

# William Luttrell Rice

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## EDUCATION

Ph.D.	2020	<b>Human Dimensions of Natural Resources and the Environment &amp; Recreation, Park, and Tourism Management</b> Dissertation: "Three measures of recreational ecosystem services in protected areas: Studies from US national parks"  Pennsylvania State University, University Park, PA
M.S.	2018	<b>Recreation, Park, and Tourism Management</b> Thesis: "Beyond fuzzy feelings: Furthering recreational ecosystem services"  Pennsylvania State University, University Park, PA
B.S.	2016	<b>Environmental and Natural Resource Economics and Policy,</b> <i>magna cum laude</i> Senior Capstone: "Reversing the flow: Studies in river development"  Clemson University, Clemson, SC
Certificates	2020	<b>Certificate in Inclusive Teaching</b> Center for Teaching and Learning  Columbia University, New York, NY
	2015	<b>Advanced Certificate in Interpretation</b> Eppley Institute for Parks and Public Lands  Indiana University, Bloomington, IN

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## PROFESSIONAL APPOINTMENTS

2020 - Present	<b>Assistant Professor of Outdoor Recreation and Wildland Management</b> Parks, Tourism, and Recreation Management Program Department of Society and Conservation W. A. Franke College of Forestry and Conservation  University of Montana, Missoula, MT
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## PUBLICATIONS

### Refereed Journal Articles

51. Rushing, J. F., Thomas, E. R.<sup>1</sup>, Thomsen, J. M., Armatas, C. A., & **Rice, W. L.** (Accepted). Navigating constraints to recreation in Everglades National Park among underserved South Florida residents *Annals of the American Association of Geographers*.
50. **Rice, W. L.**, Phillips, K. E.<sup>1</sup>, Armatas, C. A., Pitas, N. A., Zou, S., & Fuesler, A.<sup>1</sup> (Accepted). A systematic review of visitor preferences concerning recreation allocation. *Socio-Ecological Practice Research*.
49. Parkinson, C. P., Pan, B., Morris, S.<sup>1</sup>, **Rice, W. L.**, Taff, B. D., Chi, G., & Newman, P. (2025). A comparison of visitor spatial-temporal behavior using third-party location-based service data and onsite GPS tracks in a national park. *Sustainability*, 17, 391. <https://doi.org/10.3390/su17020391>

48. Mullan, K., Avery, T., Boise, P., Leary, C., **Rice, W. L.**, & Semmens, E. O. (2024). Impacts of wildfire-season air quality on park and playground visitation in the Northwest United States. *Ecological Economics*, 224, 108285. <https://doi.org/10.1016/j.ecolecon.2024.108285>
47. Powers, S. L., Pitas, N. A., **Rice, W. L.** (2024). Applying location quotient methodology to urban park settings with mobile location data: Implications for equity and park planning. *Urban Forestry & Urban Greening*, 98, 128418. <https://doi.org/10.1016/j.ufug.2024.128418>
46. **Rice, W. L.**, & Armatas, C. A. (2024). Wildland encounter norms across time and activity type: Stable preferences and shifting thresholds. *Journal of Leisure Research*. <https://doi.org/10.1080/00222216.2024.2358319>
45. Zeller, K. A., Ditmer, M. A., Squires, J. R., **Rice, W. L.**, Wilder, J., DeLong, D., Egan, A., Pennington, N., Wang, C. A., Plucinski, J., & Barber, J. R. (2024). The hidden impacts of outdoor recreation: Experimental recreationist noise alters behavior and space use of wildlife. *Current Biology*, 34. <https://doi.org/10.1016/j.cub.2024.05.030>
44. Kreider, M. R., Higuera, P. E., Parks, S. A., **Rice, W. L.**, White, N., & Larson, A. J. (2024). Fire suppression makes wildfires more severe and accentuates impacts of climate change and fuel accumulation. *Nature Communications*, 15, 2412. <https://doi.org/10.1038/s41467-024-46702-0>
43. **Rice, W. L.**, Taff, B. D., Morris, S. A.<sup>1</sup>, Pan, B., Parkinson, C., & Newman, P. (2024). Explorations of preferred and maximum booking windows among U.S. national park campers: Implications for improved fairness. *Tourism and Hospitality Research*. <https://doi.org/10.1177/14673584241237442>
42. Thomas, E. R.<sup>1</sup>, **Rice, W. L.**, Armatas, C. A., & Thomsen, J. M. (2024). The effect of place attachment and leisure identity on wildland stewardship. *Leisure Sciences*. <https://doi.org/10.1080/01490400.2024.2305667>
41. **Rice, W. L.**, & Armatas, C. A. (2024). Answering the dam question: Visitor perspectives on removing and maintaining dams in wilderness. *International Journal of Wilderness*, 30(1), 40-53. <https://doi.org/10.5281/zenodo.11075433>
40. Phillips, K. E.<sup>1</sup>, & **Rice, W. L.** (2024). Visitor sentiment concerning changes in backcountry permit allocation at Glacier National Park. *Journal on Protected Mountain Areas Research and Management*, 16(2), 30-37. <https://dx.doi.org/10.1553/eco.mont-16-2-30>
39. Thomas, E. R.<sup>1</sup>, Armatas, C. A., **Rice, W. L.**, Rushing, J. F., & Thomsen, J. M., (2023). Exploring underserved communities' perspectives on wilderness character in Everglades National Park. *International Journal of Wilderness*, 29(2), 126-147. <https://doi.org/10.5281/zenodo.10396052>
38. Phillips, K. E.<sup>1</sup>, & **Rice, W. L.** (2023). A scoping literature review of fairness and equity engagement in U.S. river recreation allocation research. *International Journal of Wilderness*, 29(2), 108-122. <https://doi.org/10.5281/zenodo.10396042>
37. **Rice, W. L.**, Michels, S., Foster, M.<sup>1</sup>, Graham, J., Whitney, P.<sup>1</sup>, & Thomsen, J. M. (2023). Exploring the impacts of protected areas' attributes on pediatric health: The case for additional research beyond greenspace. *Land*, 12, 1613. <https://doi.org/10.3390/land12081613>
36. Whitney, P.<sup>1</sup>, **Rice, W. L.**, Sage, J., Thomsen, J. M., Wheeler, I., Freimund, W. A., & Bigart, E. (2023). Developments in big data for park management: A scoping literature review of the use of mobile phone location data to estimate visitor use in parks and protected areas. *Landscape Research*, 48(6), 758-776. <https://doi.org/10.1080/01426397.2023.2198762>
35. **Rice, W. L.** & Phillips, K. E.<sup>1</sup> (2023). The recreation rationing spectrum: A planning principle for the fair distribution of scarce recreation resources. *Leisure Sciences*. <https://doi.org/10.1080/01490400.2023.2180119>
34. **Rice, W. L.**, Shellhorn, J., Bloomgren, V., Booth, L., Duncan, S., Elias, J., Flowers, K., Gambini, I., Gans, A., Medina, A., Obadare, D., O'Neill, C., Rooney, Q., Scherck, G., Schmidt, K., Thomas, C., Thomas, E.<sup>1</sup>, Walhus, G.<sup>2</sup>, Whitney, P.<sup>1</sup>, & Winckler, C. (2023). The impact of graphic design on attention capture and behavior among outdoor recreationists: Results from an exploratory persuasive signage experiment. *Journal of Outdoor Recreation and Tourism*, 42, 100606. <https://doi.org/10.1016/j.jort.2023.100606>

