

KERRY M. KRIGER

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EDUCATION

- Griffith University -- School of Environmental and Applied Sciences** Queensland, Australia
Ph.D., May 2007
Thesis: The Ecology of Chytridiomycosis in Eastern Australia
- University of Virginia -- School of Engineering and Applied Science** Charlottesville, VA
Bachelor of Science degree in Mechanical Engineering, May 1996
Thesis: An Analysis of the Molecular Vibrations of Ethylguanidinium Halides

AWARDS

- Scott Piper Best Student Publication Award** 2007
Awarded for my article "Latitudinal variation in the prevalence and intensity of chytrid (*Batrachochytrium dendrobatidis*) infection in eastern Australia", which appeared in *Conservation Biology* 21(5):1280-1290.
- Centre for Innovative Conservation Strategies Conference Travel Grant** 2007
Awarded AU\$800 to present research results at the Joint Meeting of Ichthyologists and Herpetologists in St. Louis.
- Queensland 'Growing the Smart State PhD Funding Program' Grant** 2006
Awarded AU\$5000 to fund research project entitled "The Latitudinal Distribution of Chytridiomycosis in Frogs of Eastern Australia".
- Best Oral Presentation on an Ecological Management and Restoration Topic** 2006
Awarded at the Joint Conference of the New Zealand Ecological Society and the Ecological Society of Australia
- Herpetologists' League Robert G. Jaeger Award for Graduate Research – Finalist** 2006
Received US\$200 for presenting research results at the Joint Meeting of Ichthyologists and Herpetologists in New Orleans.
- Australian Society of Herpetologists Conference Travel Grant** 2006
Awarded AU\$175 to present research results at the Society's annual meeting in Healesville, Victoria.
- Peter Rankin Trust Fund for Herpetology Research Grant** 2005
Awarded AU\$875 to fund research project entitled "Effects of Breeding Habitat on the Prevalence and Severity of Chytridiomycosis in Frogs of Southeast Queensland".
- Gold Coast Association of Postgraduates Conference Travel Grant** 2005
Received AU\$800 to present research results at the Joint Meeting of Ichthyologists and Herpetologists in Tampa, FL.
- Ecological Society of Australia Student Research Grant** 2005
Awarded AU\$500 to fund research project entitled "The Latitudinal Distribution of Chytridiomycosis in Frogs of Eastern Australia".
- Gold Coast Association of Postgraduates Conference Travel Grant** 2005
Received AU\$400 to present research results at the Ecological Society of Australia conference in Brisbane.
- Eppley Foundation for Research Fellowship** 2004
Awarded US\$18,530 to fund research project entitled "The Altitudinal Distribution of Chytridiomycosis in Eastern Australia".
- National Geographic Society -- Committee for Research and Exploration Grant** 2004
Received US\$10,000 to support research project entitled "Ecology of Chytridiomycosis in Mid-Eastern Australia".
- Gold Coast Association of Postgraduates Scholarship** 2004
Awarded AU\$1000 in recognition of service to the University and local community.
- Gold Coast Association of Postgraduates Conference Travel Grant** 2004
Received AU\$790 to present a 50-minute lecture at the University of Virginia's Mountain Lake Biological Station.

Australian Society of Herpetologists Student Research Grant**2004**

Awarded AU\$750 to fund research project entitled "Effects of Breeding Habitat on the Prevalence and Severity of Chytridiomycosis in Frogs of Southeast Queensland".

Northern Virginia Community College Presidential Scholar Award**2001**

Awarded title of Presidential Scholar for outstanding academic achievement.

