Curriculum Vitae

Perry J. Williams

Associate Professor of Ecology and Statistics
Department of Natural Resources & Environmental Science
Mail Stop 0186
1664 N. Virginia St.
University of Nevada
Reno, Nevada 89577

Phone: (763) 923-5423
Fax: (970) 491-1413
Email: perryw@unr.edu
Website: `http://www.perrywilliams.us`

Education

Post-Doctoral Fellow
Department of Statistics
Colorado State University
Post-doc advisor: Mevin Hooten
Jan 2016–Jun 2018

Ph.D. Colorado State University, 2016
Colorado Cooperative Fish and Wildlife Research Unit
Department of Fish, Wildlife, and Conservation Biology
Advisor: William Kendall
GPA: 4.0

M.S. Colorado State University, 2015
Department of Statistics
Advisor: Mevin Hooten

M.S. University of Minnesota–Twin Cities, 2008
Department of Fish, Wildlife, and Conservation Biology
Plan: Natural Resources Science and Management
Sub-Plan: Wildlife Ecology and Management
Advisor: R. J. Gutiérrez, co-Advisor: David Andersen

B.A. Saint Olaf College, 2006, *Cum laude*
Major: Biology (with distinction)
Concentration: Environmental Studies
Advisor: Eugene Bakko

Employment

Associate Professor
Department of Natural Resources & Environmental Science
University of Nevada, Reno
1664 N Virginia St, Reno NV
Jul 2024–Present

Assistant Professor
Department of Natural Resources & Environmental Science
University of Nevada, Reno
1664 N Virginia St, Reno NV
Jul 2018–Jun 2024

Wildlife Biologist (GS 11)
U. S. Fish and Wildlife Service
Natural Resource Program Center
Oct 2011–Aug 2018

Wildlife Biologist (GS 9)
U. S. Fish and Wildlife Service
Big Oaks National Wildlife Refuge
Jan 2009–Oct 2011

Wildlife Biologist Trainee (Student Career Experience Program; GS 5)
U. S. Fish and Wildlife Service
Fergus Falls Wetland Management District
Jan–Dec 2008

Research Experience for Undergraduates (REU) student
Department of Biology
Kansas State University
Jun–Aug 2005

Publications

^{u} =Undergraduate student advised
^{g}=Graduate student advised
^{p}=Post-doctoral fellow advised
^{s} = Senior author

Journal Articles

In Review/ Revision

3. Golden^{g}, JE, JG Barnes, and PJ Williams^{s} *In Review.* Estimating Survival and Population Trajectories of Golden Eagles in Nevada. *Journal of Raptor Research.*

2. Acevedo^{g}, CR, PJ Williams^{s}, JS Sedinger, and T Dilts. *In Review.* Spatio-temporal drivers of sage-grouse population change in Nevada. *Ecology and Evolution.*

1. Shoemaker, KT, H Reich, PJ Williams, M Osterhout, J Vasquez, J Beckmann, C Lackey, KM Stewart. Late season frosts and changing snowpack may exacerbate human-bear conflicts. *Ecosphere.*

Accepted

2. Brockman^{g}, JC, PS Coates, JC Tull, ST O'Neil, and PJ Williams^{s}. *Accepted.* The effects of breeding status on common raven movement, home range, and habitat selection. *The Journal of Wildlife Management.* **IF: 2.6**

1. Wann, G, A Whipple, E Orning, M McLachlan, J Beck, PS Coates, C Conway, J Dinkins, A Johnston, C Hagen, P Makela, D Naugle, M Schroeder, J Sedinger, B Walker, PJ Williams, R Inman, C Aldridge. *Accepted. The Journal of Wildlife Management.* Greater sage-grouse seasonal habitat associations: A review and considerations for interpretation and management applications. **IF: 2.6**

Published

45. Eisaguirre, JM, MG Lohman[g], GG Frye, HE Johnson, TV Riecke, & PJ Williams[s]. *2025.* Estimating spatially explicit survival and mortality risk from telemetry data with thinned point process models. Ecology Letters e70092. **IF: 7.6**.

44. Eisaguirre[p], JM, PJ Williams[s], and MB Hooten. 2024 Rayleigh step-selection functions and connections to coninuous-time mechanistic movement models. *Movement Ecology.* 12:14 pages. **IF: 3.4**

43. Blum[p], ME, JR Bennett, FE Buderman, KM Stewart, M Cox, and PJ Williams[s]. 2024. Comparing contemorary models to traditional indices to estimate abundance of desert bighorn sheep. *Journal of Wildlife Management.* 88:e22517. **IF: 2.6**

42. Eisaguirre[p], JM, PJ Williams[s], X Lu, ML Kissling, PA Schuette, BP Weitzman, WS Beatty, GG Esslinger, JN Womble, and MB Hooten. 2023. Informing management of recovering predators and their prey with ecological diffusion models. *Frontiers in Ecology and the Environment.* 21:479–488. **IF: 13.8**.

41. Eisaguirre[p], JM, PJ Williams[s], JC Brockman[g], SB Lewis, C Barger, G Breed, and T Booms. 2023. A hierarchical modeling framework for estimating individual- and population-level reproductive success from movement data. *Methods in Ecology and Evolution.* 14:2110–2122. **IF: 8.3**.

40. Keating[g] MP, PJ Williams[s], JR Robb, FE Buderman, JP Lewis, T Vanosdol, and R Harer[u]. 2023. Henslow's sparrow shows positive response to prescribed fire rotation. *Ornithological Applications.* 125, duad018. **IF: 2.8**.

39. Williams[s], PJ, X Lu, HR Scharf, and MB Hooten. 2023. Embracing Asymmetry in Nature: How to account for skewness in ecological data. *Ecological Informatics* 75: 102085. **IF: 4.5**.

38. Riecke[p], TV, MG Lohman[g], BS Sedinger[p], TW Arnold, C Feldheim, DN Koons, F Rohwer, M Schaub, PJ Williams, and JS Sedinger. 2022. Density-dependence produces spurious relationships among demographic parameters in harvested species. *Journal of Animal Ecology* 91:2261–2272. **IF: 5.6**. (Open Access).

37. Ellis[u], S, TV Riecke[p], MG Lohman[g], PJ Williams, JS Sedinger. 2022. Long-term trends and drought: spatiotemporal variation in juvenile sex ratios of North American ducks. *Ecology and Evolution* 12:e9099. **IF: 3.2**. (Open Access).

36. Riecke[p], TV, BS Sedinger[p], TW Arnold, D Gibson, DN Koons, MG Lowhman[g], M Schaub, PJ Williams, and JS Sedinger. 2022 A hierarchical model for jointly assessing ecological and anthropogenic impacts on animal demography. *Journal of Animal Ecology* 91:1612–1626. **IF: 5.6**. (Open Access).

35. Street[p], PA, TV Riecke[p], PJ Williams, TL Behnke, and JS Sedinger. 2022. Estimating survival and adoption rates of dependent juveniles. *Ecology and Evolution* 12:e9005. **IF: 3.2**. (Open Access).

34. Koons, DN, TV Riecke[p], GS Boomer, BS Sedinger[p], JS Sedinger, PJ Williams, and TW Arnold. 2022. A niche model in adaptive resource management. *Ecology and Evolution* 12:e8541. **IF: 3.2**. (Open Access).

33. Scharf, HR, X Lu, PJ Williams, and MB Hooten. 2022. Constructing flexible, identifiable, and interpretable statistical models for binary data. *International Statistical Review* 90:328–345. **IF: 1.9**. (PDF)

32. O'Neil, ST, PS Coates, JC Brockman[g], PJ Jackson, JO Spencer, and PJ Williams[s]. 2021. Inter- and intra-annual effects of lethal removal on common raven abundance in Nevada and California, USA. *Human–Wildlife Interactions* 15:Iss.3, Article 20. **IF: 0.9**. (Open Access).

31. Lohman[g], MG, TV Riecke[p], PJ Williams, and JS Sedinger. 2021. Individual heterogeneity in fitness in a long-lived herbivore. *Ecology and Evolution* 11:15164–15173. **IF: 3.2**. (Open Access).

30. Leach, CB, PJ Williams, JM Eisaguirre[p], JN Womble, MR Bower, and MB Hooten. 2021. Recursive Bayesian computation facilitates adaptive optimal design in ecological studies. *Ecology* 103: e03573. **IF: 4.7**. (PDF)

29. Eisaguirre[p], JM, PJ Williams[s], X Lu, M Kissling, W. Beatty, GG Esslinger, JN Womble, and MB Hooten. 2021. Diffusion modeling reveals effects of multiple release sites and human activity on a recolonizing apex predator. *Movement Ecology* 9: 34. **IF: 5.3**. (Open Access).

28. Womble, JN, PJ Williams[s], RW McNabb, A Prakash, R Gens, BS Sedinger[p], and CR Acevedo[g]. 2021. Harbor seals as sentinels of Ice Dynamics in Tidewater Glacier Fjords. *Frontiers in Marine Science* 8: 634541. **IF: 5.2**. (Open Access).

