Mevin B. Hooten

mevin.hooten “at” austin “dot” utexas “dot” edu
https://mhooten.github.io/

Work Address:
2317 Speedway, D9800
Austin TX, 78712

Experience:

UNIVERSITY OF TEXAS at AUSTIN, Austin, TX
- Professor 2021-
  - Department of Statistics and Data Sciences

COLORADO STATE UNIVERSITY, Fort Collins, CO
- Professor 2018-2021
  - Department of Fish, Wildlife, and Conservation Biology
  - Department of Statistics
- Associate Professor 2013-2018
  - Department of Fish, Wildlife, and Conservation Biology
  - Department of Statistics
- Assistant Professor 2010-2013
  - Department of Fish, Wildlife, and Conservation Biology
  - Department of Statistics
- Faculty Affiliate, Graduate Degree Program in Ecology 2010-

U.S. GEOLOGICAL SURVEY, Fort Collins, CO 2010-2021
- Assistant Unit Leader
  - Colorado Cooperative Fish and Wildlife Research Unit

UTAH STATE UNIVERSITY, Logan, UT 2006-2010
- Assistant Professor of Statistics**,** Department of Mathematics and Statistics
- Adjunct Faculty, Department of Wildland Resources
- Faculty Associate, Ecology Center

Education:

UNIVERSITY OF MISSOURI, Columbia, MO 2006
- Ph.D. Statistics Advisor: Christopher K. Wikle
- Dissertation Topic: Hierarchical spatio-temporal models for ecological processes

UNIVERSITY OF MISSOURI, Columbia, MO 2001
- M.S. Forest Ecology Advisor: David R. Larsen
- Thesis Topic: Modeling the spatial distribution of ground flora

KANSAS STATE UNIVERSITY, Manhattan, KS 1999
- B.S. Natural Resource Management Advisor: Mark Morgan
- Minor in Wildlife Biology

Books:

Hooten, M.B. and T.J. Hefley. (2019). Bringing Bayesian Models to Life. Chapman & Hall/CRC.

Hooten, M.B., D.S. Johnson, B.T. McClintock, and J. Morales. (2017). Animal Movement: Statistical Models for Telemetry Data. Chapman & Hall/CRC.

Hobbs, N.T. and M.B. Hooten. (2015). Bayesian Models: A Statistical Primer for Ecologists. Princeton University Press.

Selected Publications: (students and post-docs underlined)

Van Ee, J.J., J.S. Ivan, and M.B. Hooten. (In Press). Community confounding in joint species distribution models. *Scientific Reports*.

Lu, X., M.B. Hooten, A. Kaplan, J.N. Womble, and M.R. Bower. (In Press). Improving wildlife population inference from aerial imagery data through entity resolution. *Journal of Agricultural, Biological, and Environmental Statistics*.

Scharf, H.R., X. Lu, P.J. Williams, and M.B. Hooten. (In Press). Constructing flexible, identifiable, and interpretable statistical models for binary data. *International Statistical Review*.

Scharf, H.R., A. Raiho, S. Pugh, C.A. Roland, D.K. Swanson, S.E. Stehn, and M.B. Hooten. (In Press). Multivariate Bayesian clustering using covariate-informed components with application to boreal vegetation sensitivity. *Biometrics*.

Schafer, T.L.J., C.K. Wikle, and M.B. Hooten. (2022). Bayesian inverse reinforcement learning for collective animal movement. *Annals of Applied Statistics*, **16**: 999-1013.

Zimmerman, S., C. Aldridge, S. Oyler-McCance, and M.B. Hooten. (2022). Scale-dependent influence of the sagebrush community on genetic connectivity of the sagebrush obligate Gunnison sage-grouse. *Molecular Ecology*, **31**: 3267-3285.

Johnson, D.S., B.M. Brost, and M.B. Hooten. (2022). Greater than the sum of its parts: Computationally flexible Bayesian hierarchical modeling. *Journal of Agricultural, Biological, and Environmental Statistics*, **27**: 382-400.

Kim, S., M.B. Hooten, T.L. Darden, and Y. Kanno. (2022). Linking male reproductive success to effort within and among nests in a co-breeding stream fish. Ethology, **128**: 489-498.

Raiho, A., H.R. Scharf, C.A. Roland, D.K. Swanson, S.E. Stehn, and M.B. Hooten. (In Press). Searching for refuge: A framework for identifying site factors conferring resistance to climate-driven vegetation change. *Diversity and Distributions,* **28**: 793-809.

Leach, C.B., P.J. Williams, J.M. Eisaguirre, J.N. Womble, M.R. Bower, and M.B. Hooten. (2022). Recursive Bayesian computation facilitates adaptive optimal design in ecological studies. *Ecology*, **103**: e03573.

Feuka, A.B., M.G. Nafus, A.A. Yackel Adams, L.L. Bailey, and M.B. Hooten. (2022). Endogenous and exogenous mechanisms affecting invasive reptile movement at multiple scales. *Movement Ecology*, **10**: 2.

Raiho, A., E.F. Nicklen, A. Foster, C.A. Roland, and M.B. Hooten. (2021). Bridging implementation gaps to connect large ecological datasets to complex models. *Ecology and Evolution,* **11**: 18271-

18287.

Lepak, J.M., A.G. Hansen, M.B. Hooten, D. Brauch, and E.M. Vigil. (2021). Rapid proliferation of the parasitic copepod *Salmincola californiensis* on kokanee salmon in a large Colorado reservoir. *Journal of Fish Diseases*, **45**: 89-98.

Eisaguirre, J.M., P.J. Williams, X. Lu, M.L. Kissling, W.W. Beatty, G.G. Esslinger, J.N. Womble, and M.B. Hooten. (In Press). Diffusion modeling reveals effects of multiple release sites and human activity on a recolonizing apex predator. *Movement Ecology*, **9**: 34.

Banks, D.L. and M.B. Hooten. (2021). Statistical challenges in agent-based modeling. *The American Statistician*, **75**: 235-242.

Williamson, M.A., B.G. Dickson, M.B. Hooten, R.A. Graves, M.N. Lubell, and M.W. Schwartz. (2021). Accounting for incomplete reporting improves inference about private land conservation. *Conservation Biology*, **35**: 1174-1185.