PUBLICATIONS

- Kruger, K. M. (in press) Lack of evidence for the drought-linked chytridiomycosis hypothesis. *Journal of Wildlife Diseases*
- Kruger, K. M. (2008) SAVE THE FROGS! nonprofit organization: the future of amphibian conservation. *Phyllomedusa* 7(2): 151
- Kruger, K.M. and Hero, J.-M. (2008) Altitudinal distribution of chytrid (*Batrachochytrium dendrobatidis*) infection in subtropical Australian frogs. *Austral Ecology* 33(8):1022-1032
- Kruger, K.M. and Hero, J.-M. (in press) Chytridiomycosis, amphibian extinctions, and lessons for the prevention of future panzootics. *EcoHealth*
- Kruger, K.M. and Hero, J.-M. (in press) After the horse has bolted: a reply to Garner et al. (2009). *EcoHealth*
- Hero, J.-M. and Kruger, K.M. (2008) Threats to amphibians in tropical regions. *Tropical Biology and Natural Resources, Encyclopedia of Life Support Services (EOLSS)*. Developed under the auspices of the UNESCO, EOLSS Publishers, Oxford, UK
- Van Sluys, M., Kruger, K.M., Phillott, A.D., Campbell, R., Skerratt, L.F. and Hero, J.-M. (2008) Storage of samples at high temperatures reduces the amount of amphibian chytrid fungus (*Batrachochytrium dendrobatidis*) DNA detectable by PCR assay. *Diseases of Aquatic Organisms* 81:93-97
- Kruger, K.M., Pereoglou, F. and Hero, J.-M. (2007) Latitudinal variation in the prevalence and intensity of chytrid (*Batrachochytrium dendrobatidis*) infection in Eastern Australia. *Conservation Biology* 21(5):1280-1290 Winner: 'Scott Piper Best Student Publication of 2007 Award'
- Kruger, K.M. and Hero, J.-M. (2007) Large-scale seasonal variation in the prevalence and severity of chytridiomycosis. *Journal of Zoology* 271:352-359
- Kruger, K.M. and Hero, J.-M. (2007) The chytrid fungus *Batrachochytrium dendrobatidis* is non-randomly distributed across amphibian breeding habitats. *Diversity and Distributions* 13:781-788
- Kruger, K.M., Ashton, K.J., Hines, H.B. and Hero, J.-M. (2007) On the biological relevance of a single *Batrachochytrium dendrobatidis* zoospore: a reply to Smith (2007). *Diseases of Aquatic Organisms* 73:257-260
- Hyatt, A.D., Boyle, D.G., Olsen, V., Boyle, D.B., Berger, L., Obendorf, D., Dalton, A., Campbell, R., Kruger, K.M, Hero, J.-M., Hines, H., Phillott, R., Campbell, R., Gleason, F., Colling, A. (2007) Diagnostic assays and sampling protocols for the detection of *Batrachochytrium dendrobatidis*. *Diseases of Aquatic Organisms* 73:175-192 'Feature Article'
- Kruger, K.M., Hines, H.B., Hyatt, A.D., Boyle, D.G. and Hero, J.-M. (2006) Techniques for detecting chytridiomycosis in wild frogs: comparing histology with real-time Taqman PCR. *Diseases of Aquatic Organisms* 71:141-148
- Kruger, K.M., Hero, J.-M. and Ashton, K.J. (2006) Cost efficiency in the detection of chytridiomycosis using PCR assay. *Diseases of Aquatic Organisms* 71:149-154

Kruger, K.M. and Hero, J.-M. (2006) Survivorship in wild frogs infected with chytridiomycosis. *EcoHealth* 3:171-177

Kruger, K.M. and Hero, J.-M. (2006) *Cophixalus ornatus* (Ornate Nursery Frog). Chytridiomycosis. *Herpetological Review* 37(4):443

Kruger, K.M. and Hero, J.-M. (in review) Chytridiomycosis and amphibian population declines: ten years of research. *Quarterly Review of Biology*

Braiman, M.S., Briercheck, D.M. and Kriger, K.M. (1999) Modeling vibrational spectra of amino acid side chains in proteins: effects of protonation state, counterion, and solvent on Arginine C-N stretch frequencies. *Journal of Physical Chemistry B*. 103(22):4744-4750

Invited Reviewer

- I have reviewed manuscripts for the following journals: *Conservation Biology*, *Proceedings of the Royal Society B*, *Diseases of Aquatic Organisms*, *Herpetological Review*, *Veterinary Microbiology*, *EcoHealth*, *Wildlife Research*, *BMC Ecology* and *Caribbean Journal of Science*.
- I have reviewed research applications for the National Geographic Society and the US Army Corps of Engineers.
- I have edited a volume of encyclopedias entitled Children's Cyclopedia (published by Macaw Books).

CURRENT POSITION

SAVE THE FROGS! Nonprofit Organization

March 2008-present

Executive Director & Founder: Manage all aspects of the organization, including legal and financial affairs, web site content and design, public relations, and fund raising. Regularly give free public lectures on the amphibian extinction crisis. Prepare educational materials for schools and businesses.

RESEARCH EXPERIENCE

Griffith University, Centre for Innovative Conservation Strategies

May 2007-December 2007

Adjunct researcher: Expanded upon my Ph.D. research, writing articles on the causes of amphibian population declines and methods of conserving existing amphibian populations.