27. Acevedo[g] CR, TV Riecke[p], AG Leach, MG Lohman[g], PJ Williams, and JS Sedinger. 2020. Long-term research and hierarchical models reveal consistent fitness costs of being the last egg in a clutch. *Journal of Animal Ecology* 89:1978–1987. **IF: 5.6**. (Open Access).

26. Williams, PJ[s], C Schroeder, PJ Jackson. 2020. Estimating reproduction and survival of unmarked juveniles using aerial images and marked adults. *Journal of Agricultural, Biological and Environmental Statistics* 25: 133–147. **IF: 2.3**. (Open Access).

25. Lu, Xinyi, PJ Williams, MB Hooten, JA Powell, JN Womble, and MR Bower. 2020. Nonlinear reaction-diffusion process models improve inference for population dynamics. *Environmetrics* 31:e2604. **IF: 1.5**. (PDF).

24. Riecke[p], TV, BS Sedinger[p], PJ Williams, AG Leach, and JS Sedinger. 2019. Estimating correlations among demographic parameters in population models. *Ecology and Evolution* 9:13521–13531. **IF: 3.2**. (Open Access).

23. Williams, PJ, WL Kendall, and MB Hooten. 2019. Selecting ecological models using multi-objective optimization. *Ecological Modelling* 404:21–26. **IF: 3.5**. (Open Access).

22. Riecke[p], TV, PJ Williams[s], TL Behnke, D Gibson, AG Leach, BS Sedinger[p], PA Street, and JS Sedinger. 2019. Integrated population models: model assumptions and inference. *Methods in Ecology and Evolution* 10:1072–1082. **IF: 8.3**. Free Access.

21. Williams[s], PJ, MB Hooten, GG Esslinger, JN Womble, JL Bodkin, and MR Bower. 2019. The rise of an apex predator following deglaciation. *Diversity and Distributions* 25:895–908. **IF: 5.7**. (Open Access).

20. Conn, PB, DS Johnson, PJ Williams, SR Melin, and MB Hooten. 2018. A guide to Bayesian model checking for ecologists. *Ecological Monographs* 88:526–542. **IF: 9.8**. (PDF).

19. Williams[s], PJ, MB Hooten, GG Esslinger, JN Womble, and MR Bower. 2018. Monitoring dynamic spatio-temporal ecological processes optimally. *Ecology* 99:524–535. **IF: 4.7**. (PDF).

18. Williams, PJ, MB Hooten, JN Womble, and MR Bower. 2017. Estimating occupancy and abundance using aerial images with imperfect detection. *Methods in Ecology and Evolution* 8:1679–1689. **IF: 8.3**. (Free Access).

17. Williams, PJ, MB Hooten, JN Womble, GG Esslinger, and MR Bower. 2017. An integrated data model to estimate spatio-temporal occupancy, abundance, and colonization dynamics. *Ecology* 98:328–336. **IF: 4.7**. (PDF).

16. Hefley, TJ, KM Broms, BM Brost, FE Buderman, SL Kay, HR Scharf, JR Tipton, PJ Williams, and MB Hooten. 2017. The basis function approach to modeling autocorrelation in ecological data. *Ecology* 98:632–646. **IF: 4.7**. (PDF).

15. Williams, PJ, and WL Kendall. 2017. A guide to multi-objective optimization for ecologists with an application to cackling goose management. *Ecological Modelling* 343:54–67. **IF: 3.5**. (Open Access).

14. Williams, PJ and MB Hooten. Combining statistical inference and decisions in ecology. 2016. *Ecological Applications* 26:1930–1942. **IF: 6.1**. (PDF).

13. Crimmins, SM, PC McKann, JR Robb, JP Lewis, T Vanosdol, BA Walker, PJ Williams and WE Thogmartin. 2016. Factors affecting Henslow's sparrow (*Ammodramus henslowii*) nest survival in southern Indiana. *Wilson Journal of Ornithology* 128. **IF: 0.5**. (PDF).

12. Vigil, E, MKR Christianson, JM Lepak, and and PJ Williams. 2016. Temperature effects on hatching and viability of juvenile gill lice, *Salmincola californiensis*. *Journal of Fish Diseases* 39: 899–905. **IF: 2.8**. (PDF).

11. Gerber, BD, PJ Williams, and LL Bailey. 2014. Primates and Cameras: Non-invasive sampling to make population-level inferences while accounting for imperfect detection. *International Journal of Primatology* 35:841–858. **IF: 2.6**. (PDF).

10. Williams, PJ, SH Whitmore, and RJ Gutiérrez. 2014. Use of private lands for foraging by California spotted owls in the central Sierra Nevada. *Wildlife Society Bulletin* 38:705–709. **IF: 0.5**. (PDF).

9. Williams, PJ, NJ Engbrecht, JR Robb, and VCK Terrell, and M. J. Lannoo. 2013. Surveying a threatened amphibian species through a narrow detection window. *Copiea* 2013:552–561. **IF: 1.9**. (PDF).

8. Engbrecht, NJ, MJ Lannoo, PJ Williams, JR Robb, T Gerardot, DR Karns, and M Lodato. 2013. Is there hope for the Hoosier Frog? An update on the status of Crawfish Frogs (*Lithobates areolatus*) in Indiana, with recommendations for their conservation. *Proceedings of the Indiana Academy of Science* 121:147–157. **IF: 1.4**. (PDF).

7. Heemeyer, JL, PJ Williams, and MJ Lannoo. 2012. Obligate crayfish burrow use and core habitat requirements of crawfish frogs. *Journal of Wildlife Management* 76:1081–1091. **IF: 2.6**. (PDF).

6. Williams, PJ, JR Robb, and DR Karns. 2012. Habitat selection by crawfish frogs (*Lithobates areolatus*) in a large mixed grassland/forest habitat. *Journal of Herpetology* 46:682–688. **IF: 1.4**. (PDF).

5. Williams, PJ, JR Robb, and DR Karns. 2012. Occupancy dynamics of breeding crawfish frogs in southeastern Indiana. *Wildlife Society Bulletin* 36:350–357. **IF: 0.5**. (PDF).

4. Williams, PJ, JR Robb, RH Kappler, TE Piening, and DR Karns. 2012. Intraspecific density dependence in larval development of the crawfish frog, *Lithobates areolatus*. *Herpetological Review* 43:36–38. **IF: 0.2**. (PDF).

3. Williams, PJ, RJ Gutiérrez, and S Whitmore. 2011. Home range and habitat selection of the spotted owl in the central Sierra Nevada. *Journal of Wildlife Management* 75:333–343. **IF: 2.6**. (PDF).

2. Hoffman, AS, J Heemeyer, PJ Williams, JR Robb, DR Karns, and MJ Lannoo. 2010. Strong site fidelity and a variety of imaging techniques reveal activity patterns in crawfish frogs (Lithobates areolatus), a species of conservation concern. *BioScience* 60:829–834. **IF: 11.6**. (PDF).

1. Schook, DM, MD Collins, WE Jensen, PJ Williams, NE Bader, and TH Parker. 2008. Geographic patterns of song similarity in the Dickcissel. *The Auk* 125:953–964. **IF: 1.0**. (PDF).

Book Chapters

1. Gerber, BD, and PJ Williams. 2020. Decision-making and monitoring strategies in natural resource management and conservation. In Wang, Yeqiao, Editor, Terrestrial Ecosystems and Biodiversity, 2nd Edition. CRC Press.

Graduate Student Theses

4. Golden[g] J. Use and survival of greater sage-grouse in meadows managed for non-native ungulate grazing in Nevada. University of Nevada, Reno M.S. Thesis. 2023.

3. Byrne[g] M. Examining the impact of mercury on waterfowl population dynamics with implications for human health and water management in arid environments. University of Nevada, Reno M.S. Thesis. 2023.

2. Acevedo[g] CR. Spatio-temporal population dynamics of Nevada greater sage-grouse from 2000-2018. University of Nevada, Reno M.S. Thesis. 2021.

1. Keating[g] MP. Estimating spatial locations of attraction through time with animal movement data. University of Nevada, Reno M.S. Thesis. 2021.

Extension Publications

10. Williams, PJ 2017. Monitoring the distribution and abundance of sea otters. Methods in Ecology and Evolution Blog. (Link)

9. Womble, JN, PJ Williams, MB Hooten, LF Taylor-Thomas, W Johnson, and MR Bower. 2017. Protocol for monitoring the abundance and spatial distribution of sea otters in Glacier Bay National Park & Preserve, Alaska. National Park Service, Natural Resource Report.

8. Williams, PJ and MB Hooten. 2017. The extraordinary return of sea otters to Glacier Bay, The Conversation. (Link)

7. Williams, PJ 2017. Monitoring the sea otters in Glacier Bay National Park, The Wildlife Management Institute. (Link)

6. Williams, PJ 2015. Methods for incorporating population dynamics and decision theory in cackling goose management. Ph.D. Dissertation, Colorado State University. Fort Collins, CO.

5. Williams, PJ 2015. Combining statistical inference and decisions in ecology. M.S. Thesis, Colorado State University. Fort Collins, CO.