Hooten, M.B., D.S. Johnson, and B.M. Brost. (2021). Making recursive Bayesian inference accessible. *The American Statistician,* **75***:* 185-194.

McCaslin, H.M., A.B. Feuka, and M.B. Hooten. (2021). Hierarchical computing for hierarchical models in ecology. *Methods in Ecology and Evolution*, **12**: 245-254.

Lasky, J.R., M.B. Hooten, and P.B. Adler. (2020). What processes must we understand to forecast regional scale population dynamics? *Proceedings of the Royal Society, Series B*, **287**: 20202219.

Leach, C., J.A. Hoeting, K. Pepin, A. Eiras, M.B. Hooten, and C. Webb. (2020). Linking mosquito surveillance to dengue fever through Bayesian mechanistic modeling. *PLoS Neglected Tropical Diseases,* **14***: e0008868*.

Hooten, M.B., C.K. Wikle, and M.R. Schwob. (2020). Statistical implementations of agent-based demographic models. *International Statistical Review*, **88**: 441-461.

Brost, B.M., M.B. Hooten, and R.J. Small. (2020). Model-based clustering reveals patterns in central place use of a marine top predator. *Ecosphere*, **11**: e03123.

Hooten, M.B., X. Lu, M.J. Garlick, and J.A. Powell. (2020). Animal movement models with mechanistic selection functions. *Spatial Statistics*, **37**: 100406.

Lu, X., P.J. Williams, M.B. Hooten, J.A. Powell, J.N. Womble, and M.R. Bower. (2020). Nonlinear reaction-diffusion process models improve inference for population dynamics. *Environmetrics,* **31**: e2604.

Hooten, M.B., S. Pugh, and C.A. Roland. (2020). Geary's contiguity ratio (Geary's c). *Wiley StatsRef: Statistics Reference Online*.

Christianson, K.R., B.M. Johnson, and M.B. Hooten. (2020). Compound effects of water clarity, inflow, wind, and climate warming on mountain lake thermal regimes. *Aquatic Sciences,* **82**: 6.

Tipton, J.R., M.B. Hooten, C. Nolan, R.K. Booth, and J. McLachlan. (2019). Predicting paleoclimate from compositional data using multivariate Gaussian process inverse prediction. *Annals of Applied Statistics*, **13**: 2363-2388.

Gerber, B.D., M.B. Hooten, C.P. Peck, M.B. Rice, J.H. Gammonley, A.D. Apa, and A.J. Davis. (2019). Extreme site fidelity as an optimal strategy in an unpredictable and homogeneous environment. *Functional Ecology,* **33**: 1695-1707.

Williams, P.J., W.L. Kendall, and M.B. Hooten. (2019). Selecting ecological models using multi-objective optimization. *Ecological Modelling*, **404**: 21-26.

Nolan, C., J. Tipton, R.K. Booth, M.B. Hooten, and S.T. Jackson. (2019). Comparing and improving methods for reconstructing peatland water table depth from testate amoebae. *The Holocene*, **29**: 1350-1361.

Hooten, M.B., J.M. Ver Hoef, and E.M. Hanks. (2019). Simultaneous autoregressive (SAR) model. *Wiley StatsRef: Statistics Reference Online*.

Scharf, H.R., M.B. Hooten, R.R. Wilson, G.M. Durner, T.C. Atwood. (2019). Accounting for phenology in the analysis of animal movement. *Biometrics*, **75**: 810-820.

Christianson, K.R., B.M. Johnson, M.B. Hooten, and J.J. Roberts. (2019). Estimating lake-climate responses from sparse data: an application to high elevation lakes. *Limnology and Oceanography,* **64**: 1371-1385.

Peterson, E.E., E.M. Hanks, M.B. Hooten, J.M. Ver Hoef, and M.-J. Fortin. (2019). Spatially structured statistical network models for landscape genetics. *Ecological Monographs*, **89**: e01355.

Williams, P.J., M.B. Hooten, G.G. Esslinger, J.N. Womble, J. Bodkin, and M.R. Bower. (2019). The rise of an apex predator following deglaciation. *Diversity and Distributions*, **25**: 895-908.

Ketz, A.C., T.L. Johnson, M.B. Hooten, and N.T. Hobbs. (2019). A hierarchical Bayesian approach for handling missing classification data. *Ecology and Evolution*, **9**: 3130-3140.

Hooten, M.B., H.J. Scharf, and J.M. Morales. (2019). Running on empty: Recharge dynamics from animal movement data. *Ecology Letters*, **22**: 377-389.

Dietze, M., A. Fox, L. Beck-Johnson, J.L. Betancourt, M.B. Hooten, C. Jarnevitch, T. Kiett, M. Kenney, C. Laney, L. Larsen, H. Loescher, C. Lunch, B. Pijanowski, J. Randerson, E. Reid, A. Tredennick, R. Vargas, K. Weathers, and E. White. (2018). Iterative near-term ecological forecasting: Needs, opportunities, and challenges. *Proceedings of the National Academy of Sciences,* **115**: 1424-1432

Scharf, H., M.B. Hooten, D.S. Johnson, and J. Durban. (2018). Process convolution approaches for modeling interacting trajectories. *Environmetrics*, **29**: e2487.

Buderman, F.E., M.B. Hooten, M. Alldredge, E.M. Hanks, and J.S. Ivan. (2018). Time-varying predatory behavior is primary predictor of fine-scale movement of wildland-urban cougars. *Movement Ecology*, **6**: 22.

Gerber, B.D., M.B. Hooten, C.P. Peck, M.B. Rice, J.H. Gammonley, A.D. Apa, and A.J. Davis. (2018). Accounting for location uncertainty in azimuthal telemetry data improves ecological inference. *Movement Ecology*, **6**: 14.

Conn, P.B., D.S. Johnson, P.J. Williams, S.R. Melin, and M.B. Hooten. (2018). A guide to Bayesian model checking for ecologists. *Ecological Monographs*, **88**: 526-542.

Hooten, M.B., H.R. Scharf, T.J. Hefley, A. Pearse, and M. Weegman. (2018). Animal movement models for migratory individuals and groups. *Methods in Ecology and Evolution,* **9**: 1692-1705.

