists, Portland, OR.

- Witecha, M. J.*, **A. R. Litt**, T. E. Fulbright, S. M. Cooper, and D. P. Walker. 2011. Effects of high-intensity wildfire on small mammal abundance and species richness. Contributed paper, Annual meeting of the Texas Society of Mammalogists, Junction, TX.
- Witecha, M. J.*, **A. R. Litt**, T. E. Fulbright, S. M. Cooper, and D. P. Walker. 2011. Effects of wildfire on small mammal communities. Cottam competition entry, Annual meeting of the Texas Chapter of The Wildlife Society, San Antonio, TX.
- Cord, E. E.*, **A. R. Litt**, T. E. Fulbright, and G. L. Schuster. 2010. Effects of invasive grasses on arthropod abundance and diversity. Contributed paper, First Annual Javelina Research Symposium, Kingsville, TX. **Received President's Award (top award) for Oral Presentation.**
- Cord, E. E.*, **A. R. Litt**, T. E. Fulbright, and G. L. Schuster. 2010. Effects of invasive grasses on arthropod abundance and diversity. Contributed poster, Texas A&M AgriLife Conference, College Station, TX.
- Cord, E. E.*, **A. R. Litt**, T. E. Fulbright, and G. L. Schuster. 2010. Effects of invasive grasses on arthropod abundance and diversity. Contributed paper, Annual meeting of Texas Chapter of The Wildlife Society, Galveston, TX.
- De Verteuil, M. L.*, W. P. Kuvlesky, L. A. Brennan, **A. R. Litt**, J. F. Gallagher, and M. Richardson. 2010. Effects of wildfire on avian community of south Texas. Contributed paper, Annual meeting of Texas Chapter of The Wildlife Society, Galveston, TX.
- De Verteuil, M. L.*, W. P. Kuvlesky, L. A. Brennan, **A. R. Litt**, J. F. Gallagher, and M. Richardson. 2010. Effects of wildfire on avian community of south Texas. Contributed paper, First Annual Javelina Research Symposium, Kingsville, TX.
- Korn, J. M.*, M. E. Tewes, L. I. Grassman, J. H. Young, and **A. R. Litt**. 2010. Modeling seasonal changes in rodent abundance with varying population demographics. Contributed paper, First Annual Javelina Research Symposium, Kingsville, TX.
- Korn, J. M.*, M. E. Tewes, L. I. Grassman, J. H. Young, and **A. R. Litt**. 2010. Modeling seasonal changes in rodent abundance with varying population demographics. Contributed paper, Annual meeting of the Texas Chapter of The Wildlife Society, Galveston, TX.
- Litt, A. R.**, and R. J. Steidl. 2010. Factors influencing richness of fauna in grasslands. Contributed poster, Annual meeting of The Wildlife Society, Snowbird, UT.
- Moore, S. F.* , T. E. Fulbright, L. A. Brennan, F. Hernandez, and **A. R. Litt**. 2010. Effects of guineagrass on northern bobwhite habitat selection. Contributed paper, Annual meeting of The Wildlife Society, Snowbird, UT.
- Moore, S. F.*, T. E. Fulbright, L. A. Brennan, F. Hernandez, and **A. R. Litt**. 2010. Effects of guineagrass on northern bobwhite nesting habitat. Contributed paper, Annual meeting of the Texas Chapter of The Wildlife Society, Galveston, TX.
- Sanders, D. L.* , L. A. Brennan, and **A. R. Litt**. 2010. Evaluating habitat management practices of northern bobwhite quail in south Texas. Contributed poster, Annual meeting of the Texas Chapter of The Wildlife Society, Galveston, TX.
- Witecha, M. J.*, **A. R. Litt**, T. E. Fulbright, S. M. Cooper, and M. L. Richardson. 2010. Effects of wildfire on small mammal communities. Contributed paper, First Annual Javelina Research Symposium, Kingsville, TX.
- Witecha, M. J.*, **A. R. Litt**, T. E. Fulbright, S. M. Cooper, and M. L. Richardson. 2010. Effects of wildfire on small mammal communities. Contributed paper, Annual meeting of Texas Chapter of The Wildlife Society, Galveston, TX.
- Litt, A. R.**, and R. J. Steidl. 2009. Plant invasions alter demographic fitness of small mammals in