4. Williams, PJ 2015. Structured decision making for setting the population objective and management trigger points of cackling geese: report to the Pacific Flyway, cackling goose sub-committee.

3. Lesmeister, DB, S Blomquist, EV Lonsdorf, D Wood, PJ Williams, B Pendley, KE Mangan, BA Walker. 2014. Forest invasive adaptive management on National Wildlife Refuge Lands in the central hardwood region. Proceedings of the 19th Central Hardwood Forest Conference 19:22–35.

2. Williams, PJ 2008. Home range and foraging habitat selection of spotted owls in the central Sierra Nevada. M.S. Thesis, University of Minnesota. St. Paul, MN.

1. Gutiérrez, RJ, S Whitmore, ME Seamans, G Zimmerman, PJ Williams, and P Stine 2008. Acute effects of canopy reduction on California spotted owls: challenges for adaptive management. Technical Report to USFS.

Presentations

Invited

45. Williams, PJ, Mathews-Sanchez, C, Wulfhorst, JD, Linhart, B, Mosley, J, Lee, K, Ritten, J, Dinkins, J, McNew, L, Beck, J, Dahlgren, D, Sedinger, J, & Hagen, C. Sustaining rural livelihood, livestock grazing, and sage-grouse habitat in the West. ACES: A Community on Ecosystem Services Conference, Austin, TX, Dec, 2024.

44. Williams, PJ, Mathews-Sanchez, C, Wulfhorst, JD, Linhart, B, Mosley, J, Lee, K, Ritten, J, Dinkins, J, McNew, L, Beck, J, Dahlgren, D, Sedinger, J, & Hagen, C. Sustaining rural livelihood, livestock grazing, and sage-grouse habitat in the western sagebrush ecosystems. NRES Department Seminar, Reno, NV, Sep, 2024.

43. Lohman, MG, TV Riecke, R Alisauskas, D Gibson, B Sedinger, JS Sedinger, & PJ Williams, Sex-specific survival in mallards may be related to spatial variation in habitat. Invited plenary presentation, DUCKS9, Portland, Oregon, February, 2024.

42. Jackson, P, S O'Neil, P Coates, JC Brockman[g], J Spencer, and PJ Williams[s]. Inter- and intra-annual effects of lethal removal on common raven abundance in Nevada and California, USA. The Annual Meeting of The Wildlife Society, Nov, 2022.

41. Eisaguirre[p], JM, PJ Williams[s], X Lu, ML Kissling, WS Beatty, GG Esslinger, JN Womble, and MB Hooten. Diffusion modeling reveals effects of multiple release sites and human activity on a recolonizing apex predator. Sea Otter Research and Conservation Symposium (virtual). Apr, 2021.

40. Riecke[p], TV, PJ Williams[s], AG Leach, MG Lohman[g], and JS Sedinger. Climatic oscillations and tri-trophic interactions alter selection pressures in migratory geese across 40 degrees of latitude. Institute for Waterfowl and Wetland Research, Research Roundup Webinar (virtual). Feb 4th, 2021.

39. Riecke[p] TV, CR Acevedo[g], J Hegelbach, M Kery, AG Leach, DJ Koons, MG Lohman[g], JS Sedinger, PJ Williams, and M Schaub. Bayesian models for Vogelkunde: phenotypic selection, senescence, and mating systems. Swiss Ornithological Institute, Sempach, Switzerland, Nov 30th, 2020.

38. Brockman[g] JC, L Perry, T Owens, LJ Foster, JB Cupples, JD Taylor, JC Tull, PJ Jackson, PS Coates, JB Dinkins, and PJ Williams[s]. Raven Habitat Selection and Space Use. Raven Management Workshop and Forum. Elko, NV. Aug, 2021.

37. Sedinger[p] BS, TV Riecke[p], PJ Williams, and JS Sedinger. Cross-seasonal Atlantic Flyway mallard models. Atlantic Flyway Migratory Bird Technical Sections, Portsmouth, NH. Feb 24th, 2020.

36. Riecke[p] TV, BS Sedinger[p], MG Lohman[g], PJ Williams, and JS Sedinger. Demographic analyses and harvest management of mallards in North America. Atlantic Flyway Migratory Bird Technical Sections, Portsmouth, NH. Feb 24th, 2020.

35. Brockman[g] JC, PS Coates, PJ Jackson, and PJ Williams[s]. Common raven nest attraction and juvenile dispersal. National Bird Damage Management Conference. Salt Lake City, UT. Feb, 2020

34. Lohman[g] MG, TV Riecke[p], JS Sedinger, and PJ Williams[s]. Spatial variation in mallard survival in the Prairie Pothole Region. The California Waterfowl Association Science Symposium. Roseville, CA. Jan 23rd, 2020.

33. Riecke[p] TV, BS Sedinger[p], MG Lohman[g], PJ Williams, and JS Sedinger. Demographic analyses and harvest management of mallards in North America. The California Waterfowl Association Science Symposium. Roseville, CA. Jan 23rd, 2020.

32. Williams, PJ, X Lu, MB Hooten, JN Womble, and MR Bower. A spatio-temporal model for ecological colonization, growth, and regulation. Joint Statistical Meetings of the American Statistical Association, Denver, CO, 2019.

31. TV Riecke[p], PJ Williams, TL Behnke, D Gibson, AG Leach, BS Sedinger[p], PA Street, and JS Sedinger. Integrated population models: model assumptions and inference. American Fisheries Society and The Wildlife Society 2019 Joint Annual Conference, Reno, NV, 2019

30. Sedinger[p], BS, TV Riecke[p], JS Sedinger, F Rohwer, C Feldheim, and PJ Williams. Rethinking harvest management from a life-history perspective. American Fisheries Society and The Wildlife Society 2019 Joint Annual Conference, Reno, NV, 2019

29. CR Acevedo[g] and PJ Williams[s]. Spatio-temporal Dynamics of Sage-Grouse Populations in Nevada. American Fisheries Society and The Wildlife Society 2019 Joint Annual Conference, Reno, NV, 2019.

28. Sedinger[p], BS, TV Riecke[p], JS Sedinger, F Rohwer, C Feldheim, and PJ Williams. Rethinking harvest management from a life-history perspective. American Fisheries Society and The Wildlife Society 2019 Joint Annual Conference. Reno, NV. Oct 3rd, 2019.

27. Acevedo[g] CR and PJ Williams[s]. Spatio-temporal dynamics of sage-grouse populations in Nevada. American Fisheries Society and The Wildlife Society 2019 Joint Annual Conference. Reno, NV. Oct, 2019.

26. Riecke[p] TV, PJ Williams[s], TL Behnke, D Gibson, AG Leach, BS Sedinger[p], PA Street, JS Sedinger. Integrated population models: model assumptions and inference. American Fisheries Society and The Wildlife Society 2019 Joint Annual Conference. Reno, NV. Oct 2nd, 2019.

25. Williams, PJ. Plenary Speaker at Suisun Marsh Landowner Fall Science Symposium. "Studying landscape-scale movements of ducks across the year: past, present, and future of movement models"

24. Riecke[p], TV, BS Sedinger[p],T Arnold, C Feldheim, D Koons, F Rowher, PJ Williams, JS Sedinger. Abundance drives cause-specific teal mortality. The North American Duck Symposium, Winnipeg, Canada, 2019.

23. Bennett, J., M. Blum, and P.J. Williams[s]. Estimating detection probability using mark-resight models in a central Nevada Desert Bighorn Sheep Population. Desert Bighorn Council Meeting. Mesquite, Nevada, 2019.

22. Williams, PJ. Plenary Speaker. Studying landscape-scale movements of ducks across the year: past, present, and future of movement models. Suisun Marsh Landowner Fall Science Symposium. Dixon, CA. Aug, 2019.

21. Riecke[p] TV, BS Sedinger[p], TW Arnold, CL Feldheim, DN Koons, FC Rohwer, PJ Williams, JS Sedinger. Abundance drives cause-specific teal mortality. The 8th North American Duck Symposium. Winnipeg, MB, Aug 30th, 2019.

20. Sedinger[p] BS, TV Riecke[p], TW Arnold, CL Feldheim, MG Lohman[g], FC Rohwer, RT Alisauskas, DN Koons, JS Sedinger, and PJ Williams. Cross-seasonal models reveal evidence for density- dependence, climate-mediated survival, and harvest compensation in mallards. The 8th North American Duck Symposium. Winnipeg, MB. Aug 30th, 2019.

19. Lohman[g] MG, TV Riecke[p], JS Sedinger, PJ Williams[s]. Spatiotemporal variation in waterfowl demography, 8th North American Duck Symposium, Winnipeg, MB, 30 August 2019.

18. Williams, PJ, MB Hooten, JN Womble, GG Esslinger, and MR Bower. Modeling and monitoring sea otters in Glacier Bay. University of Alaska Fairbanks, College of Fisheries and Ocean Sciences, Juneau, AK. Sep 2017.

