

## Andrea R. Litt

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### Education

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- **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, plant-animal interactions, restoration ecology, quantitative ecology

### Experience

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- **Associate Professor** *Department of Ecology, Montana State University, 2016-present*
- **Assistant Professor** *Department of Ecology, Montana State University, 2011-16*  
Develop and maintain comprehensive research (40%) and teaching programs (50%) with service to the university and profession (10%). Research focuses on effects of anthropogenic activities on wildlife communities and populations, especially species invasions, restoration ecology, and plant-animal interactions. Advise graduate students and undergraduate researchers and serve on graduate committees. At MSU, I have graduated 5 MS students (8 total, 3 additional from CKWRI), supervised 1 post-doc, served on numerous graduate committees, and supervised 9 undergraduate research projects.
- **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 effects of plant invasions on wildlife communities and populations. I graduated 3 MS students, served on graduate committees for 1 PhD and 1 MS students, and supervised 1 undergraduate research projects.
- **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

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*Montana State University (MSU), Department of Ecology*

- BIOO 475** *Mammalogy*, 3 units, undergraduate, fall semesters, 45-53 students per semester, lecture and 3 lab sections, 100% responsibility
- WILD 401R** *Capstone in Fish and Wildlife Ecology and Management*, 4 units, undergraduate, spring semesters, 26-54 students, lecture and 2 lab sections, team taught, research intensive (Research CORE) course
- WILD 504** *Wildlife-Habitat Relationships*, 3 units, graduate, spring semesters of even years, 8-10 students, lecture/discussions only, 100% responsibility
- 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

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*Montana State University, Department of Ecology*

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

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

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

## University of Arizona

- RNR 613** **Applied Biostatistics**, School of Natural Resources, 4 units, graduate, lecture and 2 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

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**Refereed Publications (listed reverse chronologically, \* = student author)**


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**In review or Under revision**

- Banner, K. M., K. M. Irvine, T. J. Rodhouse, D. Donner, and **A. R. Litt**. *In review*. Statistical power to detect change over time with dynamic occupancy models.
- Hinderer, R. K.\*, **A. R. Litt**, and M. McCaffery. *In review*. Selection of important habitat characteristics by a threatened desert amphibian.
- Mitchell, A. B.\*, **A. R. Litt**, and F. Smith. *In review*. Using native seeds to restore native plants and arthropods following plant invasion and drought.

**Published or In press**

- Litt, A. R.**, and A. M. Ray. *In press*. Surrogate Species: Piecing together the whole picture. Special Issue of Yellowstone Science. Vol 27.
- 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: 10.1002/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.
- Litt, A. R.**, and D. E. Pearson. 2013. Invasive plants and wildlife in the Intermountain West. Invited contribution, special issue of *The Wildlife Society Bulletin* 37:517-526.
- 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.
- Steidl, R. J., **A. R. Litt**, and W. J. Matter. 2013. Effects of plant invasions on wildlife in desert grasslands. Invited contribution, special issue of *The Wildlife Society Bulletin* 37:527-536.
- 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.
- 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. *Special Issue on Brown Treesnakes*

- 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.

## Book Reviews

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- Litt, A. R.** 2005. Mammal community dynamics: management and conservation in the coniferous forests of western North America. *Journal of Wildlife Management* 69:440-441.

## Popular Publications

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- Tjelmeland, A., **A. Litt**, and F. Smith. 2010. Tanglehead: A new threat to south Texas wildlife? *Texas Wildlife, Magazine of the Texas Wildlife Association*, February 2010, p. 10, San Antonio, TX.
- Litt, A. R.**, B. J. Bielfelt, E. E. Cord, and M. J. Witecha. 2009. Invasive plants and wildlife diversity. *South Texas Wildlife Newsletter*, Caesar Kleberg Wildlife Research Institute, Kingsville, TX.

## Book Chapters

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- Litt, A. R.** 2010. Population. *Encyclopedia of Research Design*. SAGE Publications, Inc., Thousand Oaks, CA.

## Published Technical Reports

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- Shanahan, E., K.M. Irvine, D. Roberts, **A. Litt**, K. Legg, and R. Daley. 2014. Status of whitebark pine in the Greater Yellowstone Ecosystem: A step-trend analysis comparing 2004-2007 to 2008-2011. Natural Resource Technical Report NPS/GRYN/NRTR—2014/917. National Park Service, Fort Collins, CO.
- Conway, C. J., C. P. Nadeau, R. J. Steidl, and **A. R. Litt**. 2008. Relative abundance, detection probability, and power to detect population trends of marsh birds in North America. Wildlife Research Report 2008-02. US Geological Survey, Arizona Cooperative Fish and Wildlife Research Unit, Tucson, AZ.
- Provencher, L., K. E. M. Galley, **A. R. Litt**, D. R. Gordon, L. A. Brennan, G. W. Tanner, and J. L. Hardesty. 2002. Fire, herbicide, and chainsaw felling effects on arthropods in fire-suppressed longleaf pine sandhills at Eglin Air Force Base, Florida. Pp. 24-33 in W. M. Ford, K. R. Russell, and C. E. Moorman, editors. Proceedings: the role of fire for nongame wildlife management and community restoration: traditional uses and new directions. General Technical Report NE-288. USDA USFS, Northeastern Research Station.
- Gordon, D. R., L. Provencher, **A. R. Litt**, G. W. Tanner, and L. A. Brennan. 2001. Comparative effects of different hardwood control methods for restoration of fire-suppressed longleaf pine sandhills. Proceedings of the annual meeting of the Southern Weed Science Society 54:224-224.

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

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### Written communication

- Boswell, E. July 23 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>
- Hoepfer, D. December 13 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>
- 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](http://www.montana.edu/lettersandscience/documents/confluence_17.pdf)
- Madison, E. July 2 2015. **Researchers look at genetics of marmots**. Great Falls Tribune. pp. 10, 40  
Montana State University News Service. April 4 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](https://www.bozemandailychronicle.com/news/montana_state_university/msu-student-researchers-apply-lessons-to-real-world-problems/article_d48bf9af-38fd-5a5a-98fe-4f9f60c6b362.html)

### Oral Communication

- Hilty, S. 2018. **Bat conservation in Montana**. Podcast - Today's Voices of Conservation Science. <http://conservationscience.buzzsprout.com/144534/627548-shannon-hilty-bat-conservation-in-montana>
- Yarnall, M. 2018. **Turkeys in South Dakota**. Podcast - Today's Voices of Conservation Science. <http://conservationscience.buzzsprout.com/144534/654863-michael-yarnall-turkeys-in-south-dakota>

## Grants and Contracts

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### Current and Pending

- 2018-23 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 (pending)
- 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, \$20,000
- 2017-22 Statistical methodological development for long-term vegetation monitoring, *Co-Principal Investigator*, 50% responsibility (with Kathi Irvine – USGS), National Park Service, \$65,213
- 2017-19 Abundance of grizzly bears (*Ursus arctos*) on Yellowstone’s Northern Range, *Principal Investigator*, 100% responsibility, Yellowstone Forever, \$52,600
- 2017-19 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 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
- 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
- 2016-20 Effects of forest disturbances on bat habitat, *Principal Investigator*, 100% responsibility, USDA, Forest Service Northern Region, \$34,600
- 2016-18 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, \$144,878 (an extension and an additional \$58,961 are pending)
- 2016-18 Seasonal contributions to breeding in sage-grouse, co-PI (in collaboration with Bok Sowell – MSU and Kyle Cutting – USFWS), USFWS, \$45,000 (extension pending)
- 2015-19 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

### Completed

- 2017-18 Understanding wetland response to climate change in the Greater Yellowstone Area, *co-Principal Investigator* (with Mary Levandowski, MSU/NPS), University of Wyoming-NPS Research Station, \$5,000
- 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

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### *Major advisor – In progress*

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

- Funding: Yellowstone Forever
- Collaborators: Dr. Frank van Manen, USGS and Kerry Gunther, NPS
- Student Scholarship, Biennial Scientific Conference of the Greater Yellowstone Ecosystem
- Kenneth D. Lorang Memorial Award, MSU
- Jack Creek Preserve Wildlife Scholarship, MSU

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

- Funding: Montana Fish, Wildlife, and Parks, USDA Forest Service, Northern Region, Bureau of Land Management
- Collaborators: Dr. Claire Gower, MFWP
- Small Grant Award, Montana chapter of The Wildlife Society
- Student Travel Grant, College of Letters and Science, MSU, 2018
- Don C. Quimby Graduate Wildlife Research Scholarship, MSU

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

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

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

- Funding: US Fish and Wildlife Service, The Nature Conservancy
- Collaborators: Kyle Cutting, Dr. Bok Sowell, Jim Berkey

**James Waxe**, M.S. student, spring 2017 – present, Seasonal contributions to breeding in sage-grouse

- Funding: US Fish and Wildlife Service
- Collaborators: Dr. Bok Sowell, MSU and Kyle Cutting, USFWS
- Scholarship, Isotopes in Spatial Ecology and Biogeochemistry (SPATIAL Short Course), NSF Macrosystems Biology Project Inter-University Training in Continental-scale Ecology (ITCE)
- Graduate Enhancement Award, Montana Institute on Ecosystems
- Jim Patton Wildlife Management Scholarship, MSU