33. Thomsen, J. M., **Rice, W. L.**, Rushing, J. F., & Armatas, C. A. (2023). U.S. Wilderness in the 21st century: A scoping review of wilderness visitor use management research from 2000 to 2020. *Journal of Leisure Research*, 54(1), 3-25. <https://doi.org/10.1080/00222216.2022.2142870>
32. Arthur, L. J.<sup>2</sup>, **Rice, W. L.**, VanderWoude, D., & Seidel, H. (2022). A three-pronged approach for identifying quality of life and wellbeing indicators in parks. *Recreation, Parks, and Tourism in Public Health*, 6, 55-64. <https://doi.org/10.2979/rptph.6.1.05>
31. Alba, C., Pan, B., Yin, J., **Rice, W. L.**, Mitra, P., Lin, M. S., & Liang, Y. (2022). COVID-19's impact on visitation behavior to US national parks from communities of color: Evidence from mobile phone data. *Scientific Reports*, 12, 13398. <https://doi.org/10.1038/s41598-022-16330-z>
30. **Rice, W. L.**, Taff, B. D., Lawhon, B., & Newman, P. (2022). Anticipated post-pandemic substitution behavior among new outdoor recreationists in the U.S.: Analysis across involvement and activity clusters. *Managing Sport and Leisure*. <https://doi.org/10.1080/23750472.2022.2092540>
29. Thomas, E. R.<sup>1</sup>, **Rice, W. L.**, Rushing, J. R., Thomsen, J. M., & Armatas, C. A. (2022). Constraints to wilderness recreation: A scoping review of existing research. *International Journal of Wilderness*, 28(2), 18-35. <https://doi.org/10.5281/zenodo.7647630>
28. **Rice, W. L.** (2022). The conspicuous consumption of wilderness, or Leisure lost in the wilderness. *World Leisure Journal*, 64(4), 451-468. <https://doi.org/10.1080/16078055.2022.2096109>
27. **Rice, W. L.**, Rushing, J. R., Thomsen, J. M., & Whitney, P.<sup>1</sup> (2022). Exclusionary effects of campsite allocation through reservations in U.S. national parks: Evidence from mobile device location data. *Journal of Park and Recreation Administration*, 40(4), 45-65. <https://doi.org/10.18666/JPra-2022-11309>
26. Taff, B. D., Thomsen, J., **Rice, W. L.**, Miller, Z., Newton, J., Miller, L., Gibson, A., Riddle, M., Schaberl, J. P., & McCormick, M. (2022). National park visitor experiences during COVID-19: Data from five national parks. *Parks Stewardship Forum*, 38(1), 145-159. <http://doi.org/10.5070/P538156128>
25. **Rice, W. L.**, Newman, P., Zipp, K. Y., Taff, B. D., Pipkin, A. R., Miller, Z. D., & Pan, B. (2022). Balancing quietness and freedom: Support for reducing road noise among park visitors. *Journal of Outdoor Recreation and Tourism*, 37, 100474. <https://doi.org/10.1016/j.jort.2021.100474>
24. Taff, B. D., **Rice, W. L.**, Lawhon, B., & Newman, P. (2021). Who started, stopped, and continued participating in outdoor recreation during the COVID-19 pandemic in the United States? Results from a national panel study. *Land*, 10, 1396. <https://doi.org/10.3390/land10121396><sup>3</sup>
23. **Rice, W. L.**, Reigner, N., Freeman, S., Newman, P., Mateer, T., Lawhon, B., & Taff, B. D. (2022). The impact of protective masks on outdoor recreation crowding norms during a pandemic, *Journal of Leisure Research*, 53(3), 340-356. <https://doi.org/10.1080/00222216.2021.1981791>
22. **Rice, W. L.**, Armatas, C. A., Thomsen, J. M., & Rushing, J. R. (2021). Distribution of visitor use management research in U.S. Wilderness from 2000 to 2020: A scoping review. *International Journal of Wilderness*, 27(3), 46-61. <https://doi.org/10.5281/zenodo.7647619>
21. Baker, J. T., D'Antonio, A., Monz, C., Taff, B. D., **Rice, W. L.**, Newton, J., Newman, P., Miller, Z. D., & Freeman, S. (2021). What's 'SUP' with paddlers?: Integrating spatial, social, and ecological data to understand behavior among paddlesport users at a popular lake destination. *Applied Geography*, 135, 102531. <https://doi.org/10.1016/j.apgeog.2021.102531>
20. Mateer, T., **Rice, W. L.**, Taff, B. D., Lawhon, B., Reigner, N., & Newman, P. (2021). Understanding psychosocial factors influencing outdoor recreation during the COVID-19 Pandemic. *Frontiers in Sustainable Cities*, 3, 621029. <https://doi.org/10.3389/frsc.2021.621029>
19. **Rice, W. L.**, Mateer, T. J., Newman, P., Lawhon, B., Reigner, N., & Taff, B. D. (2021). Outdoor recreationists' perceptions of risk, agency trust, and visitor capacities during the COVID-19 pandemic. *Journal of Park and Recreation Administration*, 40(2), 1-19. <https://doi.org/10.18666/JPra-2021-10730>
18. **Rice, W. L.** & Park, S. (2021). Big data spatial analysis of campers' landscape preferences: Examining demand for amenities. *Journal of Environmental Management*, 292, 112773. <https://doi.org/10.1016/j.jenvman.2021.112773>

17. **Rice, W. L.** & Pan, B. (2021). Understanding changes in park visitation during the COVID-19 pandemic: A spatial application of big data. *Wellbeing, Space, and Society*, 2, 100037. <https://doi.org/10.1016/j.wss.2021.100037>
16. **Rice, W. L.**, Spivey, O., Taff, B. D., & Newman, P. (2021). "On the staff of the Grand Canyon": Assessing manager and stakeholder perspectives on sustainable wilderness visitor use management. *International Journal of Wilderness*, 27(1), 52-69. <https://doi.org/10.5281/zenodo.7647617>
15. Drage, E., **Rice, W. L.**, Miller, Z. D., Newton, J. N., D'Antonio, A., Monz, C., Newman, P., & Taff, B. D. (2021). Mapping spatial dimensions of wilderness recreation outcomes: A study of overnight users. *Journal on Protected Mountain Areas Research and Management*, 13(1), 31-40. <https://dx.doi.org/10.1553/eco.mont-13-1s31>
14. D'Antonio, A., Taff, B. D., Baker, J., **Rice, W. L.**, Newton, J. N., Miller, Z. D., Newman, P., Monz, C., & Freeman, S. (2021). Integrating aspatial and spatial data to improve visitor management: Pairing visitor questionnaires with multiple spatial methodologies in Grand Teton National Park, WY, USA. *Journal of Park and Recreation Administration*, 39(1), 67-84. <https://doi.org/10.18666/JPra-2020-10501>
13. Miller, Z. D., **Rice, W. L.**, Newman, P., Taff, B. D., Gottschalk, J., Meyer, C., & Beeco, J. A. (2021). Pavement treatment type influences visitor experiences related to vehicular road sound in Death Valley National Park. *Journal of Ecotourism*, 20(3), 211-223. <https://doi.org/10.1080/14724049.2020.1856856>
12. **Rice, W. L.**, Taff, B. D., Newman, P., Zipp, K. Y., & Pan, B. (2020). Identifying recreational ecosystem service areas of concern in Grand Canyon National Park: A participatory mapping approach. *Applied Geography*, 125, 102353. <https://doi.org/10.1016/j.apgeog.2020.102353>
11. **Rice, W. L.**, Mateer, T., Reigner, N., Newman, P., Lawhon, B., & Taff, B. D. (2020). Changes in recreational behaviors of outdoor enthusiasts during the COVID-19 pandemic: Analysis across urban and rural communities. *Journal of Urban Ecology*, 6(1), juaa020. <http://dx.doi.org/10.1093/jue/juaa020>
10. **Rice, W. L.**, Lacey, G., Peel, V., Pan, B., Klemm, C., Miller, Z. D., Newman, P., Hutchins, B. & Taff, B. D. (2020). Examining health promotion in parks: A cross-national inquiry of Healthy Parks Healthy People programs. *Recreation, Parks, and Tourism in Public Health*, 4, 5-14. <http://dx.doi.org/10.2979/rptph.4.1.02>
9. Stelson, L., **Rice, W. L.**, & Taff, B. D. (2020). Managing cultural resources along a long-distance historic trail on the Alaska Peninsula. *International Journal of Wilderness*, 26(2), 70-85. <https://doi.org/10.5281/zenodo.7647625>
8. **Rice, W. L.**, Newman, P., Taff, B. D., Miller, Z. D., & Zipp, K. Y. (2020). Beyond benefits: Towards a recreational ecosystem services interpretive framework. *Landscape Research*, 45(7), 892-904. <https://doi.org/10.1080/01426397.2020.1777956>
7. **Rice, W. L.**, Taff, B. D., Miller, Z. D., Newman, P., Zipp, K. Y., Pan, B., Newton, J. N., & D'Antonio, A. (2020). Connecting motivations to outcomes: A study of park visitors' outcome attainment. *Journal of Outdoor Recreation and Tourism*, 29. <https://doi.org/10.1016/j.jort.2019.100272>
6. **Rice, W. L.**, Newman, P., Miller, Z. D., & Taff, B. D. (2020). Protected areas and noise abatement: A spatial approach. *Landscape and Urban Planning*, 194. <https://doi.org/10.1016/j.landurbplan.2019.103701>
5. **Rice, W. L.**, Hamilton, G., & Newman, P. (2019). Pungent parks: Smell's growing relevance in park tourism. *Journal of Tourism Futures*, 6(2), 135-138. <https://doi.org/10.1108/JTF-05-2019-0045>
4. **Rice, W. L.**, Taff, B. D., Newman, P., Miller, Z. D., D'Antonio, A., Baker, J. T., Monz, C., Newton, J. N., & Zipp, K. Y. (2019). Grand expectations: Understanding visitor motivations and outcome interference in Grand Teton National Park, Wyoming. *Journal of Park and Recreation Administration*, 37(2), 26-44. <https://doi.org/10.18666/jpra-2019-9283>
3. **Rice, W. L.**, Park, S. Y., Pan, B., & Newman, P. (2019). Forecasting campground demand in US national parks. *Annals of Tourism Research*, 75, 424-438. <https://doi.org/10.1016/j.annals.2019.01.013>
2. **Rice, W. L.**, Mueller, J. T., Graefe, A. R., & Taff, B. D. (2019). Detailing an approach for cost-effective visitor-use monitoring using crowdsourced activity data. *Journal of Park and Recreation Administration*, 37(2), 144-154. <https://doi.org/10.18666/jpra-2019-8998>

