Curriculum Vitae

MEGAN DAILEY HIGGS

PhD Statistics
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EDUCATION

2007	Ph.D.	Statistics	Colorado State University
2003	M.S.	Statistics	Oregon State University
1998	M.S.	Kinesiology	University of Nevada, Las Vegas
1996	B.S.	Biology - Biomedical Option	Montana State University

PROFESSIONAL EXPERIENCE

Statistical Consulting

Independent statistical consulting and collaboration focused on evaluating scientific and statistical inferences. Critical Inference LLC (August 2019 - present).

Director, Statistical Consulting and Research Services (SCRS), Montana State University. July 2018 - June 2019.

Senior Statistician, Statistics Practice Area Lead, Neptune and Company Inc. February 2016 - June 2019 (part-time & hourly from Feb. 2018)

Director, Bioinformatics and Biostatistics Core, Montana- IDeA Network for Biomedical Research Excellence (INBRE). Sept. 2018 - June 2019.

Managing Director, Co-Director, Statistical Consulting and Research Services (SCRS), Montana State University. February 2018 - June 2018.

Faculty positions

Associate Research Professor, Department of Mathematical Sciences, Montana State University, Bozeman, MT, July 2018 - June 2019.

Affiliate Faculty, Department of Mathematical Sciences, Montana State University, January 2016 - June 2018.

Associate Professor of Statistics (tenured), Department of Mathematical Sciences, Montana State University, August 2014 - January 2016.

Assistant Professor of Statistics (tenure-track), Department of Mathematical Sciences, Montana State University, January 2008 - August 2014.

Research Assistant

Environmental Protection Agency (EPA), Science to Achieve Results (STAR) program, Colorado State University STARMAP (Space-Time Aquatic Resources Modeling and Analysis Program) project, Fall 2003 and Fall 2005 - 2006.

National Science Foundation IGERT Program, Program for Interdisciplinary Mathematics, Ecology, and Statistics (PRIMES), Colorado State University, Spring 2004 - 2006.

Statistician

U.S. Forest Service, Pacific Northwest Research Station, Portland, Oregon, Summer 2002.

Teaching Assistant

Department of Statistics, Colorado State University, 2004.

Statistics Department, Oregon State University, 2001 - 2003.

Department of Exercise and Movement Science, University of Oregon, 1998 - 1999.

Department of Kinesiology, University of Nevada, Las Vegas, 1997 - 1998.

SCHOLARLY ACTIVITIES AND PROFESSIONAL SERVICE

Highlighted activities and recognitions (with links)

Selected as a Fellow of the American Statistical Association (2024) "For effective and noteworthy contributions to statistical practice through training materials and philosophical writings, Bayesian methodological advancements in ecology and environmental science, and substantial ASA service and leadership."

Co-organizer with Pamela Reinagel, University of California, and Andrew Gelman, Columbia University, *Re-examining the Role of Statistical Methods in Biology Research* meeting to be held at The Banbury Center of Cold Spring Harbor Laboratory, New York, April 10 -April 13, 2022.

Outstanding Service Award (2021) from Montana Chapter of the American Statistical Association "in appreciation for your continued service and inspiration throughout your many years as a chapter member and officer."

Service Award (2021) from International Statistical Institute (ISI) Executive Committee "in recognition of your impactful work and editorial leadership on the *Statisticians React to the News* blog."

Founder (2019) Critical Inference LLC for statistical consulting

Editor and Co-Organizer for international blog, *Statisticians React to the News* (March 2020 - 2022)

Member, American Statistical Association (ASA) Advisory Committee on Climate Change Policy. (January 1, 2021 - December 31, 2023)

Elected a member of the International Statistical Institute (ISI) (2020)

Podcast guest (September 2020), Stats + Stories, Podcast about *Statisticians React to the News Blog*

Co-created Statistical Collaboration Training Videos and Materials

October 2020 and September 2021 *AmStat News* articles introducing our Statistical Collaboration Videos and discussing navigating tough conversations in statistical collaboration

Podcast guest (March 2021), Pod of Asclepius with Glen Wright Colopy, *Data Science Career Q&A on Environmental Science*

Podcast guest (April 2021), Data & Science with Glen Wright Colopy, *Statistics' Role in Science and Pseudoscience*

Guest blog post (October 2021), *How typical is a "median person"?*, Statisticians React to the News blog sponsored by the International Statistical Institute

Guest blog post (April 2021), *Numbers and their baggage*, Statisticians React to the News blog sponsored by the International Statistical Institute

Guest blog post (February 2021), *People are not plants ... and a little meditation*, Statisticians React to the News blog

Guest blog post (September 2020), *Ten weeks and Statistics semantics*, Statisticians React to the News blog

PUBLICATIONS

Journals

Weisberg, H. and Higgs, M.D. (2024). Lifting the veil off treatment effect heterogeneity. *American Heart Journal*, 274, pp 23-31. Doi: https://doi.org/10.1016/j.ahj.2024.04.020

Higgs, M.D. and Gelman, A. (2021). Research on registered report research. *Nature Human Behavior*, 5, pp 978-979. Doi: https://doi.org/10.1038/s41562-021-01148-y

Sharp, J.L., Griffith, E.H., and Higgs, M.D. (2021). Setting the Stage: Statistical Collaboration Videos for Training the Next Generation of Applied Statisticians. *Journal of Statistics and Data Science Education*, available online. Doi: 10.1080/26939169.2021.1934202

Wright, W. J., Irvine, K. M. and Higgs, M. D. (2019). Identifying occupancy model inadequacies: can residuals separately assess detection and presence?. *Ecology*, 100(6). doi:10.1002/ecy.2703

Banner, K. and Higgs, M.D. (2017). Considerations for Assessing Model Averaging of Regression Coefficients. *Ecological Applications* 27(1), pp. 78-93. DOI: 10.10002/eap.1419.

Brennan, A., Cross, P.C., Higgs, M.D., Edwards,H., Scurlock, B.M., Creel, S. (2014). A multi-scale assessment of animal aggregation patterns to understand increasing pathogen seroprevalence. *Ecosphere* 5(10), doi:10.1890/ES14-00181.1.

Chambert T., Rotella, J.J., Higgs, M.D. (2014). Use of posterior predictive checks as an inferential tool for investigating individual heterogeneity in animal population vital rates. *Ecology And Evolution*, **4** (8), pp 1389-1397. doi: 10.1002/ece3.993.

van Manen, F., Ebinger, M.R., Haroldson, M.A., Harris, R.B., Higgs, M.D., Cherry, J.S., White, G.C., Schwartz, C.C. (2014). Re-evaluation of Yellowstone Grizzly Bear Population Dynamics not Supported by Empirical Data: Response to Doak & Cutler. Online in *Conservation Letters*. doi:10.1111/conl.12095.

