

# GREGORY R. RUTHIG

## CURRICULUM VITAE

Department of Biology  
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### CURRENT POSITION

2008-Present Grinnell College, Visiting Assistant Professor of Biology

### POSTDOCTORAL EXPERIENCE

2006-2008 Arizona State University, *advisors*: James Collins and Elizabeth Davidson

### EDUCATION

- 2000-2006 Ph.D. in Biology, University of Virginia, Thesis: *The Influence of the Environment and Infectious Disease on Amphibian Egg Laying Behavior*, advisor: Henry Wilbur
- 2004 Advanced Training in Amphibian Population Decline Research, La Selva and la Universidad de Costa Rica: Ten day course on monitoring, global change, disease, contaminants, statistics, and experimental design sponsored by the Research and Analysis Network for Neotropical Amphibians (RANA) and the National Science Foundation
- 1996 American Institute for Foreign Study, Universidad de Salamanca, Spain
- 1994-1998 B.S. in Biology, Washington and Lee University

### RESEARCH INTERESTS

Conservation biology, Disease ecology, Life history evolution, Amphibian diseases

### TEACHING EXPERIENCE

#### Courses Taught

- Spring 2009 **Biology of Infectious Diseases**, Grinnell College, Biology 395
- Spring 2009 **Organisms, Evolution, and Ecology**, Grinnell College, Biology 252
- Fall 2008 **Mechanisms of Evolution**, Grinnell College, Biology 373
- Winter 2006 **Emerging Infectious Disease in Humans and Wildlife** (co-taught), University of Virginia, Biology 330

## Guest Lectures

- April 2004     **Biology of Infectious Diseases**, University of Virginia, Biology 309, “The Emergence of New Diseases”
- March 2004     **Introduction to Natural History**, Piedmont Virginia Community College, Natural Science 145, “Reptiles and Amphibians of Virginia”

## Teaching Assistantships

- Fall 2005     **Microbiology Laboratory**, University of Virginia, Biology 315  
Professor: Dr. Ronald Bauerle
- Spring 2003,     **Biology of Infectious Diseases**, University of Virginia, Biology 309  
2004, 2005     Professor: Dr. Janis Antonovics
- Spring 2001     **Introductory Laboratory**, University of Virginia, Biology 204, an  
introductory survey of a wide range of biota, Professor: Dr. Kristen Curran
- Fall 2001,     **Introductory Laboratory**, University of Virginia, Biology 203, an  
2002     introduction to molecular techniques, Professor: Dr. Elizabeth Machunis-  
Masuoka

## UNDERGRADUATE MENTORING

- Summer,     **Mentor Advanced Project (MAP) Mentor**, Grinnell College: Mentor  
Fall 2009     Stephanie Watanabe on her project entitled, *Specific molecular markers for the  
identification of pathogenic water molds*
- Mentor Advanced Project (MAP) Mentor**, Grinnell College: Mentor  
                  Xiaoni Liu on her project entitled, *Pathogenicity of water molds on the eggs of the  
bullfrog, Rana catesbeiana*
- Fall 2009     **Mentor Advanced Project (MAP) Mentor**, Grinnell College: Will  
mentor Ann Murray on her project entitled, *Genetic differences in host  
susceptibility to pathogenic water molds*
- Mentor Advanced Project (MAP) Mentor**, Grinnell College: Will  
                  mentor Allyse Hellmich on her project entitled, *The effect of bacterial  
commensals on pathogenic water molds of bullfrog eggs*
- Spring 2007     **Undergraduate Mentor**, Arizona State University: Mentored Lauren  
Kiraly on her independent project titled, *The effects of UV-B radiation on  
persistence of an amphibian pathogen in pond water*
- Summer 2003,     **Research Experience for Undergraduates (REU) Mentor**, Mountain  
2004     Lake Biological Station: Mentored Katie Provost, an undergraduate from  
the College of William and Mary on her project entitled, *Saprolegnia: True  
multihost pathogen or undercover specialist?* Katie is currently a Ph.D. student at  
the John Hopkins University

