

L. Embere Hall

Wyoming Cooperative Fish and Wildlife Research Unit
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EDUCATION

Ph.D. Ecology, University of Wyoming

Dissertation Title: "Demography, behavioral plasticity and resilience of a montane mammal in changing climate"

M.S. Ecology & Evolutionary Biology, Iowa State University

Thesis Title: "Avian nest success and snake abundance in restored and remnant grasslands in northwestern Iowa"

B.S. Wildlife Ecology & Management/Spanish, University of Wisconsin-Stevens Point

PROFESSIONAL EMPLOYMENT

- 2017-present **Research Scientist (Postdoctoral)**
Wyoming Cooperative Fish & Wildlife Research Unit, University of Wyoming
- 2012-2017 **Graduate Research Assistant (Ph.D. Candidate)**
Wyoming Cooperative Fish & Wildlife Research Unit, University of Wyoming
- 2008-2012 **Research Director**
Conservation Research Center, Teton Science Schools
- 2005-2008 **Research Faculty**
Conservation Research Center, Teton Science Schools
- 2005 **Research Assistant**
Iowa Cooperative Fish & Wildlife Research Unit, Iowa State University
- 2003-2005 **Graduate Research Assistant (M.S. Candidate)**
Iowa Cooperative Fish & Wildlife Research Unit, Iowa State University
- 2002 **Biological Technician**
US Fish & Wildlife Service

PUBLICATIONS

**indicates mentored student*

- Hall, L. Embere and A. Chalfoun. 2018. What to eat in a warming world: Do increased temperatures necessitate hazardous duty pay? Oecologia. 186: 73-84 DOI: 10.1007/s00442-017-3993-2
- Riginos, C., M. Graham, M. Davis, A. Johnson, A. May, K. Ryer and **E. Hall**. 2018. Wildlife warning reflectors and white canvas reduce deer-vehicle collisions and risky road-crossing behavior. Wildlife Society Bulletin. DOI: 10.1002/wsb.862
- Jakopak, R*., **E. Hall** and A. Chalfoun. 2017. Organizing the pantry: cache management improves quality of overwinter food stores in a montane mammal. Journal of Mammalogy. 98: 1674-1681 DOI: 10.1093/jmammal/gyx124
- Beever, E., **E. Hall**, J. Varner, A. Loosen, J. Dunham, M. Gahl, F. Smith and J. Lawler. 2017. Behavior as a mechanism for coping with climate change. Frontiers in Ecology and the Environment. 15: 299-308 DOI: 10.1002/fee.1502. (Cover article).
- Hall, L. Embere, A. Chalfoun, E. Beever and A. Loosen. 2016. Microrefuges and the occurrence of thermal specialists: Implications for wildlife persistence amidst changing temperatures. Climate Change Responses. DOI: 10.1186/s40665-016-0021-4
- Hall, L. Embere. 2005. Clay-colored sparrows nesting in Dickinson County. Iowa Bird Life. 74:172-173 (Invited).
- Hall, L. Embere and A. Chalfoun. Behavioral plasticity modulates temperature-related constraints on foraging time for a montane mammal. *In revision*. Journal of Animal Ecology
- Hall, L. Embere, J. Carlisle, L. Sanders, T. McDonald and A. Chalfoun. A plastic home-building strategy mediates potential thermal risk for sedentary prey. *In review*. Behavioral Ecology
- Hall, L. Embere and R. Koford. Grassland snake habitat use and response to road edges in a fragmented landscape. *In prep*. Wildlife Biology

TECHNICAL REPORTS & THESES

- Wyoming Game & Fish Dept (Contributing author). 2017. American pika (*Ochotona princeps*). *In* State Wildlife Action Plan. Wyoming Game & Fish Dept., Cheyenne, WY, USA.
- Wyoming Game & Fish Dept (Contributing author). 2017. Mountain grasslands and alpine tundra. *In* State Wildlife Action Plan. Wyoming Game & Fish Dept., Cheyenne, WY, USA.
- Hall, E. 2017. Behavioral plasticity and resilience of a montane mammal in a changing climate. Dissertation. University of Wyoming, Laramie, WY, USA.
- Hall, E. and A. Chalfoun. 2017. Understanding changing climate conditions in alpine habitats: a test of wildlife responses, limits and plasticity. Final Status Report. (Wyoming Game & Fish Dept.). Wyoming Cooperative Fish & Wildlife Research Unit, Laramie, WY, USA.

