

DAWN MARIE REDING

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EDUCATION

- 2011 **Ph.D.** in Ecology and Evolutionary Biology, Iowa State University, Ames, IA (Graduate Research Excellence Award); Dissertation topic: Patterns and processes of spatial genetic structure in a mobile and continuously distributed species, the bobcat (*Lynx rufus*).
- 2007 **M.S.** in Zoology (specialization in Ecology, Evolution, and Conservation Biology), University of Hawaii at Manoa, Honolulu, HI; Thesis topic: Current and historical genetic diversity and structure in the endangered Hawaii Akepa.
- 2001 **B.S.** in Environmental Science, University of Dubuque, Dubuque, IA (Summa Cum Laude)

TEACHING EXPERIENCE

- 2013-pr **Assistant Professor of Biology**, Luther College, Decorah, IA (“Visiting” for ‘13- Spring ‘15)
Courses taught:
Principles of Biology – laboratory (Fall 2013, 2014, 2015)
Genetics – lecture and laboratory (Spring 2013, Fall 2013 and 2014)
Genetics and Society – lecture (J-term 2014 and 2015)
Evolution – lecture and laboratory (Spring 2015)
Genomics – lecture and laboratory (Spring 2014, Fall 2015)
Directed Readings on Epigenetics (J-term 2015)
- 2012 **Lecturer**, Iowa State University, Ames, IA
Co-taught a 3-credit, 400-level course in Evolutionary Genetics by serving as main instructor for ~1/3 (5 weeks) of the course. Developed and presented lectures and active-learning exercises. Taught a 3-credit, 300-level summer course in Evolution.
- 2008-12 **Guest Lecturer**, Iowa State University, Ames, IA
Developed and presented full lectures to graduate and undergraduate students on topics directly related to my field of expertise or to fill-in during absences. Courses and lectures include: Mammalogy (reproduction; wildlife genetics); Advanced Animal Behavior (dispersal; molecular tools); Animal Behavior (molecular tools); Evolutionary Genetics (population structure and gene flow); Wildlife Genetics (empirical examples).
- 2003-04 **Teaching Assistant**, University of Hawaii, Honolulu, HI
Taught a 2-credit laboratory section of a 300-level Vertebrate Zoology course for two semesters. Responsibilities included developing labs, instructing students, writing and administering exams, and grading. Taught two 1-credit lab sections of a 100-level Biology and Society course for one semester. Responsibilities included revising labs, instructing students, and grading.

PROFESSIONAL PUBLICATIONS

In prep:

- Crotty ML*, Malek AL*, Roppe J, Reding DM. Impacts of a single-turbine wind facility on bat activity and fatality in northeastern Iowa. *American Midland Naturalist*. *Luther undergraduate students
- Reding DM, Bronikowski AM, Gosselink TE, Johnson WE, and Clark WR. Spatial genetic structure and natural recolonization of a mobile carnivore, the bobcat (*Lynx rufus*), within an agricultural landscape. *PLoS One*.

In review:

- Reding DM, Schwartz TS, Addis E, Palacios MG, Bronikowski AM. Expression divergence in insulin-like signaling genes among garter snake populations with divergent life histories. *General and Comparative Endocrinology*.

Gangloff EJ, Reding DM, Bertolatus D, Reigel C, Gagliardi-Seeley JL, Bronikowski AM. Snakes in the city: urban gartersnakes (*Thamnophis* spp.) are genetically isolated and inbred. *Copeia*.

Peer-reviewed

Loveless AM, Reding DM, Kapfer PM, Papeş M. 2016. Combining ecological niche modeling and morphology to assess the range-wide population genetic structure of bobcats (*Lynx rufus*). *Biological Journal of the Linnean Society*. In press.

McGaugh SE, Bronikowski AM, Kuo CH, Reding DM, Addis EA, Fligel LE, Janzen FJ, Schwartz TS. Rapid molecular evolution across amniotes of the IIS/ TOR network. 2015. *Proceedings of the National Academy of Sciences* 112(22): 7055-7060.

Refsnider JM, Palacios MG, Reding DM, Bronikowski AB. 2015. Effects of a novel climate on stress response and immune function in painted turtles (*Chrysemys picta*). *Journal of Experimental Zoology Part A: Ecological Genetics and Physiology* 323(3): 160-168.

Hiller TL, Reding DM, Clark WR, Green RL. 2014. Misidentification of sex among harvested bobcats. *Wildlife Society Bulletin* 38(4): 752-756.

