

Elizabeth (Liz) Mari Harp

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EDUCATION

- 2005 – present** **Colorado State University**, Ph.D. Candidate
Graduate Degree Program in Ecology
Program for Interdisciplinary Mathematics, Ecology, and Statistics
- 2000-2004** **University of North Carolina Asheville**, B.S.
Double Major in Biology and Environmental Studies (*concentration in Ecology*)
Summa Cum Laude

PROFESSIONAL EXPERIENCE

Undergraduate Research Experience Mentor, Colorado State University, Summer 2006 to present

I provide hands-on field and laboratory research experience and mentoring for up to 10 undergraduate students each semester. Because of my close interaction with the students, I also provide mentoring typically provided by a student's advisor at a smaller university (e.g., finding and applying for jobs, graduate school, and fellowships; what classes to take to help prepare them for their chosen field).

Teaching Assistant, Colorado State University, January 2008 to May 2008

Tom Hobbs, Natural Resource Ecology Laboratory and Dept. of Forest, Rangeland, and Watershed Stewardship

Assisted with a graduate-level introductory ecological modeling course. Duties included grading homework, helping students during computer labs, and two scheduled hours each week to answer students' questions.

Teaching Assistant, Colorado State University, August 2007 to December 2007

Jim Graham, Natural Resource Ecology Laboratory

Assisted with a graduate-level course in data management and computer programming using Visual Basic for Applications (VBA). Duties included grading assignments and assisting students with understanding the material both during and outside of class.

Research Assistant, Colorado State University, July 2005 to August 2005

Michael Antolin, Department of Biology

Assisted with field research into the dynamics of plague on the Shortgrass Steppe Long Term Ecological Research Area and the Pawnee National Grassland. Duties included trapping black-tailed prairie dogs using tomahawk live traps, and assisting with collecting fleas, tissue, blood, and standard measures of body condition.

Research Assistant, Emory University, July 2004 to July 2005

Sonia Altizer, Department of Environmental Studies

Assisted with development of a host-parasite database for ungulate species worldwide. These data are archived in an online database (The Global Mammal Parasite Database) and are being used to explore associations between behavioral and ecological traits and the diversity and characteristics of ungulate parasites. I also assisted with mist-netting and live-trapping house finches in metro Atlanta for a collaborative project investigating the dynamics of conjunctivitis in house finches on the east coast.

Research Assistant, Tullula Wetlands Restoration Project, February 2001 to June 2004

Jim Petranka, Department of Biology, University of North Carolina at Asheville

Assisted with amphibian population monitoring at a restored wetland in western North Carolina. Duties included quantitative sampling of amphibian populations, physiochemical analysis of breeding ponds (temperature, dissolved ion concentration, dissolved oxygen, and pH), and recording presence of other amphibian species and dragonfly larvae present in the ponds.

PROFESSIONAL EXPERIENCE (CONTINUED)

Research Assistant, Cerulean Warbler Inventory Project, Great Smoky Mountains National Park, Summer 2003
Trevor Rundle (PI), Southwestern Community College; Paul Super (Co-PI), Great Smoky Mountains National Park
Used playback-response to locate Cerulean Warblers along trails in Great Smoky Mountains National Park to gain a better understanding of their habitat requirements within the park.

Volunteer Research Intern, Appalachian Highlands Science Learning Center at Purchase Knob, Great Smoky Mountains National Park, Summer 2002

Paul Super, Science Coordinator

Assisted with several research projects including mist-netting birds for the Mapping Avian Productivity and Survivorship project, and collecting and identifying a variety of species for the All Taxa Biodiversity Inventory in Great Smoky Mountains National Park (e.g., aquatic invertebrates, aquatic prokaryotes, moths). I also designed a website to communicate research and educational activities at the center. www.nps.gov/archive/grsm/pksite

RESEARCH INTERESTS

Ecology of infectious disease in natural populations	Genetics of disease resistance in wildlife
Anthropogenic causes of pathogen spread	Web-based data sharing and data management
Synergistic effects of pollutants and pathogens in wildlife	Innovations in undergraduate science teaching

CURRENT RESEARCH

Functional genetic diversity and pathogen resistance in black-tailed prairie dogs (*Cynomys ludovicianus*)