- grasslands. Contributed paper, Annual meeting of The Wildlife Society, Monterey, CA.
- Mazzotti, F. J., M. L. Brien, M. S. Cherkiss, **A. R. Litt**, and K. G. Rice. 2008. Front or Rear, Top or Bottom: Measuring Snout-Vent Length to Determine Condition in Crocodylians. Contributed poster, 19th Working Meeting of the IUCN-SSC Crocodile Specialist Group, Santa Cruz de la Sierra, Bolivia.
- Litt, A. R.**, R. J. Steidl, B. F. Powell, S. L. Mann, and B. R. Noon. 2008. Choosing parameters for large-scale monitoring programs. Contributed paper, Annual meeting of The Wildlife Society, Miami, FL.
- Litt, A. R.**, and R. J. Steidl. 2008. Consequences of restoring fire to ecosystems invaded by nonnative plants. Contributed paper, Fire in the Southwest: Integrating Fire into Management of Changing Ecosystems, Association for Fire Ecology, Tucson, AZ.
- Litt, A. R.**, and R. J. Steidl. 2007. Changes in a small mammal community across a gradient of invasion by nonnative grass. Contributed paper, Annual meeting of The Wildlife Society, Tucson, AZ. **Awarded Best Student Presentation.**
- Litt, A. R.**, and R. J. Steidl. 2007. Effects of nonnative plants and restoration fires on small mammals. Contributed paper, Annual meeting of the AZ/NM chapters of The Wildlife Society, Albuquerque, NM.
- Litt, A. R.**, and R. J. Steidl. 2006. Restoring ecological drivers in altered ecosystems: effects on small mammal communities. Contributed paper, Annual meeting of The Wildlife Society, Anchorage, AK.
- Litt, A. R.** 2005. Estimating abundance with sparse capture-recapture data. Departmental seminar, School of Natural Resources, University of Arizona, Tucson, AZ.
- Litt, A. R.**, and R. J. Steidl. 2005. Generating reliable estimates of abundance with limited capture-recapture data. Contributed paper, Annual meeting of The Wildlife Society, Madison, WI.
- Litt, A. R.**, and R. J. Steidl. 2003. Restoring ecological processes in light of ecological changes. Contributed poster, 3rd International Wildlife Management Congress, Christchurch, New Zealand.
- Litt, A. R.**, and R. J. Steidl. 2002. Effects of nonnative grasses and fire on small mammal populations and communities. Contributed paper, Joint annual meeting of the Ecological Society of America and the Society for Ecological Restoration, Tucson, AZ.
- Litt, A. R.**, and R. J. Steidl. 2002. Effects of nonnative grasses on small mammal populations and communities. Contributed paper, Annual meeting of the AZ/NM Chapters of The Wildlife Society, Safford, AZ.
- Provencher, L., **A. R. Litt**, and D. R. Gordon. 2001. Correlates of species richness in northwestern Florida longleaf pine sandhills. Contributed paper, Annual meeting of the Ecological Society of America, Madison, WI.
- Gordon, D. R., L. Provencher, **A. R. Litt**, G. W. Tanner, L. A. Brennan, and J. L. Hardesty. 2000. Comparing restoration methods using similarity metrics in Florida longleaf pine sandhills. Contributed paper, Annual meeting of the Ecological Society of America, Snowbird, UT.
- Provencher, L., D. R. Gordon, **A. R. Litt**, G. W. Tanner, L. A. Brennan, and J. L. Hardesty. 2000. Testing restoration success in fire-suppressed longleaf pine sandhills of NW Florida. Contributed paper, Annual meeting of the Society for Conservation Biology, Missoula, MT.
- Litt, A. R.** 1999. Herpetofaunal responses to longleaf pine sandhill restoration treatments on Eglin Air Force Base, FL. Contributed paper, All Florida Herpetofaunal Conference, Gainesville, FL.
- Litt, A. R.** 1999. Herpetofaunal responses to longleaf pine sandhill restoration treatments on Eglin Air Force Base, FL. Departmental seminar, Department of Wildlife Ecology and Conservation, University of Florida, Gainesville, FL.
- Litt, A. R.** 1998. Herpetofaunal responses to longleaf pine sandhill restoration treatments on Eglin Air Force Base, FL. Contributed poster, Longleaf Alliance Conference, Charleston, SC.