Riginos, C., M. Davis, M. Graham, A. Johnson, and E. Hall. 2015. Effects of wildlife warning reflectors (“deer delineators”) on wildlife-vehicle collisions in central Wyoming. Final Report. (Wyoming Dept. of Transportation). *Submitted on behalf of Teton Science Schools*. Jackson, WY, USA.

Conservation Research Center of Teton Science Schools (Contributing author). 2013. Mule deer (*Odocoileus hemionus*) movement and habitat use patterns in relation to roadways in northwest Wyoming. Final Report. (Wyoming Dept. of Transportation). Jackson, WY, USA.

Hall, E. 2012. Songbirds of the Rocky Mountains. Science Report. (Earthwatch Institute). Conservation Research Center of Teton Science Schools, Jackson, WY, USA.

Hall, E. 2012. Understanding mule deer (*Odocoileus hemionus*) movement and habitat use patterns in relation to roadways in northwest Wyoming. Final Interim Report. (Wyoming Department of Transportation). Conservation Research Center of Teton Science Schools, Jackson, WY, USA.

Hall, E., J. McCabe, A. Johnson and S. Fagan. 2011. Monitoring Avian Productivity and Survivorship in Jackson Hole: 1991-2011. Interim Report. (Wyoming Game & Fish Department). Conservation Research Center of Teton Science Schools. Jackson, WY, USA.

Hall, E. 2005. Avian nest success and snake abundance in restored and remnant grasslands in northwestern Iowa. Thesis. Iowa State University, Ames, IA, USA.

RESEARCH GRANTS AND FUNDING

Total \$1.15 million

Active Grants

- 2018 Department of Zoology & Physiology, University of Wyoming (\$500)
“Fundamentals of Bayesian Analysis-Workshop”
Secured funds to host workshop
- 2015- Private research funding (\$10,668)
“Demography, behavioral plasticity and resilience of a montane mammal in a changing climate”
PI: E. Hall

Previous Grants (sorted by start date)

- 2014-2016 Wyoming Game & Fish Department, State Wildlife Grant (\$83,290)
“Understanding wildlife responses, vulnerability and resilience to changing climate conditions in Wyoming’s alpine habitats”
Primary proposal author. PIs: A. Chalfoun, S. Patla, M. Grenier
- 2015-2016 Meg & Bert Raynes Wildlife Fund (\$4,978)
“Quantifying wildlife resilience to climate change in Wyoming’s montane habitats”
PI: E. Hall
- 2013-2014 Wyoming Game & Fish Department, State Wildlife Grant (\$5,398)
“Changing climatic conditions in Wyoming’s alpine habitats: a test of wildlife responses, limits, and plasticity using the American pika, *Ochotona princeps*”

Primary proposal author. PI: A. Chalfoun

- 2012-2014 Wyoming Department of Transportation (\$234,303)
“Examining the efficacy of deer delineators on ungulate-vehicle collisions in northwest Wyoming”
PIs: E. Hall, M. Graham, Co-PIs: A. Johnson, S. Carlson, R. Huff
- 2012-2014 Earthwatch Institute (\$90,000)
“Spirit of the Rockies–Songbirds, mountain lions and more”
PI: E. Hall
- 2012-2013 Wyoming Governor’s Big Game License Coalition (\$6,400)
“American pika (*Ochotona princeps*) occupancy and distribution in the southern Greater Yellowstone Ecosystem”
PI: E. Hall
- 2011-2012 Private funding (\$80,000)
Research program, operations support
PI: E. Hall
- 2011-2012 Wyoming Wildlife–The Foundation (\$4,000)
“Understanding pika distribution in the Greater Yellowstone Ecosystem: Engaging the community through citizen-science research”
PI: E. Hall, Co-PI: A. Loosen
- 2010-2012 Wyoming Department of Transportation (\$310,864)
“Understanding mule deer (*Odocoileus hemionus*) movements and responses to roadways in northwest Wyoming”
PI: E. Hall
- 2010-2011 1% for the Tetons (\$16,000)
“Understanding American pika (*Ochotona princeps*) distribution in the southern Greater Yellowstone Ecosystem”
PI: E. Hall
- 2010-2011 Wyoming Wildlife–The Foundation (\$2,500)
“Enhancing connections to the environment through hands-on bird banding programs”
PI: E. Hall, Co-PI: J. McCabe
- 2009-2012 Private research funding (\$37,000)
“Understanding American pika (*Ochotona princeps*) distribution in the southern Greater Yellowstone Ecosystem”
PI: E. Hall
- 2009-2010 Private research funding (\$50,000)
“Effects of development on songbirds: Implications for on-the-ground conservation”
PI: E. Hall