Fall 2005 to present, Colorado State University, Research advisor: Dr. Michael Antolin, Department of Biology

I am investigating the relationship between allelic diversity (heterozygosity) of four immune system genes and the parasite community of black-tailed prairie dogs. I hypothesize that individuals with greater parasite diversity or intensity will have reduced immunogenetic diversity because particular alleles provide pathogen resistance. Prairie dogs are an important component of North American grasslands, but have declined throughout their range, in part because of the introduced pathogen *Yersinia pestis*, the causative agent of plague. There are five prairie dog species in the genus, two of which are currently listed under the Endangered Species Act. The black-tailed prairie dog, while much reduced in abundance, is the most widespread of the five species. Immunogenetic information about black-tailed prairie dogs could inform conservation decisions for all five species.

Host-parasite dynamics on the Shortgrass Steppe LTER

Fall 2005 to present, Colorado State University, Research advisor: Dr. Michael Antolin, Department of Biology

I am using existing literature to assemble a database of host-parasite relationships of vertebrate species found on the Shortgrass Steppe Long Term Ecological Research area in eastern Colorado in order to explore associations between behavioral and ecological traits and the diversity and characteristics of individual species' parasites.

Epidemiology of *Ranavirus* at a restored wetland complex in western North Carolina

Summer 2005 to present, collaboration with Dr. Jim Petraska (UNCA) and Tate Holbrook (ASU)

I am currently testing several amphibian species collected at Tullula Wetlands in western North Carolina to determine how *Ranavirus*, an emerging amphibian virus, is maintained in spotted salamander and wood frog populations. I will also be using spatial and temporal records of disease outbreaks 1996-2006 to analyze the spread of *Ranavirus* within and between breeding seasons (when we see near 100% mortality in wood frogs and spotted salamanders).

Ecology and evolution of infectious diseases in the Sciuridae

February 2007 to present, collaboration with Dr. Sonia Altizer (UGA) and Dr. Charlie Nunn (UC-Berkeley)

I am contributing to a database of host-parasite information for all species in the squirrel family in order to explore the association between behavioral and ecological traits, phylogenetic relationships, and the diversity and characteristics of their parasites.

PUBLICATIONS

- Miller-Rushing, A. J., **E. M. Harp**, and J. F. Dukes (2007) Fresh perspectives on timeless questions. *Frontiers in Ecology and the Environment*. 5:334-335
- Petranka, J. W., **E. M. Harp**, C. T. Holbrook, and J. A. Hamel (2007) Long-term persistence of amphibian populations in a restored wetland complex. *Biological Conservation*. 138:371-380
- Harp, E. M.**, and J. W. Petranka (2006) *Ranavirus* in wood frogs (*Rana sylvatica*): potential sources of transmission within and between ponds. *Journal of Wildlife Diseases*. 42:307-318.
- Harp, E. M.** (2004) Allozyme analysis of *Eriocaulon decangulare* (ten-angled pipewort) in western North Carolina. *Proceedings of the National Conference on Undergraduate Research*.

GRANTS, FELLOWSHIPS, AND SCHOLARSHIPS

- National Science Foundation Graduate Research Fellowship, **2007-2010**
- American Society of Mammalogists Grant-in-Aid of Research, **2008**
- Sigma Xi Grant-in-Aid of Research, **2007**
- National Science Foundation Integrative Graduate Education and Research Traineeship (IGERT), Program for Interdisciplinary Mathematics, Ecology, and Statistics, **2005-2007**
- Colorado State University Graduate Fellowship in Ecology, **2005-2006**
- “North Carolina Beautiful” Undergraduate Research Scholar Fellowship, **2003-2004**
- University of North Carolina Asheville Undergraduate Research Grant, **2003**
- University of North Carolina Asheville Chancellor’s Staff Advisory Committee Scholarship, **Spring and Fall 2003**
- Elisha Mitchell Audubon Society Environmental Studies Scholarship, **2001**

