

Erica Christensen
Postdoctoral Researcher
Department of Fish, Wildlife & Conservation Ecology
New Mexico State University, Las Cruces NM
Email: echriste@nmsu.edu
GitHub: [emchristensen](#)

RESEARCH INTERESTS

Community ecology; population ecology; desert ecology; ecosystem response to extreme weather/climate events; community and population dynamics over long (multi-decadal) time spans

RESEARCH POSITIONS & EDUCATION

Postdoctoral Researcher New Mexico State University/Department of Fish, Wildlife & Conservation Ecology Las Cruces, NM Adviser: Dr. Abby Lawson	2022-present
Postdoctoral Researcher USDA-ARS-Jornada Experimental Range Las Cruces, NM	2020-2022
Postdoctoral Researcher New Mexico State University/Jornada Experimental Range Las Cruces, NM	2018-2020
PhD, Wildlife Ecology and Conservation University of Florida, Gainesville, Florida Adviser: Dr. Morgan Ernest	2012-2018
MS, Environmental Science Drexel University, Philadelphia, Pennsylvania	2009-2011
BA, Pure Mathematics Oberlin College, Oberlin, Ohio	2004-2007

RESEARCH EXPERIENCE

- Postdoctoral Researcher:** New Mexico State University, Las Cruces NM, *2022-present*
- Incorporate new and additional data into the species status assessment of the Alligator Snapping Turtle for presentation to decision makers.
 - Conduct elicitation of expert information to expand population projection models of the Alligator Snapping Turtle to previously un-modeled geographic areas.

Research Ecologist (RA) (GS-0408-12): USDA-ARS-Jornada Experimental Range, Las Cruces NM, 2020-2022

- Assisted in development and application of analytical techniques and tools to support development and quantification of state and transition models for rangelands.
- Collaborated with private, state, and federal land managers in projects related to state and transition models for rangelands.
- Contributed to the development of procedures for improving ecological site descriptions.

Postdoctoral Researcher: Jornada Experimental Range, New Mexico State University, NM, 2018-2020

- Led initiative to clean, compile, and publish a long-term plant quadrat data set (data spanning 1915-2016; Christensen et al. 2021).
- Investigated dynamics of perennial grasses on permanent quadrats, and how recent dynamics relate to historical dynamics, soil properties, and local weather events.

Research Assistant: The Portal Project: University of Florida field site, near Portal, AZ, 2012-2018

- Managed data collection in long-term study of desert rodent communities, setting ~1200 live traps divided over two nights every month.
- Processed captured rodents in the field by PIT tagging, weighing, and identifying sex and species
- Performed plant surveys twice a year, including identifying and counting desert grass and forb species within quadrats and running transects for shrub cover estimation.
- Managed and trained volunteers to assist with monthly rodent surveys.
- Managed a 40-year dataset of rodent species data (maintained on GitHub, <https://github.com/weecology/PortalData>), including writing R scripts for data cleaning and error checking.

Data and Computational Manager: Lone Cabbage Reef Oyster Restoration Project, University of Florida, 1/2018-7/2018

- Managed a dataset of oyster count data collected for the Lone Cabbage Reef Restoration Project near Cedar Key, FL.
- Trained other researchers in best practices of data management and use of GitHub for version control.

Research Assistant: The Leatherback Trust/Earthwatch Institute, Playa Grande, Costa Rica, 9/2011-3/2012

- Monitored nesting leatherback, olive ridley, and black sea turtles using nightly foot patrols along a 3.6 km beach.
- Measured nest temperature during incubation using thermocouples, and marked adult females using PIT tags or Monel flipper tags.
- Trained Earthwatch volunteers to collect data such as carapace measurements and egg counts.
- Collaborated with Spanish-speaking public on a daily basis, including National Park guards and local tour guides.

Volunteer Coordinator/Research Assistant: Drexel University/Earthwatch Institute, Barnegat, NJ, Summer 2011 & 2012

- Acted as field liaison between Drexel staff and groups of 8 Earthwatch volunteers during 9-day expeditions.
- Organized local excursions for volunteers as part of the Earthwatch expeditions, such as canoeing in the Pine Barrens, and visiting Albert Music Hall and Jenkinson's Aquarium.

- Trapped diamondback terrapins daily in Barnegat Bay (in particular Forsythe National Wildlife Refuge) in the 6th and 7th years of a planned 20-year population study.
- Processed captured terrapins in the field lab by PIT tagging, taking blood samples, x-raying gravid females, and measuring carapace dimensions.