Latch EK, Reding DM, Heffelfinger JR, Alcalá-Galván CH, Rhodes OE. 2014. Range-wide analysis of genetic structure in a widespread, highly mobile species (*Odocoileus hemionus*) reveals the importance of historical biogeography. *Molecular Ecology* 23: 3171-3190.

Reding, DM, Cushman SA, Gosselink TE, and Clark WR. 2013. Linking movement behavior and fine-scale genetic structure to model landscape connectivity for bobcats (*Lynx rufus*). *Landscape Ecology* 28: 471-486.

Reding DM, Carter C*, Hiller TL, and Clark WR. 2013. Using population genetics for management of bobcats in Oregon. *Wildlife Society Bulletin* 37: 342-351. *high school teacher

Reding DM, Bronikowski AM, Johnson WE, and Clark WR. 2012*. Pleistocene and ecological effects on continental-scale genetic differentiation in the bobcat. *Molecular Ecology* 21: 3078-3093. *recipient of the 2013 *Wildlife Publications Award - Outstanding Article*, presented by *The Wildlife Society*

Reding DM, Freed LA, Cann RL, and Fleischer RC. 2010. Spatial and temporal patterns of genetic diversity in an endangered Hawaiian honeycreeper, the Hawaii Akepa (*Loxops coccineus coccineus*). *Conservation Genetics* 11: 225-240.

Reding DM, Foster JT, James HF, Pratt HD, Fleischer RC. 2009*. Convergent evolution of ‘creepers’ in the Hawaiian honeycreeper radiation. *Biology Letters* 5: 221-224. *highlighted by editor Brian Charlesworth as one of six top papers published in the journal in 2009

Non peer-reviewed

Gosselink TE, Roberts SD, Coffey JC, Linde SA, Reding DM, and Clark WR. 2011. Distribution and population dynamics of bobcats in Iowa. Final Report State Wildlife Grant T-1-R-14, Department of Natural Resources, Des Moines, Iowa.

Reding DR, Clark WR, Bronikowski AM. 2011. Population genetics of bobcats (*Lynx rufus*) in Oregon. Final Report to Oregon Dept. of Fish and Wildlife. Iowa State University, Ames, Iowa.

RESEARCH MENTORING

2015-pr **Marcella Meza, Kieran Okerstrom, Nathan Hemming**, Luther College undergraduates. Community-based bat research and outreach, acoustic monitoring of bats, carcass surveys. Participants in NSF LSAMP and HHMI Research Trios programs.

2014-15 **Andrea Malek, Mariah Crotty**, Luther College undergraduates. Investigating bat populations and impact of local wind turbine using acoustic monitoring, carcass surveys, and molecular analyses. Participants in HHMI Research Trios.

2014-15 **Kim Howell**, Luther College undergraduate. Endophytic fungi of Indian Grass (*Sorghastrum nutans*). Co-advised student with E. Baack and M. McNicoll on senior honors research project

2014-15 **Travis Houle, John Hadish**, Luther College undergraduates

- Potential evolutionary adaptation of a key phytoplankton species (*Emiliana huxleyi*) to ocean acidification. Co-advised students with L. Peterson on senior honors research project and directed research, respectively
- 2013-14 **Jamison Ash, Thando May, Morgan Oberfoell**, Luther College undergraduates
Conducted collaborative research on gray fox population genetics.
- 2013 **Brian Kurtz, Travis Houle**, Luther College undergraduates, Decorah, IA
Co-advised (with B. Lynch from Luther and L. Maas from USFWS) the students on monitoring algal talus slopes for the presence of endangered Pleistocene land snail
- 2012 **Shikha Parsai**, Iowa State University MS student, Ames, IA
Advised Shikha in conducting a qPCR study examining genes involved in metabolic startup and reperfusion in hibernating reptiles.
- 2012 **Kaitlyn Pettingill**, University of Texas- Tyler MS student, Tyler TX
Advised Kaitlyn in conducting immunological assays (bactericidal competence of plasma and haemolysis-hemagglutination assay) in reptiles. Kaitlyn is now a PhD student at ISU.
- 2011-12 **Eric Gangloff**, Iowa State University PhD Student, Ames, IA
Advised Eric in conducting a landscape genetics study using microsatellites to investigate the effects of urbanization on wild populations of garter snakes in Colorado.
- 2010 **Carolyn Carter**, Clinton High School Science Teacher, Clinton, IA
Advised Carolyn through a summer research project investigating genetic structure of Oregon bobcats, as part of a National Science Foundation Research Experience for Teachers (RET) program. Helped Carolyn develop an oral and poster presentation, and collaborated on a manuscript submitted to a peer-reviewed journal.
- 2008 **Hana Yoon**, Ames High School Student, Ames, IA
Trained Hana in laboratory methods, advised her in population genetics research, and helped her present a research poster at a symposium at Ames High.
- 2007-08 **Kristy Bellinger**, ISU Undergraduate Student, Ames, IA
Trained Kristy in laboratory methods, advised her in developing and conducting population genetics research, and guided her through writing a final research report to the Iowa Dept. of Natural Resources and presenting a research poster to legislators in Des Moines. Kristy is now a Ph.D. candidate at Washington State University.