17. Williams, PJ, MB Hooten, JN Womble, GG Esslinger, and MR Bower. A new monitoring program for sea otters in Glacier Bay. Glacier Bay National Park, Gustavus, AK. Sep 2017

16. Williams, PJ, MB Hooten, JN Womble, GG Esslinger, and MR Bower. Optimal dynamic sampling of a spreading population. Joint Statistical Meeting (JSM), Baltimore, MD. Aug 2017.

15. Williams, PJ, MB Hooten, JN Womble, GG Esslinger, and MR Bower. Monitoring dynamic spatio-temporal ecological systems optimally: a case study using sea otters in Glacier Bay, Alaska. NOAA Seminar Series, Silver Spring, MD. Aug 2017.

14. Williams, PJ, MB Hooten, JN Womble, GG Esslinger, and MR Bower. Monitoring dynamic spatio-temporal processes optimally. Department of Statistics, Colorado State University, Fort Collins, CO. Jul 2017.

13. Williams, PJ, MB Hooten, JN Womble, GG Esslinger, and MR Bower. Modeling and monitoring sea otters in Glacier Bay, Alaska. Colorado cooperative fish and wildlife research unit–coordinating meeting, Fort Collins, CO. Mar 2017.

12. Womble, JN, Williams[s], PJ, MB Hooten, GG Esslinger, MR Bower, and H Coletti. Contemporary models and aerial photographic monitoring methods for a new vital sign: sea otters in Glacier Bay National Park. Centennial Science and Stewardship Symposium, Fairbanks, AK. Oct 2016.

11. Williams, PJ, MB Hooten, JN Womble, GG Esslinger, and MR Bower. Spatio-temporal monitoring and modeling of sea otters in Glacier Bay: past and future. Glacier Bay National Park, Gustavus, AK. Jun 2016

10. Robb, JR, BA Walker, PJ Williams, and TA Gerardot. Management of crawfish frogs (*Lithobates areolatus*) based on experimental pond manipulation, occupancy modeling, and use of habitat at Big Oaks National Wildlife Refuge in southeastern Indiana. PARC Partners on Habitat Symposium, SSAR Annual Meeting, Lawrence, KS. Jul 2015.

9. Williams, PJ Population dynamics and management of cackling geese. The Pacific Flyway Council Meeting, San Diego, CA. Dec 2014.

8. Williams, PJ. Population dynamics and management of cackling geese. The Wildlife Society's 21st Annual Conference. Pittsburgh, PA. Oct, 2014.

7. Williams, PJ. A decision tool for managing cackling geese across their range. Adaptive Management Conference Series, Fort Collins, CO. May 2014.

6. Williams, PJ. Adaptive management of cackling geese. Pacific Flyway Council Meeting, Reno, NV. Jul 2013.

5. Williams, PJ. A comprehensive research program for the crawfish frog - A Species of Conservation Concern. Hanover College, Biological Seminar Series. Hanover, IN. Sep 2010.

4. Williams, PJ. The spotted owl: a quarter century of controversy and contributions to wildlife science. Invited talk, Big Oaks Conservation Society, Biological Seminar Series. Madison, IN. Mar 2010.

3. Williams, PJ. Habitat use by the northern crawfish frog. Southeastern Partners in Amphibian and Reptile Conservation Annual Meeting. Altoona, FL. Feb 2010.

2. Williams, PJ. Activity patterns by the northern crawfish frog. Southeastern Partners in Amphibian and Reptile Conservation Annual Meeting. Altoona, FL. Feb 2010.

1. Williams, PJ. Home range and habitat selection of the California spotted owl in the central Sierra Nevada. University of California Berkeley, Blodgett Forest Experimental Research Station. Georgetown, CA. Aug 2007.

Contributed

64. Brockman, JC[g], JM Eisaguirre, PS Coates, PJ Jackson, JC Tull, & PJ Williams[s]. A Spatio-Temporal Model to Monitor Common Raven Populations in the Western United States. The Wildlife Society Annual Conference, Baltimore, MD, October, 2024.

63. Pletcher[g], E, S Filippelli, PJ Williams, M Shawcroft, J Vogeler, and RK Shriver. Sixty years of historical aerial imagery provide a novel source of demographic data, but not without accounting for key sources of detection error. Annual Meeting of the Ecological Society of America, Long Beach, CA, August 2024.

62. Eisaguirre, JM, MG Lohman[g], GG Frye, HE Johnson, TV Riecke, PJ Williams[s]. Estimating spatially explicit survival and mortality risk from telemetry data with thinned point process models. Alaska Chapter of The Wildlife Society Annual Meeting, Anchorage, AK, April, 2024.

61. Schuyler, JC[g], JM Eisaguirre, PA Schuette, SA Hanchett, B Benter, B Weitzman, and PJ Williams[s]. Is sea otter harvest correlated with their population spread and abundance in southeast Alaska? The Nevada Chapter of the Wildlife Society Science Symposium. Reno, NV, February, 2024.

60. Mathews-Sanchez[g], C, C Hagen, J Beck, D Dahlgren, J Dinkins, L McNew, J Sedinger, and PJ Williams[s]. Greater sage-grouse range-wide trends and drivers of population change. The Nevada Chapter of the Wildlife Society Science Symposium. Reno, NV, February, 2024.

59. Brockman, JC[g], P Coates, P Jackson, J Tull, ST O'Neil, PJ Williams[s]. The effect of breeding status on common raven movement, home range, and habitat selection. The Nevada Chapter of the Wildlife Society Science Symposium. Reno, NV, February, 2024.

58. Shane[g], TL, L Wade, PJ Williams, RA Washington-Allen, BL Perryman. Multi-temporal comparisons between SUAS photogrammetry/spatial analysis methods and field-based vegetation measurements collected by humans. Society of Range Management Annual Meeting. Sparks, NV, January, 2024.

57. M. G. Lohman[g], T. V. Riecke, J. S. Sedinger, and P. J. Williams[s], Relationships between the environment and female mallard demographic rates, Nevada American Statistical Association Symposium, Reno, Nevada, October, 2023.

56. Wann, GT, CL Aldridge, MM McLachlan, JL Beck, T Bowden, PS Coates, CJ Conway, DK Dahlgren, JB Dinkins, AN Johnston, CA Hagen, PD Makela, DE Naugle, BR Noon, MA Schroeder, JS Sedinger, L Waldner, BL Walker, PJ Williams, and AL Whipple. Predicting range-wide seasonal habitats for greater sage-grouse: Leveraging local studies for broad-scale reference. The Annual Meeting of The Wildlife Society. Portland, OR, Nov, 2023.

55. Eisaguirre[p], JM, PJ Williams[s], JC Brockman[g], SB Lewis, C Barger, GA Breed, and T Booms. A hierarchical modeling framework for estimating individual- and populationlevel reproductive success from movement data. WNAR (Western North American Region of the International Biometric Society)/IMS Annual Meeting. Anchorage, AK, August, 2023.

54. Schuyler[g], JC, PJ Williams[s], JE Eisaguirre, PA Schuette, SA Hanchett, and B Benter. Is sea otter harvest correlated with their population spread and abundance in southeast Alaska. 13th International Mammalological Congress. Anchorage, AK, July, 2023.

53. Eisaguirre[p], J.M., P.J. Williams[s], X. Lu, P. Schuette, B. Weitzman. G.G. Esslinger, J.N. Womble, M.B. Hooten. Using ecological diffusion to inform the management of sea otters. Sea Otter Conservation Workshop. Seattle, WA, March 2023.

52. Brockman[g], JC, PS Coates, PJ Jackson, JC Tull, and PJ Williams[s]. Raven space use and habitat selection: differences between breeding classes. The Nevada Chapter of the Wildlife Society Science Symposium. Reno, NV. Apr 4th, 2023.

51. Golden[g], J, PA Street[p], JS Sedinger, and PJ Williams[s]. Estimating density of sage grouse at summer brood rearing habitat using hierarchical distance sampling. The Nevada Chapter of the Wildlife Society Science Symposium. Reno, NV. Apr 5th, 2023.

50. Eisaguirre[p], JM, PJ Williams[s], X Lu, ML Kissling, P Schuette, WS Beatty, GG Esslinger, JN Womble, and MB Hooten. Using ecological diffusion to inform management of a recovering apex predator. International Statistical Ecology Conference (ISEC; virtual). July 2022.

49. Eisaguirre[p], JM, PJ Williams[s], X Lu, ML Kissling, P Schuette, WS Beatty, GG Esslinger, JN Womble, and MB Hooten. Diffusion modeling reveals effects of multiple release sites and human activity on a recolonizing apex predator. Biennial Conference on the Biology of Marine Mammals. Palm Beach, FL. Aug, 2022.

48. Brockman[g] JC, PS Coates, PJ Jackson, JC Tull, and PJ Williams[s]. Home range and habitat selection of common ravens during the breeding season in northern Nevada. The 69th Annual Meeting of the Western Section of The Wildlife Society. Reno, NV. Feb, 2022.

47. Byrne[g] MA, MS Gustin, C Nicolai, and PJ Williams[s]. Investigating the relationship between mercury in feathers and tissues in waterfowl from the Carson River Watershed, Nevada. The Annual Meeting of The Wildlife Society, Nov, 2022.