Junior Scientist: Navmar Applied Sciences Corp. (formerly Advanced Avionics Inc.), Warminster, PA, 5/2008-6/2011

- Simulated free-drifting ocean sonobuoys using a MATLAB model as support to Navy projects.
- Modeled ocean currents in collaboration with University of Delaware personnel
- Presented work in official reports.

PUBLICATIONS

Christensen, E.M., James, D., Randall, R.M., Bestelmeyer, B. (Submitted). Abrupt transitions in a southwest U.S. desert grassland related to the Pacific Decadal Oscillation.

Christensen, E.M., Maxwell, C. J., Slaughter, A. (2022). Long-term permanent quadrat sampling project at the Jornada Experimental Range, New Mexico. *The Bulletin of the Ecological Society of America*. DOI: <https://doi.org/10.1002/bes2.1940>.

Christensen, E.M., James, D., Maxwell, C., Slaughter, A., Adler, P.B., Havstad, K., Bestelmeyer, B. (2021). Quadrat-based monitoring of desert grassland vegetation at the Jornada Experimental Range, New Mexico, 1915-2016. *Ecology*. doi:10.1002/ecy.3530.

Cárdenas, P.A., **Christensen, E.M.**, Ernest, S.K.M., Lightfoot, D.C., Schooley, R.L., Stapp, P., Rudgers, J.A. (2021). Declines in rodent abundance and diversity track regional climate variability in North American drylands. *Global Change Biology*. Doi: <https://doi.org/10.1111/gcb.15672>.

McCord, S.E., Webb, N.P., Van Zee, J.W., Burnett, S.H., **Christensen, E.M.**, Courtright, E.M., Laney, C.M., Lunch, C., Maxwell, C., Karl, J.W., Slaughter, A., Stauffer, N.G., Tweedie, C. (2021). Provoking a Cultural Shift in Data Quality. *BioScience*. Doi: <https://doi.org/10.1093/biosci/biab020>.

Simonis, J.L., **Christensen, E.M.**, Harris, D.J., Diaz, R.M., Ye, H., White, E.P., Ernest, S.K.M. (2020). LDATS: Latent Dirichlet Allocation Coupled with Time Series Analyses. R package version 0.2.7. <https://CRAN.R-project.org/package=LDATS>.

Christensen, E.M., Simpson, G.L., Ernest, S.K.M. (2019). Established rodent community delays recovery of dominant competitor following experimental disturbance. *Proceedings of the Royal Society B*, 286. Doi: <https://doi.org/10.1098/rspb.2019.2269>.

Christensen, E.M., Yenni, G.M., Ye, H., Simonis, J.L., Bledsoe, E.K., Diaz, R., Taylor, S.D., White, E.P., and Ernest, S.K.M. (2019). portalr: an R package for summarizing and using the Portal Project Data. *Journal of Open Source Software*, 4(33), 1098. Doi: <https://doi.org/10.21105/joss.01098>.

Yenni, G.M., **Christensen, E.M.**, Bledsoe, E.K., Supp, S.R., Diaz, R.M., White, E.P., and Ernest, S.K.M. (2019). Developing a modern data workflow for living data. *PLoS Biology* 17(1). doi: <https://doi.org/10.1371/journal.pbio.3000125>

White, E.P., Yenni, G.M., Taylor, S.D., **Christensen, E.M.**, Bledsoe, E.K., Simonis, J.L., Ernest, S.K.M. (2018). Developing an automated iterative near-term forecasting system for an ecological study. *Methods in Ecology and Evolution*. Doi: <https://doi.org/10.1111/2041-210X.13104>

Christensen, E.M., Harris, D., and Ernest, S.K.M. (2018). Long-term community change through multiple rapid transitions in a desert rodent community. *Ecology* 99, 1523-1529. Doi: <https://doi.org/10.1002/ecy.2373>

Ernest, S.K.M., Yenni, G.M., Allington, G., **Christensen, E.M.**, Geluso, K., Goheen, J.R., Schutzenhofer, M.R., Supp, S.R., Thibault, K.M., Brown, J.H., et al. (2016). Long-term monitoring and experimental manipulation of a Chihuahuan desert ecosystem near Portal, Arizona (1977–2013). *Ecology* 97, 1082–1082.