1. 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(2), 328-334. <https://doi.org/10.3390/heritage1020022>

‡Most read paper of all-time in *Journal of Urban Ecology* – Oxford University Press

<sup>1</sup>Graduate student advisee

<sup>2</sup>University of Montana undergraduate student research technician

<sup>3</sup>Invited publication, Article Processing Charge waived

### Editor Reviewed Journal Articles

3. **Rice, W. L.** (2024). Introducing the Western Wildlands digital archive. *International Journal of Wilderness*, 30(2), 36-39. <https://ijw.org/introducing-the-western-wildlands-digital-archive/>
2. **Rice, W. L.** (2021). Getting the most out of Zoom: Teaching through mock stakeholder meetings in the virtual environment. *SCHOLE: A Journal of Leisure Studies and Recreation Education*, 38(2), 83-84. <https://doi.org/10.1080/1937156X.2021.1962215>
1. Hicks, A. S., Mirza, S., **Rice, W. L.**, Richards, J. C., & Alarab, M. R. (2020). When green is blue: Perspectives on inclusivity and recommendations towards reforming and demilitarizing law enforcement in U.S national parks. *Parks Stewardship Forum*, 36(3), 502-509. <https://doi.org/10.5070/P536349863>

### Book Chapters and Other Contributions

3. Taff, B.D., Thomsen, J., **Rice, W. L.**, & Newman, P. (Under Review). The role of parks and outdoor recreation on psychological well-being. In *Transformative power of parks*. Urbana, IL: Sagamore Venture Publishing.
2. **Rice, W. L.** (2022). Wilderness tourism. In D. Buhalis (Ed.), *Encyclopedia of tourism management and marketing* (Vol. 4, pp. 740-742). Cheltenham, UK: Edward Elgar Publishing. <https://doi.org/10.4337/9781800377486.wilderness.tourism>
1. Miller, Z.D., **Rice, W. L.**, Taff, B.D., & Newman, P. (2019). Concepts for understanding the visitor experience in sustainable tourism. In S.F. McCool and K. Bosak (Eds.), *A research agenda for sustainable tourism* (pp. 53-69). Cheltenham, UK: Edward Elgar Publishing. <https://doi.org/10.4337/9781788117104>

### Invited Authorship

1. **Rice, W. L.** (2020). Wrestling with the paradox: Social science in the national parks. *Ranger: The Journal of the Association of National Park Rangers*, 36(2), 8-9. <http://npshistory.com/newsletters/ranger/ranger-v36n2.pdf>

### Media

1. Taff, B. D., Newman, P., & **Rice, W. L.** (2020, June 5). Summer visitors to American parks choose safety first over freedom to roam. *The Conversation*. <https://theconversation.com/summer-visitors-to-american-parks-choose-safety-first-over-freedom-to-roam-138512>

### Refereed Conference Proceedings

3. **Rice, W. L.** & Pan, B. (2021). Using Google's Mobility Data to understand park visitation during the COVID-19 pandemic: A note of caution. *Proceedings of the 10th International Conference on Monitoring and Management of Visitors in Recreational and Protected Areas*. Norwegian University of Life Sciences. <https://nmbu.brage.unit.no/nmbu-xmlui/bitstream/handle/11250/2828387/mif73.pdf?sequence=1#page=76>
2. ‡**Rice, W. L.** & Park, S. (2021). The campers' conundrum: Examining setting's influence on campsite choice using big data. *Proceedings of the 2020 Northeast Chapter of the Travel and Tourism Research Association Conference*. [https://scholarworks.umd.edu/soccon\\_pubs/32/](https://scholarworks.umd.edu/soccon_pubs/32/)
1. Taff, B. D., Peel, V., **Rice, W. L.**, Lacey, G., Pan, B., Klemm, C., Newman, P., Hutchins, B., & Miller, Z. D. (2019). Healthy parks healthy people: Evaluating and improving park service efforts to promote tourists' health and well-being. *Proceedings of the 2019 Travel and Tourism Research Association International Conference*, Melbourne, AUS. [https://scholarworks.umass.edu/ttra/2019/research\\_papers/27/](https://scholarworks.umass.edu/ttra/2019/research_papers/27/)

‡Awarded Best Paper Award at conference

### Peer Reviewed Technical Reports

4. Morris, S. A., Parkinson, C., **Rice, W. L.**, Pan, B., & Taff, B.D. (2024). *South Rim visitor use study at Grand Canyon National Park: 2022-2023 data collection summary*. Report prepared for Grand Canyon National Park.
3. **Rice, W. L.**, Miller, Z. D., Newman, P., Taff, B. D., & Zipp, K. Y. (2019). *Recreation impacts of road noise in Death Valley National Park: 2018 Visitor Study*. Report prepared for the US National Park Service. Pennsylvania State University.
2. D'Antonio, A., Taff, D., Monz, C., Newman, P., Baker, J. T., **Rice, W. L.**, Freeman, S. & Miller, Z. D. (2019). *Leigh and String Lakes visitor use study at Grand Teton National Park: 2018 data collection summary*. Report prepared for the US National Park Service. Oregon State University, Pennsylvania State University, and Utah State University.
1. D'Antonio, A., Taff, D., Monz, C., Newman, P., Baker, J. T., **Rice, W. L.**, & Miller, Z. D. (2018). *Leigh and String Lakes visitor use study at Grand Teton National Park: 2017 data collection summary*. Report prepared for the US National Park Service. Oregon State University, Pennsylvania State University, and Utah State University. [https://www.nps.gov/grte/learn/nature/upload/GRTE\\_Leigh-and-String-Lakes-Visitor-Study\\_Final\\_Report.pdf](https://www.nps.gov/grte/learn/nature/upload/GRTE_Leigh-and-String-Lakes-Visitor-Study_Final_Report.pdf)

### Non-Peer Reviewed Technical Reports

18. **Rice, W. L.**, RRC Associates, and Otak. (2024). *Visitor perspectives on visitor use management in Yellowstone National Park: Final report*. Report prepared for Yellowstone National Park.
17. Mudford, T. I., **Rice, W. L.**, Thomsen, J., Armatas, C. A. (2024). *A visitor use study of the Wilderness areas of Everglades National Park*. Report prepared for the National Park Service.
16. Nayak, A., Pan, B., **Rice, W. L.**, & Thomsen, J. (2024). *Glacier National Park GPS visitor flow study: Summary of 2023 data collection*. Report prepared for Glacier National Park.
15. **Rice, W. L.**, Whitney, P. J., & Thomas, E. R. (2023). *A visitor use study of the Rattlesnake National Recreation Area and proximate wildlands: Visitor use patterns, experiences, and trends*. Report prepared for the U.S. Forest Service and City of Missoula.
14. Morris, S., Parkinson, C., **Rice, W. L.**, Pan, B., & Taff, B.D. (2023). *Grand Canyon National Park visitor use study: Preliminary report from phase 1 of 2*. Report prepared for Grand Canyon National Park.
13. Rushing, J., Thomsen, J., & **Rice, W. L.** (2022). *Glacier National Park visitor experience survey: 2022 data collection summary*. Report prepared for Glacier National Park.
12. **Rice, W. L.**, Shellhorn, J., Bloomgren, V., Booth, L., Duncan, S., Elias, J., Flowers, K., Gambini, I., Gans, A., Medina, A., Obadare, D., O'Neill, C., Rooney, Q., Scherck, G., Schmidt, K., Thomas, C., Thomas, E., Walhus, G., Whitney, P., & Winckler, C. (2022). *The impact of graphic design on attention capture and behavior among outdoor recreationists at the Sunlight Trailhead of City of Missoula's Conservation Lands: A final report*. Report prepared for City of Missoula Parks and Recreation.
11. **Rice, W. L.**, Sage, J., Bigart, E., Birmingham, C., Brown, G., Roberts, M., & Woodhouse, K. (2022). *Reimagining the interagency pass program: Technical report*. Report prepared for the National Park Service.
10. **Rice, W. L.**, & Arthur, L. (2022). *Developing quality of life indicators for City of Boulder Open Space and Mountain Parks management: Final report on a three-pronged approach*. Report prepared for City of Boulder (Colorado) Open Space and Mountain Parks.
9. **Rice, W. L.**, Taff, B. D., Lawhon, B., & Newman, P. (2021). *The new, COVID-driven outdoor recreationists in the U.S.: Who they are, who they aren't, and who will stay involved*. Report prepared for the Leave No Trace Center for Outdoor Ethics. <https://doi.org/10.31235/osf.io/3khfd>
8. **Rice, W. L.**, Mateer, T., Taff, B. D., Lawhon, B., & Newman, P. (2021). *Continued longitudinal analysis of avid outdoor recreationists during the COVID-19 pandemic and sensitivities to new outdoor recreationists*. Report prepared for the Leave No Trace Center for Outdoor Ethics. <https://doi.org/10.31235/osf.io/p3yqg>
7. **Rice, W. L.**, Mateer, T., Taff, B. D., Lawhon, B., Reigner, N., & Newman, P. (2020). *Longitudinal changes in the outdoor recreation community's reaction to the COVID-19 pandemic: Final report on a three-phase national survey of outdoor enthusiasts*. Report prepared for the Leave No Trace Center for Outdoor Ethics. Pennsylvania State University. <https://doi.org/10.31235/osf.io/gnjcy>

6. **Rice, W. L.**, Mateer, T., Taff, B. D., Lawhon, B., Reigner, N., & Newman, P. (2020). *The COVID-19 pandemic continues to change the way people recreate outdoors. A second preliminary report on a national survey of outdoor enthusiasts amid the COVID-19 pandemic*. Report prepared for the Leave No Trace Center for Outdoor Ethics. Pennsylvania State University. <https://doi.org/10.31235/osf.io/dghba>
5. **Rice, W. L.**, Meyer, C., Lawhon, B., Taff, B. D., Mateer, T., Reigner, N., & Newman, P. (2020). *The COVID-19 pandemic is changing the way people recreate outdoors. Preliminary report on a national survey of outdoor enthusiasts amid the COVID-19 pandemic*. Report prepared for the Leave No Trace Center for Outdoor Ethics. Pennsylvania State University. <https://doi.org/10.31235/osf.io/prnz9>
4. Taff, B. D., **Rice, W. L.**, Newman, P., Spivey, O., Blankenhorn, E., Rummier, L., Drage, E., & Meyer, C. (2020). *Grand Canyon visitor use management data needs assessment: Assessing manager and stakeholder perspectives*. Report prepared for the US National Park Service. Pennsylvania State University.
3. Miller, Z. D., Newman, P., Ferguson, M., Taff, B. D., Ferguson, L. A., **Rice, W. L.**, Tipton, N., & Sparrow, V. (2019). *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. Pennsylvania State University.
2. Fourth Biennial Public Lands Student Congress (2018). *Developing a national land ethic: Recommendations for the Bureau of Land Management*. Report prepared for the US Department of Interior. The Public Lands Foundation.
1. Whitley, H., Mueller, J. T., **Rice, W. L.**, & Dems, C. (2018). *PLAYscapes in the State College Borough*. Report prepared for the Borough of State College, PA. Pennsylvania State University.

#### Archived Datasets

2. **Rice, W. L.**, Whitney, P. J., Thomas, E. R., & Armatas, C. A. (2024). *Rattlesnake National Recreation Area and Wilderness (RNRAW): Visitor survey data from 2022-2023*. Fort Collins, CO: Forest Service Research Data Archive. <https://doi.org/10.2737/RDS-2024-0005>
1. Armatas, C. A., **Rice, W. L.**, Thomsen, J. M., Rushing, J. F., & Rojas, J. (2024.) *Wilderness areas in Everglades National Park: Visitor survey data from 2023*. Fort Collins, CO: Forest Service Research Data Archive. <https://doi.org/10.2737/RDS-2024-0082>.

#### Training Materials

2. Phillips, K. E.<sup>1</sup>, **Rice, W. L.**, Armatas, C. A., Pitas, N., & Zou, S. S. (2024). *Allocating recreation with fairness at the forefront: A research-based planning and management guidebook*. Missoula, MT: Wildland and Recreation Management Research Laboratory, University of Montana.
1. Callahan, K., Skipper, K., & **Rice, W. L.** (2017). *South Carolina Adopt-a-Stream Freshwater Volunteer Monitoring Handbook* (1st ed.). Clemson, SC: Clemson University Public Service and Agriculture and South Carolina Department of Health and Environmental Control. <https://www.clemson.edu/public/water/watershed/scaas/images-and-files/FINAL%2011717%20Adopt-A-Stream%20high%20quality%20print.pdf>

<sup>1</sup>Graduate student advisee

#### Creative Media

7. **Rice, W. L.** (2020). *My Friend Laura*. Documentary film sponsored by the National Geographic Society and supported by the National Park Service. King Salmon, AK. [https://youtu.be/Sn9t8k\\_OnWc](https://youtu.be/Sn9t8k_OnWc)

Honourable Mention	2021 Waterwalker Film Festival (Canada)
Official Selection	2021 International Tourism Film Festival (South Africa)
Official Accepted Entry	2021 Archaeology Channel International Film Festival
Official Selection	2020 Anchorage International Film Festival
Official Selection	2020 Cortomontagna (Italy)
Third Place	2020 Ketchikan Film Festival

6. **Rice, W. L.** (2019). *Reservoir of silence*. Short film created for the Protected Area Research Collaborative. University Park, PA. <https://youtu.be/0EfTy5f3SJQ>
  5. **Rice, W. L.** (2019). *Beyond benefits*. Short film created for the Protected Area Research Collaborative. University Park, PA. <https://youtu.be/1lonR8OVL6o>
  4. **Rice, W. L.** (2018). *Wanderlost*. Short film created for the Protected Area Research Collaborative. University Park, PA. <https://youtu.be/cQcmfoJIGJU>
  3. **Rice, W. L.** & Roberts, R. (2017). *Our fish, our future: Dispatches from the National Fish Habitat Partnership*. ESRI StoryMap commissioned by the National Fish Habitat Partnership. Washington, DC. <https://nfhp.maps.arcgis.com/apps/Cascade/index.html?appid=1805d7f3fc75494b9c71fbdbd9b880c4>
  2. **Rice, W. L.** & Thompson, T. (2017). *For the fish, for us all: The stories of the Western Native Trout Initiative*. ESRI StoryMap commissioned by the Western Native Trout Initiative. Lakewood, CO. <https://wafwalpcrwp.maps.arcgis.com/apps/Cascade/index.html?appid=4a60987393c94b1e8fd2055e91099f06>
  1. **Rice, W. L.** & Liebich, K. (2016). *For the fish: The stories of Alaska's Fish Habitat Partnerships*. ESRI StoryMap created for the U.S. Fish and Wildlife Service. Anchorage, AK. <https://fws.maps.arcgis.com/apps/Cascade/index.html?appid=c8bac2fac3cc4ff58992c64b920a53e2>
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## PRESENTATIONS

### Refereed Conference Presentations

42. Daniell, J., Zeller, K. A., Ditmer, M. A., **Rice, W. L.** (2024, October). *Sound Judgment: Auditory Footprints and Recreation Management*. Presentation at the Leave No Trace Global Summit Research Symposium, Boulder, CO.
41. Foster, M., **Rice, W. L.**, & Shellhorn, J. (2024, October). *Visual semiotics in parks: Assessing pictorial symbol effectiveness in outdoor recreation settings*. Presentation at the Leave No Trace Global Summit Research Symposium, Boulder, CO.
40. **Rice, W. L.**, Shellhorn, J., & Foster, M. (2024, October). *Improving bear safety signage in the Greater Yellowstone Ecosystem through transdisciplinary science*. Presentation at the Leave No Trace Global Summit Research Symposium, Boulder, CO.
39. **Rice, W. L.**, Mullan, K., Avery, T., Boise, P., Leary, C., & Semmens, E. O. (2024, September). *Parks, playgrounds, and PM<sub>2.5</sub>: Monitoring air quality and urban park visitation in the Northwest U.S.* Presentation at the 12th International Conference on Monitoring and Management of Visitors in Recreational and Protected Areas, Schneverdingen, Germany.
38. Parkinson, C., **Rice, W. L.**, & Pan, B. (2024, June). *Standardizing the procedure for cleaning GPS device data for recreation and tourism research*. Presentation at the Travel and Tourism Research Association 54th Annual International Conference, Burlington, VT.
37. Morris, S., **Rice, W. L.**, Bocinsky, K., & Zeller, K. (2024, April). *Beyond the piste: Investigating cross-country skiing's influence on wildlife*. Presentation at the 2024 National Environment and Recreation Research Symposium, Annapolis, MD.
36. Parkinson, C., Morris, S., Pan, B., **Rice, W. L.**, Taff, B. D., & Newman, P. (2024, April). *Differences in visitor spatial behavior in Grand Canyon National Park by entrance*. Presentation at the 2024 National Environment and Recreation Research Symposium, Annapolis, MD.
35. Phillips, K. E., **Rice, W. L.**, Zou, S., Pitas, N., & Armatas, C. A. (2024, April). *"Muddling through it": Analyzing manager perspectives on navigating trade-offs in recreation allocation design*. Presentation at the 2024 National Environment and Recreation Research Symposium, Annapolis, MD.
34. Kreider, M. R., **Rice, W. L.**, Belote, T., Leary, C., Semmens, E. O., & Larson, A. J. (2024, April). *A new high-resolution dataset of park access for the contiguous United States: Implications for environmental justice*. Presentation at the 2024 National Environment and Recreation Research Symposium, Annapolis, MD.