Summer 2002 **Research Experience for Undergraduates (REU) Mentor**, Mountain Lake Biological Station: Mentored Stesha Pasachnik, an undergraduate from Earlham College on her project entitled, *Versatility of Habitat Use in Three Sympatric Species of Plethodontid Salamanders*, which was published in the Journal of Herpetology. Stesha is currently a Ph.D. student at the University of Tennessee

## RESEARCH EXPERIENCE

- 2006-2008 **Postdoctoral Research**, Arizona State University, Tempe, AZ, Examined the role of host amphibian communities on the dynamics of the amphibian pathogen, *Batrachochytrium dendrobatidis*
- 2003-2005 **Ph.D. Research**, Savannah River Ecology Laboratory, Aiken, SC, Surveyed breeding populations of the southern leopard frog; mapped location of several egg masses using a Trimble GPS unit, digital photographs and Arcview GIS; collected and isolated strains of water molds from infected frog eggs in the field
- 2001-2004 **Ph.D. Research**, Mountain Lake Biological Station, Giles County, VA, Performed lab and field experiments on the impact of predators and pathogens on amphibian eggs and how the spatial distribution of eggs can affect their fitness
- 2001 **Rotation Research**, University of Virginia, Charlottesville, VA, *advisor*: Dr. Douglas Taylor: Examined the efficacy of microsatellite primers on several species of the plant genus *Silene* to examine phylogenetic relationships
- 2000 **Rotation Research**, University of Virginia, Charlottesville, VA, *advisor*: Dr. Henry Wilbur: Used skeletal chronology to determine the age of red-spotted newts captured in the field
- 2000 **Research Assistant**, Smithsonian Tropical Research Institute, Panama, *director*: Stefan Schnitzer, University of Pittsburgh: Surveyed seedlings in a study of the effects of lianas on plant biodiversity
- 1999-2000 **Research Assistant**, Smithsonian Tropical Research Institute, Panama, *director*: Dr. Gregory Adler, University of Wisconsin-Oshkosh: Trapped and collected demographic data on island mammal populations; conducted censuses of flowering and fruiting plants on the islands
- 1999 **Research Assistant**, Caribbean Conservation Corporation, Tortuguero Costa Rica, *director*: Sebastian Tröeng: Tagged, collected morphological data, and marked locations of nesting green and leatherback turtles; excavated hatched nests and performed necropsies on hatchlings and eggs; worked with a multilingual group of researchers from seven countries
- 1997 **R.E. Lee Research Assistant**, Washington and Lee University, Lexington, VA, *advisor*: Dr. Lawrence Hurd: Studied the effects of population density and intraspecific competition on larval amphibians

## SERVICE

**Manuscript Referee** for the following scholarly journals: *The American Naturalist, Journal of Herpetology, Oecologia, Ecology Letters, Southeastern Naturalist, Journal of Parasitology, Amphibian Conservation and Biology, Revista Iberoamericana de Micologia, Freshwater Biology*

**Co-President**, University of Virginia Biology Department Graduate Student and Post-Doc Association, *2003-2004 Academic Year*

**Judge**, Ward Traditional Academy Science Fair, Tempe, AZ, *February 28, 2007*

**Judge**, Graduates in Earth, Life, and Social Sciences Symposium, Arizona State University, *February 1, 2008*

**Advisory Committee**, Save the Frogs

## SKILLS

Proficiency in Spanish, Gel Electrophoresis, Polymerase Chain Reaction (PCR), Quantitative (realtime) PCR, Freshwater aquarium setup and maintenance, Small mammal trapping, Amphibian skeletal chronology, Small boat operation, PADI certified SCUBA

**Computer Programs:** SAS, Arc View GIS, Minitab, Metaview, Dreamweaver, Microsoft Excel, Microsoft Word, Microsoft PowerPoint, Internet Explorer, Mega

## INTERESTS

Distance running, hiking, SCUBA diving, trombone, traveling, downhill skiing, cross country skiing