PREPRINTS

Ernest, S.K.M., Yenni, G.M., Allington, G., Bledsoe, E., **Christensen, E.M.**, Diaz, R., Goheen, J., Guo, Q., Heske, E., Kelt, D., et al. (2020). The Portal Project: a long-term study of a Chihuahuan desert ecosystem. bioRxiv. doi: <https://doi.org/10.1101/332783>

TEACHING/MENTOR EXPERIENCE

Teaching Assistant: University of Florida, *Fall 2017*

- Assisted Dr. Ernest in semester-long graduate-level course: WIS 6934 “Biodiversity: Ecological Patterns and Processes”
- Led hour-long class discussions on two occasions
- Led hour-long R-based workshop on computing biodiversity metrics

Workshop Instructor: Software Carpentry *2016-2018*

- Certified instructor for Software Carpentry workshops.
- Instructed 20-30 students in basics of Unix shell and R at workshops at the University of North Carolina, Chapel Hill and the University of Florida, Gainesville.

Teaching Intern: Besant Hill High School (formerly Happy Valley School), Ojai, CA, *Jan. 2007*

- Led classroom activities and assisted with curriculum planning in Chemistry, Algebra and Calculus at a private high school.

Chemistry Lab Teaching Assistant: Oberlin College, Oberlin, OH, *Fall 2006*

- Assisted professor in teaching laboratory experiments in weekly lab sessions.

Peer Tutor: Mathematics Department, Oberlin, OH, *Fall 2005-Spring 2006*

- Served as expert resource for homework assignments on a weekly basis for Calculus II

HONORS AND AWARDS

Presidential Doctoral Research Fellowship, Utah State University, *2012-2014*

- \$20,000/yr stipend and waiver of resident tuition

QUANTITATIVE SKILLS

Programming and Data Management

- Nine years of experience programming in scripting languages such as R, Python, and MATLAB.
- Qualified instructor for Software and Data Carpentry (<https://software-carpentry.org/>) with experience instructing beginner workshops on the Unix shell and R.
- Proficient using GitHub for version control.
- Experience using SQL and Microsoft Access for database manipulation.
- Classroom experience with SAS and ArcGIS.

CONFERENCE ABSTRACTS

Christensen, EM, Frid, L, Brown, J, Reeves, M, Bestelemeyer, B. (2022, February). *Simulations based on state and transition models to predict future land condition*. Talk presented at the Society for Range Management annual meeting (remote).

Christensen, EM, Bestelmeyer, B, Maxwell, C, Slaughter, A, James, D, Romig, K, Havstad, K. (2020, February). *Monitoring Plant Community Change and the Jornada Experimental Range: 100 Years of Quadrat Sampling*. Poster presented at the Society for Range Management annual meeting in Denver, CO, USA.

Christensen, EM, Harris, DJ, Diaz, R, Ernest, SKM. (2018, August). *Evidence of rapid transitions in long-term rodent community data*. Talk presented as part of an organized Symposium titled "From Theory to Application: Addressing Outstanding Challenges to Operationalizing Resilience" at the Ecological Society of America Conference in New Orleans, LA, USA.

Christensen, EM, Harris, DJ, Ernest, SKM. (2017, August). *Novel approach for the analysis of community dynamics: separating rapid reorganizations from gradual trends*. Talk presented at the Ecological Society of America Conference in Portland, OR, USA.

Christensen, EM, Ernest, SKM. (2016, July). *Transition between alternative states in a small mammal community*. Poster presented at the Gordon Research Conference: Unifying Ecology Across Scales in Biddeford, Maine, USA.

Christensen, EM, Ernest, SKM. (2015, August). *Investigating long-term stability of community structure in a desert ecosystem*. Poster presented at the Ecological Society of America Conference in Baltimore, MD, USA.

Christensen, EM, Ernest, SKM. (2014, July). *Identifying consumer-resource interaction at different time scales during a long-term study*. Poster presented at the Gordon Research Conference: Unifying Ecology Across Scales in Biddeford, Maine, USA.

BLOG POSTS

Christensen, E.M. "Erica Christensen: Why Study Rodents?" University of Florida: IFAS Blog. November 7, 2018. <http://blogs.ifas.ufl.edu/wecdept/2018/11/07/erica-christensen-why-study-rodents/>

Christensen, E.M. "Portal: Then and Now." The Portal Project Blog: long-term research in desert ecology. October 4, 2017. <https://portalproject.wordpress.com/2017/10/04/portal-then-and-now/>

Christensen, E.M. "Monsoon Season." The Portal Project Blog: long-term research in desert ecology. August 15, 2014. <https://portalproject.wordpress.com/2014/08/15/monsoon-season/>

Christensen, E.M. "Spring 2014 Plant Census." The Portal Project Blog: long-term research in desert ecology. April 23, 2014. <https://portalproject.wordpress.com/2014/04/23/spring-2014-plant-census/>