Griffith University, School of Environmental and Applied Sciences

September 2003-May 2007

Ph.D. research: The ecology of chytridiomycosis in eastern Australia: determining the extent to which the prevalence and intensity of chytrid infections vary with altitude, latitude, breeding habitat, and season. Supervisors: Dr. Jean-Marc Hero and Dr. Kevin Ashton

- Conducted extensive sampling of native Australian amphibians for presence of fungal pathogen *Batrachochytrium dendrobatidis*, causative agent of the potentially lethal disease chytridiomycosis. Analyzed all samples using quantitative (real-time) PCR (qPCR).
- Performed experimental evaluation of two techniques (qPCR and histopathology) used to detect chytridiomycosis in wild frogs.
- Performed theoretical evaluations of three PCR techniques (singlicate qPCR, triplicate qPCR and conventional PCR) in order to compare their sensitivities and costs. Described a technique by which the cost of chytrid diagnostic tests could be significantly reduced with negligible decrease in accuracy.
- Trained in the detection of *Batrachochytrium dendrobatidis* using qPCR techniques. Course by Dr. Alex Hyatt laboratory at the CSIRO Australian Animal Health Laboratories in Geelong, Victoria.
- Set up qPCR chytrid diagnostic laboratory at Griffith University, and trained two scientists to perform qPCR techniques.
- Trained in the detection of *Batrachochytrium dendrobatidis* by histopathology. Course by Diana Mendez at James Cook University School of Public Health and Tropical Medicine in Townsville, Queensland.

University of California, Santa Cruz, Predatory Bird Research Group

August 1998, June 1999

Wildlife Biologist: Monitored the release of captive-bred peregrine falcons into the wild.

- Recorded the birds' foraging and flying habits, and activities of potential predators.

- 7 days per week.

University of Hawaii, Hakalau National Forest Wildlife Refuge

June-September 1997

Wildlife Researcher: Investigated the ecology of endangered Hawaiian birds in a high altitude rainforest.

- Recorded and analyzed foraging habits of mixed-species flocks and their behavior in relation to predators.
- Installed mist nets, and assisted in banding birds for tracking purposes.
- Collected insects from tree canopy in order to determine food availability.
- Identified potential nest trees, and used findings to predict maximum number of birds the forest could support.

Corpro Companies, Inc., Trans-Alaska Pipeline System

May-August 1996

Corrosion Engineer: Evaluated the effectiveness of the cathodic protection along buried sections of the Trans-Alaska Pipeline.

- Recommended preventive measures for potentially corrosive sections, which were then treated by a separate team.
- 70 hours per week, regardless of weather conditions.

University of Virginia, Biophysics Laboratory

June 1994-May 1996

Undergraduate Researcher: Investigated molecular vibrations of ethylguanidinium chloride, a side-chain of an amino acid thought to be linked to cystic fibrosis.

- Used a Fourier Transform Infrared Spectrometer to collect empirical data on vibrational frequencies of specific atoms within the molecule.
- Utilized molecular modeling software to generate a predictive model of the molecule's vibrational frequencies and made comparisons to empirical data to judge the program's accuracy and future worth.
- Synthesized all necessary samples.

University of Virginia, Cell Biology Laboratory

May-August 1993

Laboratory Specialist: Used a microscopic camera to photograph the cardiovascular systems of embryonic chickens and computer imaging software to analyze the photographs.

- Managed the laboratory's network of computers and installed computer and photography hardware and software.

TEACHING EXPERIENCE

Griffith University, School of Environmental and Applied Sciences

- Lecturer: Vertebrate Biology (2007). Presented two hours of lectures per week, supervised laboratory sessions, led discussion groups, and graded students' assignments. Course material was focused on the biology and biogeography of amphibians, reptiles, birds and mammals, and field sampling techniques for each of those groups.
- Lecturer: Ecology (2007). Presented nine lectures. Topics covered included mark-recapture, life-tables, population dynamics, harvesting and conservation biology. Assisted on field trips.
- Guest Lecturer: Zoology and Conservation Biology (2006). Topics covered included amphibian and mammal biology, biogeography, and amphibian declines.
- Tutor: General Chemistry (2006) and Applied Mathematics (2005-2007). Introduced classes of 15 students to upcoming course material, and provided assistance with exam preparation.

Gold Coast Tutoring, Queensland

October 2003-May 2007

Private Tutor: Tutor Griffith University students at the one-on-one level.

- Subjects taught include Chemistry, Biology, Physics, and Calculus.
- Assisted students with exam preparation, laboratory write-ups, and topics not yet covered in class.
- GUMURRI Centre: Taught indigenous Australian university students.

Northern Virginia Tutoring

July 2001-September 2003

Private Tutor, Founder: Tutored 5th through 12th grade math and science at the one-on-one level.

- Subjects included Algebra, Trigonometry, