

## BRIDGETTE E. HAGERTY, PH.D.

ASSOCIATE PROFESSOR  
DEPARTMENT OF BIOLOGICAL SCIENCES  
YORK COLLEGE OF PENNSYLVANIA  
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### EDUCATION

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Ph.D., Ecology, Evolution, and Conservation Biology, University of Nevada, Reno, 2008

Advisor: Dr. C. Richard Tracy

Dissertation title: Ecological genetics of the Mojave desert tortoise

B.A., Biology, St. Mary's College of Maryland, 2000

Magna cum laude

Concentration in Ecology and Environmental Sciences

Participant in the Environmental Studies Program

Semester Abroad, James Cook University, QLD, Australia, Spring 1999

### TEACHING EXPERIENCE

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*York College of Pennsylvania, Department of Biological Sciences*

**Associate Professor**

Fall 2017 - present

Conservation Biology (with laboratory)

Develop learning objectives, assessments, and activities using backward design, and facilitate classroom learning for 20 undergraduates (juniors and seniors) every even fall year

Animal Behavior (with laboratory)

Develop learning objectives, assessments, and activities using backward design, and facilitate classroom learning for 20 undergraduates (juniors and seniors) every odd fall year

Ecological Action

Co-Develop a project-based course including the learning objectives, assessments, and organization of class project using backward design for 20 undergraduates (juniors and seniors) every even spring year

Biostatistics

Develop learning objectives, assessments, and activities using backward design, and facilitate classroom learning for up to 60 undergraduates per year

Exploring Biology (with laboratory)

Develop learning objectives, assessments, and activities using backward design, and facilitate classroom learning for up to 60 undergraduates per year (general education biology course)

## Biology Thesis

Coordinate the capstone course for the research series in the Biology department and participate in the other classes as part of the series (Biology Reading, Biology Communication, Biology Practicum, Biology Thesis).

Design and facilitate class activities and assessments related to peer review and research ethics. Mentor up to 8 students per year as they propose and complete a novel, independent research project, analyze data and write a scientific manuscript, and present their research as a poster to peers and faculty.

## Assistant Professor

Fall 2011 – Spring 2017

*University of Nevada, Reno, Department of Biology*

2003 - 2010

**Instructor**, Principles and Applications of Biology (non-majors), Spring and Fall 2010

**Guest lecturer**, Ecology and Population Ecology, November 2009 and October 2010

**Guest lecturer**, Biogeography, October 2009 (class on Phylogenetics in Biogeography)

**Guest lecturer**, Ecology and Population Ecology, October 2006 and September 2007

**Teaching Assistant**, Principles of Biological Investigation (laboratory), Fall 2003

**Teaching Assistant**, Principles and Applications of Biology (lab for non-majors), Spring 2003

**Lecturer**, Nevada Educators Really Doing Science (NERDS) Field Class, 2006 - 2008

## RESEARCH EXPERIENCE

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**Postdoctoral Scholar**, Dept. of Biology, University of Nevada, Reno,

2009 – 2011

Investigated the movement ecology of chuckwalla (*Sauromalus ater*) in southern Nevada, including a study of navigation and homing behavior using radio telemetry of displaced individuals and a study of dispersal and gene flow using population genetics (mitochondrial DNA, microsatellites)

Mentored a Master's student (Biology) who participated in chuckwalla behavior research

Mentored a Ph.D. student who completed research on chuckwalla population genetics

Elucidated phylogeographic patterns of the western toad (*Bufo boreas*) in the hydrologic Great Basin using population genetics and phylogenetics (nuclear DNA, mitochondrial DNA, microsatellites, morphology)

**Research Assistant**, Dept. of Biology, University of Nevada, Reno, NV,

2002- 2008

Prepared applications and annual reports for federal and state permits to collect blood samples from the desert tortoise, *Gopherus agassizii*

Collected *G. agassizii* blood samples via brachial and subcarapacial venipuncture (Fall 2003- Spring 2006) in southern Nevada, southern California, northwestern Arizona, and southwestern Utah for ecological genetics and epidemiological study

Trained 2 field crews (20 people/per team) to collect blood samples as a part of range wide monitoring of *G. agassizii* in the Mojave Desert  
Optimized microsatellite loci for amplification via polymerase chain reaction and scored alleles to create multilocus genotypes for over 800 desert tortoises.  
Completed genetic analyses for a microsatellite data set, including Bayesian assignment tests and landscape genetic analyses.