46. Eisaguirre[p] J, PJ Williams[s], X Lu, P Schuette, B Weitzman, W Beatty, G Esslinger, JN Womble, and MB Hooten. Informing management of recovering predators and their prey with ecological diffusion models. The Annual Meeting of The Wildlife Society, Nov, 2022.

45. Mason[u], Z, MG Lohman[g], and PJ Williams.[s] Age and sex specific spatio-temporal distribution of mallard band recoveries in North America. The Annual Meeting of The Wildlife Society, Nov, 2022.

44. Brockman[g] JC, P Coates, P Jackson, J Tull, and PJ Williams.[s] A spatio-temporal model to monitor common raven populations in the western United States. The Annual Meeting of The Wildlife Society, Nov, 2022.

43. Golden[g] J, PA Street[p], JS Sedinger, and PJ Williams[s].Estimating density of sage-grouse at summer brood rearing habitat using modified distance sampling. The Annual Meeting of The Wildlife Society, Nov, 2022.

42. Byrne[g] MA, MS Gustin, C Nicolai, and PJ Williams[s]. Investigation of the relationship of mercury between feathers and tissues in wood ducks from the Carson River, NV. The 69th Annual Meeting of the Western Section of the Wildlife Society. Reno, NV. Feb, 2022.

41. Byrne[g] MA, MS Gustin, C Nicolai, and PJ Williams[s]. Mercury distribution in the lower Carson River, NV: Implications to wood duck populations. The Nevada Water Resources Association Annual Conference. Las Vegas, NV. Feb, 2022.

40. Eisaguirre[p], JM, PJ Williams[s], X Lu, ML Kissling, P Schuette, WS Beatty, GG Esslinger, JN Womble, and MB Hooten. Using ecological diffusion to inform management of a recovering apex predator. International Statistical Ecology Conference (ISEC; virtual). July 2022.

39. Eisaguirre[p], JM, PJ Williams[s], X Lu, ML Kissling, P Schuette, WS Beatty, GG Esslinger, JN Womble, and MB Hooten. Diffusion modeling reveals effects of multiple release sites and human activity on a recolonizing apex predator. Biennial Conference on the Biology of Marine Mammals. Palm Beach, FL. Aug, 2022.

38. Brockman[g] JC, PS Coates, PJ Jackson, JC Tull, and PJ Williams[s]. Home range and habitat selection of common ravens during the breeding season in northern Nevada. The 69th Annual Meeting of the Western Section of The Wildlife Society. Reno, NV. Feb, 2022.

37. Eisaguirre[p], JM, PJ Williams[s], X Lu, ML Kissling, WS Beatty, GG Esslinger, JN Womble, and MB Hooten. Diffusion modeling reveals effects of multiple release sites and human activity on a recolonizing apex predator. The Wildlife Society's 28th Annual Conference (virtual). Nov, 2021.

36. Acevedo[g] CR, and PJ Williams[s]. Examining spatio-temporal dynamics of Nevada sage grouse lek counts using a marked point process. The Wildlife Society's 27th Annual Conference. Virtual. Sep 30th, 2020.

35. Keating[g] MP, and PJ Williams[s]. Discrete-time models of animal movement: mule deer as a case study. The Wildlife Society's 27th Annual Conference. Virtual. Sep 30th, 2020.

34. Williams, PJ, X Lu, HR Scharf, and MB Hooten. Accounting for asymmetry in ecology. The Wildlife Society's 27th Annual Conference. Virtual. Sep 30th, 2020.

33. Brockman[g] JC, PS Coates, PJ Jackson, and PJ Williams[s]. Identifying raven demographic characteristics using movement data. The Wildlife Society's 27th Annual Conference. Virtual. Sep 30th, 2020.

32. Brockman[g] JC, PS Coates, PJ Jackson, and PJ Williams[s]. Raven movement and habitat selection: exploring intraspecific variation. The Nevada Chapter of the Wildlife Society Science Symposium. Reno, NV. Mar 4th, 2020.

31. Riecke[p] TV, BS Sedinger[p], MG Lohman[g], PJ Williams, and JS Sedinger. How well do harvest management models work? The Nevada Chapter of the Wildlife Society Science Symposium. Reno, NV. Mar 4th, 2020.

30. Lohman[g] MG, Riecke[p] TV, and PJ Williams[s]. Examining spatiotemporal variation in mid-continent mallard demography. The Nevada Chapter of the Wildlife Society Science Symposium. Reno, NV. Mar 4th, 2020.

29. Lu, X., PJ Williams and MB Hooten. Nonlinear reaction-diffusion process models improve inference for population dynamics. Joint Statistical Meetings of the American Statistical Association (JSM), Denver, CO. Aug 2019.

28. Williams, PJ, X Lu, MB Hooten, JN Womble, and MR Bower. A spatio-temporal model for ecological colonization, growth, and regulation. Joint Statistical Meetings of the American Statistical Association (JSM), Denver, CO. Aug 2019.

27. Bennet, J, M Blum, and PJ Williams[s]. Estimating abundance and detection probability of an unmarked desert bighorn sheep population in central Nevada by leveraging information from a subset of marked individuals. American Fisheries Society and The Wildlife Society 2019 Joint Annual Conference. Reno, NV. Oct, 2019.

26. Brockman[g] JC, PS Coates, P Jackson, and PJ Williams[s]. Anthropogenic subsidies affect common raven movement and space-use. American Fisheries Society and The Wildlife Society 2019 Joint Annual Conference. Reno, NV. Oct, 2019.

25. Schroeder, C, PJ Williams[s], and P Jackson. Estimating reproduction and survival of unmarked mule deer offspring from marked parents. American Fisheries Society and The Wildlife Society 2019 Joint Annual Conference. Reno, NV. Oct, 2019.

24. MG Lohman[g], TV Riecke[p], BS Sedinger[p], JS Sedinger, and PJ Williams[s]. Examining spatiotemporal variation in waterfowl demography. American Fisheries Society and The Wildlife Society 2019 Joint Annual Conference. Reno, NV. Oct, 2019.

23. Womble, JN, PJ Williams[s], RW McNabb, A Prakash, R Gens, BS Sedinger[p], and CR Acevedo[g]. Assessing seasonal and annual changes in glacier ice habitat for harbor seals in a tidewater glacier fjord in Glacier Bay National Park, Alaska. Meeting, , .

22. Brockman[g] JC, PS Coates, P Jackson, and PJ Williams[s]. Anthropogenic subsidies affect common raven nesting, space-use, and movement. 18th Wildlife Damage Management Conference, Starkville, MS. Month, 2019.

21. Bennett, J, M Blum, and PJ Williams[s]. Estimating detection probability using mark-resight models in a central Nevada desert bighorn sheep population. Desert Bighorn Council Meeting. Mesquite, NV. Month, 2019.

20. Womble, JN, PJ Williams[s], MB Hooten, GG Esslinger, L Taylor-Thomas, MR Bower, and H Coletti. Combining contemporary spatiotemporal models and aerial photographic techniques to estimate sea otter colonization and abundance in Glacier Bay National Park, Alaska. Society for Marine Mammalogy–22nd Biennial Conference on the Biology of Marine Mammals, Halifax, Nova Scotia, Canada. Oct 2017.

19. Williams, PJ and MB Hooten. Monitoring dynamic spatio-temporal dynamic processes optimally. The Wildlife Society's 25th Annual Conference. Cleveland, OH. Oct, 2018.

18. Williams, PJ. Optimal monitoring for wildlife populations. Nevada Department of Wildlife (NDOW) Brown Bag Seminar Series.Reno, NV. Oct, 2018.

17. Williams, PJ. Modern monitoring of dynamic ecological processes. USFWS Seminar Series. Fort Collins, CO. Jul, 2018.

16. Womble, JN, Williams[s], PJ, MB Hooten, GG Esslinger, L Taylor-Thomas, MR Bower, and H Coletti. Combining contemporary spatiotemporal models and aerial photographic techniques to estimate sea otter colonization and abundance in Glacier Bay National Park, Alaska. Society for Marine Mammalogy–22nd Biennial Conference on the Biology of Marine Mammals, cc, Canada. Oct 2017.

15. Williams, PJ, MB Hooten, JN Womble, GG Esslinger, and MR Bower. Optimal dynamic sampling of a spreading population. The Wildlife Society Annual Conference, Albuquerque, NM. Sep 2017.

14. Williams, PJ, MB Hooten, JN Womble, GG Esslinger, and MR Bower. A spatio-temporal model to infer colonization dynamics, and inform monitoring of sea otters in Glacier Bay, Alaska. The Wildlife Society Annual Conference, Raleigh, NC. Oct 2016.

13. Williams, PJ, MB Hooten, JN Womble, GG Esslinger, and MR Bower. A spatio-temporal model for ecological colonizations. Joint Statistical Meeting (JSM), Chicago, IL. Aug 2016.

12. Williams, PJ, MB Hooten, JN Womble, GG Esslinger, and MR Bower. A spatio-temporal model to infer colonization dynamics, of sea otters in Glacier Bay, Alaska. International Statistical Ecology Conference (ISEC), Seattle, WA. Jul 2016.