COMPETITIVE FELLOWSHIPS AND RESEARCH GRANTS

- 2015 Iowa Academy of Science, Iowa Science Foundation Research Grant, \$4950
- 2015 Luther College Community-based Research Grant (via Cargill grant), \$4200
- 2013 Iowa Academy of Science, Iowa Science Foundation Research Grant, \$4950
- 2010 National Science Foundation, Doctoral Dissertation Improvement Grant, \$10,150
- 2010 Iowa Academy of Science, Iowa Science Foundation Research Grant, \$4250
- 2008 Iowa Academy of Science, Iowa Science Foundation Research Grant, \$4950
- 2008 Iowa State University, Ecology and Evolutionary Biology Program, Clark Research Award
- 2007 Iowa State University, Professional Advancement Grant
- 2007 Iowa State University, CIAG Genomics Scholars/Fellows Program
- 2007 Iowa State University, Biotechnology Fellowship, \$20,000
- 2006 Sigma Xi, Grants-in-Aid of Research, \$975
- 2006 Smithsonian Institution, Short-term Visitor Grant, \$2000
- 2006 University of Hawaii, Jessie Kay Fellowship, \$10,000
- 2005 University of Hawaii, EECB Program Research Grant, \$3400
- 2005 Natl. Fish and Wildlife Foundation, Refuge Cent. Scholarship for Conservation, \$5000
- 2004 University of Hawaii, EECB Program Research Grant, \$1000
- 2003 Iowa College Foundation, McElroy Fellowship Program, \$1000
- 2000 National Science Foundation – Research Experience for Undergraduates Fellowship,

- Dauphin Island Sea Lab, Alabama
- 1999 Iowa College Foundation McElroy Fund, Faculty/Student Research Grant, \$2000
- 1999 National Science Foundation - Research Experience for Undergraduates Fellowship, Eastern Illinois University

PREVIOUS RESEARCH EXPERIENCE

- 2012 **Postdoctoral Research Associate**, Dr. Anne Bronikowski, Iowa State University
Investigated transcriptomic (using RNA-Seq and qPCR approaches), genetic (using traditional and next-generation DNA sequencing approaches), and immunological (using radioimmunoassays) divergences among two ecotypes of the western terrestrial garter snake as well as other reptile species.
- 2007-11 **Graduate Research Assistant**, Dr. William Clark, Iowa State University
Integrated population genetic analyses with GIS modeling to investigate the link between landscape connectivity and gene flow; collected and analyzed >2500 bobcat DNA samples with microsatellite loci and mtDNA sequence; captured and tracked movements of 119 bobcats using radiotelemetry; developed landscape resistance models using GIS.
- 2005-06 **Smithsonian Research Visitor**, Dr. Robert Fleischer, Smithsonian Genetics Program
Used “ancient DNA” techniques to extract sequence data from avian museum specimens dating as far back as 1838; analyzed sequences to create phylogenies for Hawaiian honeycreepers.
- 2004–06 **Graduate Research Assistant**, Drs. Rebecca Cann and Leonard Freed, University of Hawaii
Compared genetic diversity and structure in pre- and post-bottleneck populations of an endangered Hawaiian bird; set up and directed a remote field camp to mist-net and band birds; also performed PCR diagnostics for avian malaria.
- 2003 **Wading Bird Survey Field Technician**, Dr. Peter Frederick, University of Florida
Conducted field research to provide biological information important for the conservation and management of bird species in the Everglades ecosystem; conducted surveys of wading birds via airboat and plane, monitored nests, captured and handled wood storks, and performed radio telemetry tracking.
- 2001-03 **Wildlife Genetics Lab Technician**, Dr. Christen Williams, USDA
Used a variety of genetic methods (sequencing, microsatellites, RAPDs, RFLPs, SSCP) to address questions relevant to the management of several bird and mammal species.
- 2001 **Grizzly Bear DNA Project Lab and Field Intern**, Dr. Lisette Waits, University of Idaho
Extracted DNA from a large number of grizzly bear hair samples; hiked ~14 miles of trails daily and collected bear scat.
- 2001 **Black Tern Project Field Technician**, Dr. David Shealer, Loras College
Located and determined GPS coordinates of black tern nests; monitored nests to determine productivity and sources of nest failure; collected blood samples from adults and chicks to determine sex and parentage; banded adults and nestlings.
- 2000 **Peregrine Falcon Reintroduction Assistant**, Dr. Larkin Powell, University of Dubuque
Worked as part of a team to reintroduce peregrines to natural bluff habitat; participated in blood sampling, feeding, tagging, and monitoring.