**Undergraduate Researcher**, St. Mary's Project, St. Mary's College of Maryland, 2000  
Title: Storm Monitoring in the St. Mary's River Watershed: The impact of land use on runoff

Coordinated with the St. Mary's River Project, an EPA grant-funded program  
Performed water quality monitoring with intensive monitoring during storm events to determine small-scale impacts of different land uses in a small watershed.  
Performed data analysis, wrote scientific paper and completed a poster presentation

## PUBLICATIONS

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### *Peer-reviewed publications*

Weitzman, C.L., B.E. Hagerty, F.C. Sandmeier, and C.R. Tracy. 2021. Desert tortoises in Zion National Park represent a natural extension of their range. *Chelonian Conservation and Biology* 20: XXX-XXX (In press).

Shaffer, HB, McCartney-Melstad, E, Ralph PL, Bradburd G, Lundgren E, Vu J, Hagerty BE, Sandmeier F, Weitzman C, Tracy CR. 2017. Desert Tortoises in the Genomic Age: Population Genetics and the Landscape. *bioRxiv* 195743; doi: <https://doi.org/10.1101/195743>

Hanson, K.M.\* and B.E. Hagerty. 2016. The influence of shifted spectral sensitivities on predator detection ability of Lake Malawi African cichlids. *Journal of the Pennsylvania Academy of Sciences* 90: 37- 43.

Averill-Murray, R.C. and B.E. Hagerty. 2014. Translocation relative to spatial genetic structure of the Mojave desert tortoise, *Gopherus agassizii*. *Chelonian Conservation and Biology* 13: 35-41.

Sandmeier, F.C., C.R. Tracy, B.E. Hagerty, S. DuPré, H. Mohammadpour, and K. Hunter. 2013. Mycoplasmal upper respiratory tract disease across the range of the threatened Mojave desert tortoise: associations with thermal regime and natural antibodies. *Ecohealth* 10: 63-71.

Hagerty, B.E. and C.R. Tracy. 2011. A history of Mojave desert tortoise movement: a view through the window of population genetics. *Mojave National Preserve Science Newsletter* March 2011 (1): 1-7.

Hagerty, B.E., K.E. Nussear, T.C. Esque, and C.R. Tracy. 2011. Making molehills out of mountains: a landscape genetic approach to connectivity for desert tortoises. *Landscape Ecology* 26: 267-280.

Hagerty, B.E. and C.R. Tracy. 2010. Defining populations for the Mojave desert tortoise (*Gopherus agassizii*). *Conservation Genetics* 11: 1795-1807.

Hagerty, B.E., M.M. Peacock, V.S. Kirchoff, and C.R. Tracy. 2008. Polymorphic microsatellite markers for the Mojave desert tortoise, *Gopherus agassizii*. *Molecular Ecology Resources* 8: 1149-1151.

#### *Reports to agencies*

Tracy, C.R., R.C. Averill-Murray, W.I. Boarman, D. Delehanty, J. S. Heaton, E.D. McCoy, D. J. Morafka, K.E. Nussear, B.E. Hagerty, P.A. Medica. 2004. Desert Tortoise Recovery Plan Assessment. Report to the U.S. Fish and Wildlife Service, Reno, NV. (Available for download [http://www.fws.gov/nevada/desert\\_tortoise/dtro/dtro\\_recovery\\_plan.html](http://www.fws.gov/nevada/desert_tortoise/dtro/dtro_recovery_plan.html))

#### **INVITED PRESENTATIONS**

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Hagerty, B.E. 2017. Reptiles and Amphibians in Local Parks, a Research Update. Address to the York County Parks System. April 5, 2017.

