

Zachary D. Miller, Ph.D.
Curriculum Vitae

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EDUCATION

- Ph.D. 2017 University of Montana. Missoula, Montana
Forest and Conservation Sciences
Department of Society and Conservation
- M.S. 2014 Clemson University. Clemson, South Carolina
Parks, Recreation, and Tourism Management
Concentration area: Park and Conservation Area Management
- B.S. 2012 California State University, Chico. Chico, California
Recreation Administration: Natural Resources
Pattern: Environmental Education and Interpretation

APPOINTMENTS

- Aug. 2019 - Current Utah State University
Assistant Professor
Department of Environment and Society
Institute of Outdoor Recreation and Tourism Faculty Affiliate
- Oct. 2018 - July 2019 Pennsylvania State University
Assistant Research Professor
Department of Recreation, Park, and Tourism Management
Human Dimensions of Natural Resources and the Environment
Co-manager of the Protected Areas Research Collaborative (PARC)
Affiliate of the Center for Acoustics and Vibration Propagation and Radiation Group
- Aug. 2017 - Sept. 2018 Pennsylvania State University
Post-Doctoral Research Associate
Department of Recreation, Park, and Tourism Management
Human Dimensions of Natural Resources and the Environment
- June 2017- Aug. 2017 University of Montana
Department of Society and Conservation
Park, Tourism, and Recreation Management
Post-Doctoral Researcher

RESEARCH

I am a natural resource scientist with a successful track record of addressing complex and interdisciplinary challenges. My area of expertise is in conservation social sciences, where I focus on recreational use of public lands, human-wildlife relationships, environmental communication, and other human dimensions of natural resources. I have collaborated on numerous projects with local, state, federal, and international agencies and partners at the highest level of science. My goal is to provide authentic resolution to contemporary natural resource issues through science-based learning and decision making in planning and governance.

PEER REVIEWED ARTICLES

24. **Miller, Z.D.**, Taff, B.D., Newman, P., & Lawhon, B. (IN PRESS). A research agenda for understanding the role of social media on visitor use and experiences in park and protected areas. *Journal of Park and Recreation Administration*.
23. Taff, D., Benfield, J., **Miller, Z.D.**, Schwartz, F., & D'Antonio, A. (2019). Leave No Trace and affect: A study of environmental impacts. *Environments*, 64(4), 43
22. **Miller, Z.D.**, Lawhon, L.B., Schwartz, F., Taff, B.D., & Newman, P. (2019). Identifying communication strategies to reduce visitor-caused waste in the national parks of the United States: The Zero Landfill Initiative. *Applied Environmental Education & Communication*.
21. Rice, W., Taff, B.D., Newman, P., **Miller, Z.D.**, D'Antonio, A.L., Baker, J., Monz, C., Newton, J., & Zipp, K.Y. (2019). Grand expectations: Understanding outcome interference in Grand Teton National Park. *Journal of Park and Recreation Administration*.
20. **Miller, Z.D.**, Freimund, W., Nickerson, N., Metcalf, E., & Powell, R.B. (2019). Merging elaboration and the theory of planned behavior to understand bear spray behaviors of day hikers in Yellowstone National Park. *Environmental Management*, 63(3), 366-378.
19. Lawhon, J.B., Taff, B.D., Newman, P., Vaigas, W., & **Miller, Z.D.** (2019). Understanding attitudes and support for Leave No Trace: Informing communication strategies with frontcountry state park visitors. *Journal of Outdoor Recreation, Education, and Leadership*, 11(1), 37-52.
18. **Miller, Z.D.**, Huang, J., Luo, J., Huijuan, D., Xu, X., Costigan, H., Taff, B.D., Sun, C., Yang, X., Pan, B., Li, G., & Newman, P. (2018). Testing configural and metric invariance of the short form of noise sensitivity scale between US and Chinese samples. *Biomedical and Environmental Sciences*, 31(11), 851-54.
17. Sage, J., Nickerson, N., **Miller, Z.D.**, Ocanas, A., & Thomsen, J. (2018). The Complementary Effect of National Park Fee Increases on Visitor Spending in Gateway Communities. *Tourism Review International*, 22, 187-98.
16. **Miller, Z.D.**, Rice, W. L., Taff, B.D., & Newman, P. (2018). Understanding visitor motivations at Jimmy Carter National Historic Site: A principal components approach. *Heritage*, 1, 328-334.
15. **Miller, Z.D.** (2018). Finding the unicorn: Evidence-based practices for improving quantitative measures. *Journal of Park and Recreation Administration*, 36(4), 151-157.
14. Benfield, J., Nutt, R., Taff, D., **Miller, Z.D.**, Costigan, H., & Newman, P. (2018). A laboratory study of the psychological impact of light pollution in national parks. *Journal of Environmental Psychology*. 57, 67-72.
13. **Miller, Z.D.**, Freimund, W., & Powell, R.B. (2018). Development and validation of a bear safety elaboration scale. *Journal of Interpretation Research*, 23(1), 27-44.
12. **Miller, Z.D.**, Taff, B.D., & Newman, P. (2018). Visitor experiences of wilderness soundscapes in Denali National Park and Preserve. *International Journal of Wilderness*. 24(2), 32-45.
11. **Miller, Z.D.**, Freimund, W., & Blackford, T. (2018). Communication perspectives about bison safety in Yellowstone National Park: A comparison of international and North American visitors. *Journal of Park and Recreation Administration*. 36(1), 176-186.
10. **Miller, Z.D.**, Jorgenson, J., Nickerson, N., & Pitas, N. (2018) A cognitive hierarchy approach to understanding fee increases in the national parks of the United States. *Journal of Outdoor Recreation and Tourism*, 22(C), 18-25.