SELECTED PRESENTATIONS

- 2015 Meza M*, Okerstrom, K*, Hemming N*, Crotty M*, Reding D. Bat monitoring in Northeast Iowa. Note: this was an informational talk given approximately 10 times to general audience groups *undergraduate mentees
- 2015 Reding DM, Clark WR, Beringer J. Using genetic data to evaluate distinctiveness of the “prairie” gray fox (*Urocyon cinereoargenteus ocythous*). Iowa Chapter of The Wildlife Society (TWS) Winter Meeting, Ames, Iowa.
- 2014 Reding DM. The decline of common and widespread species: conservation concern for carnivores and bats. Biology Colloquium, Luther College, Decorah, IA.

- 2014 Reding DM, Lesmeister K. Interactions between people, bats, and wind energy. Faculty Research Symposium, Luther College, Decorah, IA.
- 2014 Crotty M*, Malek A*, Roppe J, Reding D. Impacts of a single-turbine wind facility on bat activity and fatality in northeastern Iowa. The Wildlife Society, Pittsburgh, PA (poster). *undergraduate mentees
- 2014 Crotty M*, Malek A*, Roppe J, Reding D. Impacts of a single-turbine wind facility on bat activity and fatality in northeastern Iowa. The Wind Wildlife Research Meeting X, Broomfield, CO (poster). *undergraduate mentees
- 2014 Ash JJ*, May TQ*, Reding DM. Population genetics of gray fox in the Midwest, USA. Iowa Academy of Sciences Meeting, Fort Dodge, IA (poster). *undergraduate mentees
- 2014 Reding DM. Return of a carnivore: landscape ecology and population genetics of bobcats. Invited seminar, Department of Environmental Science, University of Dubuque, Dubuque, IA.
- 2013 Ash JA*, May TQ*, Reding DM. Population genetics of gray fox in the Midwest, USA. Midstates Consortium for Math and Science Undergraduate Research Symposium, Washington University, St. Louis, MO (poster). *undergraduate mentees
- 2013 Reding DM. Ecological and evolutionary consequences of environmental variation: insights from bobcats and snakes. Invited seminar, Biology Colloquium Series, Luther College, Decorah, IA
- 2012 Reding DM, Schwartz TS, Addis EA, Bronikowski AM. Expression divergence in insulin-like signaling genes among garter snake populations with divergent life histories. American Genetic Association Meeting, Durham, NC (poster)
- 2012 Reding DM, Schwartz TS, Addis EA, Palacios MG, Bronikowski AM. Expression divergence in insulin-like signaling genes among garter snake populations with divergent life histories. Ecological Genomics Meeting, Kansas City, KS (poster)
- 2012 Reding DM. Landscape effects on the movement and spatial genetic structure of bobcats. Invited seminar, Department of Biology, University of Wisconsin – Milwaukee.
- 2011 Reding DM, Bronikowski AM, Gosselink TE, Johnson WE, Clark WR. Population genetic structure of bobcats across the entire United States. 72nd Annual Midwest Fish and Wildlife Conference, Des Moines, IA.
- 2011 Reding DM. Patterns and processes of spatial genetic structure in the bobcat. Invited seminar, Department of Biology, University of Texas at Tyler.
- 2010 Carter C*, Reding D, Bronikowski A, Clark W. Is the Cascade Range a dispersal barrier for Oregon bobcats? Research Experience for Teachers Symposium, Ames, IA. *high school teacher
- 2010 Reding DM, Bronikowski AM, Gosselink TE, Clark WR. Spatial genetic structure of bobcat populations recolonizing the agricultural American Midwest. The Wildlife Society 17th Annual Conference, Snowbird, UT.
- 2009 Reding DM, Bronikowski A, Gosselink T, Clark WR. Genetic relationships of bobcats in Iowa and surrounding Midwestern states. 70th Annual Midwest Fish and Wildlife Conference, Springfield, IL.
- 2008 Reding DM, Clark WR, Gosselink TE. Factors mediating gene flow in a mobile and continuously distributed species, the bobcat (*Lynx rufus*). Invited seminar, Laboratory of Genomic Diversity, National Cancer Institute, Frederick, MD.
- 2008 Reding DM, Foster JT, James HF, Pratt HD, Fleischer RC. Convergent evolution of creepers in the Hawaiian honeycreeper radiation. Invited seminar, Center for Conservation and Evolutionary Genetics, Smithsonian Institution, Washington, DC.
- 2008 Bellinger K*, Reding DM, Clark WR, Bronikowski A, Gosselink TE. Genetic relationships of bobcats in Iowa and surrounding Midwestern states. Research in the Capitol, Des Moines, IA (Poster) *undergraduate mentee
- 2008 Yoon H*, Reding DM, Bellinger K, Clark WR, Bronikowski A, Gosselink TE. Genetic relationships of Iowa bobcats and surrounding states. Ames High School Internship Symposium, Ames, IA (Poster) *high school mentee