Pejchar, L., T. Gallo, M.B. Hooten, and G. Daily. (2018). Predicting effects of large-scale reforestation on native and exotic birds. *Diversity and Distributions*, **24**: 811-819.

Ver Hoef, J.M., E.M. Hanks, and M.B. Hooten. (2018). On the relationship between conditional (CAR) and simultaneous (SAR) autoregressive models. *Spatial Statistics*, **25**: 68-85.

Ketz, A.C., T.L. Johnson, R.J. Monello, J. Mack, J.L. George, B.R. Kraft, M.A. Wild, M.B. Hooten, and N.T. Hobbs. (2018). Estimating abundance of an open population with an N-mixture model using auxiliary data on animal movements. *Ecological Applications*, **28**: 816-825.

Williams, P.J., M.B. Hooten, J.N. Womble, G.G. Esslinger, and M.R. Bower. (2018). Monitoring dynamic spatio-temporal ecological processes optimally. *Ecology*, **99**: 524-535.

Ver Hoef, J.M., E.E. Peterson, M.B. Hooten, E.M. Hanks, and M-J. Fortin. (2018). Spatial autoregressive models for statistical inference from ecological Data. *Ecological Monographs*, **88**: 36-59.

Itter, M.S., A.O. Finley, M.B. Hooten, P.E. Higuera, J.R. Marlon, R. Kelly, and J.S. McLachlan. (2018). A model-based approach to wildland fire reconstruction using sediment charcoal records. *Environmetrics*, **28**: e2450.

Buderman, F.M., M.B. Hooten, J.S. Ivan, and T.M. Shenk. (2018). Large-scale movement behavior in a reintroduced predator population. *Ecography*, **41**: 126-139.

Williams, P.J., M.B. Hooten, J.N. Womble, and M.R. Bower. (2017). Estimating occupancy and abundance using aerial images with imperfect detection. *Methods in Ecology and Evolution*, **8**: 1679-1689.

Hefley, T.J., B.M. Brost, and M.B. Hooten. (2017). Bias correction of bounded location errors in presence-only data. *Methods in Ecology and Evolution,* **8**: 1566-1573.

Steger, C., B. Butt, and M.B. Hooten. (2017). Safari Science: Assessing the reliability of citizen science data for wildlife surveys. *Journal of Applied Ecology*, **54**: 2053-2062.

Hooten, M.B., R. King, and R. Langrock. (2017). Guest editor's introduction to the special issue on "Animal Movement Modeling." *Journal of Agricultural, Biological, and Environmental Statistics*, **22**: 224-231.

Hanks, E.M., D.S. Johnson, and M.B. Hooten. (2017). Reflected stochastic differential equation models for constrained animal movement. *Journal of Agricultural, Biological, and Environmental Statistics*, **22**: 353-372.

Scharf, H., M.B. Hooten, and D.S. Johnson. (2017). Imputation approaches for animal movement modeling. *Journal of Agricultural, Biological, and Environmental Statistics*, **22**: 335-352.

Hefley, T.J., M.B. Hooten, R.E. Russell, D.P. Walsh, and J. Powell. (2017). When mechanism matters: forecasting the spread of disease using ecological diffusion. *Ecology Letters*, **20**: 640–650.

Pepin, K.M., S.L. Kay, B. Golas, S.S. Shriner, A.T. Gilbert, R.S. Miller, A.L. Graham, S. Riley, P.C. Cross, M.D. Samuel, M.B. Hooten, J.A. Hoeting, J.O. Lloyd-Smith, C.T. Webb, and M.B.

Buhnerkempe. (2017). Inferring infection hazard in wildlife populations by linking data across individual and population scales. *Ecology Letters,* **20**: 275–292.

Roberts, J.J., K.D. Fausch, M.B. Hooten, and D.P. Peterson. (2017). Nonnative trout invasions combined with climate change threaten persistence of isolated cutthroat trout populations in the southern Rocky Mountains. *North American Journal of Fisheries Management*, **37**: 314-325.

Meredith, C.S., P. Budy, M.B. Hooten, and M.O. Prates. (2017). Assessing abiotic conditions influencing the longitudinal distribution of exotic brown trout (*Salmo trutta*) in a mountain stream: a spatially-explicit modeling approach. *Biological Invasions*, **19**: 503-519.

Hooten, M.B. and D.S. Johnson. (2017). Basis function models for animal movement. *Journal of the American Statistical Association*, **112**: 578-589.

Tredennick, A.T., M.B. Hooten, and P.B. Adler. (2017). Do we need demographic data to forecast the state of plant populations? *Methods in Ecology and Evolution*, **8**: 541-551.

Hefley, T.J., M.B. Hooten, E.M. Hanks, R.E. Russell, and D.P. Walsh. (2017). Dynamic spatio-temporal models for spatial data. *Spatial Statistics*, **20**: 206-220.

Hefley, T.J., K.M. Broms, B.M. Brost, F.E. Buderman, S.L. Kay, H.R. Scharf, J.R. Tipton, P.J. Williams, and M.B. Hooten. (2017). The basis function approach to modeling autocorrelation in ecological data. *Ecology*, **98**: 632-646.

Williams, P.J., M.B. Hooten, J.N. Womble, G.G. Esslinger, M.R. Bower, and T.J. Hefley. (2017). An integrated data model to estimate spatio-temporal occupancy, abundance, and colonization dynamics. *Ecology*, **98**: 328-336

Small, R.J., B.M. Brost, M.B. Hooten, M. Castellote, and J. Mondragon. (2017). Potential for spatial displacement of Cook Inlet beluga whales by anthropogenic noise in critical habitat. *Endangered Species Research*, **32**: 43-57.

Hefley, T.J., M.B. Hooten, E.M. Hanks, R.E. Russell, and D.P. Walsh. (2017). The Bayesian group lasso for confounded spatial data. *Journal of Agricultural, Biological and Environmental Statistics*, **22**: 42-59.

Tipton, J., M.B. Hooten, and S. Goring. (2017). Reconstruction of spatio-temporal temperature from sparse historical records using robust probabilistic principal component regression. *Advances in Statistical Climatology, Meteorology and Oceanography*, **3**: 1-16.

Brost, B.M., M.B. Hooten, and R.J. Small. (2017). Leveraging constraints and biotelemetry data to pinpoint repetitively used spatial features. *Ecology*, **98**: 12-20.