- 2008-2011 Earthwatch Institute (\$210,930)
 “Productivity and survivorship of songbird populations in Jackson Hole, Wyoming”
 PI: E. Hall, Co-PIs: J. McCabe, D. Gentry, D. Wachob
- 2007-2010 Wyoming Workforce Development Grants (\$2,910)
 Travel awards for professional presentations and conference attendance
- 2007-2008 Wyoming Wildlife–The Foundation (\$5,000)
 “Mule deer conservation in developing landscapes: opportunity or impossibility?”
 PI: E. Hall, Co-PI: D. Wachob

HONORS AND AWARDS

- 2016 The Wildlife Society (Wyoming Chapter) Graduate Student Scholarship
 L. Floyd Clarke Graduate Scholar
 University of Wyoming, Academic Affairs, Summer Doctoral Augmentation Award
 Program in Ecology Travel Award
- 2015 University of Wyoming, Academic Affairs, Summer Doctoral Augmentation Award
- 2014 Biodiversity Institute Occupancy Shortcourse Tuition Remission Award
 Program in Ecology Summer Stipend Award
 Haub School of Environment and Natural Resources Student Research and Creative
 Activities Grant
 Reed W. Fautin Memorial Scholarship
- 2013 L. Floyd Clarke Graduate Scholar
 Program in Ecology Travel Award

TEACHING

Courses

- 2016 University of Wyoming, College of Arts and Sciences, McNair Research (fundamentals in research and scientific inquiry; AS 4900; 3 credits). Assistant Instructor
- 2008 Teton Science Schools, Graduate Program–Spring Field Practicum (4 credits). Co-instructor

Workshops

- 2017 Advanced Program R. Co-instructed (The Wildlife Society Wyoming Chapter)
- 2016 Program R: Let’s get started! Co-instructed (The Wildlife Society Wyoming Chapter & The Society for Range Management Wyoming Chapter)
 Research Design: Question, hypotheses and predictions (McNair Scholars Program)
 Proposal Development: Tips, tricks and processes for writing an effective research proposal (McNair Scholars Program)
 How to present your research (McNair Scholars Program)
- 2015 Program R: A basic introduction. Co-instructed (The Wildlife Society Wyoming Chapter & The Wyoming Landscape Conservation Initiative)

MENTORING

University of Wyoming students

- 2014-2016 R. Jakopak, University of Wyoming
“Understanding the architecture of overwinter food caches in a montane mammal”
Independent undergraduate research
NSF EPSCoR fellowship recipient
- 2012-present I have provided support/mentorship for the following University of Wyoming graduate students:
K. Harkins (Ph.D. student) – Advised by Dr. Merav Ben-David (study design)
J. Jones (M.S. student) – Advised by Dr. Matt Kauffman (analytical, statistical)
A. Mahoney (M.S. student) – Advised by Dr. Anna Chalfoun (analytical, statistical)
L. Sanders (M.S. student) – Advised by Dr. Anna Chalfoun (analytical, statistical, writing)
T. Sheer (M.S. student) – Advised by Dr. Anna Chalfoun (study design, analytical, statistical)
R. Walker (Ph.D. student) – Advised by Dr. Annika Walters (analytical, statistical)

Teton Science Schools students (graduate-student capstone advisor)

Mentorship responsibilities included guidance on project design, hypothesis development, data-collection protocols, writing and analysis.

- 2011 A. Dwinnell, D. Smith
- 2010 C. Beltz, T. Dema, K. Jacobsen, J. Waite
- 2009 K. Saul, S. Walker

SELECTED PRESENTATIONS (2008-2018)