Bandyopadhyay, P.S., Bennett, J.G., and Higgs, M.D. (2014) How to undermine underdetermination? Online in *Foundations of Science*. doi: 10.1007/s10699-014-9353-3.

Higgs, M.D. (2013). Do we really need the s-word? *American Scientist*, **101**(1), pp. 6-9. DOI: 10.1511/2013.100.6

Higgs, M.D., Link, W.A., White, G.C., Haroldson, M.A., and Bjornlie, D.A. (2013). Insights into the latent multinomial model through mark-resight data on female grizzly bears with cubs-of-the-year. *The International Journal of Agricultural and Biological Statistics*, 18(4), 556-577. doi: 0.1007/s13253-013-0148-8.

Chambert, T., Rotella, J.J., Higgs, M.D., and Garrott, R.A. (2013). Individual heterogeneity in reproductive rates and cost of reproduction in a long-lived vertebrate. *Ecology and Evolution*, **3**(7), 2047-2060. doi: 10.1002/ece3.615.

Keefer M.L., Caudill C.C., Clabough T.S., Jepson M.A., Johnson E.J., Peery C.A., Higgs M.D. & Moser M.L. (2013). Fishway passage bottleneck identification and prioritization: a case study of Pacific lamprey at Bonneville Dam. *Canadian Journal of Fisheries and Aquatic Sciences*, 70(10), 1551-1565.

Powell, J.H., Kalinowski S.T., Higgs, M.D., Ebinger, M.R., Vu, N.V., and Cross P.C. (2013). Microsatellites indicate minimal barriers to mule deer *Odocoileus hemionus* dispersal across Montana, USA. *Wildlife Biology*, **19**(1), pp. 102-110. doi: 10.2981/11-081.

Brennan, A., Cross, P.C., Higgs, M.D., Beckman, J.P., Klaver, R., Scurlock, B.M., Creel, S. (2013). Inferential consequences of modeling rather than measuring snow accumulation in studies of animal ecology. *Ecological Applications*, **23**(3), pp. 643-653. doi: 0.1890/12-0959.1.

Brummer, T.B., Maxwell, B.D., Higgs, M.D., and Rew, L.J. (2013). Implementing and interpreting local scale invasive species distribution models. *Diversity and Distributions*, 19(8), 919-932. doi: 10.1111/ddi.12043.

Cain, S.L., Higgs, M.D., Roffe, T.J., Monfort, S.L., and Berger, J. (2012). Using fecal progestagens and logistic regression to enhance pregnancy detection in wild ungulates: A bison case study. *Wildlife Society Bulletin*, **36**(4), pp. 631-640. doi: 10.1002/wsb.178.

Higgs, M.D. and Ver Hoef, J. M. (2012). Discretized and aggregated: Modeling dive depth of harbor seals from ordered categorical data with temporal autocorrelation. *Biometrics*, **64**, pp. 965-974. doi: 10.1111/j.1541-0420.2011.01710.x.

Higgs, M.D. & Hoeting, J.A. (2010). A clipped latent-variable model for spatially correlated ordered categorical data. *Computational Statistics and Data Analysis*, **54**(8), pp. 1999-2011. doi: 10.1016/j.csda.2010.02.024.

Dailey, M. [former name], Gitelman, A.I., Ramsey, F.L., & Starcevich, S. (2007). Habitat selection models to account for seasonal persistence in radio telemetry data. *Environmental and Ecological Statistics*, **14**(1), pp. 55-68. doi: 10.1007/s10651-006-0006-8

Submitted or Revising

Higgs, M. and Amrhein, V. *Giving less power to statistical power. Laboratory Animals.* (Submitting revision Nov. 2024).

Greenland, S., Rafi, Z., Matthews, R., and Higgs, M.D. To aid scientific inference, emphasize unconditional compatibility descriptions of statistics. (revising)

Gelman, A. and Higgs, M.D. Interrogating the 'Cargo Cult Science' metaphor. (revising)

Invited book reviews

Higgs, M.D. (2019). Review of *Randomistas: How Radical Researchers Are Changing Our World*, Andrew Leigh. *The American Statistician*, November 2019, https://doi.org/10.1080/00031305.2019.1676111

Higgs, M.D. (2019). Review of *Errors, Blunders, and Lies: How to Tell the Difference*, David Salsburg. *The American Statistician*, March 2019, doi.org/10.1080/00031305.2018.1538852.

Higgs, M.D. (2015). Ecology and Statistics: A Healthy Union? Special Report book review of *Ecological Statistics:Contemporary Theory and Application* and *The New Statistics with R: An Introduction for Biologists*. *BioScience*, **65**(10), pages 1021-1025, https://doi.org/10.1093/biosci/biv121

Higgs, M.D. (2009). Review of *Analysis of Variance and Covariance: How to Choose and Construct Models for the Life Sciences*. *The American Statistician*, **63**(2), page 189.

Other projects, technical reports, and publications

Griffith, EH, MD Higgs, JL Sharp, and ZD Weller (September 2021). Navigating Tough Conversations in Statistical Collaboration. *Amstat News*.

Higgs, M.D. (March 2021) *Statistical Review of Wilderness Character Monitoring (WCM) for Gates of the Arctic National Park and Preserve.*

Sharp, J., Higgs, M.D., & Griffith, E.H. (2020). *Setting the Stage: Statistical Collaboration Videos for Training the Next Generation of Applied Statisticians.* Link to videos . Publicity - Link to AmStat News article

Higgs, M.D. and Lockhart, K. (2018) Probability distributions to represent radioactive inventory for a probabilistic performance assessment. Neptune & Company, Inc.

Higgs, M.D and Gains-Germain, L. (2018). Comparison of dose-response modeling frameworks and estimators of the benchmark-dose. Neptune & Company, Inc.

Irvine, K.M., Higgs, M.D., Shanahan, E., Jean, C., Legg, K., Ostermann-Kelm S., Podruzny, S., and Schwartz, C. (2012). Predicting white pine blister rust with environmental covariates in the greater Yellowstone ecosystem. United States Geological Survey Technical Report.

Higgs, M.D. (July 2011). *Evaluation of new methods for estimating number of females with cubs-of-the-year (FCOY) in the Yellowstone grizzly bear population.* In fulfillment of grant and to be included in a Interagency Grizzly Bear Study Team workshop document.

Irvine, K.M. & Higgs, M.D. (February 2011). *Whitebark pine integrated data analysis: Phase II.* Written report to the Greater Yellowstone Whitebark Pine Monitoring Working Group.

Higgs, M.D. & Irvine, K.M. (March 2010). *Whitebark pine integrated data analysis: Phase I.* Written report to the Greater Yellowstone Whitebark Pine Monitoring Working Group.

Conference Proceedings

Schauer, A., Hendrikx, J, Birkeland, K., and Higgs, M.D. (2018). Synoptic climatology of deep slab avalanches in the western Unites States. *Proceedings of the International Snow Science Workshop*, Innsbruck, AUT.