33. **Rice, W. L.**, & Armatas, C. A. (2024, April). *Stable preferences and shifting thresholds: Wildland encounter norms across decades and activities*. Presentation at the 2024 National Environment and Recreation Research Symposium, Annapolis, MD.
32. Semmens, E., Ortiz-Calo, W., Leary, C., & **Rice, W. L.** (2023, June). *A novel index for assessing open space exposures in rural areas*. Presentation at the International Society for Environmental Epidemiology – North American Chapter Conference 2023, Corvallis, OR.
31. \*Parkinson, C., Morris, S. A.<sup>1</sup>, **Rice, W. L.**, Pan, B. & Taff, B. D. (2023, April). *Visualizing GPS tracks for outdoor recreation: A case study in Grand Canyon National Park*. Presentation at the 2023 Northeast Chapter of the Travel and Tourism Research Association Conference, Philadelphia, PA.
30. Whitney, P.<sup>1</sup>, **Rice, W. L.**, Metcalf, A. L., Semmens, E. (2023, April). *Journeys to destinations: Applying a systems approach, big data, and Qualitative GIS to understand recreational ecosystem services and visitor decision-making in greenspace networks in Missoula, MT*. Presentation at the 2023 National Environment and Recreation Research Symposium, Annapolis, MD.
29. Thomas, E.<sup>1</sup>, **Rice, W. L.**, Armatas, C. A., & Thomsen, J. M (2023, April). *The effect of place attachment and leisure identity on stewardship participation in the Rattlesnake National Recreation Area and Wilderness*. Presentation at the 2023 National Environment and Recreation Research Symposium, Annapolis, MD.
28. Phillips, K. E.<sup>1</sup>, **Rice, W. L.**, & Hevel-Mingo, K. (2023, April). *Spatial and temporal analysis of National Park Service sustainability and climate adaptation infrastructure projects*. Presentation at the 2023 National Environment and Recreation Research Symposium, Annapolis, MD.
27. Morris, S. A.<sup>1</sup>, **Rice, W. L.**, Taff, B.D. Pan, B., & Parkinson, C., (2023, April). *Cluster analysis of visitor motivation and movement through Grand Canyon National Park*. Presentation at the 2023 National Environment and Recreation Research Symposium, Annapolis, MD.
26. **Rice, W. L.**, Powers, S., & Pitas, N. A. (2023, April). *Are you being served? Understanding the demographics of amenity usership and neighborhood visitation patterns in an urban park using mobile device location data*. Presentation at the 2023 National Environment and Recreation Research Symposium, Annapolis, MD.
25. Arthur, L. J.<sup>2</sup>, **Rice, W. L.**, VanderWoude, D., & Seidel, H. (2022, December). *A three-pronged approach for identifying quality of life and wellbeing indicators in parks*. Presentation at the 2022 British Columbia Protected Areas Research Forum, Nanaimo, BC, CAN.
24. Thomas, E.<sup>1</sup>, **Rice, W. L.**, Thomsen, J. M., Armatas, C. A., & Rushing, J. R. (2022, October). *Where are the locals? South Florida's underserved communities' relationship with Everglades National Park Wilderness*. Presentation at the 2022 Virtual IASNR Conference, virtual.
23. Taff, B. D., **Rice, W. L.**, Lawhon, B., & Newman, P. (2022, September). *Who started, stopped, and continued participating in outdoor recreation during the COVID-19 pandemic in the United States? Results from a national panel study*. Presentation at the 16th Biennial Conference of Science & Management on the Colorado Plateau & Southwest Region.
22. **Rice, W. L.**, Rushing, J. R., Thomsen, J. M., & Whitney, P.<sup>1</sup> (2022, April). *The trouble with campsite reservations: Or, finally re-addressing equity in campground allocation research*. Presentation at the 2022 National Environment and Recreation Research Symposium, Annapolis, MD.
21. Thomas, E.<sup>1</sup>, **Rice, W. L.**, Armatas, C. A., Thomsen, J. M., & Rushing, J. R. (2022, April). *Barriers and constraints to wilderness recreation: A scoping review of existing literature*. Presentation at the 2022 National Environment and Recreation Research Symposium, Annapolis, MD.
20. Whitney, P.<sup>1</sup>, **Rice, W. L.**, Sage, J., Thomsen, J. M., Wheeler, I., Rushing, J. R., Freimund, W., Bigart, E., & Dalenberg, D. (2022, April). *Developments in big data for park management: A scoping literature review of mobile phone location data estimating visitor use in parks and protected areas*. Presentation at the 2022 National Environment and Recreation Research Symposium, Annapolis, MD.
19. Lawhon, B., **Rice, W. L.**, Taff B. D., & Newman, P. (2021, November). *Who started, stopped, and continued participating in outdoor recreation during the COVID-19 pandemic in the United States? Results from a national panel study*. Presentation at 2021 National Outdoor Recreation Conference, virtual.

18. **Rice, W. L.**, Lawhon, B., Taff B. D., & Newman, P. (2021, November). *Who did the pandemic introduce to outdoor rec and who will remain engaged? Results of a national panel study*. Presentation at Basecamp 2021: The Science of Outdoor Recreation Management in the American West, Tucson, AZ.
17. Whitney, P. J.<sup>1</sup>, **Rice, W. L.**, Thomsen, J. M. (2021, October). *Big data in Big Sky Country: Using big data to understand the relationship between parks and health in the rural context*. Presentation at the University of Washington Nature and Health Conference, Seattle, WA and virtual.
16. **Rice, W. L.**, Arthur, L.<sup>2</sup>, VanderWoude, D., Reed, A., & Seidel, H. (2021, October) *Using mixed methods to understand how open space positively and negatively influences quality of life*. Presentation at the University of Washington Nature and Health Conference, Seattle, WA and virtual.
15. Taff, B. D., **Rice, W. L.**, Lawhon, B., Mateer, T., Newman, P., & Reigner, N. (2021, October). *Behavioral patterns and experiences of U.S. outdoor enthusiasts during the COVID-19 pandemic: Longitudinal results from March 2020 to March 2021*. Presentation at the University of Washington Nature and Health Conference, Seattle, WA and virtual.
14. **Rice, W. L.** & Pan, B. (2021, August). *Using Google's Mobility Data to understand park visitation during the COVID-19 pandemic: A note of caution*. Presentation at the 10th International Conference on Monitoring and Management of Visitors in Recreational and Protected Areas, virtual.
13. **Rice, W. L.**, Newman, P., Zipp, K. Y., Miller, Z. D., Taff, B. D., & Pan, B. (2021, June). *Understanding Park Visitor Perceptions of Road Noise and Related Management Actions: A Case Study from Death Valley National Park*. Presentation at the 2021 International Association for Society and Natural Resources Conference, virtual.
12. Rushing, J., Thomsen, J. M., **Rice, W. L.**, & Armatas, C. (2021, June). *Wilderness research in the 21st century: A scoping review of wilderness visitor use management research from 2000 to 2020*. Presentation at the 2021 International Association for Society and Natural Resources Conference, virtual.
11. <sup>†</sup>**Rice, W. L.** & Park, S. (2021, January). *The campers' conundrum: Examining setting's influence on campsite choice using big data*. Presentation at the 2021 Northeast Chapter of the Travel and Tourism Research Association Conference, virtual.
10. <sup>†</sup>**Rice, W. L.**, Taff, B. D., Miller, Z. D., Newman, P., Zipp, K. Y., Pan, B., Newton, J. N., & D'Antonio, A. (2020, February). *Bridging the gap between motivations and outcomes: Advancing outcomes-focused management in Grand Teton National Park*. Presentation at the Academy of Leisure Sciences Conference on Research and Teaching, Champaign, IL.
9. Taff, B. D., Peel, V., **Rice, W. L.**, Lacey, G., Pan, B., Klemm, C., Newman, P., Hutchins, B., & Miller, Z. D. (2019, June). *Healthy parks healthy people: Evaluating and improving park service efforts to promote tourists' health and well-being*. Presentation at the Travel and Tourism Research Association International Conference, Melbourne, AUS.
8. **Rice, W. L.**, Park, S. Y., Pan, B., & Newman, P. (2019, June). *Forecasting camping tourism demand in America's national parks using a machine learning approach*. Presentation at the Travel and Tourism Research Association International Conference, Melbourne, AUS.
7. Baker, J. T., D'Antonio, A., Taff, B. D., **Rice, W. L.**, Newman, P., Monz, C., Miller, Z. D., & Freeman, S. (2019, June). *What's 'SUP' with paddlers?: Integrating GIS and social science data to understand differences in spatial behavior among paddlesport users at a popular lake destination*. Presentation at the International Symposium on Society and Resource Management, Oshkosh, WI.
6. **Rice, W. L.** (2018, December). *Beyond benefits: Recreational ecosystem services as a management framework*. Presentation at ACES: A Community on Ecosystem Services 2018 Conference, Arlington, VA.
5. **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*. Presentation at the 14th Biennial Scientific Conference on the Greater Yellowstone Ecosystem, Big Sky, MT.
4. Baker, J. T., D'Antonio, A., Taff, B. D., Newman, P., Monz, C., **Rice, W. L.**, 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 are popular recreation sites. Presentation at the 14th Biennial Scientific Conference on the Greater Yellowstone Ecosystem, Big Sky, MT.

3. **Rice, W. L.**, Taff, B. D., Newman, P., Newton, J., Monz, C., D'Antonio, A., & Miller, Z. D. (2018, April). *Wanderlost: Increased visitor use and benefit-achievement in Grand Teton National Park's String and Leigh Lakes*. Presentation at the 2018 National Environment and Recreation Research Symposium, Annapolis, MD.
2. **Rice, W. L.** & Howard, L. F. (2016, March). *The seven natural wonders of the Clemson campus: An understanding of people and place*. Presentation at the Indiana University Landscape, Space, and Place Conference, Bloomington, IN.
1. **Rice, W. L.** & Howard, L. F. (2015, February). *Confessions in clay: A college and its crisis of place*. Presentation at the Indiana University Landscape, Space, and Place Conference, Bloomington, IN.

<sup>1</sup>Graduate student advisee

<sup>2</sup>University of Montana undergraduate student research technician

<sup>‡</sup>Awarded Best Paper award at conference

<sup>+</sup>Awarded Best Student Paper award at conference

### Organized Conference Sessions

2. *Bridging the divide: Exploring equity issues in outdoor recreation* (2023, October). 2023 Montana Outdoor Recreation Summit, Butte, MT.
1. *Defining future directions for wilderness research* (2021, November). 2021 National Wilderness Workshop, virtual.

### Organized Workshops

1. *Grand Canyon South Rim Visitor Use Study: Staff Workshop* (2024, February). Grand Canyon National Park, Grand Canyon Village, AZ.

### Invited Presentations

15. **Rice, W. L.** & Phillips, K. E.<sup>1</sup> (2024, October). *Allocating recreation with fairness at the forefront: A research-based planning and management guidebook*. Presentation hosted by the U. S. Forest Service Rivers and Planning Interdisciplinary Discussions (RAPIDs) series.
14. **Rice, W. L.** (2024, October). *Fairly allocating recreation resources in an era of increasing demand*. Presentation to the Norbeck Society.
13. **Rice, W. L.**, & Armatas, C. A. (2024, September). *Wilderness encounter norms across time and activity type in America's Best Backyard*. Presentation at the 2024 Arthur Carhart National Wilderness Training Center Northern Rockies Interagency Regional Wilderness Stewardship Training.
12. **Rice, W. L.** (2023, September). *A crash course in visitor use management: What to do when the recreationists and tourists arrive*. Presentation at the Swan Valley Connections Recreation Retreat.
11. **Rice, W. L.**, Foster, M.<sup>1</sup>, Parkinson, C., & Pan, B. (2023, September). *Applying mobile device location data in research in recreation and wildland management*. Presentation hosted by the U. S. Forest Service Rivers and Planning Interdisciplinary Discussions (RAPIDs) series.
10. **Rice, W. L.** (2023, February). *Rationing recreation with fairness at the forefront*. Presentation to the U.S. Forest Service Justice, Equity, Diversity, and Inclusion Community of Practice.
9. **Rice, W. L.** (2022, December). *Predicting and responding to changes in visitor use*. Presentation at the National Park Service Human-Wildlife Interactions Workshop.
8. **Rice, W. L.**, & Lawhon, B. (2022, August). *Outdoor recreation in a post-pandemic future: Implications for wildland managers*. Presentation at the 2022 Interagency Regional Wilderness Stewardship Training, Arthur Carhart National Wilderness Training Center.
7. **Rice, W. L.** (2022, June). *Using new data sources to explore the allocation of recreation resources: The case of campsites*. Presentation and workshop hosted by the U. S. Forest Service Rivers and Planning Interdisciplinary Discussions (RAPIDs) series. (including 135 workshop participants nationwide).

6. **Rice, W. L.** (2022, June). *When the last campsite fills: Allocation of outdoor recreation in an age of extreme scarcity*. Lecture hosted by the National Academy of Sciences.
5. **Rice, W. L.** (2022, June). *Using new tools to inform management of camping in national parks*. Webinar and discussion hosted by the National Park Service Intermountain Region's Visitor Use Management Program.
4. **Rice, W. L.** (2022, April). *When the last campsite fills: Research for reckoning with increased visitor demand in national parks*. Webinar and discussion hosted by the National Park Service Office of Outdoor Recreation.
3. **Rice, W. L.** (2022, March). *Assessing campsite demand and equitable access in U.S. national parks*. Presentation to the Centers for Disease Control and Prevention, Physical Activity Policy Research and Evaluation Network, Parks and Green Space Work Group.
2. Whitney, P.<sup>1</sup>, **Rice, W. L.**, & Knotek, K. (2022, February). *A visitor use monitoring study in the Rattlesnake National Recreation Area and Wilderness*. Presentation at the U.S. Forest Service Region 1 Biennial Wilderness & Trails Meeting.
1. **Rice, W. L.** (2020, October). *Three measures of recreational ecosystem services in protected areas: Studies from US national parks*. Presentation to the American Academy for Park and Recreation Administration.

<sup>1</sup>Graduate student advisee

### **Congressional Testimony**

1. *Overcrowding in national parks: Hearing before the U.S. House Natural Resources Subcommittee on Oversight & Investigations*, 117<sup>th</sup> Cong. (2022) (Oral and Written Testimony of Dr. William Rice). <https://www.congress.gov/event/117th-congress/house-event/115216>

### **Invited Panel Discussions**

2. Castellanos, E., Mosher, K., Phillips, K., Real Bird, S., Redmore, L., & **Rice, W. L.** (2023, October). *Bridging the divide: Exploring equity issues in outdoor recreation* (2023, October). Panel discussion at the 2023 Montana Outdoor Recreation Summit, Butte, MT.
2. **Rice, W. L.**, Hogan, P., Hippard, M., & Jacobs, J. (2021, March). *Visitor use - data review from the pandemic? What to anticipate for 2021?* Online panel discussion hosted by the Society of Outdoor Recreation Professionals.
1. Taff, B. D., **Rice, W. L.**, Newman, P., & Lawhon, B. (2020, May). *How the pandemic is changing outdoor recreation patterns*. Online panel discussion hosted by the Society of Outdoor Recreation Professionals.

### **Refereed Video Presentations**

2. **Rice, W. L.** (2019, March). *Reservoir of silence: Road noise and the visitor experience in Death Valley National Park*. Video at the 34th Annual Penn State Graduate Research Exhibition, University Park, PA.
1. **Rice, W. L.** (2018, March). *Wanderlost: Benefit interference in the Tetons*. Video at the 33rd Annual Penn State Graduate Research Exhibition, University Park, PA.

### **Non-refereed Conference Presentations**

8. **Rice, W. L.**, & Phillips, K. E.<sup>1</sup> (2023, February). *A new paradigm in the allocation of recreation: Introducing the Recreation Rationing Spectrum*. Presentation at the 2023 River Management Society Symposium: Reimagine River Access, San Antonio, TX.
7. Thomas, E.<sup>1</sup>, **Rice, W. L.**, Armatas, C. A., Thomsen, J. M., & Rushing, J. F. (2023, February). *Promoting inclusion and improving access to the "River of Grass": Exploring underserved communities' relationship with Wilderness*. Presentation at the 2023 River Management Society Symposium: Reimagine River Access, San Antonio, TX.
6. **Rice, W. L.**, & Thomsen, J. M. (2022, March). *Evaluation of the equity of reservation systems on federal public lands*. Presentation at the 2022 Crown Managers Partnership Forum - Recreation in the Crown of the Continent: Exploring Trends and Strategies for the Future, virtual.

5. Thomas, E.<sup>1</sup>, **Rice, W. L.**, Thomsen, J. M., Armatas, C., & Rushing, J. (November, 2021). *Trans-disciplinary development of a standardized NPS wilderness visitor use survey instrument*. Presentation at the 2021 National Wilderness Workshop, virtual.
4. Rushing, J., **Rice, W. L.**, Thomsen, J. M., & Armatas, C. (November, 2021). *U.S. Wilderness in the 21st century: A scoping review of Wilderness visitor use management research from 2000-2020*. Presentation at the 2021 National Wilderness Workshop, virtual.
3. **Rice, W. L.**, Whitney, P.<sup>1</sup>, and Thomsen, J. M. (2021, October). Pilot assessment of protected areas and rural adolescent health. Presentation at the Center for Population Health Research Symposium 2021, Missoula, MT and virtual.
2. **Rice, W. L.** (2019, October). *Wrestling with the paradox: Case studies of visitor use management research in the national parks*. Presentation at the Association of the National Park Ranger's 42<sup>nd</sup> Ranger Rendezvous, Everett, WA.
1. Baker, J. T. & **Rice, W. L.** (2018, August). *The Tetons are calling and we must go: Using science-based approaches to understand visitor use and experience at String and Leigh Lakes*. Presentation at the 2018 University of Wyoming Hank Harlow Summer Seminar Series, Moran, WY.