9. **Miller, Z.D.**, Freimund, W., Metcalf, E., & Nickerson, N. (2018). Targeting your audience: Wildlife value orientations and the relevance of messages about bear safety. *Human Dimensions of Wildlife: An International Journal*, 23(3), 213-226.
8. **Miller, Z.D.** & Freimund, W. (2018). Using visual-based social norm methods to understand distance-related human-wildlife interactions. *Human Dimensions of Wildlife: An International Journal*. 23(2), 176-186.
7. **Miller, Z.D.** (2017). The enduring use of the theory of planned behavior. *Human Dimensions of Wildlife: An International Journal*. 22(6), 583-590.
6. **Miller, Z.D.** & Freimund, W. (2017). Virtual visitors: Social media and the national parks. *Journal of Park and Recreation Administration*. 35(3), 136-150.
5. **Miller, Z.D.**, Fefer, J., Kraja, B., Lash, B., & Freimund, W. (2017) Perspectives on visitor use management in the national parks. *George Wright Forum*. 34(1), 37-44.
4. Metcalf, P., **Miller, Z.D.**, Mkumbo, P., Depper, G., & Thomsen, J. (2017). Into the second century: A synthesis of student perspectives at 100 years of the National Park Service. *George Wright Forum*. 34(1), 62-72.
3. **Miller, Z.D.**, Quigley, C., Hallo, J., Dogbey, J., Che, M., & Seno, S. (2016). Investigating wildlife and grazing perspectives of Kenyan university students. *Journal of Nature Conservation*, 32, 44-52.
2. **Miller, Z.D.**, Hallo, J., Sharp, J., Powell, R., & Lanham, J.D. (2014). Birding by ear: A study of recreational specialization and soundscape preference. *Human Dimensions of Wildlife: An International Journal*, 19(6), 498-511.
1. Quigley, C., **Miller, Z.D.**, Dogbey, J., Che, S.M., & Hallo, J. (2014). "No one should destroy the forest." Using photo-based interviews to understand Kenyan teachers' views of the environment. *International Journal of Science Education*. 36(17), 1-21.

UNDER REVIEW

3. Rice, W.L., Taff, B.D., Newman, P., Zipp, K., & **Miller, Z.D.** (UNDER REVIEW). Beyond benefits: Toward a recreational ecosystem services management framework. *Journal of Environmental Management*.
2. **Miller, Z.D.** (UNDER REVIEW). A Theory of Planned Behavior approach to developing belief-based communication: Day hikers and bear spray in Yellowstone National Park. *Human Dimensions of Wildlife*.
1. Levanhagen, M., **Miller, Z.D.**, Petrelli, A.R., Abbott, L.C., Shr, Y., Taff, B.D., White, C., Frstrup, K., Monz, C., McClure, C.J.W., Newman, P., Francis, C.D., & Barber, J.R. (UNDER REVIEW). Ecosystem services provided by soundscapes link people and wildlife. *Nature Sustainability*.

MANUSCRIPTS IN PREPARATION

12. **Miller, Z.D.**, Rice, W.L, Newman, P., & Taff, B.D. (IN PROGRESS). Using surface-treatment of pavements to improve visitor experiences: A case study from Death Valley National Park. *Transportation Research Record*.
11. Ferguson, M., **Miller, Z.D.**, Lynch, M., Ferguson, L.A., & Newman, P. (IN PROGRESS). The influence of political orientation on recreationists' support and opposition for Marcellus Shale natural gas development in Pennsylvania State Forests. *Energy Research and the Social Sciences*.
10. Ferguson, L.A., Taff, B.D., Betchkal, D., McKenna, M., Keller, R., **Miller, Z.D.**, & Newman, P. (IN PROGRESS). Improving methods for determining thresholds for soundscape quality. *Journal of Environmental Management*.

9. **Miller, Z.D.**, Ferguson, L.A., Newman, P., Ferguson, M., & Taff, B.D. (IN PROGRESS). Developing visitor thresholds of sound from natural gas compressors for motorized and non-motorized recreation users in Pennsylvania State Forests. *Applied Acoustics*.
8. Qu, S., Lin, D., Wang, Z., Li, G., Xu, X., Taff, B.D., **Miller, Z.D.**, Pan, B., & Newman, P. (IN PROGRESS). Developing an exploratory typology of emotional responses to acoustic environments of Chinese urban parks. *Applied Acoustics*.
7. Freeman, S., Lawhon, J.B. & **Miller, Z.D.** (IN PROGRESS). Communication as a strategy for managing human-wildlife conflict in parks and protected areas. *Human Dimensions of Wildlife: An International Journal*.
6. Mateer, T., **Miller, Z.D.** Taff, B.D., Schwartz, F., & Lawhon, L.B. (IN PROGRESS). Using observational methods to understand visitor-caused waste in the national parks of the United States: The Zero Landfill Initiative. *Applied Environmental Education and Communication*.
5. Maron, C., Lawhon, L.B., Santucci, V. **Miller, Z.D.**, Taff, B.D. & Newman, P. (IN PROGRESS). Evaluating the management of paleontological resources in the National Park Service. *George Wright Forum*.
4. **Miller, Z.D.** (IN PROGRESS). What do we know about day hikers' bear safety behaviors? A review of the science and paths forward. *International Journal of Wilderness*.
3. Ferraro, D., **Miller, Z.D.**, Francis, C., Taff, B.D., Barber, J., & Newman, P. (IN PROGRESS). The Phantom Chorus: An experimental approach to understanding the relationship between birdsong, perceived biodiversity, and perceived restoration. *Nature Sustainability*.
2. Taff, D., Zhonglei, W., **Miller, Z.D.**, Dan, L., Qu, S., Li, G., Pan, B., Xu, X., Costigan, H., & Newman, P. (IN PROGRESS). A case study on soundscape comparison between the U.S. and China: Noise sensitivity, sound perception, and acceptability. *Journal of EcoAcoustics*.
1. **Miller, Z.D.**, Thomsen, J., Li, R., Pan, B., & Schwartz, F. (IN PROGRESS). Methodological considerations for exploring international visitor experiences in the US National Parks: Insights and experiences from the field. *Journal of Outdoor Recreation and Tourism*.

BOOKS

1. Brownlee, M., Freimund, W., Hallo, J., Sharp, R., & **Miller, Z.D.** (IN PROGRESS). *Visitor Use Management in Parks and Protected Areas*.

BOOK CHAPTERS

4. **Miller, Z.D.**, Rice, W., Taff, B.D., & Newman, P. (IN EDITING). Concepts for understanding the visitor experience in sustainable tourism. In S.F. McCool and K. Bosak (Eds.), *A Research Agenda for Sustainable Tourism*. Cheltenham, UK: Edward Elgar Publishing.
3. Powell, R.B, Stern, M., & **Miller, Z.D.** (IN PROGRESS). The role of education and communications in proactively and adaptively managing visitor use of parks and protected areas. In M. Brownlee, W. Freimund, J. Hallo, Sharp, R., & Z.D. Miller (Eds.), *Visitor Use Management in Parks and Protected Areas*.
2. Brownlee, M., Sharp, R., Hallo, J., Freimund, W., & **Miller, Z.D.** (IN PROGRESS). Imagining the future. In M. Brownlee, W. Freimund, J. Hallo, Sharp, R., & Z.D. Miller (Eds.), *Visitor Use Management in Parks and Protected Areas*.