### *Other researchers – In progress*

**Wilson Wright**, M.S., fall 2017 – present, Data analysis for structured population monitoring and disease surveillance for bats in Montana

- Funding: Montana Fish, Wildlife, and Parks (MFWP)
- Collaborators: Dr. Kathi Irvine, USGS and Dr. Emily Almberg, MFWP

**Committee member – In progress**

**Kyle Cutting**, Ph.D. student, Ecology, MSU, Advised by Jay Rotella.

**Maureen Kessler**, Ph.D. student, Microbiology/Ecology, Advised by Raina Plowright.

**Adam Mitchell**, Ph.D. candidate, Entomology and Wildlife Ecology, University of Delaware, Advised by Doug Tallamy.

**Colleen Detjens**, M.S. student, Ecology, Advised by Al Zale.

**Jason Marsh**, M.S. student, Ecology, Advised by Al Zale.

**Shane Petch**, M.S. student, Ecology, MSU, Advised by Jay Rotella.

**Heather Sayine-Crawford**, M.S. student, Ecology, MSU, Advised by Robert Garrott.

**Independent Research/Independent Study advisor – In progress**

**Monique Metza**, 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 and summer 2018)
- Collaborators: Nate Bowersock, MSU

**Post-doctoral researchers – Completed**

**Katharine Banner**, Ph.D., spring 2017 – summer 2018, Characterizing and quantifying uncertainty in species identification from acoustic recordings of bats

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

**Major advisor – Completed (chronological order of completion)**

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

- Funding: South Dakota Game, Fish, and Parks, Pittman-Robertson Funds
- Collaborators: Dr. Chad Lehman, SDGFP
- Student Travel Grant, College of Letters and Science, MSU, 2017, 2018
- Student Scholarship, Shikar-Safari Foundation

**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

- Funding: Montana Fish, Wildlife, and Parks
- 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
- *Current position*: Assistant District 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

- Funding: Turner Endangered Species Fund, Turner Enterprises, Inc.
- *Previous position*: Research Technician, Weddell Seal Project in Erebus Bay, Antarctica, Associate Environmental Scientist, Quad-Knopf Inc.
- *Current position*: Field Biologist, National Park Service

**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

- Funding: Welder Wildlife Foundation and Texas Parks and Wildlife Department
- Welder Wildlife Fellow, Welder Wildlife Foundation
- Graduate Enhancement Grant, Montana Institute on Ecosystems
- *Current position*: Ph.D. candidate, University of Delaware

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

- Funding: Montana Fish, Wildlife, and Parks, Montana Institute on Ecosystems, Montana chapter of The Wildlife Society, and Montana State University
- 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
- 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
- *Current position*: Fish and Wildlife Biologist, 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
- Student awards, American Ornithologist's Union, Cooper Ornithological Society

- Scholarship, Houston Safari Club
- *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
- Scholarship, Houston Safari Club
- *Previous positions:* Wildlife Biologist, Pheasants Forever; Wildlife Biologist, Wisconsin Department of Natural Resources
- *Current position:* Upland Wildlife Ecologist and Farm Bill Specialist, Wisconsin Department of Natural Resources

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

- Funding: Texas A&M University - Kingsville
- 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
- *Current position:* Community Programs Coordinator, Keep Austin Beautiful

#### **Committee member – Completed**

**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.

**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.

**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.

**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.

**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.

**Mike Ebinger**, M.S., 2016, Ecology, MSU, Varying nonlinear dependencies in habitat selection: Estimating instead of imposing functional forms, Advised by Robert Garrott.

**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.

**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.

**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.

- 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.
- 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.
- Megan O'Reilly**, M.S., 2013, Ecology, MSU, Development of occupancy surveys for mountain ungulates, Advised by Robert Garrott.
- 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.
- 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.
- 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.
- 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.

#### **Internship advisor – Completed**

- 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
- Niall Clancy**, undergraduate student, MSU, spring 2015 – fall 2016, Amphibians and ecosystems (independent study)
- Co-advisor: Wyatt Cross, 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
- 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

**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

**Adam Starecheski**, undergraduate student, MSU, January-December 2015, Decreasing snowpack and shifting flow regimes in western Montana: Current and future effects on the hoary marmot

- Funding for spring and summer: Undergraduate Scholars Program, MSU
- Collaborators: Ben Turnock, MSU

**Cheyenne Stirling**, undergraduate student, MSU, June-December 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

**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
- Wynn Freeman Award, Montana chapter of The Wildlife Society

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

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***Invited presentations***

Irvine, K. M., W. J. Wright, T. J. Rodhouse, E. S. Almborg, 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, 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. 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. 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. 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”. 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. 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 paper*, 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 paper*, Mammal Research Symposium, Tucson, AZ.

**Litt, A. R.** 2006. Reliably quantifying wildlife populations with limited information. *Invited paper*, 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**

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, 14<sup>th</sup> 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. Targeted cattle grazing to enhance 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, 2<sup>nd</sup> 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, Rehobeth 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. **Received award for 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. **Featured in The Wildlife Society Education Brief – July 2014**
- 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. **Received award for 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. **Received award for 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.
- DeVerteuil, 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.
- DeVerteuil, 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. **Received award for 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.
- Litt, A. R.** 1998. Herpetofaunal responses to longleaf pine sandhill restoration treatments on Eglin Air Force Base, FL. Contributed poster, Natural Resources Forum. University of Florida, Gainesville, FL.
- Litt, A. R.** 1998. Herpetofaunal responses to longleaf pine sandhill restoration treatments on Eglin Air Force Base, FL. Contributed paper, Joint annual meeting of the Society for the Study of Amphibians and Reptiles, Herpetologist's League, and American Society of Ichthyologists and Herpetologists, Guelph, Ontario, Canada.
- Litt, A. R.** 1998. Herpetofaunal responses to longleaf pine sandhill restoration treatments on Eglin Air Force Base, FL. Contributed poster, All Florida Herpetofaunal Conference, Gainesville, FL.

## Honors, Awards, and Scholarships

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| • Research Enhancement Award         | College of Letters and Science, MSU, \$1,000, 2017   |
| • Outstanding Teaching Award         | College of Letters and Science, MSU, <i>nominated</i> - 2017   |
| • TWS Small Grants Award             | Montana chapter of The Wildlife Society, \$500, 2016, with Vanna Boccadori, Montana Fish, Wildlife & Parks |
| • Research Enhancement Award         | College of Letters and Science, MSU, \$2,155, 2014   |
| • Academic Advising Excellence Award | MSU, <i>nominated</i> - 2013   |

- Faculty Excellence Grant Office of the Provost and ADVANCE Project TRACS, MSU, \$2,050, 2013
- Outstanding Alumnus School of Natural Resources and the Environment, University of AZ, 2013
- Outstanding Monograph Litt and Steidl (2011), The Wildlife Society, 2012
- Chancellor's Teaching Excellence Award Estimation and Analysis of Wildlife Populations (WSCI 6390), Texas A&M University System, 2009
- Presidential Travel Award TAMUK, \$800, 2009
- Outstanding Dissertation School of Natural Resources, University of AZ, 2007
- Best Student Presentation AZ/NM Chapters of The Wildlife Society, 2007
- International Wildlife Foundation Scholarship University of AZ, 2006, \$500
- 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

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### Reviewer:

- Reviewer for American Midland Naturalist, Biological Conservation, Ecological Applications, Ecological Restoration, 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, Southeastern Naturalist, Wildlife Research, Wildlife Society Bulletin, Wildlife Monographs
- Peer reviewer for USGS manuscripts, on-going
- Abstracts for the 5<sup>th</sup> International Wildlife Management Congress, Sapporo, Japan, 2015
- Abstracts for the 4<sup>th</sup> International Wildlife Management Congress, Durban, South Africa, 2012
- Proposals for International Arid Lands Consortium, 2010
- Abstracts for the annual meeting of The Wildlife Society, 2008, 2010, 2013

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

- Applications for undergraduate and graduate scholarships, Department of Ecology, MSU, 2012-present
- Applications for the Don C. Quimby Graduate Wildlife Research scholarship (review panel with representatives from Montana Fish, Wildlife, and Parks and two departments at MSU), MSU, 2015
- Proposals for the Undergraduate Scholars Program, MSU, 2011, 2012