Gains-Germain, L., Jordan, A., Higgs, M.D., Meeks, P., Black, P., and Stockton, T. (2018). Explicitly Accounting for Multiple Spatial Scales in Data Informing Kd Distribution Development, 18414. *Proceedings of the WM2018 Conference*, March 19-22, 2018, Phoenix, AZ.

Higgs, M., Black, P., Jordan, A., Duffy, P., Stockton, T. and Tauxe, J. (2017). Statistical Methods for Effective Spatial and Temporal Scaling in Support of Probabilistic Performance Assessments 17340. *Proceedings of the WM2017 Conference*, March 5-9, 2017, Phoenix AZ.

Jordan, A., Fitchett, S., Catlett, K., Levitt, D., Occhiogrosso, G., Tauxe, J., Meeks, P., Higgs, M., and Black, P. Realistic Geochemical Parameter Uncertainty for Performance Assessment Modeling (2017). *Proceedings of the WM2017 Conference*, March 5?9. 2017: Phoenix AZ

Greenwood, M., Burroughs, E., Yopp, D., Higgs, M., and Sutton, J. (2012) *The Relationship between Teacher Mathematics Knowledge and Teacher Practice.* American Educational Research Association, Proceedings of the 2012 Annual Meeting.

Papers in progress

Higgs, M.D. Introducing the before-analysis research practice of creating a context dependent quantitative backdrop. (Working paper)

Gelman, A. and Higgs, M.D. Design of quantitative studies in a post-statistical significance world. (Working paper)

Higgs, M.D. Moving away from a methods-focused view of statistical inference for science. (Revising for a broader non-statistician audience.)

Higgs, M.D. Time to value variation in statistics curricula. (Working paper)

Banner, K. and Higgs, M.D. An investigation into how model uncertainty is reflected through the posterior variance for partial regression coefficients. (Working paper)

Flagg, K., Higgs, M.D., Black, P, and Fitzgerald, M. UCL estimators and considerations of sampling distributions, bias, and variability. (Working paper - on hold)

Higgs, M.D., Haroldson, M.A., and Van Manen F.T. Simulation-based models through resampling of ancillary data: Female grizzly bears with cubs-of-the-year. (Intent to revise for a different audience.)

PRESENTATIONS

First author is presenter unless otherwise specified.

Invited presentations, guest lectures, seminars, and workshops

Higgs, M.D. (Oct 21, 2024). *The more we learn the less we know: Interrogating our methods with a little philosophy*, Montana Chapter of the American Statistical Association annual meeting.

Higgs, M.D. (Dec 5, 2023). Guest in Physics Education Lab Group meeting, discussed statistical inference and recommendations given in Rafi & Greenland (2020) - Semantic and cognitive tools to aid statistical science: replace confidence and significance by compatibility and surprise.

Higgs, M.D. (September 29, 2023). *Implications of a judicial opinion on statistical inference related to endangered species.* Organized discussion for the Montana Chapter of the American Statistical Association annual meeting.

Higgs, M.D. (October 28, 2022). *Pausing to take a deeper look at assumptions.* Invited presentation for the Montana Chapter of the American Statistical Association annual meeting.

Higgs, M.D. (May 24, 2022). *Looking beyond mathematical assumptions: Acknowledging the deeper roots of statistical inference.* Invited presentation for the Ann Arbor Chapter of the American Statistical Association's seminar series.

Higgs, M.D. (December 15, 2021). *Making practical or clinical relevance a key part of research and statistical analysis.* MRI Together: A global workshop on Open Science and Reproducible MR Researcher sponsored by the European Society for Magnetic Resonance to Medicine and Biology (ESMRMB)

Higgs, M.D. (November 18, 2021). Guest in Statistical Consulting Seminar for Statistics graduate students, Montana State University, invited by Mark Greenwood.

Higgs, M.D. (November 10, 2021). *Challenges in combining information: Heterogeneity in meta-analyses.* Roundtable discussion for group of professionals.

Higgs, M.D. (October 7, 2021). Guest in Communicating Data and Statistics, Columbia University, invited by Andrew Gelman.

Higgs, M.D. (September, 2021). *Introduction to Bayesian Statistics.* Roundtable discussion for small group of health science researchers.

Higgs, M.D. (March 2, 2021) Presentation of work and findings in a *Statistical Review of Wilderness Character Monitoring (WCM) for Gates of the Arctic National Park and Preserve*, Virtual.

Higgs, M.D. (February 19, 2021). Invited panel session speaker. *Engaging in Tough Conversations with Non-statisticians.* Conference on Statistical Practice (CSP 2021), Virtual.

Higgs, M.D. (December, 2020). Invited panel session speaker in *Career path on Statistics and the Environment* at the 2020 virtual conference of The International Environmetrics Society (TIES).

Higgs, M.D. (March 9, 2020). Question and Answer session with group of biostatistics graduate students from Belgium via video about graduate school, careers as a statistician, and use of statistical inference in practice (via video).

Higgs, M.D. (February 21, 2020). Invited panel session speaker. *Adventuring Beyond p ¡ 0.05.* Conference on Statistical Practice (CSP), Sacramento, CA.

Higgs, M.D. (February 4, 2020). Question and Answer session with group of physics graduate students from Montana State University about limitations of statistical inference in practice and related aspects of scientific culture.

Banner, K. and Higgs, M.D. (October 2019). *Model Averaging Not So Fast! Acknowledging Sources of Uncertainty and Practical Limitations.* Joint Meeting of the American Fisheries Society and The Wildlife Society. Oct 1, 2019, Reno, NV.

Higgs, M.D. (April 30, 2019). *Stuck in the rut of statistical significance: A little history and momentum for change.* American Indian/Alaska Native Clinical and Translational Research Program (AI/AN CTRP) Biostatistics Brownbag Series. On-line and recorded.

Higgs, M.D. (October 2019). Organizer and lead for large group discussion about issues surrounding the use of p-values and statistical significance, starting from Lydia Denworth's October 2019 article in *Scientific American.* 2019 Annual Meeting of the Montana Chapter of the American Statistical Association (ASA), Bozeman, MT.

Higgs, M.D. (February, 2019). Guest discussion leader for Indigenous Research Praxis course in the Department of Native American Studies at Montana State University.

Higgs, M.D. (November, 2018). Statistical inference vs. statistics. Guest lecture for Math Education students in M 428 at Montana State University.

Higgs, M.D. (October, 2018). Panel discussant for Statistical Consulting Seminar, Montana State University - Bozeman. *Using Bayesian Inference in Statistical Consulting.*

Higgs, M.D. (October, 2018). *More power to you: Concepts rather than calculations.* Center for American Indian and Rural Health Equity (CAIRHE) Roundtable presentation, Montana State University.

Higgs, M.D. (March, 2018). *Statistical Inference: Beyond Statistical Methods*, Department of Animal and Range Science graduate level Research Methods course, Montana State University.