11. Williams, PJ Combining statistical inference and decisions in ecology. Defense Seminar, Department of Statistics, Colorado State University, Fort Collins, CO. Oct 2015.

10. Williams, PJ Incorporating population dynamics, multi-objective optimization, and decision theory to inform wildlife management: a case study using cackling geese. Defense Seminar, Department of Fish, Wildlife, and Conservation Biology, Colorado State University, Fort Collins, CO. Mar 2015.

9. Williams, PJ, CR Ely, WL Kendall, MB Hooten, and JA Schmutz. Population dynamics and management of cackling geese. The Wildlife Society Annual Conference, Pittsburgh, PA. Oct 2014.

8. Lesmeister, DB, SM Blomquist, EV Lonsdorf, D Wood, PJ Williams, B Pendley, K Mangan, and BA Walker. Adaptive management of invasive forest plants. Midwest Invasive Plants Council. Dec 2011.

7. Williams, PJ Merging quail management with grassland songbirds. Bobwhite Quail Management Workshop - Indiana Chapter of the Wildlife Society. Madison, IN. Sep 2010.

6. Williams, PJ Henslow's sparrow response to prescribed fire in southeastern Indiana. The Indiana Chapter of the Wildlife Society. Terre Haute, IN. Apr 2010.

5. Williams, PJ Burrow selection by crawfish frogs (*Lithobates areolatus*) in southeastern Indiana. Indiana Academy of Science. Kokomo, IN. Oct 2009.

4. Williams, PJ Activity patterns of the crawfish frog (*Lithobates areolatus*) at crayfish burrows in Big Oaks National Wildlife Refuge, southeastern Indiana. Indiana Academy of Science. Kokomo, IN. Oct 2009.

3. Williams, PJ Home range and habitat selection of the California Spotted Owl in the central Sierra Nevada. Thesis Defense Seminar, University of Minnesota. Saint Paul, MN. Dec 2008.

2. Williams, PJ Geographic song patterns of the dickcissel (*Spiza americana*). Honors Presentation, Saint Olaf College, Northfield, MN. Dec 2005.

1. Williams, PJ Local song dialects of the dickcissel (*Spiza americana*). Kansas State University, Manhattan, KS. Aug 2005.

Graduate Student Defense Seminars

4. Golden[g] J. Use and survival of greater sage-grouse in meadows managed for non-native unfulate grazing in Nevada. University of Nevada, Reno, Thesis defense seminar. Reno. NV. Nov 17th, 2023.

3. Byrne[g] M. Examining the impact of mercury on waterfowl population dynamics with implications for human health and water management in arid environments. University of Nevada, Reno, Thesis defense seminar. Reno, NV. Feb 24th, 2023.

2. Acevedo[g] CR. Spatio-temporal population dynamics of Nevada greater sage-grouse from 2000-2018. University of Nevada, Reno Thesis defense seminar. Reno, NV. Nov 29th, 2021.

1. Keating[g] MP. Estimating spatial locations of attraction through time with animal movement data. University of Nevada, Reno Thesis defense seminar (virtual). Aug 11th, 2021.

Grants

1 Funded Grants - In Progress

1. **Landscape scale spatio-temporal monitoring of sage-grouse population dynamics**.

   Funded by NextEra Energy Foundation from December 2024–December 2026.

   Principal Investigator (PI): Perry Williams

   Funding: $50,000 (Gift through UNR Foundation).

2. **Sustaining rural livelihoods, livestock grazing, and sage-grouse habitat in western sagebrush systems**

   Funded by National Institute of Food and Agriculture/Department of Agriculture from January 1, 2022, to December 31, 2024, awarded on January 1, 2022.

   PI: Perry Williams

   Co-PIs: Christian Hagen, Katherine Lee, J.D. Wulfhorst, John Ritten, Jeff Mosley

   Funding: $650,000

3. **Understanding Climate Driven Changes in Western Dry Forests using 70 Years of Aerial Imagery**

   Funded by USDA from January 1, 2022, to December 31, 2023, awarded on January 1, 2022.

   PI: Robert Shriver

   Co-PI: Perry Williams

   Funding: $300,000

4. **NSF - Graduate Research Fellowship Program to MG Lohman**

   Funded by the National Science Foundation from August 1, 2022, to July 31, 2025, awarded on April 1, 2020.

   PI: MG Lohman

   Co-PI: Perry Williams

   Funding: $138,000

5. **Evaluating the distribution and abundance of wildlife occupying Whittell Forest using camera traps**

   Funded by NRES Department Funds on January 1, 2021, awarded on January 1, 2021.

   PI: Perry Williams

   Co-PIs: Sarah Bisbing, Kelley Stewert, Kevin Shoemaker

   Funding: $12,000

2 Completed Grants

1. **Developing a science-based framework to inform common raven management**

   Funded by U.S. Fish and Wildlife Service from August 26, 2019, to December 31, 2023, awarded on August 26, 2019.

   PI: Perry Williams

   Funding: $143,241

   Completed December 2024

2. **Development of a statistical adaptive monitoring framework for sea otters in southeastern Alaska**

   Funded by U.S. Fish and Wildlife Service from September 1, 2019, to May 31, 2024, awarded on September 1, 2019.

   PI: Perry Williams

   Funding: $130,577

   Completed July 2024

3. **Assessing golden eagle habitat use and temporal variation in relation to demographic and breeding indices**

   Submitted to Nevada Department of Wildlife on May 30th, 2023.

   Principal Investigator (PI): Perry Williams

   Funding: $29,910

   Completed December 2024

4. **Estimating black bear population dynamics in Nevada from 1997–2022**

   Funded by Nevada Department of Wildlife from May 2023 to May 2024, awarded in September 2023.

   PI: Perry Williams

   Funding: $5,000

   Completed August 2024

5. **Spatiotemporal variation in Mallard demographic rates**

   Funded by Ducks Unlimited Canada from March 31, 2020, to March 31, 2023, awarded on February 13, 2020.

   PI: Perry Williams

   Co-PI: MG Lohman

   Funding: $37,500

   Completed December 2024

6. **Uncovering the Function and Role of Meadow Vegetation on Greater Sage-Grouse Population Declines**

   Funded by Bureau of Land Management from January 1, 2022, to June 30, 2023, awarded on November 17, 2020.

   PI: Perry Williams

   Funding: $195,719

   Completed November 2023

7. **Examining The Impact Of Methylmercury On Waterfowl Population Dynamics With Implications For Human Health And Water Management In Arid Environments**

   Funded by HATCH from March 11, 2020, to December 31, 2022, awarded on March 11, 2020.

   PI: Perry Williams

   Co-PI: Mae Gustin

   Funding: $150,000

   Completed in February 2023

8. **Understanding correlations among harvest, survival, and abundance of North American waterfowl populations**

   Funded by Delta Waterfowl from July 1, 2018, to December 31, 2022, awarded on July 1, 2018.

   PI: Perry Williams

   Funding: $354,000

   Completed in December 2022

9. **Sea Otter Vital Sign Quantitative Methods Workshop**

   Funded by the U.S. National Park Service from May 12, 2020, to June 30, 2021, awarded on May 12, 2020.

   PI: Perry Williams

   Funding: $7,757

   Completed in Fall 2021

10. **Methods for Monitoring and Evaluating Multi-scale Drivers of Greater Sage Grouse Population Dynamics**

    Funded by HATCH from July 1, 2018, to June 30, 2021, awarded on July 1, 2018.

    PI: Perry Williams

    Funding: $97,500

    Completed in Summer 2021

Project Title	**Funding**
Monitoring of sage-grouse population dynamics	$50,000
Assessing golden eagle habitat use	$29,910
Estimating black bear population dynamics	$5,000
Sustaining rural livelihoods and sage-grouse habitat	$650,000
Climate-Driven Changes in Western Dry Forests	$300,000
Common raven management	$143,241
Adaptive monitoring framework for sea otters	$130,577
Meadow Vegetation on Greater Sage-Grouse Declines	$195,719
Impact Of Methylmercury On Waterfowl Population	$150,000
NSF - Graduate Research Fellowship Program	$138,000
Spatiotemporal variation in Mallard demographic rates	$37,500
Whittell Forest wildlife distribution and abundance	$12,000
Correlations among waterfowl populations	$354,000
Sea Otter Vital Sign Workshop	$7,757
Multi-scale Drivers of Sage Grouse Population	$97,500
Total Funding	**$2,241,204**