AWARDS AND HONORS

- Colorado State University Department of Biology Award for Mentoring Undergraduate Research, **2008**
- Graduate Degree Program in Ecology Good Citizen Award, **2007** (awarded each year to students and faculty who make extraordinary contributions to the Graduate Degree Program in Ecology at Colorado State University)
- National Science Foundation Graduate Research Fellowship Honorable Mention, **2006**
- Manley E. Wright Award (awarded to the graduating UNCA student first in academics and scholarship), **2004**
- Harry Henry Johnston Award for Excellence in Biology, **2004** (awarded each year to one graduating UNCA biology student)
- University of North Carolina Asheville Undergraduate Research Scholar, **2004**
- Goldwater Scholarship Nominee, **2002**
- University of North Carolina Asheville Environmental Studies Dept Award for Academic Excellence, **2001**

RESEARCH PRESENTED

- Does exclusion of random error alter model inference? A case study using grizzly bears (*Ursus arctos*) of the Greater Yellowstone Ecosystem.** NSF Integrative Graduate Education and Research Traineeship (IGERT) Project Meeting, **May 2007** (poster)
- Ranavirus in wood frogs (*Rana sylvatica*): potential sources of transmission within and between ponds.** Ecological Society of America Annual Meeting, **August 2006** (poster)
- Allozyme analysis of *Eriocaulon decangulare* (ten-angled pipewort) in western North Carolina.** National Conference on Undergraduate Research, **April 2004** (talk)
- Allozyme analysis of *Eriocaulon decangulare* (ten-angled pipewort) in western North Carolina.** University of North Carolina at Asheville Undergraduate Research Symposium, **April 2004** (talk)
- Ranavirus transmission in wood frogs (*Rana sylvatica*): are researchers spreading a deadly virus?** University of North Carolina at Asheville Undergraduate Research Symposium, **May 2003** (talk)
- Ranavirus transmission in wood frogs (*Rana sylvatica*): are researchers spreading a deadly virus?** Sigma Xi, University of North Carolina at Asheville Chapter, Spring Meeting, **May 2003** (talk)

SYMPOSIA, SESSIONS, AND WORKSHOPS ORGANIZED

Communicating Science to the Public

Principal organizer. Workshop, Ecological Society of America Annual Meeting, **August 2007**

What editors want: do's and don'ts for preparing your manuscript

Co-organizer. Evening session, Ecological Society of America Annual Meeting, **August 2006**

Introduction to Geographic Information Systems

Principal organizer. Workshop, Colorado State University, **May 2006**

How to succeed in ecology: advice from senior ecologists and rising stars

Principal organizer. Evening session, Ecological Society of America Annual Meeting, **August 2005**

What editors want: do's and don'ts for preparing your manuscript

Principal organizer. Evening session, Ecological Society of America Annual Meeting, **August 2005**

ESA Student Section and Student LTER lunch chat with established ecologists

Co-organizer. Lunch session, Ecological Society of America Annual Meeting, **August 2005**

How to succeed in ecology: advice from aspiring and eminent ecologists

Co-organizer. Evening session, Ecological Society of America Annual Meeting, **August 2004**

Disease ecology and declining populations: analyzing and predicting disease in sensitive populations

Sole organizer. Symposium, Ecological Society of America Annual Meeting, **August 2004**

PROFESSIONAL SERVICE

Ecological Society of America

Public Affairs Committee, November 2007 to November 2009

Student Section Chair, August 2004 to August 2006

Student Section Co-chair, August 2003 to August 2004

ESA Council, August 2004 to August 2006

Meetings Committee, August 2004 to August 2006

Website Redesign Committee, November 2005 to October 2006

Reviewer for the following journals

Diseases of Aquatic Organisms

Ecological Applications

Frontiers in Ecology and the Environment

COLORADO STATE UNIVERSITY SERVICE

Graduate Degree Program in Ecology (GDPE) Executive Committee, **Student Representative,** Aug. 2006 to May 2007

Front Range Student Ecology Symposium, Program Chair (2006-2007), **Webmaster** (2005-2006)

Colloquium in the Life Sciences, **Webmaster,** Fall 2006 – Spring 2008

PROFESSIONAL SOCIETY MEMBERSHIPS

Ecological Society of America (since 2003)

Sigma Xi (since 2003)

Wildlife Disease Association (since 2004)

American Institute of Biological Sciences (since 2004)

American Society of Mammalogists (since 2007)

International Association for Ecology and Health (since 2007)

American Association of Veterinary Parasitologists (since 2008)