Arab, A., M.B. Hooten, and C.K. Wikle (2017). Hierarchical Spatial Models. *In: Encyclopedia of Geographical Information Science, Second Edition*. Springer.

Davis, A.J., M.B. Hooten, R.S. Miller, M. Farnsworth, J. Lewis, K.M. Moxcey, and K.M. Pepin. (2016). Inferring invasive species abundance using removal data from management actions. *Ecological Applications*, **26**: 2339–2346.

Northrup, J.M., C.R. Anderson, M.B. Hooten, and G. Wittemyer. (2016). Movement reveals scale-dependence in habitat selection of a large ungulate. *Ecological Applications*, **26**: 2746-2757.

Lepak, J.M., M.B. Hooten, C.A. Eagles-Smith, M.A. Lutz, M.T. Tate, J.T. Ackerman, J.J. Willacker Jr., D.C. Evers, J. Davis, C.F. Pritz, J.G. Wiener. (2016). Assessing mercury concentrations in fish across western Canada and the United States: potential health risks to fish and humans. *Science of the Total Environment*, **571**: 342-354.

Scharf, H.R., M.B. Hooten, B.K. Fosdick, D.S. Johnson, J.M. London, and J.W. Durban. (2016). Dynamic social networks based on movement. *Annals of Applied Statistics*, **10**: 2182-2202. (ASA ENVR Student Paper Award, 2016).

Tredennick, A.T., M.B. Hooten, C.L. Aldridge, C.G. Homer, A. Kleinhesselink, and P.B. Adler. (2016). Forecasting climate change impacts on plant populations over large spatial extents. *Ecosphere,* **7**: e01525.

Hefley, T.J., M.B. Hooten, J.M. Drake, R.E. Russell, and D.P. Walsh. (2016). When can the cause of a population decline be determined? *Ecology Letters*, **19**: 1353-1362

Williams, P.J. and M.B. Hooten. (2016). Combining statistical inference and decisions in ecology. *Ecological Applications*, **26**: 1930-1942.

Ruiz-Gutierrez, V., M.B. Hooten, and E.H. Campbell Grant. (2016). Uncertainty in biological monitoring: a framework for data collection and analysis to account for multiple sources of sampling bias. *Methods in Ecology and Evolution*, **7**: 900-909.

Broms, K.M., M.B. Hooten, and R.M. Fitzpatrick. (2016). Model selection and assessment for multi-species occupancy models. *Ecology*, **97**: 194-207.

Hooten, M.B., F.E. Buderman, B.M. Brost, E.M. Hanks, and J.S. Ivan. (2016). Hierarchical animal movement models for population-level inference. *Environmetrics,* **27**: 322-333.

Hanks, E.M., M.B. Hooten, S.A. Knick, S.J. Oyler-McCance, J.A. Ficke, T.B. Cross, and M.K. Schwartz. (2016). Latent spatial models and sampling design for landscape genetics. *Annals of Applied Statistics*, **10**: 1041-1062.

Hefley, T.J. and M.B. Hooten. (2016). Hierarchical species distribution models. *Current Landscape Ecology Reports*: 1-11.

Wikle, C.K., W.B. Leeds, and M.B. Hooten. (2016). Models for ecological models: Ocean primary productivity. *Chance*, **29** (2): 23.

Tipton, J., M.B. Hooten, N. Pederson, M. Tingley, and D. Bishop. (2016). Reconstruction of late Holocene climate based on tree growth and mechanistic hierarchical models. *Environmetrics*, **27**: 42-54. (ASA ENVR Student Paper Award, 2015).

Buderman, F.M., M.B. Hooten, J.S. Ivan, and T.M. Shenk. (2016). A functional model for characterizing long distance movement behavior. *Methods in Ecology and Evolution*, **7**: 264-273.

Broms, K.M., M.B. Hooten, D.S. Johnson, L.L. Conquest, and R. Altwegg. (2016). Dynamic occupancy models for explicit colonization processes. *Ecology,* **97**: 194-204.

Raiho, A., M.B. Hooten, S. Bates, and N.T. Hobbs. (2015). Forecasting the effects of fertility control on overabundant ungulates: White-tailed deer in the National Capital region. *PLoS One*, **10**: e0143122.

Brost, B.M., M.B. Hooten, E.M. Hanks, and R.J. Small. (2015). Animal movement constraints improve resource selection inference in the presence of telemetry error. *Ecology*, **96**: 2590-2597.

Hobbs, N.T., C. Geremia, J. Treanor, R. Wallen, P.J. White, M.B. Hooten, and J.C. Rhyan. (2015). State-space modeling to support adaptive management of brucellosis in the Yellowstone bison population. *Ecological Monographs*, **85**: 525-556.

Hefley, T.J. and M.B. Hooten. (2015). On the existence of maximum likelihood estimates for presence-only data. *Methods in Ecology and Evolution*, **6**: 648-655.

Schmelter, M.L., P. Wilcock, M.B. Hooten, D.K. Stevens. (2015). Multi-fraction Bayesian sediment transport model. *Journal of Marine Science and Engineering*, **3**: 1066-1092.

Gerber, B.D., W.L. Kendall, M.B. Hooten, J.A. Dubovsky, and R.C. Drewien. (2015). Optimal population prediction of sandhill crane recruitment based on climate-mediated habitat limitations. *Journal of Animal Ecology*, **84**: 1299-1310.

Ross, B.E., M.B. Hooten, J-M. DeVink, and D.N. Koons. (2015). Combined effects of climate, predation, and density dependence on Greater and Lesser Scaup population dynamics. *Ecological Applications*, **25**: 1606-1617.

Hanks, E.M., M.B. Hooten, and M. Alldredge. (2015). Continuous-time discrete-space models for animal movement. *Annals of Applied Statistics*, **9**: 145-165.

Conn, P.B., Johnson, D.S., J.M. Ver Hoef, M.B. Hooten, J.M. London, and P.L. Boveng. (2015). Using spatio-temporal models to estimate animal abundance and infer ecological dynamics from survey counts. *Ecological Monographs,* **85**: 235-252.

Hanks, E.M., E. Schliep, M.B. Hooten, and J.A. Hoeting. (2015). Restricted spatial regression in practice: Geostatistical models, confounding, and robustness under model misspecification. *Environmetrics,* **26**: 243-254.