- Professional Development Grant Graduate and Professional Student Council and Institute for the Study of Planet Earth, University of AZ, \$2,260, 2006
- Continuing Education Grant Arizona Chapter of The Wildlife Society, \$550, 2006
- Travel Grant Graduate and Professional Student Council, University of AZ, \$500, 2003; \$300, 2006

Service Activities

Editor/Reviewer:

- Associate Editor, Journal of Wildlife Management, 2020-present
- Reviewer for various journals including: American Midland Naturalist, Biological Conservation, Ecological Applications, Ecological Restoration, Ecology and Evolution, Intermountain Journal of Sciences, Journal of Agricultural, Biological, & Environmental Statistics, Journal of Arid Environments, Journal of Herpetology, Journal of Mammalogy, Journal of Wildlife Management, Nature Education – Knowledge Project, Rangeland Ecology & Management, Rangelands, Restoration Ecology, Scientific Reports, Southeastern Naturalist, Wildlife Research, Wildlife Society Bulletin, Wildlife Monographs
- External Reviewer, Faculty Tenure/Promotion Review, 2022, 2024
- Peer reviewer, USGS
- Judge, Student presentations/posters, Annual meeting of Montana Chapter of The Wildlife Society, 2017, 2019-2021
- Judge, Student presentations, Annual meeting of The Wildlife Society, 2013-14
- Reviewer, Abstracts for the International Wildlife Management Congress, 2012, 2015
- Invited to be Associate Editor, Wildlife Society Bulletin, 2011, 2012 – declined
- Reviewer, Proposals for International Arid Lands Consortium, 2010
- Reviewer, Abstracts for the annual meeting of The Wildlife Society, 2008, 2010, 2013

Reviewer (University, College, or Department-level):

- Internal Reviewer, Faculty Retention/Tenure/Promotion Review, MSU, 2023
- Reviewer, Undergraduate and graduate scholarships, Department of Ecology, MSU, 2012-present
- Reviewer, Don C. Quimby Graduate Wildlife Research scholarship (review panel with representatives from Montana Fish, Wildlife, and Parks and two departments at MSU), MSU, 2015

Committee membership, advisor positions:

Profession

- Member, Committee for the Special Recognition Service Award, The Wildlife Society, appointed, 2023
- Member, Diversity Committee, National Association for University Fish and Wildlife Programs, 2023
- Regional Chair (West Region), National Association for University Fish and Wildlife Programs, nominated, 2023
- Member, Diversity, Equity, and Inclusion Network, The Wildlife Society, 2023-present
- Member, College and University Education Working Group, The Wildlife Society, 2022-present
- Member and Northwest Section Representative, Wildlife Publications Award Committee, The Wildlife

Society, appointed, 2022-2023

- *Member (representative for MSU)*, National Association for University Fish and Wildlife Programs, 2021-present
- *Member*, Inclusion, Diversity, Equity, and Awareness Working Group, The Wildlife Society, 2021-present
- *President*, Montana Chapter of The Wildlife Society, elected to a 3-year term (President-Elect, President, Past President), 2021-2024
- *Member*, Diversity Award Committee, The Wildlife Society, appointed, 2021-2023
- *Panelist*, Population and Community Ecology Program, National Science Foundation, 2020
- *Member*, Caesar Kleberg Research Award Committee, The Wildlife Society, appointed, 2018-2019
- *Member*, Technical Advisory Committee, Spion Kop Wind Farm, appointed, 2016-2019
- *Board Member*, Invasive Species Working Group, The Wildlife Society, elected to 2, 2-year terms, 2013-2017
- *Panelist*, Doctoral Dissertation Improvement Grant, National Science Foundation, 2015
- *Panelist*, Graduate Research Fellowship Program, National Science Foundation, 2015
- *Member*, Honorary Membership and Special Recognition Awards Committee, The Wildlife Society, appointed, 2014-15
- *Executive Committee*, North America Congress for Conservation Biology, Society for Conservation Biology, appointed, 2013-14
- *Chair*, Symposium Subcommittee and Program Committee, The Wildlife Society, appointed, 2013-14
- *Member*, Wildlife Committee, 2013 Envirothon (annual competition for high school students), appointed, 2012-13
- *Member*, Don Rusch Memorial Game Bird Research Scholarship Committee, The Wildlife Society, appointed, 2012
- *Member*, Panel Discussion and Roundtable Committee, The Wildlife Society, appointed, 2012
- *Board Member*, Biometrics Working Group, The Wildlife Society, elected to 2 terms, 2011-13
- *Member*, Program Committee, 4th International Wildlife Management Congress, appointed, 2011-12
- *Member*, Technical Review Committee – Prescribed Fire & Wildlife, The Wildlife Society, appointed, 2010-2016
- *Member*, Subunit Awards Committee, The Wildlife Society, appointed, 2010-12
- *Member*, Domain Science & Education Coordination Committee–Southern Plains, National Ecological Observatory Network (NEON), appointed, 2009-11
- *Member*, Academic Program Review Committee, School of Natural Resources, University of AZ, appointed, 2009
- *Member*, Science & Technical Monitoring Subcommittee, Sonoran Desert Conservation Plan, appointed, 2007