Teaching

Credit Instruction

Semester	Prefix	Number	Section	Title	Credits	Enrollment

Fall 2024	NRES	488	1001	Population Dynamics	3	38
Fall 2024	NRES	488	1101	Population Dynamics	Lab	25
Fall 2024	NRES	488	1102	Population Dynamics	Lab	13
Fall 2024	EECB	799	1019	Dissertation	1	2
Fall 2024	NRES	797	1017	Thesis	1	1
Fall 2024	NRES	799	1015	Dissertation	1	1
Spring 2024	NRES	779	1001	Bayesian Hierarchical Modeling	3	20
Spring 2024	NRES	779	1101	Bayesian Hierarchical Modeling	Lab	20
Spring 2024	EECB	795	1009	Comp Exam	1	1
Spring 2024	EECB	799	1019	Dissertation	2	1
Spring 2024	NRES	793B	1002	Indv Study-Conserv Biol	1	1
Spring 2024	NRES	797	1015	Thesis	1	1
Spring 2024	NRES	799	1015	Dissertation	1	1
Fall 2023	NRES	488	1001	Population Dynamics	3	32
Fall 2023	NRES	488	1101	Population Dynamics	Lab	13
Fall 2023	NRES	488	1102	Population Dynamics	Lab	19
Fall 2023	NRES	710	1001	Graduate Env. Stats	3	18
Fall 2023	NRES	793B	1004	Indv Study-Conserv Biol	1-6	2
Fall 2023	NRES	797	1017	Thesis	1-6	2
Fall 2023	NRES	799	1015	Dissertation	1-6	3
Fall 2022	NRES	488	1001	Population Dynamics	3	41
Fall 2022	NRES	488	1101	Population Dynamics	Lab	25
Fall 2022	NRES	488	1102	Population Dynamics	Lab	16
Fall 2022	GRAD	778	1001	Research Computing	1-3	89
Fall 2022	NRES	793B	1004	Indv Study-Conserv Biol	1-6	2
Fall 2022	NRES	797	1017	Thesis	1-6	2
Fall 2022	NRES	799	1015	Dissertation	1-6	2

Summer 2022	NRES	793B	3001	Indv Study-Conserv Biol	1-6	3
Spring 2022	NRES	779	1001	Bayesian Hierarchical Modeling	3	8
Spring 2022	NRES	779	1101	Bayesian Hierarchical Modeling	Lab	8
Spring 2022	NRES	416	1007	Internship	3	3
Spring 2022	NRES	793B	1002	Indv Study-Conserv Biol	3	2
Spring 2022	NRES	797	1015	Thesis (Indv Study)	2	1
Spring 2022	EECB	799	1015	Dissertation (Indv Study)	4	2
Fall 2021	NRES	488	1001	Population Dynamics	3	43
Fall 2021	NRES	488	1101	Population Dynamics	Lab	24
Fall 2021	NRES	488	1102	Population Dynamics	Lab	19
Fall 2021	GRAD	778	1001	Research Computing	3	89
Fall 2021	NRES	797	1017	Thesis	6	2
Fall 2021	NRES	799	1015	Dissertation	3	2
Spring 2021	NRES	779	1001	Bayesian Hierarchical Modeling	3	6
Spring 2021	NRES	779	1101	Bayesian Hierarchical Modeling	Lab	6
Spring 2021	NRES	797	1015	Thesis	3	3
Spring 2021	NRES	799	1015	Dissertation	2	1
Spring 2021	NRES	793B	1002	Indv Study-Conserv Biol	3	1
Fall 2020	NRES	488	1001	Population Dynamics	3	47
Fall 2020	NRES	488	1101	Population Dynamics	Lab	24
Fall 2020	NRES	488	1102	Population Dynamics	Lab	23
Fall 2020	GRAD	778	1001	Research Computing	1-3	71
Fall 2020	NRES	793A	1006	Indv Study-Nat Res Mgmt	3	1
Fall 2020	NRES	797	1026	Thesis (Indv Study)	1	1

Spring 2020	NRES	779	1001	Bayesian Hierarchical Modeling	3	16
Spring 2020	NRES	779	1101	Bayesian Hierarchical Modeling	Lab	16
Spring 2020	NRES	701B	1004	Animal Movement Modeling	1	9
Spring 2020	NRES	793B	1002	Indv Study-Conserv Biol	2	3
Fall 2019	NRES	488	1001	Population Dynamics	3	40
Fall 2019	NRES	488	1101	Population Dynamics	Lab	22
Fall 2019	NRES	488	1102	Population Dynamics	Lab	18
Fall 2019	NRES	797	1026	Thesis		
Summer 2019	NRES	797	3001	Thesis	6	1
Spring 2019	EECB	793	1015	Independent Study	3	1
Spring 2019	EECB	799	1019	Dissertation	3	1

Teaching–Non-Credit Instruction

Fall 2022

UNR Course GRAD 778: Elements of Research Computing, Internal to University of Nevada, Reno, Reno, State : Nevada, United States,Instructors from across campus will be offering an intensive module-based course that will be an overview of computational research as well as a skills-based introduction to programming and shell scripting for automating computational tasks. Lectures will be made available via prerecorded video, followed by real-time live discussions, demonstrations, and exercises on Saturdays from 9am to 12pm during the Fall semester. Students can select from mini-courses of interest and "build their own curriculum," choosing which weekend modules work with their interests and schedule. **Start Date 2022-08-23, End Date: 2022-12-10**

Fall 2021

Workshop – Optimal Monitoring for Dynamic Spatio-Temporal Models in Ecology, Internal to University of Nevada, Reno, External to University of Nevada, Reno, Virtual, National Park Service - Southeast Alaska Inventory and Monitoring Program, Juneau Alaska, A workshop focused on the theory and application of Dynamic Spatio-Temporal Statistical Models for Ecological Data. Dynamic spatio-temporal statistical models are at the forefront of statistical theory, and are beginning to gain traction in ecology as a powerful tool to model population spread and growth. While relatively novel, ecological research that have implemented these methods have appeared in prestigious journals in the last 4 years including PNAS, Ecological Letters, Frontiers in Ecology and the Environment, Ecology, and Methods in Ecology and Evolution. The 9-week workshop runs from October 8th—December 3rd, 2021, and consists of 13, 1.5-hour pre-recorded lectures available via YouTube, an R package required for all analyses, and

5 live sessions dedicated to reviewing lecture material, troubleshooting R code, discussion, and question and answer sessions. **Start Date 2021-10-08, End Date: 2021-12-03**

UNR Course GRAD 778: Elements of Research Computing, Internal to University of Nevada, Reno, Reno, State : Nevada, United States,Instructors from across campus will be offering an intensive module-based course that will be an overview of computational research as well as a skills-based introduction to programming and shell scripting for automating computational tasks. Lectures will be made available via prerecorded video, followed by real-time live discussions, demonstrations, and exercises on Saturdays from 9am to 12pm during the Fall semester. Students can select from mini-courses of interest and "build their own curriculum," choosing which weekend modules work with their interests and schedule. **Start Date 2021-08-23, End Date: 2021-12-10**

Fall 2020

UNR Course GRAD 778: Elements of Research Computing, Internal to University of Nevada, Reno, Reno, State : Nevada, United States,Instructors from across campus will be offering an intensive module-based course that will be an overview of computational research as well as a skills-based introduction to programming and shell scripting for automating computational tasks. Lectures will be made available via prerecorded video, followed by real-time live discussions, demonstrations, and exercises on Saturdays from 9am to 12pm during the Fall semester. Students can select from mini-courses of interest and "build their own curriculum," choosing which weekend modules work with their interests and schedule. **Start Date 2021-08-24, End Date: 2021-12-11**

Fall 2019

UNR Course GRAD 778: Elements of Research Computing, Internal to University of Nevada, Reno, Reno, State : Nevada, United States,Instructors from across campus will be offering an intensive module-based course that will be an overview of computational research as well as a skills-based introduction to programming and shell scripting for automating computational tasks. Lectures will be made available via prerecorded video, followed by real-time live discussions, demonstrations, and exercises on Saturdays from 9am to 12pm during the Fall semester. Students can select from mini-courses of interest and "build their own curriculum," choosing which weekend modules work with their interests and schedule. **Start Date 2019-08-19, End Date: 2019-12-13**

Summer 2019

Two-day Workshop on statistical decision theory, External to University of Nevada, Reno, American Statistical Association. Decision theory is a fundamentally important aspect to both statistical inference and decision making in practice. Similarly, model selection has proven to be important and commonly used in ecological science. Bayesian methods have become popular for providing statistical inference in all aspects of ecology, but they have been particularly useful in complicated data settings as well as spatial and dynamic ecological process modeling. In this workshop, we will demonstrate how both decision theory and model selection have formal connections to Bayesian statistics. We will briefly review the fundamentals of Bayesian statistics, then introduce the concept of decision theory, and cover the myriad approaches that can be used to perform model selection in the Bayesian setting. We explore these topics in a mixture of lecture and lab format, including demonstrations and exercises involving ecological examples and computer code using R. Participants will achieve the greatest learning if they have a familiarity with statistical modeling and Bayesian methods in general, as well as basic R programming background.

Spring 2019

Guest lecture. I gave an invited guest lecture on Hierarchical Modeling for EECB to graduate students in the EECB program.

Fall 2018

Workshop – Introduction to R, External to University of Nevada, Reno, The Wildlife Society - Biometrics Working Group, This 1 day workshop, aimed at new R users, provides an introduction to object manipulation, data visualization and analysis, and basic programming in R. The R computing environment is a free, flexible, and open-source tool for data management, visualization, and analysis. We will cover a broad spectrum of topics including: how to import and export data, data types and object classes, simple R functions for querying, summarizing, plotting, and analyzing data, and advanced programming, such as for loops and writing R functions. We will also cover how to find and use R help resources. No prior experience with R is necessary, but participants should be comfortable with introductory statistics. The workshop will alternate between interactive instruction and guided exercises where participants will implement their new skills.