Higgs, M.D. (March, 2018). *Considering the Role of Statistical Inference in Research.* Center for American Indian and Rural Health Equity (CAIRHE) Roundtable presentation.

Higgs, M.D. (February, 2018). *Consulting in the Biostatistical Sciences: A Department of Biostatistics 4-part Mini-Symposium organized by the Department of Biostatistics*, Harvard T.H. Chan School of Public Health, Harvard University.

Higgs, M.D. (August, 2017). What role should statistics and statisticians play in environmental policy and regulation? Organizer and moderator of invited panel session. The Joint Statistical Meetings, Baltimore, MD, USA.

Higgs, M.D. (September, 2017). Inference, Science, Numbers, Philosophy, and . . . Statistics. Invited Seminar, Department of Statistics, Colorado State University.

Higgs, M.D. and Litt, A. (February 2015). Strategies for Analyzing Fisheries Data, Continuing education workshop at the Annual Meeting of the Montana Chapter of the American Fisheries Society, Great Falls, MT.

Higgs, M.D. (September, 2014). *Resource selection by scientists: Navigating the model selection and multi-model landscape toward question-focused modeling.* 2014 joint Graybill/ENVR Conference on Modern Statistical Methods for Ecology.

Higgs, M.D. (June 2013). *Do we really need the s-word?.* The International Environmetrics Society's Annual Meeting: Quantitative Methods, Applications, and Issues in Natural Resources: assessment, regulation, development, use and conservation. Anchorage, AK, USA.

Higgs, M.D. (February 2012). *Evaluation of mark-resight estimation of number of female grizzlies with cubs-of-the-year using aggregated aerial survey data from 1997-2011.* Workshop for the Interagency Grizzly Bear Study Team, Bozeman, MT, USA.

Higgs, M.D. (February 2012). *Exploring trend in the number of females with cubs-of-the-year (FCOY).* Workshop for the Interagency Grizzly Bear Study Team, Bozeman, MT, USA.

Higgs, M. D. (July 2011). *Estimation of the minimum and total number of FCOY in the GYE.* Workshop for the Interagency Grizzly Bear Study Team, Bozeman, MT, USA.

Higgs, M.D. (July 2011). *Translation: Bridging the gap between research questions and statistical inference.* The International Environmetrics Society's Third North American Regional Meeting: Quantitative Methods for the Analysis of Long-Term Monitoring Data. La Crosse, Wisconsin, USA.

Higgs, M. D.(Feb. 2011). *Methods for estimating the number of female Grizzly bears with cubs of the year in the Greater Yellowstone Ecosystem.* Workshop for the Interagency Grizzly Bear Study Team, Bozeman, MT, USA.

Higgs, M.D. & Irvine, K.M. (Jan 2011). *Whitebark pine integrated modeling project update.* Meeting of the Whitebark Pine Monitoring Group. Bozeman, MT, USA

Higgs, M.D. (October 2010). *Improving estimation of the number of female Grizzly bears with cubs of the year sighted in the Greater Yellowstone Ecosystem.* Meeting of the Yellowstone Ecological Subcommittee, Bozeman, MT, USA.

Higgs, M.D. & Ver Hoef, J.M. (June 2010). *Discretized and Aggregated: Modeling temporally correlated, ordinal, multinomial counts describing Harbor seal dive depths.* Annual Conference of The International Environmetrics Society (TIES 2010), Isla Margarita, Venezuela.

Higgs, M.D. (November 2009). *What is the likelihood you are a Bayesian at heart, in the long run?* Department of Ecology Seminar Series, Montana State University, USA.

Higgs, M.D. (June 2009). *Issues with Modeling Spatial Ordered Categorical Data.* Measuring, Monitoring, and Modeling Environmental Resources, North American Regional Meeting of The International Environmetrics Society (TIES), Corvallis, OR, USA.

Higgs, M.D. (October 2008). *Prediction of Index of Biotic Integrity (IBI) Using Clipped Latent Variable Spatial Models.* Invited talk at Workshop for Environmetrics sponsored by the Section on Statistics and the Environment of the American Statistical Association, National Center for Atmospheric Research, Boulder, CO, USA.

Higgs, M.D. (September 2007). *Clipped latent-variable spatial models for ordered categorical data.* Colorado State University, Department of Statistics, Fort Collins, CO., USA.

Higgs, M.D. (September 2006). *Bayesian models for ordered categorical spatial data and categorical habitat data.* Colorado State University, Department of Statistics, Fort Collins, CO., USA.

Topic-contributed (Invited by session organizer)

Higgs, M.D. & Ver Hoef, J. (August 2010). *Discretized and Aggregated: Issues with modeling dive depth data from time depth recorders.* The Joint Statistical Meetings, Vancouver, British Colombia, Canada.

Higgs, M.D., Hoeting, J.A., and Bledsoe, B. (August 2006). *Bayesian modeling for ordinal substrate size using EPA stream data.* The Joint Statistical Meetings (JSM), Seattle, WA, USA.

Dailey, M.C. [former name], Gitelman, A.E., & Ramsey, F.L. (August 2004). *Hierarchical Bayesian models for seasonal radio telemetry habitat data.* 2004 Joint Statistical Meetings, Toronto, Cananda.

Contributed

Higgs, M.D. (July 30, 2019). *Acknowledging our foundations: Promoting discussion of historical and philosophical challenges underlying statistical inference.* The 2019 Joint Statistical Meetings, Denver, CO, USA.

Higgs, M.D. (August 2012). *Deriving distributions via simulation: Easy ways to incorporate hard distributions.* The Joint Statistical Meetings, San Diego, CA, USA.

London, J., Higgs, M.D., & Ver Hoef, J.M. (March 2011). *Movement Up and Down: Modeling Dive Depth of Harbor Seals from Time Depth Recorders.* Fourth International Science Symposium in Bio-logging, Hobart, Tasmania, Australia.

Higgs, M. Dailey & Hoeting, J.A. (August 2009). *Clipped latent variable spatial models for ordered categorical data.* The Joint Statistical Meetings, Washington D.C., USA.

Dailey, M.C. [former name], Gitelman, A.I., Ramsey, F.L., & Starcevich, S. (June 2005). *Habitat selection models to account for seasonal persistence in radio telemetry data.* The 2005 joint annual meeting of the Western North American Region of The International Biometric Society and the Institute of Mathematical Sciences (WNAR/IMS), Fairbanks, AK.

Presentations by co-authors

Banner, K. and Higgs, M.D. (August 2020). *Multimodel Inference: Acknowledging Practical Limitations for Explanatory Research.* The 2020 Joint Statistical Meetings - Virtual.

Banner, K. and Higgs, M.D. (July 2019). *An investigation into how model uncertainty is reflected through the posterior variance for partial regression coefficients.* The 2019 Joint Statistical Meetings, Denver, CO, USA.