**indicates mentored student*

- Hall, E. and A. Chalfoun. 2017. Behavioral plasticity buffers temperature constraints on foraging time for a montane mammal. Oral presentation. The Wildlife Society Wyoming Chapter
- Carlisle, J., **E. Hall**, A. Chalfoun, K. Carr and L. Sanders. 2017. Sage Thrashers raise the roof: Does an augmented nest structure conceal the nest from predators, or improve its microclimate? Oral presentation. The Wildlife Society Wyoming Chapter
- Hall, E. and A. Chalfoun. 2017. What to eat in a warming world: Do increased temperatures necessitate hazardous duty pay? Oral presentation. The Wildlife Society
- Hall, E. and A. Chalfoun. 2016. What to eat in a warming world: altering forage preferences may buffer climate stress. Oral presentation. The Wildlife Society Wyoming Chapter
- Hall, E., A. Chalfoun, E. Beever and A. Loosen. 2016. Microrefuges and thermal specialists: Understanding wildlife persistence amidst changing temperatures. Oral presentation. 13th Greater Yellowstone Biennial Scientific Conference
- Hall, E., A. Chalfoun, E. Beever and A. Loosen. 2015. Microrefuges and the occurrence of temperature-limited species in highly seasonal environments. Oral presentation. The Wildlife

Society Wyoming Chapter

- Jakopak, R. *, **E. Hall** and A. Chalfoun. 2015. Understanding the architecture of overwinter food caches in a montane mammal. Poster presentation. The Wildlife Society Wyoming Chapter
- Hall, E., A. Chalfoun, E. Beever and A. Loosen. 2015. The importance of microrefugia: Essential resource or irrelevant detail? Oral presentation. 3rd Conference of the North American Pika Consortium
- Riginos, C., **E. Hall**, M. Graham, S. Sundaresan and K. Krasnow. 2014. Mule deer movements, habitat use and road ecology along the Jackson wildland-urban interface. Oral presentation. Jackson Hole Wildlife Symposium
- Hall, E., K. Murphy and A. Chalfoun. 2013. Snow cover, forage availability and heat stress. Pika habitat use in a changing environment. Oral presentation. The Wildlife Society Wyoming Chapter
- Riginos, C., K. Krasnow, **E. Hall**, M. Graham, S. Sundaresan, T. McDowell, B. Hammond, D. Brimeyer and G. Fralick. 2013. Mule deer movement and habitat use in relation to roadways. Oral presentation. The Wildlife Society Wyoming Chapter
- Hall, E., A. Loosen, E. Beever, K. Murphy, L. Yandow and L. Oles. 2012. Investigating American pika habitat selection in the southern Greater Yellowstone Ecosystem. Oral presentation. The Wildlife Society Annual Conference
- Beever, E., S. Dobrowski, **E. Hall** and A. Loosen. 2012. Incorporating ecohydrologic variables into modeling of patterns of montane-mammal distribution and abundance. Oral presentation. The Wildlife Society Annual Conference
- Beever, E., S. Dobrowski, J. Wilkening, **E. Hall** and S. Wolff. 2012. Variability in microclimates of mountain ranges of western North America, and its effect on distribution and trend of alpine mammals. Oral presentation. MtnClim Conference
- Beever, E., S. Dobrowski, **E. Hall** and A. Loosen. 2012. Temporally shifting determinants of distribution and abundance of American pikas, and behavioral plasticity 'softening' ecological-niche boundaries. Invited oral presentation. Society for Conservation Biology Annual Conference
- Beever, E., S. Dobrowski, **E. Hall** and A. Loosen. 2012. Incorporating ecohydrologic variables into modeling of patterns of montane-mammal distribution and abundance. Oral presentation. The Wildlife Society Montana Chapter
- Hall, E., S. Dwinnell, L. Work, P. Hallsten, G. Fralick, D. Brimeyer, S. Dewey, B. Hammond, and S. Fagan. 2011. Understanding mule deer movements and responses to roadways in northwest Wyoming. Poster presentation. The Wildlife Society Wyoming Chapter
- Alexander, P., J. Newby, M. Cuthill, H. Quigley, D. Thompson and **E. Hall**. 2011. Preliminary results testing the efficacy of noninvasive monitoring techniques to estimate mountain lion abundance in the southern Greater Yellowstone Ecosystem. Poster presentation. The Wildlife Society Wyoming Chapter