Workshop – Introduction to R, Internal to University of Nevada, Reno, External to University of Nevada, Reno, Reno, State : Nevada, United States, University of Nevada, Reno. The statistical programming software "R" is one of the fundamental tools for modern data exploration and analysis, and a basic ability to use R (for data processing, statistical analysis, simulation modeling and production of quality figures) will make upcoming classes, research, and graduate school less intimidating. This 'boot camp' consists of a series of short modules, each of which covers a particular skill (e.g., reading in data, writing functions). Each module will entail a short lecture, a demo (worked examples), and then hands-on activities with helpers present if you get lost or have any questions. The main goal of this workshop will be to ensure participants have enough proficiency and confidence with data operations and programming in R to engage in productive, self-directed learning and problem-solving. The workshop is primarily intended for students with little prior experience with R, but may be useful for others as a refresher-especially the second workshop, which will delve into more advanced topics. The first modules will focus on R syntax, data management (loading data, writing to file), data summaries and visualizations, R packages (loading, getting help), and basic statistical operations. The second set of modules will focus on some more advanced programming operations (loops, functions, debugging etc.), more advanced graphical visualizations and spatial analyses, and working with large data sets. We may not get through all modules in the allotted time, but participants are encouraged to work through the remaining material on their own. Note - All are welcome to attend these workshops, but students who have not completed an intro statistics class may struggle with some of the material—especially the material covered in the final modules.

4 Guest Lectures, Internal to University of Nevada, Reno, Reno.

Graduate Teaching Assistant

STAT 201 (General Statistics), Spring 2015
students: 200+, lecture hours per week: 2, total hours per week: 20
Department of Statistics, Colorado State University.

STAT 301 (Introduction to Statistical Methods), Spring 2015
students: 20, lecture hours per week: 0, total hours per week: 5
Department of Statistics, Colorado State University.

Workshops and Short Courses Prior to 2018

Spatio-temporal dynamic statistical modeling in practice, Western North American Region (WNAR) of The International Biometric Society, Santa Fe, NM, 1 day, 2017. (Organizer and Instructor).

Beginner R Workshop, The Wildlife Society Annual Meeting, Albuquerque, NM, 1 day, 2017. (Organizer and Instructor).

Building Capacity in Bayesian Modeling for Ecologists, National Science Foundation, Fort Collins, CO, 10 days, 2016. (Teaching Assistant).

Bayesian Decision Theory and Model Selection, International Statistical Ecology Conference (ISEC), Seattle, WA, 1 day, 2016. (Organizer and Instructor).

R Workshop, Colorado State University, Fort Collins, CO, 1 day, 2016. (Organizer and Instructor).

R for Wildlife Biologists, Annual Meeting of the Central Mountains and Plains Section of The Wildlife Society, Steamboat Springs, CO, 1 day, 2016. (Organizer and Instructor).

Emacs tutorial, Colorado State University, Fort Collins, CO, 1 day, 2014. (Organizer and Instructor).

Introduction to Structured Decision Making, National Conservation Training Center, Shepherdstown, WV, 5 days, 2012. (Instructor).

Post-Doctoral Fellows:

Phillip A. Street, 2021-2022

Joseph Eisaguirre, 2019-2020

Thomas V. Riecke, 2020

Ben S. Sedinger, 2018-2019

Graduate Advising and Mentoring

Graduate Student Advisor/Chair

8. Corina Sanchez (PhD-EECB), 2022–present
7. Jillian Schuyler (MS-NRES), 2022–present
6. Madeleine G Lohman (PhD-EECB), 2021–present
5. Julie C Brockman (PhD-EECB), 2019–present
4. James Golden (MS-NRES), 2021–2023 (Graduated)
   Current Position: Research Associate, UNR
3. Morgan A Byrne (MS-NRES), 2020–2023 (Graduated)
   Current Position: Wildlife Biologist, Westech Environmental, LLC
2. Cheyenne R Acevedo (MS-NRES), 2018–2021 (Graduated)
   Current Position: Wildlife Biologist, Nevada Department of Wildlife
1. Meghan P Keating (MS-NRES), 2020–2021 (Graduated)
   Current Position: PhD Student, Clemson University

Graduate Student Committee Member

14. Michael Otis Clyne (PhD-EECB), 2022–present
13. Madeleine G Lohman (MS-STATS), 2022–present
12. Guillermo Garcia Costoya (PhD-EECB), 2022–present
11. Elise Pletcher (PhD-EECB), 2022–present
10. Wade Lieurance (MS-AVRS), 2022–present
9. Tracy Shane (PhD-AVRS), 2021–present
8. Christopher Halsch (PhD-Biology), 2020–2023 (Graduated)
7. Christopher Wolfe (PhD-Physical Anthropology), 2020–2023 (Graduated)
6. Stephanie Cole (PhD-Physical Anthropology), 2018–2022 (Graduated)
5. Jason Gundlach (MS-NRES), 2020–2022 (Graduated)
4. Steve Hromada (PhD-EECB), 2020–2022 (Graduated)
3. Emily Gibson (MS-NRES), 2020–2022 (Graduated)
2. Megan Osterhout (MS-NRES), 2019–2022 (Graduated)
1. Thomas Riecke (PhD-EECB), 2018–2020 (Graduated)

Professional Affiliations

American Statistical Association

Section on Statistics and the Environment (ENVR)

Society for Conservation Biology

The Wildlife Society

TWS-Biometrics Working Group
Western Section of the Wildlife Society
Nevada Chapter of the Wildlife Society

Service Activities / Partnerships

Past-President, The Nevada Chapter of The Wildlife Society, 2023

President, The Nevada Chapter of The Wildlife Society, 2021-2023

Vice-President, The Nevada Chapter of The Wildlife Society, 2020-2021

Board Member, The Wildlife Society - Biometrics Working Group, 2019.

Symposium organizer and chair, *Leveraging all the data, Integrated Population Models and Beyond*, The Biometrics Working Group section of The Wildlife Society Annual Meeting, Reno, NV. Oct 2019.

Session Chair, Modern Bayesian Computing in Ecology, Environmental Statistics (ENVR) section of Joint Statistical Meeting (JSM), Vancouver, BC, Jul 2018.

Researcher/Member, STATMOS: statistical methods for atmospheric & oceanic sciences. (Link)

Nominated, The Wildlife Society, Biometrics Working Group Board Member, 2017, 2018.

Symposium organizer, *Optimal monitoring for wildlife biologists*, The Biometrics Working Group section of The Wildlife Society Annual Meeting, Cleveland, OH. Oct 2018.

Session Chair, Ecology and Environmental Policy Symposium, Environmental Statistics (ENVR) section of Joint Statistical Meeting (JSM), Baltimore, MD. Aug 2017.

Invited participant, Powell Center Working Group: Elucidating mechanisms underlying amphibian declines in North America using hierarchical spatial models. Fort Collins, CO. Nov 2014.

Invited participant, Powell Center Working Group: Modeling species response to environmental change: development of integrated, scalable Bayesian models of population persistence. Fort Collins, CO. Sep 2014.

Leader, USFWS Eastern Broadleaf Forest Biological Network, 2009–2011.

Wildlife Recovery and Reconnaissance, Deepwater Horizon/ BP oil spill, Dennis Pass, LA. Jul–Aug 2010.

Project Committee, Southern Indiana Cooperative Weed Management Area. Feb 2009–Aug 2011.

Awards/ Honors Received

Wiley - Top Downloaded Article (*A niche for null models in adaptive resource management*), 2024.

Recognized by Center for Advanced Studies (CAS) as *Rising Star in Research* in 2023.

Federal Career Service Award, Ten Years of Service in the Government of the United States of America, 2018.

Eugene Decker Fellowship, Colorado State University, 2015.

The Wildlife Society, Biometrics Working Group *Student Travel Grant*, 2014.

Department of the Interior *STAR Award*, 2011.

Department of the Interior *STAR Award*, 2010.

Cum laude, Saint Olaf College. 2006

Distinction in Biology, Saint Olaf College. 2006

Student Naturalist, Saint Olaf College, 2005–2006

Dean's list, Saint Olaf College. 2004–2006

Awards/ Honors Nomination

College of Agriculture, Biotechnology, and Natural Resources - ***Outstanding Researcher Award – 2024***, Department Nomination, 2025

College of Agriculture, Biotechnology, and Natural Resources - ***Outstanding Researcher Award– 2023***, Department Nomination, 2024

College of Agriculture, Biotechnology, and Natural Resources - ***Outstanding Researcher Award– 2022***, Department Nomination, 2023

College of Agriculture, Biotechnology, and Natural Resources - ***Outstanding Teacher Award–2021***, Department Nomination, 2022

U.S. Fish and Wildlife Service - **Biologist of the Year**, Region 3 Finalist, 2010

Last updated: July 31, 2025