Banner, K. and Higgs, M.D. (Oct 2019). Multimodel inference, not so fast! Acknowledging sources of uncertainty and potential limitations to protect against unjustified conclusions or management decisions. 2019 Joint Meeting of the American Fisheries Society and The Wildlife Society, Reno, NV, USA.

Wright, W.J., Irvine, K.M., and Higgs, M.D. (October, 2018). Untangling spatial patterns in occupancy models: residuals to separately assess detection and presence. The Wildlife Society Annual Conference, Cleveland, OH, USA.

Schauer, A.S., Hendrikx, J., Birkeland, K, and Higgs, M.D. (October, 2018). Synoptic climatology of deep slab avalanches at Bridger Bowl,MT, USA. 2018 Gallatin National Forest Avalanche Center professional development seminar, Bozeman, MT

Schauer, A., Hendrikx, J., Birkeland, C., and Higgs, M.D. (October 2018). Synoptic climatology of deep slab avalanches in the western United States. International Snow Science Workshop (ISSW), October 10, 2018, Innsbruck, Austria.

Wright, W.J., Irvine, K.M., and Higgs, M.D. (October 2018). Untangling spatial patterns in occupancy models – an example of residual diagnostics for hierarchical models. The Annual Meeting of the Montana Chapter of the American Statistical Association, Bozeman, MT, USA.

Flagg, K., Hoegh, A., and Higgs, M.D. (July 2018). Inferring spatial point intensity of geomagnetic anomalies from transect sampling. The Joint Statistical Meetings (JSM) of the American Statistical Association, July 31, 2018, Vancouver, British Columbia, Canada.

Gains-Germain, L., Jordan, A., Higgs, M.D., Meeks, P., Black, P., and Stockton, T. (2018). Explicitly Accounting for Multiple Spatial Scales in Data Informing Kd Distribution Development, 18414. Waste Management 2018 (WM2018) Conference, March 19-22, 2018, Phoenix, AZ.

Higgs, M., Black, P., Jordan A., Fitchett, S., Tauxe, J., Duffy, P., and Stockton, T. Statistical Methods for Effective Spatial and Temporal Scaling in Support of Probabilistic Performance Assessments (2017). WM2017 Conference, March 5?9. 2017: Phoenix AZ.

Gains-Germain, L. & Higgs, M. (August 2015). *An investigation into the spatial distribution of use by charter fishermen and the size of sport-caught Pacific halibut in Seward, Alaska over the last two decades.* Student presentation at the August 2015 Alaska Chapter of the ASA meeting. (Received a travel award to attend the meeting and present her project).

Lerch, Michael & Higgs, M. (September 2014). *Equivalence testing for MCMC convergence.* Annual meeting of the Montana Chapter of the American Statistical Association, September 2014, Bozeman, MT, USA.

Lerch, Michael (August 2014). *Equivalence testing for MCMC convergence.* Speed presentation and poster session. The 2014 Joint Statistical Meetings, Boston, MA, USA.

Brennan, A., Cross, P., Creel, S., Higgs, M., Edwards, W.H., & Scurlock, B. (July 2014). *Multiple ways to be dense and transmit disease: patterns in elk aggregation and increasing brucellosis.* 2014 North America Congress for Conservation Biology (NACCB). Missoula, MT, USA.

Bachen, D.A., Litt, A.R., Gower, C., and Higgs, M.D. (October 2013) *Impacts of nonnative brome grasses: Moving toward a mechanistic understanding of small mammal declines.* The national meeting of the The Wildlife Society, Montana, USA.

Paterson, J.T. and Warren, J. (May 2013) *Estimation of the abundance and survival rates of spawning grayling in Red Rock Creek, Red Rock Lakes National Wildlife Refuge.* Meeting of USGS, FWP-Montana, Federal Wildlife Service, and conservation groups, May 8, 2013, Dillon, MT.

Matthews, T., Hendrikx, J., Pederson, G., and Higgs, M. (April 2013) *Understanding trends in snow accumulation, water availability and climate change using snow telemetry and streamflow observations in the Missouri river headwaters.* Western Snow Conference, April 15-18, 2013, Jackson Hole, WY, USA.

Chambert, T., Rotella, J.J., Higgs, M.D., and Nichols, J.D. (April 2013) *Use of posterior predictive checks for choosing whether or not to include individual random effects in mark recapture models.* EURING Analytical Meeting and Workshop, April 28-May 4, 2013, Athens, Georgia, USA.

Banner, K., Higgs, M.D., Rotella, J.J., DeVoe, J., and LaRue, M. *Using Satellite Imagery to Accurately Count Adult Weddell Seals in the Big Razorback Haul-Out, Erebus Bay, Antarctica.* Annual meeting of the Montana Chapter of the American Statistical Association, September 2012, Bozeman, MT, USA.

Dunkley, S., Garrott, R.A., Rotella, J.J., Higgs, M.D., Watson, F.G.R., and White, P.J. (2012) Good animals in bad places: evaluating landscape attributes associated with elk vulnerability to wolf predation. The Montana chapter meeting of the The Wildlife Society, Montana, USA.

Powell, J.H., Kalinowski, S.T., Higgs, M.D., and Cross, P.C. (Spring 2012). *Genetic population structure of mule deer (Odocoileus hemionus) across Montana.* The Montana chapter meeting of The Wildlife Society, Montana, USA.

Mosher, B.A., Saab, V.A., Rotella, J.J., Higgs, M.D., and Hollenbeck, J.P. (November 2011). *Avian community response to a recent mountain pine beetle epidemic.* The Wildlife Society National Annual Conference, Waikoloa, Hawaii, USA. (Received presenation award)

Brennan, A., Cross, P., Creel, S., Higgs, M., Edwards, W.H., & Scurlock, B. (October 2010). *Land Use, Climate, and Predation Effects on Elk Group Size and Brucellosis Seroprevalence.* 10th Biennial Scientific Conference on the GYE. Mammoth Hotsprings, WY, USA.

Manlove, K. & Higgs, M.D. (August 2010). *A Closer Look at Models Developed for Landscape Genetics.* The Joint Statistical Meetings. Vancouver, B.C., Canada.

Laughbaum, A. & Higgs, M.D. (July 2010). *Animated Statistical Graphics using R.* UseR! 2010, Washington D.C., USA.

Laughbaum, A. & Higgs, M.D. (April 2010). *Animated Statistical Graphics using R.* The Research Celebration - Undergraduate Scholars Program, Montana State University - Bozeman, MT, USA.

Laughbaum, A. & Higgs, M.D. (April 2010). *Animated Statistical Graphics using R.* The National Conference for Undergraduate Research (NCUR), Missoula, MT, USA. (Also published in the 2010 NCUR Proceedings)

Manlove, K. & Higgs, M.D. (Sept. 2008). *An Introduction to Landscape Genetics and Geneland.* Meeting of the Montana Chapter of the American Statistical Association, Butte, MT, USA.