Community/Outreach

- *Co-Host*, Today's Voices of Conservation Science podcast, 2018-present
<http://conservationscience.buzzsprout.com/>
- *Visiting Scientist*, STEM Expo, Morningstar Elementary School, 2017-2018

- *Judge*, STEM Expo, Longfellow Elementary School, 2017
- *Speaker*, Meeting of the Sacajawea chapter of the Montana Audubon Society, 2016
- *Speaker*, Girls' Adventures in Mathematics, Engineering, and Science, 2014
- *Speaker*, Science Wednesday, USFWS, Red Rock Lakes National Wildlife Refuge, 2014

College/University

- *Member*, Graduate Assistantship (GTA/GRA) Stipend Committee, College of Letters and Science, MSU, 2023
- *Safe Zone Ally*, Safe Zone Program, MSU, 2022
- *Panelist*, Thinking About Teaching, New Faculty Forum, College of Letters and Science, MSU, 2022
- *Reviewer/Panelist*, Undergraduate Scholars Program, MSU, 2011, 2012, 2017-present
- *Member*, Institutional Animal Care and Use Committee, MSU, 2018-2019
- *Member*, University Curriculum and Programs Committee (Representative for the College of Letters and Science, <https://www.montana.edu/provost/committees/cpc.html>), MSU, 2017-2019
- *Equity Advocate*, MSU, 2013-15, emeritus status, 2015-present
- *Graduate Representative*, Dissertation committees, 2015
- *Member*, Advisory Board, Statistical Consulting Center, MSU, 2014-15
- *Member*, Search Committee, Director of Statistical Consulting, MSU, 2013-14
- *Member*, Women's Faculty Caucus, MSU, 2011-present
- *Member*, Distance Learning Committee, TAMUK, 2010
- *Member*, Honors Council, TAMUK, 2009-10
- *Mentor*, University of AZ, Conservation Biology Internship Program, 2004

Department

- *Director*, Fish and Wildlife Ecology and Management Program, Department of Ecology, MSU, 2021-present, elected to 2, 3-year terms
- *Chair*, Search Committee, Applied Quantitative Ecologist, MSU, 2024
- *Member*, Retention, Tenure, and Promotion Committee, Department of Ecology, MSU, 2024
- *Chair*, Retention, Tenure, and Promotion Committee, Department of Ecology, MSU, 2023
- *Member*, Search Committee, Large Mammal Ecologist, MSU, 2021-22
- *Member*, Facilities Improvement Committee, Department of Ecology, MSU, 2017-2019
- *Member*, Promotion, Retention, and Tenure Committee, Department of Ecology, MSU, 2017-2019
- *Member*, Graduate Student Recruitment Committee, Department of Ecology, MSU, 2018
- *Member*, Search Committee, Academic Coordinator, MSU, 2018
- *Member*, Search Committee, Department Head, MSU, 2016-17
- *Member*, Executive Committee, Department of Ecology, MSU, 2015
- *Member*, Search Committee, Aquatic Ecologist, MSU, 2014-15
- *Member*, Executive Committee/Promotion and Tenure, Department of Ecology, MSU, 2011-13
- *Member*, Faculty Search Committee, Restoration Ecologist, TAMUK, 2010

- Co-Advisor, Wildlife & Animal Science Graduate Student Organization, TAMUK, 2009-10
- Department Representative, Graduate Student Council, University of FL, 1998

Professional Development

- Women in Leadership Certificate, Cornell University, 2021
 - 5 course series: Navigating the Double Bind, Negotiation Skills, Using Emotional Intelligence to Drive Results, Giving and Receiving Feedback, Outsmart the Work-Life Balance
- New Faculty Forum, College of Letters and Science, MSU, 2011-12
- Transculturation program, TAMUK, 2010
- New Faculty Investment program, TAMUK, 2010
- Workshops, Webinars, and Short Courses

Supporting Diversity and Health

- Diversity 100 – Exploring Cultural Identity, MSU, 2023
- Indian Education for All, MSU, 2022
- Safe Zone Module 3 – Unpacking and Undoing Individual Heterosexism and Transnegativity, MSU, 2022
- Safe Zone Module 2 - Ally Development, MSU, 2022
- Safe Zone Module 1 - Awareness and Education, MSU, 2021
- Diversity 110 - Intersectionality & Privilege, MSU, 2021
- Diversity - Mental Health, MSU, 2021
- At-Risk for University and College Faculty and Staff training, Kognito, 2021