Hagerty, B.E. 2013. A tale of two desert reptiles: contrasting stories of gene flow and dispersal in the desert tortoise and chuckwalla. Shippensburg University. February 7, 2013

Hagerty, B.E. 2011. How do they get from here to there? Movement ecology of desert reptiles. Clark Lecture at York College of Pennsylvania. September 28, 2011

#### **PROFESSIONAL PRESENTATIONS**

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Malcarne, B., Landau, J., Poet, P., Lippard, E., Hagerty, B. 2019. *Mid-Semester Student Feedback: Using Formative Evaluation to Enhance Student Learning*. Presentation at The Academy of Leisure Sciences 2019 Conference on Research and Teaching, Greenville, SC.

Hanson, K. S.,\* and B. E. Hagerty. 2014. Color vision phenotype as a driving factor in the evolution of Lake Malawi African cichlids. Annual Meeting of the Pennsylvania Academy of Sciences, Selinsgrove, PA.

Hagerty, B.E., C. R. Tracy, C. R. Tracy, S.J. Snyder, S. R. Wakeling, F.C. Sandmeier, and N. Maloney. 2012. Dissecting the genetic structure of the chuckwalla (*Sauromalus ater*) at two spatial scales. Seventh World Congress of Herpetology, Vancouver, B.C. Canada.

Hagerty, B.E., F.C. Sandmeier, C.R. Tracy. 2010. Identifying the genetic and immune consequences of translocation for the Mojave desert tortoise. Annual Joint Meeting of Ichthyologists and Herpetologist. Providence, RI.

Tracy, C.R., M. Forister, B.E. Hagerty, F.C. Sandmeier, E. Simandle, P. Noles, M. Beck, and R. Fisher. 2010. Phylogeny and phylogeography of western toads in the western Great Basin. Society for Integrative and Comparative Biology Annual Meeting, Seattle, WA.

Hagerty, B.E., K.E. Nussear, T.C. Esque, C. R. Tracy. 2009. Making molehills out of mountains: a landscape genetic approach to identifying connectivity for the Mojave desert tortoise. Symposium on Fresh

Water Turtles and Tortoises. Annual Joint Meeting of Ichthyologists and Herpetologists. Portland, OR.

Hagerty, B.E., K.E. Nussear, T.C. Esque, C. R. Tracy. 2009. More than geographic distance: a landscape genetic approach to identifying connectivity among subpopulations of the Mojave desert tortoise. Symposium on the Mojave Desert. Annual Meeting of Association of American Geographers, Las Vegas, NV.

Hagerty, B.E., C.R. Tracy, and R. Inman. 2007. Estimates of population size for a rare and cryptic species: the importance of spatial clustering of individuals. Annual Joint Meeting of the Ecological Society of America and the Society for Ecological Restoration, San Jose, CA.

Hagerty, B.E. and C.R. Tracy. 2006. Genetic structure in the desert tortoise: conservation implications. Annual Meeting of the Society for Conservation Biology, San Jose, CA.

Hagerty, B.E. and C.R. Tracy. 2006. Ecology of a rare and elusive North American tortoise: importance of genetic analyses. International Sea Turtle Symposium, Heraklion, Island of Crete, Greece.

Hagerty, B.E. and C.R. Tracy. 2006. Identification of population structure for a rare and cryptic species: implications for conservation. Society for Integrative and Comparative Biology Annual Meeting, Orlando, FL.

Hagerty, B.E., C.R. Tracy, D.J. Morafka, E.D. McCoy, and R.C. Averill-Murray. 2005. Preserving the desert tortoise (*Gopherus agassizii*): reassessing conservation units. Fifth World Congress of Herpetology, Stellenbosch, South Africa.

Tracy, C.R., R.C. Averill-Murray, W.I. Boarman, D. Delehanty, J.S. Heaton, E.D. McCoy, D.S. Morafka, K.E. Nussear, B.E. Hagerty, and P. Medica. 2005. Scientific assessment of the recovery plan for the desert tortoise. Fifth World Congress of Herpetology, Stellenbosch, South Africa.

Hagerty, B.E., C.R. Tracy, D.J. Morafka, E.D. McCoy, and R.C. Averill-Murray. 2005. Preserving the desert tortoise: reassessing conservation units. The Desert Tortoise Council Symposium, Tucson, AZ.

Hagerty, B.E. 2001. The Chesapeake Information Management System (CIMS): Using a distributed data system to manage environmental data across political boundaries, Organization of Fish and Wildlife Information Managers Conference, Portland, OR.