Borkowski, J. & Higgs, M.D. (June 2013). *Teaching Statistics to Graduate Students in Other Disciplines*, Keynote session on Teaching Statistics - The International Conference on Statistics and its Applications with Other Disciplines (SIOD 2013), Ton Duc Thang University, Ho Chi Minh City, VN, Thailand.

Saab, V., Mosher, B., Lerch, M., Rotella, J., and Higgs, M.D. (October 2012). *Occupancy Dynamics of Avian Species in Relation to a Mountain Pine Beetle Epidemic.* Montana Chapter - Society for Conservation Biology, October 24-26, 2012, Bozeman, MT, USA.

Bandyopadhyay, P.S., Higgs, M.D., and Mahajan, S. (January 2013). *How Rare is Life in the Universe? A Bayesian Contribution to Space Exploration.* ISBA Regional Meeting & International Workshop/Conference on Bayesian Theory and Applications, January 6-10, 2013, DST Centre for Interdisciplinary Mathematical Sciences and Department of Statistics, Banaras Hindu University, Varanasi, India.

Posters and/or Lightening Talks

Higgs, M.D. (September 9, 2020). *The far-reaching consequences of current statistical practice.* Reproducibility, Replicability, and Trust in Science (Virtual Conference): Improving the Robustness of Scientific Research. Wellcome Genome Campus, UK.

Rugemer, L., Sharp, J., and Higgs, M.D. (February 2019). *Strategies for Guiding Student Collaborators in Providing Feedback on Scientific Work.* Conference on Statistical Practice sponsored by the American Statistical Association, New Orleans, LA.

Banner, K. and Higgs, M. (August 2015). *Model averaging of partial regression coefficients: Considerations and practical guidelines.* Poster Presentation, The 2015 Joint Statistical Meetings, Seattle, WA, USA.

Brennan. A., Cross, P., Creel, S., Higgs, M., Edwards, W.H., & Scurlock, B. (November 2010). *Elk Grouping Patterns and Brucella Transmission.* Wildlife Society Conference - Wyoming Chapter, Wyoming, USA.

Brennan, A., Cross, P., Creel, S., Higgs, M., Edwards, W.H., & Scurlock, B. (October 2010). *Land Use, Climate, and Predation Effects on Elk Group Size and Brucellosis Seroprevalence.* Wildlife Society Conference, Snowbird, UT, USA.

Dailey, M.C. [former name], Gitelman, A.I., & Ramsey, F.L. (June 2004). *Hierarchical Bayesian models for seasonal radio telemetry habitat data.* The 2004 Graybill Conference, Colorado State University, Fort Collins, CO, USA.

Dailey, M.C. [former name], Gitelman, A.I., & Ramsey, F.L. (June 2004). *Hierarchical Bayesian models for seasonal radio telemetry habitat data.* The joint meeting of The Annual Conference of the International Environmetrics Society (TIES 2004) and the International Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences 2004, Portland, ME, USA.

GRANTS - External

Role of Key/Senior Personnel

. Proposed consultant for an NIH - High-Priority Principles of Rigorous Research for NINDS Materials to Enhance Training in Experimental Rigor (METER) Funding Opportunity grant proposal submitted by Pamela Reinagel. Role would be to assist in developing educational materials related to statistical and inductive inference for the NIH funded "Creating an Educational Nexus for Training in Experimental Rigor" (CENTER) funded by the new NIH Education Initiative on Scientific Rigor.

Invited to be part of an interdisciplinary team for a pre-proposal to the Templeton Foundation written by Pamela Reinagel that would have funded a project to document and explore the types of evidence molecular biologists say they use to arrive at hypotheses, address uncertainties, or avoid errors and biases, as well as what they actually do in practice. The team would have involved historians, ethnologists, meta-scientist, statisticians, and philosophers of science. (full proposal not invited)

American Statistical Association Member Initiative. *Setting the Stage: Statistical Collaboration Videos for Training the Next Generation of Applied Statisticians.* PIs: A Hess and J Sharp, Colorado State University. Key Personnel: M D Higgs and E H Griffith . Funded, April, 2019. (Total Amount: $16,100)

Montana IDeA Network of Biomedical Research Excellence (INBRE) IV: A Multidisciplinary Research Network, NIH/NIGMS , PI: Bothner, B. May, 2019 - April, 2024. Role: Director of the Bioinformatics and Biostatistics Core. (Role ended July 2019)

Montana IDeA Network of Biomedical Research Excellence (INBRE) III: A Multidisciplinary Research Network, NIH/NIGMS $3,690,710, PI: Bothner, B. September, 2014 - April 2019. 2P20GM103474. Role: Director of the Bioinformatics and Biostatistics Core, Collaborative statistician.

American Indian - Alaska Native Clinical and Translational Research Center (AI-AN CTRC), NIH/NIGMS, $4,297,991, PI: Voyich-Kane. August 2016 - July 2021. 1U54GM115371. Role: MT Site Director of Research Design, Epidemiology, and Biostatistics (RDEB) Core and collaborative statistician. (Role ended July 2019)

Center for Health Equity in Rural Montana (Center for American Indian and Rural Health Equity - CAIRHE), NIH/NIGMS, $10,584,650, PI: Adams. September 2014 - August 2019. 5P20GM104417. Role: Collaborative statistician (Role ended July 2019)

Dynamics of Coupled Natural and Human Systems, NSF/Division of Environmental, $1,650,000, Dynamics of Zoonotic Systems: Human-Bat-Pathogen Interactions. PIs: Plowright, R., Bharti, N., McGuire, L., Restif, O., Shanahan, E. Sept. 2017 - August 2021. CNH-L: 1716698 (PI Plowright). Role: Collaborative Statistician. (Role ended July 2019)

Defense Advanced Research Projects Agency (DARPA) – Preventing Emerging Pathogenic Threats (PREEMPT), $9,697,566, PIs: Plowright, R. & Hudson, P. Preventing Emergence and Spillover of Bat Pathogens in High-risk Global Hotspots. October 2018 - September 2021. HR001118S0017-PREEMPT-FP-004. Role: Lead Statistician. (Role ended September 2019)

Role of PI or Co-PI

Mountain West Clinical and Translational Research Infrastructure Network (MW CTR-IN) through NIH/NIGMS, Subaward to Montana State University for Research Design, Epidemiology, and Biostatistics (RDEB) and Community Engagement (CE); $44,996; PIs: M.D. Higgs and A. Bertagnolli. July 2018- July 2019. 2U54GM104944-06 (PI Kumar) Subaward GR:07325 (Co-PIs: Higgs and Bertagnolli). Role: Montana State University Biostatistician

U.S. Geological Survey (USGS), $23,000, 2015-2016. PIs: Megan D. Higgs and Kathryn Irvine (USGS). Money to support a Statistics graduate student.