<sup>1</sup>Graduate student advisee

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## TEACHING EXPERIENCE

### University of Montana

<b>2024</b>	<b>Instructor of Record</b> PTRM 300: Recreation Behavior PTRM 482: Wilderness and Protected Area Management PTRM 485: Recreation Planning PTRM 591: Applied Wilderness Management
<b>2023</b>	<b>Instructor of Record</b> PTRM 485: Recreation Planning PTRM 595: Parks and Protected Areas: Theory and Management  <b>Co-Instructor of Record</b> PTRM 150: Current Issues in Parks, Tourism, and Recreation Management
<b>2022</b>	<b>Instructor of Record</b> PTRM 217: Parks and Outdoor Recreation Management PTRM 391: Wildland Messaging and Communication PTRM 482: Wilderness and Protected Area Management PTRM 485: Recreation Planning  <b>Co-Instructor of Record</b> PTRM 150: Current Issues in Parks, Tourism, and Recreation Management
<b>2021</b>	<b>Instructor of Record</b> PTRM 217: Parks and Outdoor Recreation Management PTRM 485: Recreation Planning PTRM 595: Foundational Theory in Protected Area Management  <b>Co-Instructor of Record</b> PTRM 150: Current Issues in Parks, Tourism, and Recreation Management
<b>2020</b>	<b>Instructor of Record</b> PTRM 482: Wilderness and Protected Area Management
<b>Guest Lecturer</b>	HONR 394: Honors Water Seminar – Fall 2023 FORS 330: Forest Ecology – Fall 2023

PTRM 217: Parks and Outdoor Recreation Management – Fall 2023  
PSCI 360: Wilderness Policy and Packing – Summer 2023  
PT 627: Prevention & Wellness Education – Fall 2022  
PTRM 484: Capstone in Parks, Tourism, and Recreation Management – Fall 2021  
FORS 594: Graduate Seminar – Fall 2021  
NRSM 594: Conservation and Social Science Seminar – Spring 2021  
PTRM 141Y: National Parks and American Culture – Spring 2021; Spring 2023

## **Pennsylvania State University**

<b>2020</b>	<b>Instructor of Record</b> RPTM 496: Independent Study in Outdoor Recreation Planning and Management
<b>2019</b>	<b>Instructor of Record</b> RPTM 320: Recreation Resource Planning and Management  <b>Instructor of Record</b> RPTM 1: Outdoor Pursuits - Wilderness Recreation and Management (taught collaboratively with ENGL 183 – Wilderness Literature)
<b>2018</b>	<b>Teaching Assistant</b> RPTM 320: Recreation Resource Planning and Management
<b>2017</b>	<b>Instructor</b> RPTM 197: Adventure Literature - Recreational Walking and Exploring Cape Cod (taught collaboratively with ENGL 181 – Exploring the Literature of Cape Cod)
<b>Guest Lecturer</b>	RPTM 537: Scholarly Development, Section 001 – Spring 2021 RPTM 410: Marketing of Recreation Services, Section 002 – Spring 2020 RPTM 120: Leisure and Human Behavior, Section 001 – Spring 2020 RPTM 433: Research Methods, Section 001 – Fall 2019 RPTM 433: Research Methods, Section 003 – Fall 2019 RPTM 433: Research Methods, Section 001 – Spring 2019

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## **APPLIED CAREER EXPERIENCE**

<b>2016-2017</b>	<b>Creative Media Specialist</b> Western Native Trout Initiative, Lakewood, CO & National Fish Habitat Partnership, Washington, DC  Created online, multimedia mapping platforms (ESRI StoryMaps) for two non-profit organizations with the goal of engaging stakeholders across America with science-based projects concerning fish habitat protection and restoration
<b>2014-2017</b>	<b>Watershed Associate</b> Clemson University Center for Watershed Excellence, Clemson, SC  Facilitated the development and implementation of South Carolina Adopt-a-Stream, a volunteer water quality monitoring program. Completed multiple research projects and outreach items involving greenways, watertrails, and rivertowns
<b>Summer 2016</b>	<b>Directorate Fellow</b> U.S. Fish and Wildlife Service, Anchorage, AK  Created an ESRI StoryMap for Alaska's Fish Habitat Partnerships to provide public and partner understanding of habitat restoration, conservation, and collaboration projects throughout Alaska, along with completing juvenile salmon field work in the Mat-Su Basin and Prince of Wales Island
<b>Summer 2015</b>	<b>Park Guide</b> National Park Service, Grand Canyon, AZ

Provided formal interpretive programs, assisted in visitor orientation, roved the park via hiking and the park's bus system, and supported search and rescue efforts as a Grand Canyon National Park Ranger

**Summer  
2014**

**Park Guide**

National Park Service, Yankton, SD

Provided formal interpretive programs, assisted in visitor orientation, roved park area via automobile, hiking, and kayaking, and completed safety patrols via canoe and kayak as a Missouri National Recreational River Ranger

**Summer  
2013**

**Shorebird Interpretive Intern**

AmeriCorps/Student Conservation Association, Eastham, MA

Provided endangered shorebird and marine interpretive programs, assisted in endangered shorebird censuses, and completed water quality sampling on behalf of Cape Cod National Seashore

**Summer  
2012**

**Trail Crew Member**

Student Conservation Association, Yellowstone National Park, WY

Improved existing trails, restored backcountry campsites, removed vegetation, and constructed water-drainage features in the remote Bechler River Sub-District of Yellowstone National Park

**Summer  
2011**

**Trail Crew Member**

Student Conservation Association, Hot Springs, SD

Built bridges, installed signposts, improved existing trails, removed vegetation, and constructed water-drainage features in the backcountry of Wind Cave National Park

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## **GRANTS AND OTHER FUNDING**

**2024**

**U.S. Forest Service, Superior National Forest. \$126,106.**

Boundary Waters Canoe Area Wilderness Travel Model Project  
Co-PI with Principal Investigator Fernando Sanchez

**2024**

**National Park Service, Biological Resources Division. \$112,000.**

Social Science to support management of outdoor cats in U.S. national parks  
Co-PI with Elena Bigart

**2024**

**U.S. Forest Service, Wilderness and Wild and Scenic Rivers. \$105,000.**

Recreation Allocation in U.S. National Forests *and* Novel Data in Planning  
Principal Investigator

**2024**

**Jackson Fork Ranch / Ricketts Conservation Foundation. \$120,750.**

Designing transdisciplinary interventions to address human behavior near grizzly bears  
Principal Investigator

**2024**

**U.S. Forest Service, Rocky Mountain Research Station. \$78,000.**

Assessing Recreation-related Soundscape Impacts on Wildlife Behavior: Phase II  
Principal Investigator with Kathy Zeller and Mark Ditmer

**2023**

**U.S. Forest Service, Wilderness and Wild and Scenic Rivers. \$25,885.**

**U.S. Forest Service, Rocky Mountain Research Station. \$50,000.**

Selecting recreation allocation mechanisms: Management- and science-based contributions for navigating trade-offs in rationing and allocation design (co-funded)  
Principal Investigator

**2023**

**U.S. Forest Service, Rocky Mountain Research Station. \$16,938.**

Assessing Recreation-related Soundscape Impacts on Wildlife Behavior: Phase I  
Principal Investigator with Kathy Zeller and Mark Ditmer

- 2023 Yellowstone National Park. \$10,011.**  
**U.S. Forest Service, Rocky Mountain Research Station. \$5,000.**  
 Building a Conceptual Understanding of Managed Access across the Recreation Opportunity Spectrum: An Application in Yellowstone National Park (co-funded)  
 Principal Investigator with Jennifer Thomsen, Lauren Redmore, and Christopher Armatas
- 2023 Glacier National Park. \$68,337.**  
 Glacier National Park Visitor Use Management – GPS study.  
 Co-PI with Principal Investigator Jennifer Thomsen
- 2023 U.S. Forest Service, Rocky Mountain Research Station. \$58,550.**  
 Social science research to support visitor use management in Wilderness areas and related wildlands (supplement)  
 Principal Investigator with Jennifer Thomsen and Christopher Armatas
- 2023 U.S. Forest Service, Rocky Mountain Research Station. \$20,000.**  
 Rattlesnake Wilderness Trends Analysis 1989 - 2022  
 Principal Investigator
- 2023 Grand Canyon National Park. \$75,000.**  
 Grand Canyon National Park Visitor Use Assessment (Desert View)  
 Principal Investigator with Derrick Taff
- 2023 National Parks Conservation Association. \$4,199.**  
 Comprehensive review of National Park Service sustainability projects including water, transportation, energy, and waste management and climate adaptation projects (travel supplement)  
 Principal Investigator
- 2022 City of Missoula (MT) Parks and Recreation. \$6,029.**  
 Expanding Visitor Study in City of Missoula Open Space Lands and the Rattlesnake National Recreation Area and Wilderness to Marshall Mountain  
 Principal Investigator
- 2022 Curecanti National Recreation Area. \$184,476.**  
 Examining Commercial and Non-commercial Visitor Use on Blue Mesa Reservoir and the adjacent Gunnison River at Curecanti National Recreation Area  
 Principal Investigator with Jennifer Thomsen
- 2022 Yellowstone National Park. \$99,211.**  
 Visitor Transit Survey to Inform Park Planning in Yellowstone National Park  
 Principal Investigator with Jeremy Sage, Mandi Roberts, and Jake Jorgenson
- 2022 Montana Fish, Wildlife, and Parks. \$89,665.**  
 Fish Creek Management Plan Project  
 Principal Investigator: Libby Metcalf; Co-PI with Shawn Johnson and Jennifer Thomsen
- 2022 National Institutes of Health (NIH) Centers of Biomedical Research Excellence (COBRE) - National Institute of General Medical Sciences. \$20,640.**  
 Continuation of Pilot assessment of protected areas and rural adolescent health (with Center for Population Health Research)  
 Principal Investigator
- 2022 National Park Service. \$129,284.**  
 Reimagining the Interagency Pass Program  
 Principal Investigator with Jeremy Sage, Mandi Roberts, and Jake Jorgenson
- 2022 Grand Canyon National Park. \$50,000.**  
 Grand Canyon National Park Visitor Use Assessment (Grand Canyon Village)  
 Principal Investigator with Derrick Taff