1. **Miller, Z.D.**, Pan, B., Klippel, A., Taff, B.D., & Newman, P. (IN PROGRESS). Emerging technologies for visitor use management in park and protected areas. In M. Brownlee, W. Freimund, J. Hallo, Sharp, R., & Z.D. Miller (Eds.), *Visitor Use Management in Parks and Protected Areas*.

INVITED AUTHORSHIP

2. **Miller, Z.D.**, Freimund, W., & Blackford, T. (2018). Communicating with international and North American visitors about bison safety. *Yellowstone Science*, 26(1), 67-68.
1. Thomsen, J., Sharp, R., Freimund, W., Depper, G., & **Miller, Z.D.** (2017). George Wright Society Student Summit: Setting the stage for the next century of protected area management. *George Wright Forum*. 34(1). 14-22.

TECHNICAL REPORTS AND OTHER PUBLICATIONS

29. D'Antonio, A., Taff, B.D., Monz, C., Newman, P., Baker, J., Rice, W., Freeman, S., & **Miller, Z.D.** (IN PROGRESS). *Leigh and String Lakes Visitor Use Study at Grand Teton National Park*. Report prepared for the National Park Service. The Pennsylvania State University.
28. Santucci, V., **Miller, Z.D.**, Newman, P., & Taff, B.D. (IN PROGRESS). *Human Dimensions of Paleontological Resource Management in Denali National Park and Preserve*. Report prepared for the National Park Service. The Pennsylvania State University.
27. Li, R., Pan, B., **Miller, Z.D.**, Taff, D., & Newman, P. (IN PROGRESS). *A Qualitative Study on Chinese Visitors in Grand Teton National Park*. Report prepared for the University of Wyoming AMK Ranch. The Pennsylvania State University.
26. **Miller, Z.D.**, Newman, P., Ferguson, M., Taff, B.D., Ferguson, A., & Rice, W.L. (IN PROGRESS). *Informing the impact of sounds from natural gas compressors on visitors to Pennsylvania State Forests*. Report prepared for the Department of Conservation and Natural Resources. The Pennsylvania State University.
25. Lawhon, B., Taff, B.D., **Miller, Z.D.**, Newman, P., Schwartz, F., & Meyer, C. (2019). *Exploring Camper and Employee Attitudes, Values, and Behaviors Regarding Waste in National Parks*. Report prepared for Subaru of American and the National Park Service. Leave No Trace Center for Outdoor Ethics.
24. Lawhon, B., Taff, B.D., Schwartz, F., & **Miller, Z.D.** (2018). *Exploring Visitor Attitudes, Values, and Behaviors Regarding Waste in National Parks*. Report Prepared for Subaru of American and the National Park Service. Leave No Trace Center for Outdoor Ethics.
23. Newman, P., Taff, B.D., Ferguson, L.A., Graf, A., Costigan, H., & **Miller, Z.D.** (2018). *Denali National Park and Preserve Frontcountry Sounds: Impacts of sounds on visitors' experience in Denali National Park and Preserve's Frontcountry*. University Park, PA. The Pennsylvania State University Department of Recreation, Park, and Tourism Management.
22. Rice, W., Taff, B.D., Newman, P., Newton, J., Monz, C.A., D'Antonio, A.L., Baker, J.T., **Miller, Z.D.** (2018). *Visitor use and benefit-achievement in Grand Teton National Park's String and Leigh Lakes*. University Park, PA. The Pennsylvania State University Department of Recreation, Park, and Tourism Management.
21. Sage, J., Nickerson, N., **Miller, Z.D.**, Ocanas, A., & Thomsen, J. (2017). *Thinking Outside the Park: National Park Fee Increase Effects on Gateway Communities*. Missoula, MT. Institute for Tourism and Recreation Research.
20. **Miller, Z.D.**, Freimund, W., Dalenberg, D. (2017). *Going-to-the-Sun Road Monitoring Protocols*. Missoula, MT. University of Montana Department of Society and Conservation.

19. Dalenberg, D., Freimund, W., & **Miller, Z.D.** (2017). *Traffic Counts and Level of Service on the Going-to-the-Sun Road*. Missoula, MT. University of Montana Department of Society and Conservation.
18. Freimund, W., Dalenberg, D., **Miller, Z.D.** (2017) *Impacts of Increased Visitor Demand on the Experience of the Going-to-the-Sun Road*. Missoula, MT. University of Montana Department of Society and Conservation.
17. **Miller, Z.D.**, Freimund, W., & Dalenberg, D. (2017). *Glacier National Park 2017 Bicycle Use Report*. Missoula, MT. University of Montana Department of Society and Conservation.
16. **Miller, Z.D.**, Freimund, W., & Dalenberg, D. (2017). *Glacier National Park 2016 Trails Use Report*. Missoula, MT. University of Montana Department of Society and Conservation.
15. **Miller, Z.D.** & Freimund, W. (2017). *Research driven communication: Day hikers and bear safety*. Department of Society and Conservation. The University of Montana: Missoula, MT USA.
14. **Miller, Z.D.** & Freimund, W. (2017). *Yellowstone National Park Bear Safety Education Research: Analysis Report*. Missoula, MT. University of Montana Department of Society and Conservation.
13. **Miller, Z.D.** & Freimund, W. (2017). *Yellowstone National Park Social Media Research: OMB Report*. Missoula, MT. University of Montana Department of Society and Conservation.
12. **Miller, Z.D.** & Freimund, W. (2016). *Yellowstone National Park Bear Safety Education Research: Descriptive Statistics Report*. Missoula, MT. University of Montana Department of Society and Conservation.
11. **Miller, Z.D.** & Freimund, W. (2016). *Yellowstone National Park Exploratory Research on Social Media: Descriptive Statistics Report*. Missoula, MT. University of Montana Department of Society and Conservation.
10. **Miller, Z.D.** & Freimund, W. (2015). *Yellowstone National Park Bison-Visitor Interactions: Descriptive Statistics Report*. Missoula, MT. University of Montana Department of Society and Conservation.
9. **Miller, Z.D.**, Freimund, W., & Dalenberg, D. (2015). *Glacier National Park: 2013 & 2014 Going-to-the-Sun Road Corridor Trail Use Report*. Missoula, MT. The University of Montana Department of Society and Conservation.
8. **Miller, Z.D.** & Freimund, W. (2015) *Driver narrative in the Going-to-the-Sun Road Corridor in Glacier National Park*. Missoula, MT. University of Montana Department of Society and Conservation.
7. **Miller, Z.D.** & Freimund, W. (2015) *Hiker narrative in the Going-to-the-Sun Road Corridor in Glacier National Park*. Missoula, MT. University of Montana Department of Society and Conservation.
6. **Miller, Z.D.** & Freimund, W. (2015). *Shuttle rider narrative in the Going-to-the-Sun Road Corridor in Glacier National Park*. Missoula, MT. University of Montana Department of Society and Conservation.
5. Freimund, W., Dalenberg, D., Mills, C., Weinberg, A., Markegard, S., Warner, T., & **Miller, Z.D.** (2014). *Glacier National Park Site History: Avalanche*. Missoula, MT. University of Montana Department of Society and Conservation.
4. Freimund, W. Dalenberg, D., Mills, C., Weinberg, A., Markegard, S., Warner, T., & **Miller, Z.D.** (2014). *Glacier National Park Site History: Logan Pass*. Missoula, MT. University of Montana Department of Society and Conservation.

3. Freimund, W., Dalenberg, D., Mills, C., Weinburg, A., Markegard, S., Warner, T., & **Miller, Z.D.** (2014). *Glacier National Park Site History: Sunrift Gorge*. Missoula, MT. University of Montana Department of Society and Conservation.
2. Freimund, W., Dalenberg, D., Mills, C., Weinburg, A., Markegard, S., Warner, T., & **Miller, Z.D.** (2014). *Glacier National Park Site History: The Loop*. Missoula, MT. University of Montana Department of Society and Conservation.
1. **Miller, Z.D.** & Freimund, W. (2014). *Going-to-the-Sun Road Visitor Experience and Support for Management Actions*. Missoula, MT. University of Montana Department of Society and Conservation.

RESEARCH EXPERIENCE

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|---------|---|
| Current | <p><i>Communicating with ATV users about anadromous fish habitat in the Cook Inlet</i>
 This is a collaborative project with the US Fish and Wildlife Service through the Directorate Fellows Program (DFP). Working with the Alaska regional office in Anchorage, this project explores ATV user perceptions about stream crossings in sensitive habitat to improve communication strategies and conservation outcomes. This project includes the mentorship of a DFP participant.</p> |
| Current | <p><i>Exploring Distance-related Wildlife Behaviors in parks and protected areas</i>
 Lab-based virtual reality is used to explore distance-related wildlife behaviors among multiple wildlife species in diverse ecological settings.</p> |
| Current | <p><i>Death Valley National Park Quiet Pavement Study</i>
 Visitor experiences related to the installation of quiet pavement technologies at Death Valley National Park are evaluated in this study through survey-based dose-response measures and stated choice modeling.</p> |
| Current | <p><i>Visitor Use Management and Sustainable Tourism in the national parks of Panama</i>
 This project is a collaboration with Caminando and Colorado State University's Center for Protected Area Management to inform public use plans designed to increase and sustainably manage domestic and international tourism in Panamá's protected area system. Research is conducting in Camino de Cruces, Soberanía, Coiba, and Volcán Barú National Parks. This project also includes a capacity-building workshop for managers of protected areas in Panamá.</p> |
| Current | <p><i>Exploring the relevancy of health parks, healthy people in US and Australian National Parks</i>
 This international collaboration focuses on exploring how the relevancy of health and well-being ecosystem services found in national parks differs among diverse groups of park visitors.</p> |
| Current | <p><i>Denali National Park and Preserve Paleontological Resource Management Study</i>
 This study explores human dimensions and visitor use concepts related to paleontological resources (fossils) in wilderness settings on public lands using multi-method approaches (qualitative and quantitative).</p> |
| Current | <p><i>Chinese Visitors to Grand Teton National Park: A Qualitative Study</i>
 This research uses interviews of both Chinese visitors and tour guides to understand the experiences, motivations, and decision making related to visiting Grand Teton National Park.</p> |

- Current *Denali National Park and Preserve: Developing acoustical overflight thresholds for frontcountry visitors*
Visitor intercept surveys are used to develop quantitative thresholds related to overflights. We combined the survey results with acoustical monitoring to develop a model that shows the spatial distribution of social conditions in the frontcountry.
- Current *The Zero Landfill Initiative: Exploring attitudes, values, and behaviors regarding waste in Grand Teton, Yosemite, and Denali National Parks*
This project is a partnership through Subaru of America, Leave No Trace, & the National Park Service that uses observation and survey-based methods to better understand how park managers can achieve waste management goals through effective educational and management strategies.
- Current *Grand Teton National Park: String and Leigh Lake Visitor Use and Experience*
Multi-method approaches are used to explore the social and ecological impacts of visitor use in a congested region of the park.
- Current *Development of Visitor-based Acoustical and Night Sky Indicators and Standards*
This research with the National Park Service's Division of Natural Sounds and Night Skies includes lab and field-based research to develop peer-reviewed science that informs park management decision making on soundscape and night sky conservation.
- Current *Pennsylvania Department of Conservation and Natural Resources: Natural Gas Compressors on Public Lands*
The social-ecological effects of sounds related to natural gas compressors on public lands are detailed in this state-sponsored research. Areas of inquiry include acoustical monitoring, spatially mapping noise distribution and levels on the landscape, documenting the ecological effects of noise, and relating noise to human health outcomes and experiences.
- Current *National Science Foundation: Sound as an Element in Coupled Human-Natural Systems*
This interdisciplinary research project studies the interactions between natural and human systems as they are influenced by human-generated sound through analyses of the role of acoustics in affecting the number and diversity of birds and related human activity.
- Current *National Park Service Sounding Board Website*
This joint project with the National Park Service, Penn State, and the Hiker Company focuses on educating and inspiring park managers and other interested groups about soundscapes.
- Current *Joint Fire Science Program Project: Firescapes in the Mid-Atlantic: Mismatches Between Social Perceptions and Prescribed Fire Use*
Interdisciplinary project seeking to understanding public perceptions of prescribed fires and the ecological conditions resulting from them.
- 2017-2019 *Jimmy Carter National Historic Site Visitor Use Study*
Transportation planning, evaluation of visitor experiences, and motivations for visiting the site are the focus of this study.
- 2017-2019 *Cross-cultural Park Benefits in Shenzhen, China*
Collaborative project with partners from Jinan University in China exploring cross-culture perspectives of soundscape perceptions and management through both lab and field studies.

- 2017 *Glacier National Park Visitor Use Monitoring Project*
Monitoring of visitor use related to trails, roads, and rivers is used to inform an adaptive management plan and provide basic social science data for an upcoming wilderness planning process. Also wrote the Environmental Impact Statement section on impacts to visitor experience.
- 2017 *Social Science Applications to Human-Bear Conflicts in the Wildland-Urban Interface*
This project with Swan Valley Connections was designed to help undergraduate students in the *Wildlife in the West* course understand what social science is and how it integrates into natural resource management. The focus of the research was on bear-safe food storage in the wildland-urban interface.
- 2014-2017 *Yellowstone National Park Wildlife-Visitor Interactions*
Evaluating and improving safety communications related to human-wildlife interactions (bison and grizzly bears) was the focus of this project.
- 2014-2017 *Yellowstone National Park Social Media Exploratory Research*
Investigating “virtual visitor” experiences through social media like Facebook helped inform and evaluate the social media strategies of park managers in this project.
- 2014-2016 *Glacier National Park Going-to-the-Sun Road Corridor Management Plan*
A systems-thinking approach was applied to manage the most heavily used area of the park (Going-to-the-Sun Road Corridor). Data collection related to recreation use/impacts, alternative transportation systems, adaptive management, and visitor experience.
- 2013 *Thinking Globally – Acting Locally: Enhancing Environmental Sustainability Through an Interactive Mobile Exhibit from Kenya to South Carolina*
This research explored cross-cultural perspectives of sustainability and the environment in the Maasai Mara region of Kenya. Collaborators included several departments at Clemson University, as well as multiple universities in Kenya.
- 2013 *NOAA Sea Grant Aquaculture Program: Perceptions of Marine Aquaculture in Coastal Tourist Destinations in US Southeastern Region.*
Coastal tourists’ perceptions regarding sustainable fishing practices in South Carolina were examined in this project.
- 2013 *Visitor Study at the Audubon Center and Sanctuary at the Francis Beidler Forest*
The focus of this project was on soundscape qualities, recreational specialization, and birdwatchers.
- 2013 *Lighting Experiment Night Survey*
This visitor use study in Acadia National Park detailed the effects of different lighting techniques on the visitor experience of night skies.
- 2013 *South Carolina Botanical Gardens Visitor Survey*
Visitors’ recreation activities and knowledge regarding an affiliated non-profit organization were the focus of this study.

PRESENTATIONS

RESEARCH PRESENTATIONS

25. Benfield, J., Freeman, S. **Miller, Z.D.**, & Taff, B.D. (SUBMITTED). *Acceptable and safe? Testing perceptions of wildlife approach using virtual reality*. International Conference on Environmental Psychology. Plymouth, United Kingdom.
24. Freeman, S., **Miller, Z.D.**, Benfield, J., Taff, B.D., & Newman, P. (SUBMITTED). *Wildlife approach acceptability factors*. Submitted to Pathways: Human Dimensions of Wildlife Conference. Estes Park, CO.
23. **Miller, Z.D.** (SUBMITTED). *Developing belief-based messages to increase day hikers carrying bear spray in Yellowstone National Park*. Submitted to Pathways: Human Dimensions of Wildlife Conference. Estes Park, CO.
22. Taff, B.D., Peel, V., Rice, W.L., Lacey, G., Pan, B., Klemm, C., Newman, P., Hutchins, B., & **Miller, Z.D.** (ACCEPTED). *Healthy Parks Healthy People: Evaluating and Improving Park Service Efforts to Promote Tourists' Health and Well-being*. Presented at the Travel and Tourism Research Association (TTRA) Conference. Melbourne, Australia.
21. Freeman, S.E., **Miller, Z.D.**, Benfield, J., Taff, B.D., & Newman, P. (ACCEPTED). *Distance Related Human-Wildlife Conflict: A Virtual Reality Approach to Understanding Visitor Perceptions*. Presented at the National Environmental and Recreation Research (NERR) Conference. Annapolis, Maryland.
20. Rice, W., Newman, P., Taff, B.D., **Miller, Z.D.**, & Zipp, K. (2018, December). *Beyond Benefits: Recreational Ecosystem Services as a Management Framework*. Presented at the A Community on Ecosystem Services (ACES) Conference. Arlington, Virginia.
19. Baker, J., D'Antonio, A., Taff, B.D., Newman, P., Monz, C., Rice, W., **Miller, Z.D.**, & Newton, J. (2018, September). *What's Scale Got to do with it?: The Importance of Scale when Measuring Experience, Impacts, and Behaviors of Users at Popular Recreation Sites*. Presented at the 14th Biennial Scientific Conference on the Greater Yellowstone Ecosystem. Big Sky, Montana.
18. Li, R., **Miller, Z.D.**, Pan, B., Taff, B.D., & Newman, P. (2018, September). *A Qualitative Study on Chinese Visitors in Grand Teton National Park*. Presented at the 14th Biennial Scientific Conference on the Greater Yellowstone Ecosystem. Big Sky, Montana.
17. Rice, W.L., Taff, B.D., **Miller, Z.D.**, Newman, P., Newton, J., D'Antonio, A., Baker, J., & Monz, C. (2018, September). *Teton Recon: Mixed-Methods Approaches to Measuring Recreational Ecosystem Services in Grand Teton National Park*. Presented at the 14th Biennial Scientific Conference on the Greater Yellowstone Ecosystem. Big Sky, Montana.
16. **Miller, Z.D.**, Freimund, W., Metcalf, E.C., Nickerson, N.P., Powell, R.B. (2018, September). *Communicating with Visitors about Bear Safety: Values, Elaboration, and the Theory of Planned Behavior*. Presented at the 14th Biennial Scientific Conference on the Greater Yellowstone Ecosystem. Big Sky, Montana.
15. **Miller, Z.D.** & Freimund, W. (2018, September). *Social Media and National Parks: Understanding Virtual Visitors*. Presented at the 14th Biennial Scientific Conference on the Greater Yellowstone Ecosystem. Big Sky, Montana.
14. Newman, P., **Miller, Z.D.**, Levanhagen, M., Francis, C.D., Petrelli, A.R., Abbot, L.C...Barber, J.R. (2018, August). *Sounds as an element of human-coupled systems. Social ecological evidence from Muir Woods National Monument*. Presented at the 2018 Monitoring and Management of Visitors Conference. Bordeaux, France.

13. **Miller, Z.D.**, Freimund, W., Powell, R.B., Metcalf, E.C., & Nickerson, N.P. (2018, August). *A framework for integrating values into persuasive communication: Value orientations, elaboration, and the theory of planned behavior*. Presented at the 2018 Monitoring and Management of Visitors Conference. Bordeaux, France.
12. **Miller, Z.D.** & Freimund, W. (2018, August). *Social media in parks and conservation areas: A case study of "virtual visitors" from the Facebook page of Yellowstone National Park*. Presented at the 2018 Monitoring and Management of Visitors Conference. Bordeaux, France.
11. **Miller, Z.D.**, Freimund, W., Metcalf, E.C., & Nickerson, N. (2018, June). *Value based approaches to persuasive communication*. Presented at the 2018 International Symposium on Society and Resource Management. Snowbird, UT.
10. Lawhon, B., Taff, B.D., Schwartz, F., Newman, P., & **Miller, Z.D.** (2018, June). Attitudes and behaviors toward trash and recycling in national parks. Paper presented at the 2018 International Symposium on Society and Resource Management, Snowbird, UT.
9. Sage, J., Nickerson, N., **Miller, Z.D.**, Ocanas, A., & Thomsen, J. (2018, June). *Gateway spending as a compliment to national park entrance fees*. Presented at the 2018 International Symposium on Society and Resource Management. Snowbird, UT.
8. Ferguson, L.C., Newman, P., Taff, B.D., **Miller, Z.D.**, Barber, J., Levenhagen, M., Francis, C., Shr, Y., Petrelli, A., White, C. (2018, June). *Case studies in couple human natural systems and measuring acoustic experiences*. Presented at the 2018 International Symposium on Society and Resource Management. Snowbird, UT.
7. Rice, W., Taff, B.D., Newman, P., Newton, J., Monz, C., D'Antonio, A., & **Miller, Z.D.** (2018, February). *Wanderlost: Increased Visitor Use and Benefit-Achievement in Grand Teton National Park's String and Leigh Lakes*. Presented at the National Environment and Recreation Research Symposium. Annapolis, MD.
6. Jorgenson, J., **Miller, Z.D.**, & Nickerson, N. (2017, April). *National park visitors' values, attitudes, and intentions to visit in the face of increasing entry fees*. Proceedings of Greater Western Travel and Tourism Association. Reno, NV.
5. **Miller, Z.D.** & Freimund, W. (2017, April). *North American and International Visitor Perspectives on Bison Safety in Yellowstone National Park*. Presented at the George Wright Society Conference. Norfolk, VA.
4. **Miller, Z.D.** & Freimund, W. (2017, April). *Virtual Visitors: Facebook users and Yellowstone National Park*. Presented at the George Wright Society Conference. Norfolk, VA.
3. **Miller, Z.D.** & Freimund, W. (2016, October). *North American and International Visitor Perspectives on Bison Safety in Yellowstone National Park*. Presented at the 13th Biennial Science conference in Grand Teton National Park. Jenny Lake, WY.
2. **Miller, Z.D.** & Freimund, W. (2015, April). *Managing complex park systems*. Presented at the 14th Annual Graduate Student Research Conference. Missoula, MT.
1. **Miller, Z.D.** & Freimund, W. (2015, March-April). *To shuttle or not to shuttle: Alternative transportation on the Going-to-the-Sun Road*. Presented at the George Wright Society Conference. Oakland, CA.

INVITED SPEAKER

17. D'Antonio, A.L, Taff, B.D., Rice, W.L., Baker, J., **Miller, Z.D.**, Monz, C., & Newman, P. (2019, March). *String and Leigh Lakes Visitor Use and Experience Study*. Invitation to present to staff at Grand Teton National Park. Jackson, WY.

16. Lawhon, B., Taff, B.D., **Miller, Z.D.**, Meyers, C., Newman, P., & Schwartz, F. (2019, March). *Exploring camper and NPS and concession staff attitudes, intentions, and behaviors regarding waste in national parks*. Invitation to present to staff at Grand Teton National Park, National Park Conservation Association, and Subaru of America. Jackson, WY.
15. Lawhon, B., Taff, B.D., **Miller, Z.D.**, Newman, P., & Schwartz, F. (2019, February). *Exploring camper and NPS and concession staff attitudes, intentions, and behaviors regarding waste in national parks*. Invitation to present at the Zero Landfill Initiative Summit. San Francisco, CA.
14. Smithwick, E., Zipp, K., Wu, H., Kaye, M., Taylor, A., **Miller, Z.D.**, Shr, Y., Zhao, A., Dems, C., & Newman, P. (2019, February). *Firescapes in the mid-Atlantic: Mismatches between social perceptions and prescribed fire use*. Invitation to present to the Pennsylvania Prescribed Fire Council. Gettysburg, PA.
13. Newman, P., Taff, B.D., Pan, B., **Miller, Z.D.**, & Shroeder, A. (2018, December). *Conference on Conservation and Sustainable Development of Protected Areas*. Invitation to present to faculty of Tongji University. Shanghai, China.
12. Newman, P., Taff, B.D., & **Miller, Z.D.** (2018, December). *Visitor management of national parks of the United States*. Invitation to present to Overseas Chinese Town (OCT). Shenzhen, China.
11. Zipp, K., Dems, C., Kaye, M., **Miller, Z.D.**, Newman, P., Shr, Y., Smithwick, E., Taylor, A., Wu, H., & Zhao, A. (2018, October). *Feeling the burn: The optimal timing of prescribed fires for recreational benefits in the mid-Atlantic*. Invitation to present at the Student Organization for Society and Natural Resources. University Park, PA.
10. Newman, P., Taff, B.D., **Miller, Z.D.**, & Benedetti, A. (2018, September). *Jimmy Carter National Historic Site visitor use study: Expanding understanding of current and future visitor experiences*. Invitation to present to Jimmy Carter National Historic Site staff and managers. Plains, GA.
9. Smithwick, E., Zipp, K., Wu, H., Kaye, M., Taylor, A., **Miller, Z.D.**, Shr, Y., Zhao, A., & Dems, C. (2018, September). *Firescapes in the mid-Atlantic: Mismatches between social perceptions and prescribed fire use*. Invitation to present to the Nature Conservancy. MD.
8. Newman, P., Taff, B.D., Ferguson, L.A., **Miller, Z.D.**, Graf, A., & Costigan, H. (2018, July). *Impacts of sound on visitors' experience in Denali National Park and Preserve's frontcountry*. Invitation to present to Denali National Park and Preserve staff and managers. Denali, AK.
7. Lawhon, B., Taff, B.D., Schwartz, F., **Miller, Z.D.**, & Newman, P. (2018, March). *Exploring visitor attitudes, values, and behaviors regarding waste in national parks*. Invitation to present to Grand Teton National Park managers, concessionaires, gateway community members, National Park Conservation Association members, and Subaru of America. Moose, WY.
6. D'Antonio, A., Baker, J., Rice, W., Taff, B.D., Newman, P.B., Monz, C., & **Miller, Z.D.** (2018, February). *String and Leigh Lakes Visitor Use Study*. Invitation to present to Grand Teton National Park managers. Moose, WY.
5. **Miller, Z.D.** (2017, October). *Human Dimensions Research in Park and Protected Areas: Cases from Yellowstone*. Invitation to present in the seminar for the Department of Recreation, Park, and Tourism Management at The Pennsylvania State University. University Park, PA.
4. **Miller, Z.D.** (2017, April). *Social science perspectives on bear safety in Yellowstone National Park*. Invitation to present at the 2017 Education Forum. Mammoth, WY.