## PROFESSIONAL POSTERS

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Evans, A.\* and B.E. Hagerty. 2021. The relative activity of the domestic cat (*Felis catus*) in two county parks in south central Pennsylvania. Annual Meeting of the Pennsylvania Academy of Sciences, (Virtual).

Scheppelmann, E.\* and B.E. Hagerty. 2021. The effect of human disturbance on habitat use of mesopredators in a county park in south central Pennsylvania, Annual Meeting of the Pennsylvania Academy of Sciences, (Virtual).

- Howell, G.J.\* and B.E. Hagerty. 2018. Red-backed salamanders (*Plethodon cinereus*) as indicators for the recovery of habitats along closed roads in Spring Valley County Park, York, PA. Annual Meeting of the Pennsylvania Academy of Sciences, Indiana University of Pennsylvania.
- Garrigan, E.E.\*, T.A. Young, and B.E. Hagerty. 2017. The cost of the outdoor cat and dog: rehabilitation of wildlife in southern Pennsylvania. Annual Meeting of the Pennsylvania Academy of Sciences, Wilkes-Barre, PA.
- Walker, P.,\* and B. E. Hagerty. 2016. Kin recognition in the leopard gecko (*Eublepharis macularius*). Annual Meeting of the Pennsylvania Academy of Sciences, Doylestown, PA.
- Hagerty, B.E., B. Perrone, C. Reall, S. Lane, and T. Vesnic. 2015. Trends in ranavirus prevalence in amphibian larvae and adults at a breeding pool in south-central Pennsylvania. Annual Joint Meeting of Ichthyologists and Herpetologist, Reno, NV.
- Perrone, B.,\* and B. E. Hagerty. 2015. Prevalence of ranavirus in adult amphibian hosts in a vernal pool in south central Pennsylvania. Annual Meeting of the Pennsylvania Academy of Sciences, Annville, PA.
- Perrone, B.,\* and B. E. Hagerty. 2014. Prevalence of ranavirus in adult amphibian hosts at a vernal pool in south central Pennsylvania (student work in progress). Annual Meeting of the Wildlife Society, Pittsburgh, PA.
- Crimmins, C. S.,\* and B. E. Hagerty. 2013. The indirect effects of paved roads on redback salamanders (*Plethodon cinereus*) in Spring Valley Park, York County, PA. Annual Meeting of the Pennsylvania Academy of Sciences, Bradford, PA.
- Wakeling, S.W., B.E. Hagerty, F.C. Sandmeier, and C.R. Tracy. 2011. Homing Ability and Navigation in Chuckwallas. Society for Integrative and Comparative Biology Annual Meeting, Salt Lake City, UT.
- Hagerty, B.E., C.R. Tracy, and F.C. Sandmeier. 2010. There's no place like home: dispersal and homing behavior of the chuckwalla in southern Nevada. Society for Integrative and Comparative Biology Annual Meeting, Seattle, WA.
- Hagerty, B.E., F.C. Sandmeier, and C.R. Tracy. 2004. Quantitative review of the adequacy of knowledge of different age stages of the desert tortoise, *Gopherus agassizii*. Society for Integrative and Comparative Biology Annual Meeting, New Orleans, LA.
- \*denotes presenting author is a York College of Pennsylvania student*

## AWARDS, HONORS, AND GRANTS

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Undergraduate Research Grant from Center for Academic Innovation (York College), Awarded to Dezirae Foster\* and Makayla Noll\*, ““Habitat use, abundance, and site fidelity of Hylid frogs in Richard M. Nixon County Park, Jacobus, PA.” April 2021 (\$1078)

Undergraduate Research Grant from the Pennsylvania Academy of Sciences, Awarded to Jacqueline Provost\*, "Predicting Prevalence of Frog Virus 3 (FV3) Ranavirus in Constructed Wetlands using Environmental Indicators," April 2019 (\$550)

Undergraduate Research Grant from Center for Academic Innovation (York College), Awarded to Erika Scheppelmann\*, "The effect of human disturbance on habitat use of mesopredators in Nixon Park," November 2018 (\$1500)

Presidential Award for Teaching and Mentoring Excellence, May 2017

Summer Research Fellowship, awarded by the Faculty Development Committee, York College of Pennsylvania, 2013

Travel Grant, awarded by the Faculty Development Committee, York College of Pennsylvania, 2012

Faculty Institutions for Reforming Science Education (FIRST IV) NSF Postdoctoral Scholar, 2009-2011

Clark County Desert Conservation Program, Project No. 2005-UNR-576-P, Movements and Barriers to Movement of the Desert Tortoise (*Gopherus agassizii*), Principal Investigator: C. Richard Tracy.

Ecological Society of America Award (sponsored by SERDP), August 2007

Graduate Student of the Month, presented by the Graduate Student Association, January 2006

UNR, EECB Program, Competition Award, Fall 2005, Spring and Fall 2006

The Desert Tortoise Council Symposium Best Student Presentation, February 2005

Geneva Boone Award, Outstanding St. Mary's Project in Division of Natural Sciences and Math, St. Mary's College of Maryland, May 2000

\*York College of Pennsylvania Student

## SYNERGISTIC ACTIVITIES

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FIRST IV Postdoctoral Scholar, 2009 - 2011

FIRST IV: Faculty Institutes for Reforming Science Teaching NSF CCLI - Phase III (DUE 618501), 2009-2012. D. Ebert-May (PI), Terry Derting (co-PI).

Participated in a professional development program for teaching and learning in undergraduate biology

Participants are postdoctoral scholars in the biological sciences and a selected team of biology faculty who lead the professional development workshops. Postdocs leave the program with a complete intro biology course designed based on the principles of scientific teaching.

Tortoise and Fresh Water Turtle IUCN Specialist Group Member, 2006 - 2011

Desert Tortoise Recovery Plan Assessment Committee (DTRPAC), 2003 - 2004

Organized committee meetings, recorded meeting minutes, organized data for team analysis, and prepared sections for the final report to U.S. Fish and Wildlife Service

## ACADEMIC SERVICE

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Reviewer for Pennsylvania Academy of Science Undergraduate Research Grants	2019
Chair, Institutional Animal Care and Use Committee, York College of PA	2014-present
Advisor to the Theta Epsilon Chapter of Beta Beta Beta (National Biology Honors Society)	2018-present
Member of the Retention Committee, York College of PA	2013-2015
Member of the Academic Programs Committee, York College of PA	2013-2016
Middle States Self Study Standard 4 Researcher	2014-2016
Reviewer for Population Biology Program, National Science Foundation	2012
Journal Referee	
Ecosphere (2019)	
Conservation Genetic Resources (2014)	
Molecular Ecology Resources (2010)	
Biological Conservation (2009)	
Herpetologia (2009)	
Frontiers in Ecology and Evolution (2008)	
Northwestern American Naturalist (2008)	
Graduate Student President (EECB Program, UNR),	2004 - 2005

## PROFESSIONAL DEVELOPMENT

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Understanding and Engaging Under-Resourced College Students Workshop	March 2021
Youth Mental Health First Aid USA training	August 2019
Community-based Learning FLC	2018-2019
Teaching Academy	Fall 2015
Project-based Learning Workshop	Summer 2014
Appreciative Advising Seminar with Jennifer Bloom	Spring 2014
Faculty Learning Community on Mid-Semester Student Observations	Fall 2013 – Spring 2014
Faculty Learning Community on Active Learning	Spring, Fall 2012
Camp Teach and Learn	each summer 2012 - present
Faculty Learning Community on Assessment	Fall 2011-Spring 2012
Assessment Workshop with Linda Suskie	Fall 2011

## COMMUNITY SERVICE

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Reptile Week and Young Naturalists Day Camp, Nixon County Park (York)	2011-present
Spartan Service Day	2013
Nevada Undergraduate Research Symposium Judge	April 2010
“Wildlife genetics: from conservation to crime fighting”, Upward Bound	February 2009
Western Nevada Regional Science Fair Judge	2005- 2008

## RECENT PROFESSIONAL AFFILIATIONS

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Pennsylvania Academy of Sciences  
Society for the Study of Amphibians and Reptiles  
The Wildlife Society