PROFESSIONAL SOCIETIES AND SERVICE

Member of The Wildlife Society, Sigma Xi, Iowa Academy of Science, American Association of University Women

Reviewer for *Trends in Ecology and Evolution*, *Ecology*, *Molecular Ecology*, *Landscape Ecology*, *Biological Conservation*, *Journal of Mammalogy*, *Wildlife Society Bulletin*, *Journal of Heredity*, *Canadian Journal of Zoology*, and *Conservation Genetics*

Iowa Science Foundation Committee of the Iowa Academy of Science (2015-2018)

Luther College Collections Board member, (2015 – present)

Member of Land Use Committee (2015 – present)

Member of Environmental Studies Steering Committee, (2015 – present)

Director of Hoslett Museum of Natural History, (2015 – present)

Treasurer for Graduate Research in Evolutionary Biology and Ecology organization (2007-2008)

Committee to organize Iowa State University Wildlife Ethics Symposium (2008)

WORKSHOPS AND PROFESSIONAL DEVELOPMENT

-Methods in Ecological Genomic Analysis (MEGA), Whole-genome Genotyping with 2bRAD Workshop, June 30-July 7 2015, Mote Tropical Research Laboratory, Summerland Key, FL.

-Mitogenome sequencing of gray fox samples using hybridization capture and Illumina sequencing, June 20-27, Smithsonian Center for Conservation and Evolutionary Genetics, Washington, DC.

-“Acoustic Software Training Workshop,” March 7-9, 2015, Bat Conservation and Management and SonoBat, Alton, IL.

-“The Genome Solver Workshop,” July 30-31, 2013, J. Craig Venter Institute, Rockville, MD

-“HHMI Math Inquiry Workshop,” June 17-21, 2013, Luther College, Decorah IA

-“Institute for Genome Sciences Genomics Workshop,” June 3-7, 2013, University of Maryland School of Medicine, Baltimore, MD

-“Using bioinformatics data and tools to engage students in problem solving: a curriculum development workshop,” Jan. 7-10, 2013, NIMBioS, Knoxville, TN

-“Communicating with the other 99.999% of the world,” a workshop on public communication and media relations, American Genetic Association Symposium, July 14, 2012, Durham, NC

-“Responsible Conduct of Research”, Iowa State University, Aug-Dec. 2011 (meets NSF and NIH training requirements)

-“Introduction to Galaxy,” a hands-on workshop on how to integrate data and perform simple and complex analysis within the Galaxy platform, April 20, 2012, Iowa State University

-“Radiation Safety for Materials Users”, Iowa State University, Sept. 7, 2011

-“Project LEA/RN”, Iowa State University, May 11-12, 2011

-“Introduction to R”, Iowa State University, Nov. 2 and 4, 2010

-“Essentials of ArcGIS 9.3”, Iowa State University, May 14-15, 2009

-“CITI Basic Course in Laboratory Animal Welfare” and “Working with Cats in Research Settings”, Iowa State University, Dec. 10, 2008

-“Conservation Genetics Data Analysis”, Flathead Lake Biological Station, Montana, Sept. 11-16, 2007

-“Population Genetics Training using GenAlEx”, Iowa State University, June 29, 2007