3. **Miller, Z.D.** (2017, January). *Communicating with day hikers about bear safety*. Invitation to present to Yellowstone National Park staff and managers. Mammoth, WY.
2. **Miller, Z.D.** (2016, April). *Social science perspectives on bison-human interactions in Yellowstone National Park*. Invitation to present at the 2016 Education Forum. Mammoth, WY.
1. **Miller, Z.D.** & Freimund, W. (2014, September). *Glacier National Park Going-to-the-Sun Road 2014 Visitor Study*. Invitation to present at the Glacier National Park Alternative Planning Workshop. West Glacier, MT.

SESSION ORGANIZER

2. **Miller, Z.D.** & Lawhon, B. (2018, June). *Communication That Matters: Improving the Results of Conservation Communication Through Science-Based Strategies*. Presented at the International Symposium on Society and Resource Management. Session. Snowbird, UT.
1. Thomsen, J., Depper, G., **Miller, Z.D.**, Peterson, B., Zajchowski, C., UI-Husan, S. (2017, April). *GWS Student Summit Reflections: Challenges and Opportunities Facing Protected Areas Over the Next Century*. Presented at the George Wright Society Conference Panel. Norfolk, VA.

GRANTS AND OTHER FUNDING OPPORTUNITIES

Total funding received: \$439,278

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| 2018 | Proposal submitted to the Bureau of Land Management for the Management Studies Support Program for National Conservation Lands to map cultural ecosystem services at McInnis Canyons National Recreation Area. (\$25,000). PI. |
| 2018 | Panamanian Ministry of Environment in collaboration with Caminando Panamá and the Colorado State University Center for Protected Area Management to explore visitor use and sustainable tourism in four national parks. (\$178,882). Co-PI. |
| 2018 | Collaboration Development Fund: Healthy Parks, Healthy People? Assessing the Relevance and Impact of Parks on Human, Health, Well-Being, and Environmental Sustainability. (\$15,432). Collaborator. |
| 2018 | US National Park Service (Division of Natural Sounds and Night Skies). Developing visitor use concepts related to natural sounds in Death Valley National Park (\$48,000). Co-PI. |
| 2018 | University of Wyoming-National Park Service Small Grants Program. Chinese visitors to Grand Teton National Park. (\$5,000). Co-PI. |
| 2018 | US National Park Service (\$19,000). Human dimensions of paleontological resources in Denali National Park and Preserve. Co-PI. |
| 2018 | Subaru of America in collaboration with Leave No Trace (\$82,500). The Zero Landfill Initiative 2.0. Co-PI. |
| 2016 | University of Montana (\$5,000) and George Wright Society (\$3,000). The Inaugural George Wright Student Summit in Glacier National Park. |
| 2014 | US National Park Service (\$72,464). Yellowstone National Park: Evaluating the effectiveness of wildlife safety messaging for visitors. Provided authorship for grant. PI: Wayne Freimund. |
| 2009 | REI Equipment Grant (\$10,000). Equipment donation to Shady Creek Outdoor School. |

TEACHING

Full evaluations available upon request

PENNSYLVANIA STATE UNIVERSITY

Instructor of record

2019 *SUST 200: Foundations of Sustainability and Leadership*
Planned and instructed a university-wide class designed for all levels of students that introduces them to different aspects of global and local sustainability. The course is part of the Sustainability Minor.

Guest lecturer

2017-2019 Guest lecture in several graduate and undergraduate courses on a variety of topics, including human behavior in natural resources, evaluating and designing quantitative research, human-wildlife conflicts in parks and protected areas, and social media in parks and protected areas.

THE UNIVERSITY OF MONTANA

Instructor of record

2015-2016 *PTRM 150: Current Issues in Parks, Recreation, and Tourism Management*
Planned and instructed a field-based class designed for freshman and transfer students that introduces them to different professional and academic focuses in the major.

PTRM 310: Natural Resource Interpretation and Communication
Planned and instructed a class for juniors and seniors involving interpretive, education, and communication skills, methods, theories, and equipment.

Guest lecturer

2014-2016
Guest lecturer in several courses on a variety of topics, including social norms theory, soundscape resources and management, visitor use management, social media in conservation agencies and organizations, and human-wildlife interactions.

CLEMSON UNIVERSITY

Instructor of record

2013-2014 *PTRM 2200: Foundations of Parks, Recreation, and Tourism Management*
Instructed a class regarding the theoretical, philosophical, and historical foundations of parks, recreation, and the natural environment.