Hooten, M.B. and N.T. Hobbs. (2015). A guide to Bayesian model selection for ecologists. *Ecological Monographs*, **85**: 3-28.

Wikle, C.K. and M.B. Hooten (2015). Hierarchical agent-based spatio-temporal dynamic models for discrete valued data. Davis, R., S. Holan, R. Lund, and N. Ravishanker (eds). In: Handbook of Discrete-Valued Time Series. Chapman & Hall/CRC.

Broms, K.M., M.B. Hooten, and R. Fitzpatrick. (2015). Accounting for imperfect detection in Hill numbers for biodiversity studies. *Methods in Ecology and Evolution*, **6**: 99-108.

Davis, A.J., M.B. Hooten, M.L. Phillips, and P.F. Doherty Jr. (2014). An integrated modeling approach to estimating Gunnison sage-grouse population dynamics: combining index and demographic data. *Ecology and Evolution*, **4**: 4247-4257.

Odei, J.B., J. Symanzik, and M.B. Hooten. (2014). A Bayesian hierarchical model for forecasting intermountain snow dynamics. *Environmetric*s, **25**: 324-340.

McClintock, B.T., D.S. Johnson, M.B. Hooten, J.M. Ver Hoef, and J.M. Morales. (2014). When to be discrete: the importance of time formulation in understanding animal movement. *Movement Ecology*, **2**: 21.

Garlick, M.J., J.A. Powell, M.B. Hooten, and L.R. McFarlane. (2014). Homogenization, sex, and differential motility predict spread of chronic wasting disease in mule deer in Southern Utah. *Journal of Mathematical Biology*, **69**: 369-399.

Hooten, M.B., E.M. Hanks, D.S. Johnson, and M.W. Alldredge. (2014). Temporal variation and scale in movement-based resource selection functions. *Statistical Methodology*, **17**: 82-98.

Milliff, R.F., J. Fiechter, W.B. Leeds, R. Herbei, C.K. Wikle, M.B. Hooten, A.M. Moore, T.M. Powell, and J.L. Brown. (2013). Uncertainty management in coupled physical-biological lower-trophic level ocean ecosystem models. *Oceanography,* **24**: 98-115.

Green, A.W., M.B. Hooten, E.H.C. Grant, and L.L. Bailey (2013). Evaluating breeding and metamorph occupancy and vernal pool management effects for wood frogs using a hierarchical model. *Journal of Applied Ecology*, **50**: 1116-1123.

Johnson, D.S., M.B. Hooten, C.E. Kuhn. (2013). Estimating animal resource selection from telemetry data using point process models. *Journal of Animal Ecology*. **82**: 1155-1164.

Hooten, M.B., M.J. Garlick, and J.A. Powell. (2013). Computationally efficient statistical differential equation modeling using homogenization. *Journal of Agricultural, Biological and Environmental Statistics*, **18**: 405-428.

Hooten, M.B., E.M. Hanks, D.S. Johnson, and M. Alldredge. (2013). Reconciling resource utilization and resource selection functions. *Journal of Animal Ecology*, **82**: 1146-1154.

Northrup, J.M., M.B. Hooten, C.R. Anderson, and G. Wittemyer. (2013). Practical guidance on characterizing availability in resource selection functions under a use-availability design. *Ecology*, **94**: 1456-1463.

Johnson, D.S., P.B. Conn, M.B. Hooten, J. Ray, and B. Pond. (2013). Spatial occupancy models for large data sets. *Ecology*, **94**: 801-808.

Roberts, J.J., K.D. Fausch, D.P. Peterson, and M.B. Hooten. (2013). Fragmentation and thermal risks from climate change interact to affect persistence of native trout in the Colorado River basin. *Global Change Biology*, **19**: 1381-1398.

Hanks, E.M. and M.B. Hooten. (2013). Circuit theory and model-based inference for landscape connectivity. *Journal of the American Statistical Association*, **108**: 22-33. (Best Student Paper Award at ENVR – ASA 2012)

Cruz, S.M., M.B. Hooten, K.P. Huyvaert, C. Proano, D.J. Anderson, J. Fox, and M. Wikelski. (2013). At–sea behavior varies with lunar phase in a nocturnal pelagic seabird, the swallow-tailed gull. *PLoS One*, **8**: e56889.

Ross, B.E., M.B. Hooten, and D.N. Koons. (2012). An accessible method for implementing hierarchical models with spatio-temporal abundance data. *PLoS One*, **7**: e49395.

Lepak, J.M., C.N. Cathcart, and M.B. Hooten. (2012). Otolith weight as a predictor of age in kokanee salmon (*Oncorhynchus nerka*) from four Colorado reservoirs. *Canadian Journal of Fisheries and Aquatic Sciences*, **69**: 1569-1575.

Lepak, J.M., M.B. Hooten, and B.M. Johnson. (2012). The influence of marine subsidies on diet, growth, and Hg concentrations of freshwater sport fish: tertiary impacts on fisheries and human

health. *Ecotoxicology*, **21**: 1878-1888.

Hooten, M.B., B.E. Ross, and C.K. Wikle (2012). Optimal spatio-temporal monitoring designs for characterizing population trends. Gitzen, R.A., J.J. Millspaugh, A.B. Cooper, and D.S. Licht (eds). In: Design and Analysis of Long-Term Ecological Monitoring Studies. Cambridge University Press.

Haas, S.E., M.B. Hooten, D. Rizzo, and R.K. Meentemeyer. (2011). Forest species diversity reduces disease risk in a generalist plant pathogen invasion. *Ecology Letters*, **14**: 1108-1116.

Hooten, M.B., W.B. Leeds, J. Fiechter, and C.K. Wikle. (2011). Assessing first-order emulator inference for physical parameters in nonlinear mechanistic models. *Journal of Agricultural, Biological, and Environmental Statistics*, **16**: 475-494.

Schmelter, M.L., M.B. Hooten, and D.K. Stevens. (2011). Bayesian sediment transport model for uni-size bedload. *Water Resources Research*, **47**: W11514.

Garlick, M.J., J.A. Powell, M.B. Hooten, and L. McFarlane. (2011). Homogenization of large-scale movement models in ecology. *Bulletin of Mathematical Biology*, **73**: 2088-2108.