- Hall, E., J. McCabe and C. Smith. 2010. The effects of human development on songbird populations along a riparian corridor in Jackson Hole, Wyoming. Poster presentation. The Wildlife Society Annual Conference
- Hall, E., J. McCabe, M. Karp, C. Smith and D. Wachob. 2010. The effects of human development on avian populations along riparian corridors in Jackson Hole, Wyoming. Oral presentation. The Wildlife Society Wyoming Chapter
- Hall, E., E. Wise, K. Murphy and S. Wolff. 2010. Understanding precipitation variability in the Upper Snake River Watershed. Oral presentation. North American Pika Conference
- Loosen, A., **E. Hall**, K. Murphy, E. Beever and S. Wolff. 2010. Investigating American pika occupancy in the southern Greater Yellowstone Ecosystem. Oral presentation. The Wildlife Society Wyoming Chapter
- Hall, E. 2009. Climate variability in the Upper Snake River Watershed: The pika's perspective. Oral presentation. The Wildlife Society Annual Conference
- McCabe, J. and **E. Hall**. 2009. The effects of human development on songbird populations along a riparian corridor in Jackson Hole, WY. Oral presentation. The Wildlife Society Wyoming Chapter
- Hall, E. 2008. Historic precipitation patterns in the Upper Snake River Watershed: Climate science meets education. Poster presentation. The '88 Fires: Yellowstone and Beyond Conference

PROFESSIONAL SERVICE

Committees and Boards

Extra-mural Committees

- The Wildlife Society Wyoming Chapter (president-elect; 2018–*present*)
- Nature Mapping Jackson Hole Governance Board (2012)
- Jackson Hole Wildlife Foundation Board (2011–2012)
- North American Pika Consortium (founder, climate sub-committee lead, education committee, web design, 2010–*present*)
- Nature Mapping Jackson Hole Advisory Board (2009–2012)
- The Wildlife Society Wyoming Chapter Science Committee (2011–2013)
- The Wildlife Society Wyoming Chapter Communications Committee (2009–2011)

University of Wyoming Committees

- Postdoctoral Academic Affairs liaison (2018–*present*)
- Program in Ecology Graduate Mentorship committee (2015–2016)
- Zoology and Physiology Department student-representative (2014–2017)
- Program in Ecology Student Organization (co-president 2013–2014)
- Program in Ecology Student Seminar Series (chair 2012–2013)

Teton Science Schools Committees

- Research Director Search Committee (chair 2012)
- Science Committee (founding member; 2010–2012)
- Grants Committee (2010–2011)
- All-faculty Leadership Group (2010–2012)

Scientific Review

Ecological Applications, *PLoS One*, *PeerJ*, The Wildlife Society–abstract review (2011 annual conference)

Outreach

Invited Lectures

- 2018 University of Wyoming – NPS Hank & Mary Anne Harlow Summer Seminar Series –climate change, behavioral plasticity and wildlife resilience in a changing climate (*upcoming July*)
Haub School of Environment and Natural Resources – magazine issue launch *Between the Pages of Western Confluence*; invited presentation on pika ecology and the Endangered Species Act
- 2017 National Museum of Wildlife Art – exhibit opening *Tiny: Charismatic Minifauna from the Collection*; invited lecture on the ecological importance of small mammals
Greater Yellowstone Coalition, Annual Summer Lecture Series – montane wildlife and climate change in the Greater Yellowstone Ecosystem
- 2016 Wyoming Game and Fish Dept., Headquarters Brown Bag Series – wildlife responses to climate change in Wyoming, emphasis on management implications
Jackson Hole Conservation Alliance, Summer Speaker Series – wildlife resilience to climate change
- 2015 Laramie Audubon Society – climate change and the role of adaptive capacity
University of Wyoming, The Wildlife Society-Student Chapter – behavioral plasticity and the future of wildlife populations in a changing climate
- 2014 Teton Science Schools – tools for understanding and managing mule deer road-crossing patterns
Jackson Hole Bird & Nature Club – pikas and climate change
Jackson Hole Wildlife Symposium – importance of microrefuges in a warming world
- 2011 Grand Teton National Park Guides Training – the effects of recent temperature trends on the ecology of the Greater Yellowstone Ecosystem
- 2008 Focus the Nation – understanding historic precipitation patterns in the Upper Snake River Watershed

Invited Panelist

- 2017 Haub School of Environment and Natural Resources – invited speaker and panelist in *Wyoming's Wind Energy Future, an Emerging Issues Forum*
- 2016 Women in Science, Technology, Engineering and Math – graduate school strategies panelist
- 2013 University of Wyoming Haub School Career Series panelist
- 2011 U.S. Forest Service, Bridger-Teton National Forest – research representative on wilderness panel
The Wildlife Society Wyoming Chapter – student mentorship panelist
Wyoming Young Women in Natural Resources – panelist and field instructor