## PRESENTATIONS

**Invited Seminar:** Grinnell in the Twin Cities, Como Park Zoo St. Paul, MN, Title: "Emerging Infectious Disease and the Plight of Amphibians" *November 9, 2008*

**Invited Seminar:** Washington and Lee University, Lexington, VA, Title: "Disease, the Environment, and Amphibian Egg Laying Behavior" *March 11, 2004*

**Seminar:** BESTNet – DIVERSITAS - AgTrans Workshop: Analyzing the Role of Agricultural Transformation and Invasive Species in Disease Emergence, Global Institute of Sustainability, Arizona State University, Tempe AZ, Title: "Globalization and Invasive Pathogens" *May 30, 2008*

**Seminar:** Host Pathogen Biology and the Global Decline of Amphibians, Arizona State University, Tempe, AZ, Title: "*Batrachochytrium dendrobatidis* at Amphibian Breeding Sites in Central Arizona" *November 2, 2007*

**Seminar:** Ecological Society of America, San Jose, CA, Title: "Temperature and Host Density Influence Susceptibility of Frog Eggs to Disease" *August 9, 2007*

**Seminar:** Host Pathogen Biology and the Global Decline of Amphibians, Arizona State University, Tempe, AZ, Title: “The Effect of Temperature on the Persistence of *Batrachochytrium dendrobatidis* Zoospores in Pond Water” *November 10, 2006*

**Poster:** Host Pathogen Biology and the Global Decline of Amphibians, Arizona State University, Tempe, AZ, Title: “The Role of the Environment and Egg Laying Behavior on *Saprolegnia* Transmission” *November 11, 2004*

**Poster:** Southeastern Ecology and Population Genetics Group, Camp Sequoia, VA, Title: “The Roles of Infectious Disease and the Environment in Bullfrog Oviposition Site Choice” *September 20, 2003*

**Poster:** Southeastern Ecology and Population Genetics Group, Hanging Rock, NC, Title: “Ecological Implications of Amphibian Egg Laying Behavior” *September 22, 2001*

## GRANTS AND FELLOWSHIPS

**National Science Foundation Doctoral Dissertation Improvement Grant** 2003-2005. \$6,408. The Influence of Disease on Seasonal Variation in Amphibian Life History Traits. Co-participant: Henry Wilbur

**Sigma Xi Grant in Aid of Research** 2003-2005. \$1,000. The Influence of Disease on Seasonal Variation in Amphibian Life History Traits

**University of Virginia First Year Fellowship** 2000-2001. Tuition at the University of Virginia and an \$18,000 living stipend

**Mountain Lake Biological Station Research Fellowship** 2001-2004. Summer living expenses and access to the facilities at the Mountain Lake Biological Station

## PUBLICATIONS

Schock, D. M., G. R. Ruthig, J. P. Collins, S. J. Kutz, S. Carrière, R. J. Gau, A. Veitch, N. C. Larter, D. P. Tate, G. Guthrie, D. G. Allaire, R. Popko. Amphibian chytrid fungus and ranaviruses in the Northwest Territories, Canada. *Diseases of Aquatic Organisms*. *Accepted with minor revisions*.

Ruthig, G. R. 2009. Water molds of the genera *Saprolegnia* and *Leptolegnia* are pathogenic to the North American frogs, *Rana catesbeiana* and *Pseudacris crucifer*, respectively. *Diseases of Aquatic Organisms* 84: 173-178.

Karraker, N. E. and G. R. Ruthig. 2009. The interaction between road salt and water molds on amphibian egg mortality. *Environmental Research* 109: 40-45.

Ruthig, G. R. 2008. The influence of temperature and spatial distribution on the susceptibility of southern leopard frog eggs to disease. *Oecologia* 156: 895-903.

Pasachnik, S. and G. R. Ruthig. 2004. Versatility of habitat use in three sympatric species of Plethodontid salamanders. *Journal of Herpetology* 38: 434-437.