Xiao X., E.P. White, M.B. Hooten, and S.L. Durham. (2011). On the use of log-transformation vs. nonlinear regression for analyzing biological power-laws. *Ecology*, **92**: 1887-1894.

Hanks, E.M., M.B. Hooten, D.S. Johnson, and J.T. Sterling. (2011). Velocity based movement modeling for individual and population level inference. PLoS One, **6**(8): e22795.

Hanks, E.M., M.B. Hooten, and F. Baker. (2011). Reconciling multiple data sources to improve accuracy of large-scale prediction of forest disease incidence. *Ecological Applications*, **24**: 1173-1188.

Dalgleish, H.J., D.N. Koons, M.B. Hooten, C.A. Moffet, and P.B. Adler. (2011). The influence of climate on the demography of three dominant sagebrush steppe plants. *Ecology*, **92**: 75-85.

Hooten, M.B. (2011). The State of Spatial and Spatio-Temporal Statistical Modeling. Drew A., F. Huettman, and Y. Wiersma (eds). *In: Predictive Modeling in Landscape Ecology*. Springer.

Hooten, M.B., D.S. Johnson, E.M. Hanks, and J.H. Lowry. (2010). Agent-based inference for animal movement and selection. *Journal of Agricultural, Biological and Environmental Statistics*, **15**: 523-538.

Wikle, C.K. and M.B. Hooten. (2010). A general science-based framework for nonlinear spatio-temporal dynamical models. *Test,* **19**: 417-451.

Wilson, R.R., Blankenship, T.L., Hooten, M.B., and J.A. Shivik. (2010). Prey-mediated avoidance of an intraguild predator by its intraguild prey. *Oecologia*, **164**: 921-929.

Wilson, R.R., M.B. Hooten, B.N. Strobel, and J.A. Shivik. (2010). Accounting for individuals, uncertainty, and multi-scale clustering in core area characterization. *Journal of Wildlife Management,* **74**: 1343-1352.

Nippert, J.B., M.B. Hooten, D.R. Sandquist, and J.K. Ward. (2010). A model for predicting El Nino events using tree-ring cellulose del18O. *Journal of Geophysical Research*, **115**: 1-9.

Hooten, M.B., J. Anderson and L. Waller. (2010). Assessing North American influenza dynamics

with statistical SIRS models. *Spatial and Spatio-Temporal Epidemiology*, **1**: 177-185.

Hooten, M.B. and C.K. Wikle. (2010). Statistical agent-based models for discrete spatio-temporal systems. *Journal of the American Statistical Association*, **105**: 236-248.

Wilson, T.L., J.B. Odei, M.B. Hooten, and T.C. Edwards. (2010). Hierarchical spatial models for predicting pygmy rabbit distribution and relative abundance. *Journal of Applied Ecology,* **47**: 401-409.

Larsen, R.T., J.A. Bissonette, T.F. Flinders, M.B. Hooten, and T.L. Wilson. (2010). Summer spatial patterning of chukars in relation to free water in Western Utah. *Landscape Ecology*, **25**: 135-145.

Hooten, M.B., C.K. Wikle, L.D. Carlile, R. Warner, and D. Pitts (2009). Hierarchical population models for the red-cockaded woodpecker. Rich, T.D., M. C. Arizmendi, D. Demarest and C. Thompson (eds). Tundra to Tropics: Connecting Birds, Habitats and People. Proceedings of the 4th International Partners in Flight Conference, 13-16 February 2008. McAllen, TX. University of Texas-Pan American Press. Edinburg, TX. pgs. 354-364.

Cangelosi, A.R. and M.B. Hooten. (2009). Models for bounded systems with continuous dynamics. *Biometrics*, **65**: 850-856.

Hooten, M.B., C.K. Wikle, S. Sheriff, and J. Rushin. (2009). Optimal spatio-temporal hybrid sampling designs for ecological monitoring. *Journal of Vegetation Science,* **20**: 639-649.

Mock, K., C. Rowe, M.B. Hooten, A.J. DeWoody, and V.D. Hipkins. (2008). Clonal dynamics in western North American aspen (Populus tremuloides). *Molecular Ecology*, **17**: 4827-4844.

Hooten, M. B. and C.K. Wikle. (2008). A hierarchical Bayesian non-linear spatio-temporal model for the spread of invasive species with application to the Eurasian Collared-Dove. *Environmental and Ecological Statistics,* **15**(1): 59-70. DOI: 10.1007/s10651-007-0040-1.

Arab, A., M.B. Hooten, and C.K. Wikle (2007). Hierarchical Spatial Models. *In: Encyclopedia of Geographical Information Science*. Springer.

Hooten, M.B., C.K. Wikle, R.M. Dorazio, and J.A. Royle. (2007). Hierarchical spatio-temporal matrix models for characterizing invasions. *Biometrics,* **63**: 558-567.

He, H.S., D.C. Dey, X. Fan, M.B. Hooten, J. Kabric, C.K. Wikle, and Z. Fan. (2007). Mapping pre-European settlement vegetation using a hierarchical Bayesian model and GIS. *Plant Ecology,* **191**: 85-94.

Hooten, M.B. and C.K. Wikle. (2007). Shifts in the spatio-temporal growth dynamics of shortleaf pine. *Environmental and Ecological Statistics,* **14**(3): 207-227.

Wikle, C.K. and M.B. Hooten (2006). Hierarchical Bayesian spatio-temporal models for population spread. Clark, J.S. and A. Gelfand (eds). In*: Applications of Computational Statistics in the Environmental Sciences: Hierarchical Bayes and MCMC Methods*. Oxford University Press.

Hooten, M. B., Larsen, D.R., and C.K. Wikle. (2003). Predicting the spatial distribution of ground flora on large domains using a hierarchical Bayesian model. *Landscape Ecology*, **18**: 487-502.