Symposia and Meetings

- 2018 The Wildlife Society Wyoming Chapter & Wyoming Landscape Conservation Cooperative joint

annual meeting – develop, organize, coordinate and implement a three-day annual conference of wildlife biologists and practitioners (*upcoming Nov*)

- 2010 North American Pika Consortium – developed, organized and chaired three-day symposia on pika ecology, climate change responses and conservation

Education and Curriculum Development

- 2012 Wyoming Wilderness Association – co-led instructional hike on high-elevation species and climate change
The Wildlife Society Wyoming Chapter – coordinated a three-day research experience for student fellow
- 2011 Water management workshop – co-designed half-day workshop on integration of historic precipitation data in water management planning
- 2010- Curriculum development for research integration in K-12 classrooms – dendroclimatology, *present* alpine community responses to climate change, ungulate ecology, avian habitat use and conservation

RELEVANT PROFESSIONAL TRAINING

- 2018 Bayesian Analysis and Hierarchical Models
- 2017 Distance Sampling: Conventional and Hierarchical Methods for Abundance in R
Writing Winning Grant Proposals
- 2016 Quantitative Analysis of Field Data
- 2015 Communicating Science
- 2014 Capture-Recapture Analysis and Methods
Climate Change Vulnerability Assessments
Fundamentals of Sampling
Modeling Patterns and Dynamics of Species Occurrence
Research Strategies in R
Writing and Reviewing Science
- 2012 Behind the Scenes of Scientific Publication
Data Management
- 2011 SAS Programming 1: Essentials
- 2010 Home Range Tools for Analysis of Location Data
- 2007 Introduction to Modern Methods for Analyzing Capture-Recapture Data
Wildlife Chemical Immobilization

MEDIA COVERAGE OF HALL RESEARCH

Coverage of research on which I was the PI, unless otherwise noted

National

- 2018 National Geographic – Yellowstone Live documentary production (Plimsoll Productions; *upcoming Aug*)
- 2017 High Country News – Characteristics of species that exhibit behavioral flexibility in response to climate variation (2nd author)
- 2015 e Science News – Behavioral plasticity as a buffer against climate variability
- 2011 USA Today – Understanding mule deer responses to roadways

- Assignment Earth and Yahoo! News video news segment – Understanding mule deer responses to roadways
- 2010 Public Broadcasting Service (PBS) – FETCH segment – Songbird responses to development
- NBC nightly news – Songbird responses to development (highlighted educational integration with research program)
- Science Illustrated – Pikas and climate change
- Assignment Earth and Yahoo! News video news segment – Pikas and climate change

Regional

- 2018 Western Confluence – Behavioral plasticity as a buffer against climate variability
- 2017 Wyoming Public Media – Effects of climate change on pika behavior and habitat use (*Open Spaces*)
- 2016 Wyoming Public Radio news – Behavioral plasticity as a buffer against climate variability
- 2015 UWyo Magazine (Vol. 17) – Behavioral plasticity as a buffer against climate variability
- WyoFile – Behavioral plasticity as a buffer against climate variability
- University of Wyoming News – Behavioral plasticity as a buffer against climate variability
- 2011 Wyoming Public Radio news – Understanding mule deer responses to roadways
- Casper Star Tribune – Understanding mule deer responses to roadways
- 2010 Wyoming Wildlife magazine – Pika habitat use and responses to climate change

Local

- 2015 Sheridan Media.com – Behavioral plasticity as a buffer against climate variability
- 2014 Jackson Hole Daily and Jackson Hole Weekly newspapers – Understanding mule deer responses to roadways
- 2013 Jackson Hole Weekly newspaper – Pikas and climate change
- 2012 Video Blitz, 1% for the Tetons – Pikas and climate change
- Video Blitz, 1% for the Tetons – Planning and policy – Using mule deer as a case study
- 2011 Jackson Hole Daily and Jackson Hole Weekly newspapers – Understanding mule deer responses to roadways
- 2010 Jackson Hole Daily and Jackson Hole Weekly newspapers
- Pikas and climate change
- Understanding mule deer responses to roadways
- Songbird responses to development
- 2009 Jackson Hole Daily and Jackson Hole Weekly newspapers
- Precipitation modeling
- Pikas and climate change
- Songbird responses to development
- Jackson Hole Magazine – Understanding historic precipitation cycles in the Greater Yellowstone Ecosystem