LS 1450: Camping and Backpacking
Planned and instructed semester-long courses focused on backpacking skills. Semester ended in a 3-day backpacking trip in a wildland setting.

LS 1000: Birding
Planned and instructed a semester long class pertaining to recreational birding skills.

LS 1650: Flatwater Kayaking in Everglades National Park
Co-instructed a course over several weeks designed to build flatwater kayaking skills. Course concluded with a weeklong kayaking trip through Big Cypress National Preserve and Everglades National Park.

Guest lecturer

Guest lecturer and co-facilitator in other courses and topics including flatwater kayaking, spelunking, natural history and contemporary naturalists, outdoor group management techniques, and soundscape management.

RELATED PROFESSIONAL EXPERIENCE

- 2012 *Outdoor Classroom Instructor and Land Steward, Big Chico Creek and Butte Creek Ecological Reserves, California*
Developed and instructed programs for K-12 students and the local community. Additionally, focused on ecological restoration and natural resource management, including pyrogeography.
- 2011-2012 *Chico Sports, LTD, California*
Worked as a sales associate and helped equip customers with outdoor gear.
- 2010-2011 *Chico Area Recreation and Park District, California*
Planned and facilitated after-school programs for elementary school students.
- 2008 *Images for Conservation Fund: The Pro Tour, Texas*
Assisted a professional photographer in an international competition. Event is aimed at building nature-based tourism capacity in southern Texas.
- 2007-2010 *Recreation Equipment, Inc. (REI), California*
Worked as a sales associate and helped equip customers with outdoor gear. Additionally, facilitated classes on birding in northern California for the general public and Leave No Trace for elementary schools in the area.
- 2006-2007 *Sierra at Tahoe, California*
Operated lifts at a snowsport resort in the Tahoe area of the Sierra Nevada Mountains.
- 2006-2007 *Embassy Vacation Resort/Lake Tahoe Vacation Resort, California*
Planned, organized, and facilitated a diversity of programs for guests of multiple age ranges to satisfy the recreation needs of guests on site.
- 2004-2006 *Woodleaf Outdoor School, California*
Taught environmental-based classes to 5,000 students (4th to 8th grade) per year at a residential outdoor school. Also served as the on-site coordinator for the Rusty Raptor Education Center.

SERVICE

- Current Editor for:
International Journal of Wilderness
- Current Reviewer for:
Fisheries Research
Frontiers in Psychology (Environmental Psychology Section)
Human Dimensions of Wildlife
Human Ecology
International Hospitality Review
International Journal of Biodiversity and Conservation
International Journal of Wilderness
Journal of Destination Marketing and Management
Journal of EcoAcoustics
Journal of Environmental Education
Journal of Environmental Management
Journal of Experiential Education
Journal of Outdoor Recreation and Tourism
Journal of Outdoor Recreation, Education, and Leadership
Journal of Park and Recreation Administration
Journal of Sustainable Tourism
Landscape and Urban Planning
National Park Service technical reports

Scientific Reports
Society and Natural Resources
The George Wright Forum
The Social Science Journal
Wildlife Society Bulletin

- 2018-2019 Global Engagement Committee for Penn State Department of Recreation, Park, and Tourism Management
- 2018 Session editor for conservation-related abstracts submitted to the National Park and Recreation Association (NRPA) conference.
- 2017 Guest editor for *The George Wright Forum*.
- 2016 Organized and hosted the Inaugural George Wright Society Student Summit in Glacier National Park.
- 2015-2017 Volunteer (2015) and volunteer coordinator (2016/2017) for the Orvis Fly Fishing Olympics in Missoula, MT.
- 2016 Consulted the Open Aid Alliance in Missoula, MT regarding strategic communication.
- 2015 Fundraiser volunteer for the Woodleaf Legacy Birding Team.
- 2014 Participant in the Faculty Evaluation Committee (FEC) for the Department of Society and Conservation at the University of Montana.
- 2012 Certified Campus Ally at Clemson University for the LGBTQ+ community.
- 2011 Field trip leader and workshop presenter at the Snow Goose Festival of the Pacific Flyway in Chico, CA.
- 2011 Assisted with a variety of projects, including bird banding, fuel reduction, and invasive species removal at the Big Chico Creek Ecological Reserve near Chico, CA.
- 2010 Featured on the Discovery Channel TV show *Wreckreation Nation* for a segment about falconry in the U.S.

AWARDS AND SCHOLARSHIPS

- 2017 George Wright Society. George Melendez Wright Student Diversity (LGBTQ+) Travel Scholarship to attend to 2017 George Wright Society Conference on Parks, Protected Areas, and Cultural Sites.
- 2016 Yellowstone National Park. Student scholarship for the 13th Biennial Scientific Conference on the Greater Yellowstone Ecosystem.
- 2016 The University of Montana College of Forestry and Conservation. Stacie Ann DeWolf Memorial Scholarship.
- 2014 Society of Outdoor Recreation Professionals. Student scholarship for the National Outdoor Recreation Conference.
- 2014 Clemson University College of Health, Education, and Human Development. Graduate Student Award of Excellence.
- 2014 Clemson University Department of Parks, Recreation, and Tourism Management. Graduate Student Award of Excellence.
- 2012 California State University, Chico. Graduated magna cum laude.

PROFESSIONAL AND OTHER ORGANIZATIONS

- Current Co-Manager of the Protected Area Research Collaborative at Penn State.
- Current Co-Manager of the Social Science Acoustics Lab at Penn State.
- Current Member of the International Association for Society and Natural Resources.
- Current Member of the George Wright Society.
- Current Member of the Academy of Leisure Sciences.
- Current Member of the International Union for the Conservation of Nature (IUCN)'s World Commission on Protected Areas' (WCPA) Tourism and Protected Areas Specialist Group (TAPAS).
- Current Wildlife partner of the Wildlife Society.
- 2015-2017 Founder and former president of the George Wright Society: Student Chapter of the University of Montana.
- 2015-2017 Member of the Human Dimensions Lab at the University of Montana.
- 2014-2016 Member of the South Carolina Recreation and Parks Association.
- 2014-2015 Member of the Society of Outdoor Recreation Professionals.

RELEVANT CERTIFICATIONS

- Current First Aid/CPR
- Current Project Learning Tree Instructor
- Current Project WET Instructor
- Current Project WILD/WILD Aquatic Instructor