NIH IDeA-CTR Program grant proposal (submitted October 2014, funded in 2016), *American Indian-Alaska Native Clinical and Translational Research Center*, Co-director of the Research Design, Biostatistics, and Epidemiology Core: M. Higgs, PI: Allen Harmsen. (Helped write and submit grant, but then was not involved again until February 2018)

U.S. Geological Survey (USGS), $20,618.31, *Statistical Support for Inventory and Monitoring Programs*, 2014-2015. PI: Megan D. Higgs and Kathryn Irvine (USGS). Money to support a Statistics graduate student at USGS.

U.S. Fish, Wildlife, and Parks (USFWS), $17,248.00 (Summer 2013), *A Proposal to Conduct an Integrated Analysis of Red Rock Creek and Upper Red Rock Lake Historical Arctic Grayling Data.* PIs: Megan D. Higgs and Alexander Zale

U.S. Geological Survey (USGS), $19,938.58, *Investigating potential environmental factors influencing macroinvertebrate metrics of stream health within headwater streams*, 2011-2012. PIs: Megan D. Higgs and Kathryn Irvine (USGS). Money to support a Statistics graduate student.

U.S. Geological Survey (USGS), $50,000.00, *Integrated analysis, modeling, and synthesis of the impacts of blister rust and mountain pine beetle mortality to whitebark pine in the Greater Yellowstone Ecosystem*, 2009-2011. PI: Megan D. Higgs

National Oceanic and Atmospheric Administration, National Marine Mammal Laboratory, $25,000.00, *New Analytical Methods using ordered categorical data models with temporal autocorrelation for dive depth data from time-depth recorders in marine mammals*, 2010. PI: Megan D. Higgs

U.S. Geological Survey (USGS), Interagency Grizzly Bear Study Team (IGBST), $23,216.00, *Reassessing methods to distinguish unique female grizzly bears with cubs-of-the-year in the Greater Yellowstone Ecosystem*, 2009. PI: Megan D. Higgs

National Park Service, $5,000.00, *Analysis of Bison Disease, Demographic, Habitat Use, and Migration Data Continued*, 2009-2010. PI: Megan D. Higgs

National Park Service, $5,000.00, *Analysis of Bison Disease, Demographic, Habitat Use, and Migration Data*, 2008-2009. PI: Megan D. Higgs

NSF proposal for Dynamics of Coupled Natural and Human Systems program (submitted November 2009 and November 2010, not funded). *Sustainability of Natural Amenity-based Communities: Interactions of Exurban Home Owners and Biodiversity in the Greater Yellowstone Ecosystem.* PIs: Hansen, A., Shanahan, E., Brody M., Suding K., & Robinson, D.

GRANTS - Internal from Montana State University

Inteman, K. (PI), McEvoy J. (Co-PI), LeCain, T. (Co-PI), Shanahan, E. (Co-PI), Burroughs, E. (Key Personnel), LaMeres, B. (Key Personnel), Cummings, M.A. (Key Personnel), Reidy, M. (Key Personnel), *Higgs, M. (Key Personnel), Wiedenheft, B. (Key Personnel). *Center for the Ethical and Social Implications of Science and Technology.* Montana State University's office of the Vice President for Research and Economic Development. Funded for $10,000 Jan. 2019 - Dec. 2019.

MSU Vice President for Research (submitted May 2014). Requested $191,450.00. Funded for $90,000.00. *Microbial and Environmental Factors in Bee Population Health and Pathogen Transmission.* PI: Michelle Flenniken, CoPIs: Laura Burkle and Megan Higgs.

MSU Vice President for Research (submitted May 2014). Requested $39,650.00. Not funded. *Greater Yellowstone Grizzly Bear Population: Individual-Based Simulation Model.* PI: Megan Higgs

MSU Vice President for Research (submitted May 2014). Requested $76,000.00. Not funded. *Model Averaging and variable selection: Bridging the gap between statistical theory and practical application.* PI: Megan Higgs

MSU Vice President for Research (submitted May 2014). Requested $124,955.00. Not funded. *Quality Education for Secondary Teachers: Researching Mathematics via Distance.* PI: Elizabeth Burroughs, CoPIs: Jennifer Luebeck and Megan Higgs.

College of Letters and Science Research Enhancement Awards, $3000.00, to present research at the Joint Statistical Meetings in August 2012 and The International Environmetrics Society Annual Meeting in June 2013.

TEACHING EXPERIENCE

Select Roundtables/Workshops

Introduction to Bayesian inference (3 hours) Professional development for JG Research and Evaluation, Bozeman, MT (Sept 2021)

Challenges in meta-analysis modeling and interpretation in presence of heterogeneity, (1 hour) Roundtable discussion for GiveWell, Inc. (Nov. 2021)

Philosophy of science and statistical practice (1/2 day) In development.

Other topics as requested - for more information and example topics see Critical Inference Consulting

Courses taught at Montana State University

STAT 491	Statistical Inference and Philosophy of Science in Practice	Spring 19
STAT 575	Writing Project Coordinator	Fall 13 - Spring 15
STAT 510	Statistical Consulting Seminar	Fall 12 - Spring 15
STAT 532	Bayesian Statistics	Fall 11, 13, 14, 15
STAT 421	Probability Theory	Fall 10
STAT 410/511	Methods of Data Analysis I	Fall 08, 09, 10, 12, 13, 14
STAT 412/512	Methods of Data Analysis II	S09, 10, 11, 13, 14, 15 & F12
STAT 338	Statistical Computing and Graphics	Spring 09
STAT 412	ANOVA and Design of Experiments	Spring 08
STAT 216	Elementary Statistics	Spring 08

Teaching honors

Nominated for the Montana State University 2015 President's Excellence in Teaching Award.

Nominated for the Montana State University 2014 Teaching Innovation Award

Department of Mathematical Sciences Bill Stannard Award for Excellence in Graduate Mathematical Sciences Instruction, 2012-2013

Nominated for the College of Letters and Sciences Outstanding Teaching Award, Montana State University, 2012-2013

Nominated for the College of Letters and Sciences Outstanding Teaching Award, Montana State University, 2011-2012

Nominated for the College of Letters and Sciences Outstanding Teaching Award, Montana State University, 2009-2010

Herbert F. Frolander Award for Outstanding Graduate Teaching Assistant, Oregon State University, 2003

STUDENT ADVISING AND COMMITTEES

Statistics

Major advisor for 2 Statistics PhD students

Committee member for 12 PhD Statistics students

Advised 17 Writing Projects as part of Master's degree in Statistics between 2009 and 2019.

Committee member for 20 M.S. Statistics students between 2009 and 2019.