**Committee membership, editorships, advisor positions:**Profession

- Member, Caesar Kleberg Research Award Committee, The Wildlife Society, 2018
- Judge, Student posters, Annual meeting of Montana Chapter of The Wildlife Society, 2017
- Member, Technical Advisory Committee, Spion Kop Wind Farm, 2016-present
- 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, 2014-15
- Executive Committee, North America Congress for Conservation Biology, Society for Conservation Biology, 2013-14
- Chair, Symposium Subcommittee and Program Committee, The Wildlife Society, 2013-14
- Judge, Student presentations, Annual meeting of The Wildlife Society, 2013-14
- Member, Wildlife Committee, 2013 Envirothon (annual competition for high school students), 2012-13
- Invited to be Associate Editor, Wildlife Society Bulletin, 2012 – declined
- Member, Don Rusch Memorial Game Bird Research Scholarship Committee, The Wildlife Society, 2012
- Member, Panel Discussion and Roundtable Committee, The Wildlife Society, 2012
- Board Member, Biometrics Working Group, The Wildlife Society, elected to 2 terms, 2011-13
- Invited to be Associate Editor, Journal of Wildlife Management, 2011 – declined
- Member, Program Committee, 4<sup>th</sup> International Wildlife Management Congress, 2011-12
- Member, Technical Review Committee – Prescribed Fire & Wildlife, The Wildlife Society, 2010-2016
- Member, Subunit Awards Committee, The Wildlife Society, 2010-12
- Member, Domain Science & Education Coordination Committee–Southern Plains, National Ecological Observatory Network (NEON), 2009-11
- Member, Academic Program Review Committee, School of Natural Resources, University of AZ, 2009
- Member, Science & Technical Monitoring Subcommittee, Sonoran Desert Conservation Plan, 2007

Community

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

University

- Member, Institutional Animal Care and Use Committee, MSU, summer 2018-present
- Member, University Curriculum and Programs Committee (Representative for the College of Letters

and Science) (<https://www.montana.edu/provost/committees/cpc.html>), MSU, 2017-present

- Reviewer/Panelist, Undergraduate Scholars Program, MSU, 2017-present
- Equity Advocate, Emeritus status, MSU, 2015-present
- Equity Advocate, MSU, 2013-15
- 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

- Member, Graduate Student Recruitment Committee, Department of Ecology, MSU, 2018
- Member, Promotion, Retention, and Tenure Committee, Department of Ecology, MSU, 2017-present
- Member, Facilities Improvement Committee, Department of Ecology, MSU, 2017-present
- 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**

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- New Faculty Forum, College of Letters and Science, MSU, 2011-12
- Transculturation program, TAMUK, 2010
- New Faculty Investment program, TAMUK, 2010
- Workshops and Short Courses
  - Introduction to Spatial Capture-Recapture, Andy Royle and others, 2017
  - Effective Research Mentoring, Suzanne Christopher, MSU, 2015
  - Grant Writing Boot Camp 2.0, ADVANCE Project TRACS, MSU, 2015
  - 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
- Advanced Program MARK, Evan Cooch and others, 2011
- 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
- Webinars
  - Unmarked: An R package for hierarchical models of species abundance and occurrence, Andy Royle and Richard Chandler, 2012
  - 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

### **Professional Affiliations**

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- 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
  - 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

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Diane Debinski, Ph.D., Professor and Department Head (current supervisor, July 2017-present)  
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(406) 994-4548, [diane.debinski@montana.edu](mailto:diane.debinski@montana.edu).

David Roberts, Ph.D., Professor and former Department Head (former supervisor, January 2011-June 2017)  
Department of Ecology  
Montana State University  
P.O. Box 173460  
Bozeman, MT 59717  
(406) 994-5670, [droberts@montana.edu](mailto:droberts@montana.edu)

Fred C. Bryant, Ph.D., Professor and Former Director (former supervisor)  
Current position: Director of Development  
Caesar Kleberg Wildlife Research Institute  
700 University Boulevard, MSC 218  
Kingsville, TX 78363  
(361) 593-4025, [fred.bryant@tamuk.edu](mailto:fred.bryant@tamuk.edu)

Robert J. Steidl, Ph.D., Professor (Ph.D. major professor)  
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University of Arizona  
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Tucson, AZ 85721  
(520) 626-3164, [steidl@ag.arizona.edu](mailto:steidl@ag.arizona.edu)

William J. Matter, Ph.D., Emeritus Professor (Ph.D. committee member)  
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(520) 621-7280, [wmatter@ag.arizona.edu](mailto:wmatter@ag.arizona.edu)

George W. Tanner, Ph.D., Emeritus Professor (M.S. major professor)  
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P.O. Box 110430  
Gainesville, FL 32611-0430  
(352) 846-0570, [TannerG@wec.ufl.edu](mailto:TannerG@wec.ufl.edu)

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The Nature Conservancy of Nevada  
1 East First Street, Suite 1007  
Reno, NV 89501  
(775) 322-4990, ext. 20, [lprovencher@tnc.org](mailto:lprovencher@tnc.org)