- 2022 City of Missoula (MT) Parks and Recreation. \$7,092.**  
Designing and testing Leave No Trace signage using research-based visual communication and outdoor recreation messaging principles  
Principal Investigator with Jeremy Shellhorn
- 2022 National Parks Conservation Association. \$50,990.**  
Comprehensive review of National Park Service sustainability projects including water, transportation, energy, and waste management and climate adaptation projects.  
Principal Investigator
- 2022 U.S. Forest Service, Lolo National Forest. \$14,500.**  
Rattlesnake (National Recreation Area and Wilderness) Recreation-Based Visitor Use Monitoring Study  
Principal Investigator
- 2022 City of Missoula (MT) Parks and Recreation. \$9,500.**  
Study of Recreation Patterns and Experiences in City of Missoula Open Space Lands and the Rattlesnake National Recreation Area and Wilderness  
Principal Investigator
- 2021 National Institutes of Health (NIH) Centers of Biomedical Research Excellence (COBRE) - National Institute of General Medical Sciences. \$55,000.**  
Pilot assessment of protected areas and rural adolescent health (with Center for Population Health Research)  
Principal Investigator
- 2021 City of Boulder (CO) Open Space and Mountain Parks. \$8,771.**  
Developing Quality of Life Indicators for City of Boulder Open Space and Mountain Parks Management  
Principal Investigator
- 2020 U.S. Forest Service, Rocky Mountain Research Station. \$90,519.**  
Social science research to support visitor use management in Wilderness areas and related wildlands  
Principal Investigator with Jennifer Thomsen and Christopher Armatas
- 2019 Grand Canyon National Park. \$32,000.**  
Grand Canyon National Park Visitor Use Management Data Needs Assessment  
Co-authored with PI: Derrick Taff
- 2018 National Park Service Division of Natural Sounds and Night Skies. \$48,000.**  
Developing visitor use concepts related to natural sounds in Death Valley National Park  
Co-authored with PI: Peter Newman

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## FELLOWSHIPS, SCHOLARSHIPS, AND AWARDS

- 2024 Merit Award**  
Office of the Provost, University of Montana
- 2023 Best Paper Award**  
Northeast Chapter of the Travel & Tourism Research Association (NETTRA) Annual Conference
- 2022 Invited Lecturer**  
National Academy of Sciences, Distinctive Voices endowed lecture series
- 2022 Steve Running Research Award**  
University of Montana College of Forestry and Conservation
- 2022 Merit Award**  
Office of the Provost, University of Montana

<b>2021</b>	<b>16<sup>th</sup> Place, Top North American Team</b> United Nations World Tourism Organization's Students League (Co-Coach of University of Montana Undergraduate Team)
<b>2021</b>	<b>Best Paper Award</b> Northeast Chapter of the Travel & Tourism Research Association (NETTRA) Annual Conference
<b>2020</b>	<b>Best Dissertation Award</b> American Academy for Park and Recreation Administration
<b>2020</b>	<b>Best Student Paper</b> The Academy of Leisure of Sciences
<b>2020</b>	<b>Silver Award for Long Publication</b> Association of Natural Resource Extension Professionals
<b>2019</b>	<b>Bill Supernaugh Memorial Scholar</b> Association of National Park Rangers
<b>2019</b>	<b>First Place in Film</b> 34th Annual Penn State Graduate Research Exhibition
<b>2019</b>	<b>Herberta M. Lundegren Graduate Scholarship in Leisure Studies</b> Penn State College of Health and Human Development
<b>2018</b>	<b>Greater Yellowstone Ecosystem Science Conference Student Scholarship</b> Yellowstone Forever
<b>2018</b>	<b>Second Place in Film</b> 33rd Annual Penn State Graduate Research Exhibition
<b>2018</b>	<b>Herberta M. Lundegren Graduate Scholarship in Leisure Studies</b> Penn State College of Health and Human Development
<b>2016</b>	<b>Directorate Fellow</b> U.S. Fish and Wildlife Service
<b>2016</b>	<b>Outstanding Senior in Natural Resources</b> Clemson University, College of Forestry and Life Sciences
<b>2016</b>	<b>Outstanding Senior</b> Clemson University, Department of Forestry and Environmental Conservation
<b>2015</b>	<b>Reeves Presidential Scholar</b> Clemson University
<b>2015</b>	<b>Udall Scholar</b> The Morris K. Udall and Stewart L. Udall Foundation
<b>2014</b>	<b>Rand McNally Award in Geography</b> Clemson University
<b>2012</b>	<b>7<sup>th</sup> Generation Scholar</b> University of Rochester

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## MEMBERSHIPS AND SERVICE

<b>2023-Present</b>	Leave No Trace Center for Outdoor Ethics Leave No Trace Science Team
<b>2015-Present</b>	Udall Alumni Association
<b>2022</b>	Centro de Investigación en Ecosistemas de la Patagonia International Steering Committee Member

**2018-2020** Penn State Travel and Tourism Graduate Student Association

**2017-2020** The Student Organization for Society and Natural Resources- PSU Chapter  
President 2018-2020

**2018** Fourth Biennial Student Congress on Public Lands  
Delegate

**2018** National Geographic Society Expedition: Searching for Signs of the Griggs Katmai  
Expeditions  
Park Management/Interpretation Expert

**2011-2014** Montgomery, Peters, Mercersburg Connectivity  
Hiking Trails Committee Chairman

## **ASSOCIATE EDITOR**

**2020-Present** International Journal of Wilderness

**2020-2024** Society and Natural Resources

## **PEER REVIEWER**

### **Referred Journals**

Annals of Tourism Research (1)	Journal of Park and Recreation Administration (5)
Applied Geography (1)	Landscape and Urban Planning (3)
Data & Policy (1)	Leisure Sciences (6)
Digital Geography and Society (1)	Ocean and Coastal Management (1)
Ecopsychology (1)	PLOS ONE (1)
Frontiers in Sustainable Tourism (1)	MIT Press Rapid Reviews: COVID-19 (2)
International Journal of Wilderness (3)	Scientific Reports (1)
Journal of Environmental Policy & Planning (1)	Society and Natural Resources (1)
Journal of Interpretation Research (1)	Tourism and Hospitality Research (1)
Journal of Leisure Research (3)	Urban Forestry and Urban Greening (2)
Journal of Outdoor Recreation and Tourism (3)	Weather, Climate, and Society (1)

### **Organizations**

National Park Service (2)	U.S. Forest Service (1)
University of California (1)	

### **Conferences**

2025 National Environment and Recreation Research Symposium

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## **SKILLS AND CERTIFICATIONS**

### **Software**

Aspatial Statistics: SPSS, JASP, & R	Econometric Analysis: R
Spatial Statistics: GeoDa & GeoDa Space	Surveying Software: Qualtrics & ESRI Collector
Spatial Analysis: ArcGIS Pro	Video Editing: Adobe Premiere Pro & After Effects
GPS Field Research: DNR GPS	

### **Other Research Proficiencies**

U.S. Office of Management and Budget research review navigation  
National Park Service IRMA Research Permit application process  
National Park Service Natural Resource Report formatting and submission  
Institutional Review Board review process navigation

### **Other Certifications and Trainings**

Roots of Justice:  
Dismantling Racism / January 2022

University of Montana:  
Learning on Indigenous Land: Practicing an Inclusive Pedagogy / April 2021  
University of Montana Allies Training / April 2022

Eppley Institute for Parks and Public Lands:  
Advanced Certificate in Conducted Activities / September 2015  
Foundations of Interpretation / June 2013  
Informal Visitor Contacts / June 2013

American Canoe Association:  
Level II Kayak/Canoe Certification / June 2014

National Wildfire Coordinating Group:  
L-180 Human Factors in the Wildland Fire Service / July 2013  
S-190 Introduction to Wildland Fire Behavior / July 2013  
S-130 Firefighter Training (Blended) / July 2013

Federal Emergency Management Agency (FEMA):  
IS-700.a National Incident Management Systems (NIMS) / June 2015  
IS-100.FWa Introduction to the Incident Command System for Federal Workers / June 2015