Teaching/Mentoring

- How to Make Virtual Engagement Easy, Center for Faculty Excellence, MSU, 2021
- Teaching Online Program, Center for Faculty Excellence, MSU, 2020
- Researcher Visibility, Center for Faculty Excellence, MSU, 2020
- Classroom Management, Center for Faculty Excellence, MSU, 2020
- Effective Research Mentoring, Suzanne Christopher, MSU, 2015
- Grant Writing Boot Camp 2.0, ADVANCE Project TRACS, MSU, 2015

Quantitative Skills

- Fundamentals of Structured Decision Making, 2022
- Integrated Population Models, Paul Lukacs, 2021
- Bayesian Modeling for Socio-Environmental Data, National Socio-Environmental Synthesis Center (SESYNC), Tom Hobbs, Mary Collins, and Christian Che-Castaldo, 2019 (enrollment by application only, expenses supported by SESYNC)
- Introduction to Spatial Capture-Recapture, Andy Royle and others, 2017
- Estimating resource selection using R, Trent McDonald and Fawn Hornsby, 2014
- Analyses of wildlife spatial behaviors & habitat use with 'Adehabitat' R packages, Clément Calenge and James Sheppard, 2013
- Spatial capture-recapture, Integrated population models, N-mixture models, and Multimodel inference and model averaging, Beth Gardner, Takis Besbeas, Marc Kery, Richard Barker, and others, EURING Analytical Meeting and Workshop, 2013

- Spatial statistics in R, Robin Russell, Mevin Hooten, and others, 2012
- Unmarked: An R package for hierarchical models of species abundance and occurrence, Andy Royle and Richard Chandler, 2012
- Advanced Program MARK, Evan Cooch and others, 2011
- Learn to use R, US Geological Survey, 2010
- Estimation of population change from survey data, US Geological Survey, 2010
- Modeling species distributions, Tom Stohlgren, Ecological Society of America, 2010
- Bayesian survival analysis using WINBUGS, Dennis Heisey and Christine Bunck, 2009
- Model selection and multi-model inference, David Anderson, 2009
- Occupancy estimation using Program Presence, Darryl MacKenzie and others, 2008
- Estimation of population parameters using Program MARK, Gary White, 2008

Professional Affiliations

- Society for Advancement of Chicanos/Hispanics & Native Americans in Science, 2023-present
- Native American Fish and Wildlife Society, 2021-present
- Western Bat Working Group, 2016-present
- Montana Bat Working Group, 2016-present
- Society for Ecological Restoration, 2009-present
 - Northwest chapter, 2012-present
- Ecological Society of America, 2004-present
- Society for Conservation Biology, 2004-present
 - Montana chapter, 2012-present
- The Wildlife Society, 2004-present
 - Ethnic and Gender Diversity Working Group, 2020-present
 - Invasive Species Working Group, 2011-present
 - Biometrics Working Group, 2004-present
 - State chapters: Montana, 2011-present; Texas, 2009-10; Arizona/New Mexico, 2004-08
- American Society of Ichthyologists and Herpetologists, 1997-2000
- Herpetologist's League, 1997-2000
- Society for the Study of Amphibians and Reptiles, 1997-2000

References

Diane Debinski, Ph.D., Professor and Department Head (current supervisor, 2017-present)
Department of Ecology
Montana State University
P.O. Box 173460
Bozeman, MT 59717
(406) 994-4548, diane.debinski@montana.edu.

David Roberts, Ph.D., Emeritus Professor (former Department Head and supervisor, 2011-2017)
Department of Ecology
Montana State University
P.O. Box 173460
Bozeman, MT 59717
droberts@montana.edu

Fred C. Bryant, Ph.D., Director of Development (former supervisor)
Previous position: Professor and Director
Caesar Kleberg Wildlife Research Institute
700 University Boulevard, MSC 218
Kingsville, TX 78363
(361) 522-2860, fred.bryant@tamuk.edu

Robert J. Steidl, Ph.D., Professor (Ph.D. major professor)
School of Natural Resources and the Environment
University of Arizona
1064 E. Lowell Street
Tucson, AZ 85721
(520) 626-3164, steidl@ag.arizona.edu

William J. Matter, Ph.D., Emeritus Professor (Ph.D. committee member)
School of Natural Resources and the Environment
University of Arizona
1064 E. Lowell Street
Tucson, AZ 85721
wmatter@ag.arizona.edu

Louis Provencher, Ph.D., Director of Conservation Ecology (former supervisor)
The Nature Conservancy of Nevada
1 East First Street, Suite 1007
Reno, NV 89501
(775) 322-4990, lprovencher@tnc.org