Awards/
Honors:

- Distinguished Achievement Award 2022
  American Statistical Association, Section on Statistics and the Environment
- Superior Performance Award 2020
  U.S. Geological Survey
- Superior Performance Award 2019
  U.S. Geological Survey
- Wildlife Publication Award Shortlist for Authored Book 2019
  The Wildlife Society
  Publication: Hooten, M.B., D.S. Johnson, B.T. McClintock, and J.M. Morales. (2017). Animal Movement: Statistical Models for Telemetry Data. Chapman and Hall/CRC.
- Superior Performance Award 2018
  U.S. Geological Survey
- Wildlife Publication Award Shortlist for Authored Book 2018
  The Wildlife Society
  Publication: Hooten, M.B., D.S. Johnson, B.T. McClintock, and J.M. Morales. (2017). Animal Movement: Statistical Models for Telemetry Data. Chapman and Hall/CRC.
- Superior Performance Award 2017
  U.S. Geological Survey
- ASA Fellow 2017
  American Statistical Association
- President's Invited Lecture 2016
  The International Environmetrics Society Annual Meeting
- Superior Performance Award 2016
  U.S. Geological Survey
- Outstanding Publication of the Year Award 2015
  Colorado State University, Warner College of Natural Resources
  Publication: Hobbs, N.T. and M.B. Hooten (2015). Bayesian Models: A Statistical Primer for Ecologists. Princeton University Press.
- Excellence in Science Award, Cooperative Research Units 2015
  U.S. Geological Survey
- Superior Performance Award 2015
  U.S. Geological Survey
- Superior Performance Award 2014
  U.S. Geological Survey
- Young Investigator Award 2014
  American Statistical Association, ENVR Section
- Superior Performance Award 2013
  U.S. Geological Survey
- Superior Performance Award 2012
  U.S. Geological Survey
- Superior Performance Award 2011
  U.S. Geological Survey
- Researcher of the Year Award 2010
  USU-Department of Mathematics and Statistics
- Researcher of the Year Award 2009
  USU-Department of Mathematics and Statistics

Editorial Experience:

- Associate Editor: Biometrics (2020-)

- Associate Editor: Environmetrics (2014-)
- Associate Editor: Journal of Agricultural, Biological, and Environmental Statistics (2012-13, 2017-)
- Associate Editor: Annals of Applied Statistics (2011-2021)
- Guest Editor: Special Issue in Journal of Agricultural, Biological, and Environmental Statistics (2016-17)
- Guest Editor: Special Issue in Journal of Agricultural, Biological, and Environmental Statistics (2013-14)
- Subject Matter Editor: Ecological Applications (2018)

Teaching Experience:

Workshops and Short Courses

- Building Capacity in Bayesian Modeling for Ecologists (NSF), 10 days 2022
- Bayesian Statistical Inference and Practice (CPW), 2 days 2020
- R Spatial Data and Analysis (CSU), 1 day 2020
- Animal Movement Modeling Workshop (US-IALE), 1 day 2019
- Statistical Decision Theory (ASA Alaska Chapter Meeting) 2019
- R Workshop (KSU), 1 day 2018
- Animal Movement Modeling Workshop (ISEC), 1 day 2018
- R Workshop (KSU), 1 day 2017
- Spatio-Temporal Statistical Models in Practice (WNAR, anticipated), 1/2 day 2017
- R Workshop for Wildlife Biologists (CSU-CCFWRU), 1 day 2017
- Building Capacity in Bayesian Modeling for Ecologists (NSF), 10 days 2016
- R Workshop for Wildlife Biologists (TWS-CMPS), 1 day 2016
- Bayesian Decision Theory and Model Selection (ISEC), 1 day 2016
- R Workshop (CSU-CCFWRU), 1 day 2015
- Building Capacity in Bayesian Modeling for Ecologists (NSF), 10 days 2015
- Parallel Computing for Ecologists and Evol. Biologists (CSU-CU), 1 day 2015
- Building Capacity in Bayesian Modeling for Ecologists (NSF), 10 days 2014
- R Workshop (CSU-CCFWRU), 1 day 2013
- Building Capacity in Bayesian Modeling for Ecologists (NSF), 10 days 2013
- Spatial Statistics using R Workshop (TWS), 1 day 2012
- R Workshop for Fisheries Biologists (AFS-Western), 1 day 2012
- Bayesian Models for Ecologists (USU - UCFWRU), 5 days 2012
- R Short Course (CSU-CCFWRU), 1 day 2011
- Bayesian Methods for Landscape Ecologists (US-IALE), 1 day 2009

The University of Texas at Austin, Dept. of SDS, Austin, TX. 2021-

- Bayesian Statistical Methods (SDS 384-7: Spring 2022)
- Elements of Statistics (SDS 320E: Fall 2022)

Colorado State University, Dept. of FWCB, Fort Collins, CO. 2011-20

- Hierarchical Models in Ecology (FW 680, Fall 2011; FW/STAT 673, Fall 2013, 2015, 2017, 2019)
- Fish, Wildlife, and Conservation Biology Graduate Faculty Seminar (FW 692, Spr. 2016)
- Readings on Bayesian Analysis of Ecological Models and Data (ECOL 592, Fall 2011)
- Independent Study, Wildlife Biology (FW 495, Fall 2014)
- Guest Lectures: STAT 501 (Fall 2011-2019), STAT 192 (Spring 2012-2015, Fall 2019), FW 696 (Fall 2018-2019)

Utah State University, Dept. of Mathematics and Statistics, Logan, UT. 2006-10

- Applied Spatial Statistics (STAT 5410/6410, Fall 2006 - 2010)
- Statistics for Scientists (STAT 3000, Spring 2007, 2009, Fall 2007, 2008)
- Scientific Statistical Modeling: Directed Readings (STAT 6950, Spring 2007)
- Bayesian Statistics (STAT 6740, Spring 2008, 2010)

- Linear Regression and Time-Series (STAT 5100, Fall 2009 - 2010)

University of Missouri, Statistics Dept., Columbia, MO. 2002-04

Graduate Instructor

- Statistical Methods for Agriculture Graduate Students (STAT 207)
- Probability and Statistics for Business Students (STAT 150)

Graduate Lecturer

- Data Analysis for Graduate Students in Statistics (STAT 414)

University of Missouri, Forestry Dept., Columbia, MO. 1999-01

Graduate Lecturer

- Biometrics
- Geographic Information Systems
- Photogrammetry
- Remote Sensing

Post-Doctoral Fellows (Current):

- Xinyi Lu, Post-doctoral Fellow 2021-
- Clint Leach, Post-doctoral Fellow 2020-

Post-Doctoral Fellows (Former):