Led independent studies or internships for 5 undergraduate students

Other disciplines

Committee member on 17 graduate committees (Disciplines included Ecology, Earth Sciences, Land Resources and Environmental Science, Mathematics Education, and Physics)

UNIVERSITY, COLLEGE, and DEPARTMENT SERVICE

Search Committee Chair - Asst. or Co-Director of Statistical Consulting (2018)

Updating Core Curriculum Implementation Committee (2015)

Statistics Tenure-track Faculty Search Committee Member (2015-2016)

Statistics Group Leader, Department of Mathematical Sciences, Fall 2013- Fall 2015

Promotion and Tenure Committee and Subcommittee member, Department of Mathematical Sciences (2015-2016)

Assessment coordinator (Dept. of Mathematical Sciences) (2014-15 - 2015-16)

ADVANCE Work-life Integration Team (February 2015 - December 2015)

Mathematics Search Committee Member (Fall 2014 - Spring 2015)

Promotion and Tenure Committee, Department of Mathematical Sciences (2014-2015)

Search Committee Chair - Statistical Consultant and Director of Statistical Consulting (Fall 2013 - Fall 2014)

Advisory Council - Statistical Consulting and Research Services (SCRS) (Fall 2014 - January 2018)

Equity Advocate, ADVANCE Project TRACS (Fall 2013 - present)

Mathematics Faculty Search Committee Member (Fall 2012 - Spring 2013)

Statistics Faculty Search Committee Member (Fall 2012 - Spring 2013)

Core 2.0 Committee - Quantitative (Q) representative (Fall 2012 - 2015)

Women's Faculty Caucus (WFC) - Family Friendly Working Group (2012-2014)

Colloquium Series Committee Chair, Department of Mathematical Sciences (2010-2015)

Undergraduate Advisory Committee, Department of Mathematical Sciences (2011-2015)

NSF ADVANCE Proposal Planning Committee, Work-life Integration Subcommittee (2011)

Promotion and Tenure Committee, Department of Mathematical Sciences (2008-2009, 2010-2011)

Personnel Board, Montana State University (2007-2009)

Statistical Consulting Center Working Group (2008-present)

PROFESSIONAL SERVICE

Offices and committees

President, MT Chapter of the American Statistical Association (ASA) (Oct. 2022 - Sept. 2023)

Secretary, MT Chapter of the American Statistical Association (ASA) (Oct. 2021 - Sept. 2022)

Outstanding Service Award (2021) from Montana Chapter of the American Statistical Association "in appreciation for your continued service and inspiration throughout your many years as a chapter member and officer."

Member, American Statistical Association (ASA) Advisory Committee on Climate Change Policy. (January 1, 2021 - December 31, 2023)

President, MT Chapter of the American Statistical Association (ASA) (Oct. 2022 - Sept. 2023)

Service Award (2021) from International Statistical Institute (ISI) Executive Committee "in recognition of your impactful work and editorial leadership on the *Statisticians React to the News* blog.

Editor (April 2020 - present), International Statistical Institute (ISI) blog "Statisticians React to the News" - https://blog.isi-web.org/react/

COMAP Triage Judge (March 2020)

Organizing Committee, 2018 Section on Statistics and the Environment bi-annual Workshop (2017-2018)

Past-Chair, Section on Statistics and the Environment (ENVR) of the ASA (2017)

Chair, Section on Statistics and the Environment (ENVR) of the ASA (2016)

Chair-elect, Section on Statistics and the Environment (ENVR) of the ASA (2015)

Chair, Student Paper Competition Committee - Section on Statistics and the Environment (ENVR) (2015)

Secretary, MT Chapter of the American Statistical Association (ASA) (Oct. 2014 - Sept. 2015)

President, MT Chapter of the American Statistical Association (ASA) (Oct. 2013 - Sept. 2014)

Vice President, MT Chapter of the American Statistical Association (ASA) (Oct. 2012 - Sept. 2013)

Student Paper Competition Committee - Section on Statistics and the Environment (ENVR) of the ASA (2012-2015)

Secretary, Section on Statistics and the Environment (ENVR) of the ASA (2012)

Treasurer, Section on Statistics and the Environment (ENVR) of the ASA (2011)

JSM Oral Presentation Awards Committee, Section on Statistics and the Environment (ENVR) of the ASA (2010-2011)

Chapter Representative, MT Chapter of the American Statistical Association (2010, 2012)

President, MT Chapter of the American Statistical Association (2009)

Vice President, MT Chapter of the American Statistical Association (2008)

Related to conferences

Invited Panel Session Co-organizer – The Joint Statistical Meetings, Baltimore, MD, 2020.

Invited Panel Session organizer – The Joint Statistical Meetings, Baltimore, MD, 2017

Session organizer - The International Environmetrics Society Annual Meeting, 2013

Chair of Session at The Joint Statistical Meetings, San Diego, CA, USA, July 2012

Chair of Session at TIES-NA, La Crosse, Wisconsin, USA July 2011

Organizing committee, MT Chapter of the ASA Annual Meeting, (2009, 2011 - 2013)

Topic-contributed session organizer, Joint Statistical Meetings, Vancouver B.C., 2010

Chair of Session at the Joint Statistical Meetings, Vancouver B.C., 2010

Organizer, MT Chapter American Statistical Association Annual Meeting, 2008, 2009

Reviewer activities

Reviewer of book proposals for Oxford Press and Chapman and Hall/CRC press.

Guest subject matter editor for *Ecological Applications*

Peer-reviewer for *PlosOne*, *Stat*, *Journal of Agricultural and Biological Statistics*, *Environmetrics*, *Environmental and Ecological Statistics*. *Journal of Wildlife Management*, *International Journal of Environmental Research and Public Health*, *Journal of Computational and Graphical Statistics*, *Biometrics*, U.S. Geological Survey (USGS) peer-review process

Review of proposals for Undergraduate Scholars Program at Montana State University

PROFESSIONAL MEMBERSHIPS

American Statistical Association (ASA), 2001-present

The International Statistical Institute (ISI), 2020 - present, Elected member in 2020

Montana Chapter of the American Statistical Association, 2008-present

Section on Statistics and the Environment of the American Statistical Association (ENVR), 2006-present

International Society for the History of Philosophy and Social Studies of Biology (ISHPSSB), 2021-2023

Caucus for Women in Statistics, 2004-present

The International Environmetrics Society (TIES), 2004-present

Western North American Region of The International Biometrics Society, 2005-2019

Society for Philosophy of Science in Practice (SPSP), 2018 - present

Section on Statistics in Epidemiology of the American Statistical Association, 2019-2020

Section on Mental Health Statistics of the American Statistical Association, 2016-2019

Section on Risk Assessment of the American Statistical Association, 2016-2019

Statistical Consulting Section of the American Statistical Association, 2013-2019, 2021

Section on Statistical Graphics of the American Statistical Association , 2012-2019

Statistical Education Section of the American Statistical Association, 2010-2019

Section on Bayesian Statistics of the American Statistical Association, 2006-2019

Colorado/Wyoming Chapter of the American Statistical Association, 2005-2010

The American Association for the Advancement of Science (AAAS), 2007-2010, 2018-2022