- Ann Raiho, Post-doctoral Fellow 2019-2021
- Henry Scharf, Post-doctoral Fellow 2018-2019
- Perry Williams, Post-doctoral Fellow 2016-2018
- Brian Gerber, Post-doctoral Fellow 2016-2017
- John Tipton, Post-doctoral Fellow 2016-2017
- Kristin Broms, Post-doctoral Fellow 2013-2016
- Trevor Hefley, Post-doctoral Fellow 2015-2016
- Viviana Ruiz-Gutierrez, Post-doctoral Fellow 2013-2014
- Tabitha Graves, Smith Post-doctoral Fellow 2012-2014

Graduate Students (Current):

- Brandon Carter (UT-Austin, PhD-Statistics), Com. Member.
- Hanna McCaslin (CSU, PhD-Ecology), **Co-Advisor** (w/ Kyle Horton).
- Connie Okasaki (UW, PhD-Ecology), Com. Member.
- Michael Schwob (UT-Austin, PhD-Statistics), **Advisor**.
- Justin Van Ee (CSU, PhD-Statistics), **Co-Advisor** (w/ Matt Koslovsky).
- George Valentine (CSU, MS-Ecology), **Co-Advisor** (w/ Yoichiro Kanno).
- Wilson Wright (CSU, PhD-Statistics), **Co-Advisor** (w/ Dan Cooley).

Graduate Students (Graduated):

- Xinyi Lu (CSU, PhD-Statistics), **Advisor**. 2021
- David Clancy (CSU, MS-Statistics), **Advisor**. 2019
- Henry Scharf (CSU, PhD-Statistics), **Advisor**. 2017
- Frances Buderman (CSU, PhD-Wildlife), **Advisor**. 2017
- Brian Brost (CSU, PhD-Ecology), **Advisor**. 2016
- John Tipton (CSU, PhD-Statistics), **Co-Advisor** (w/ Jean Opsomer). 2016
- Perry Williams (CSU, MS-Statistics), **Advisor**. 2015
- Shannon Kay (CSU, MS-Statistics), **Advisor**. 2015
- Alison Cartwright (CSU, MS-Statistics), **Co-Advisor** (w/ Jean Opsomer). 2013

- Ephraim M. Hanks (CSU, PhD-Statistics), **Advisor.** 2013
- Beth Ross (USU, PhD-Wildland Resources), **Co-Advisor** (w/ Dave Koons). 2013
- Martha Garlick (USU, PhD-App. Math), **Co-Advisor** (w/ Jim Powell). 2012
- Beth Ross (USU, MS-Statistics), **Advisor.** 2012
- Xiao Xiao (USU, MS-Statistics), **Advisor.** 2011
- Glenda Yenni (USU, MS-Statistics), **Advisor.** 2011
- Jess Anderson (USU, MS-Statistics), **Advisor.** 2011
- Mark Schmelter (USU, MS-Statistics), **Advisor.** 2011
- Ephraim M. Hanks (USU, MS-Statistics), **Advisor.** 2010
- Amanda R. Cangelosi (USU, MS-Statistics), **Advisor.** 2008
- Darl D. Flake (USU, MS-Statistics), **Advisor.** 2008
- Lachlan Griffin (QUT, MS-Statistics), Ext. Examiner 2021
- Abigail Feuka (CSU, MS-Wildlife Biology), Com. Member. 2021
- Toryn Schafer (MU, PhD-Statistics), Com. Member. 2020
- Francisco Peralta (Univ. of Cape Town, PhD-Statistical Ecology), External Examiner. 2020
- Ghulam Samad (CSU, PhD-Ecology), Com. Member. 2020
- Clint Leach (CSU, PhD-Biology), Com. Member. 2019
- Kyle Christianson (CSU, PhD-FWCB), Com. Member. 2019
- Shawna Zimmerman (CSU, PhD-Ecology), Com. Member. 2018
- Richard Glennie (Univ. of St. Andrews, Statistics), External Examiner. 2018
- Clint Leach (CSU, MS-Statistics), Com. Member. 2017
- Alison Ketz (CSU, PhD-Ecology), Com. Member. 2017
- Yang Liu (UBC, PhD-Statistics), External Examiner. 2017
- Zachary Weller (CSU, PhD-Statistics), Com. Member. 2017
- Katy Warner (CSU, PhD-FWCB), Com. Member. 2016
- Perry Williams (CSU, PhD-FWCB), Com. Member. 2015
- Brian Gerber (CSU, PhD-FWCB), Com. Member. 2015
- Kevin Blecha (CSU, MS-Ecology), Com. Member. 2015
- Joe Northrup (CSU, PhD-Wildlife), Com. Member. 2015
- Christian Roy (Univ. Laval, Canada, PhD-Ecology), External Examiner. 2015
- Shane Siers (CSU, PhD-Ecology), Com. Member. 2014
- Xiao Xiao (USU, PhD-Biology), Com. Member. 2014
- Ann Raiho (CSU, MS-Ecology), Com. Member. 2014
- Eric Gardunio (CSU, MS-FWCB), Com. Member. 2014
- Glenda Yenni (USU, PhD-Biology), Com. Member. 2013
- Aldo Compagnoni (USU, PhD-Wildland Resources), Com. Member. 2013
- Mark Schmelter (USU, PhD-Engineering), Com. Member 2013
- Christy Meredith (USU, PhD-Wildland Resources), Com. Member. 2012
- Andrew Rayburn (USU, PhD-Wildland Resources), Com. Member. 2011
- John Lowry (USU, PhD-Wildland Resources), Com. Member. 2010
- Peter Sherick (USU, MS-Statistics), Com. Member. 2010
- Audrey Smith (USU, MS-Mathematics), Com. Member. 2010
- Tammy L. Wilson (USU, PhD-Wildland Resources), Com. Member. 2010
- Amanda Bakian (USU, MS-Statistics), Com. Member. 2008
- Randy Larsen (USU, PhD-Wildland Resources), Com. Member. 2008

Employees (Former):

- Michael Schwob, Statistical Technician 2020
- Christopher Peck, Research Associate 2017-2018
- Jonathan Lewis, Research Associate 2015-2016
- Joseph Halseth, Research Associate 2013-2015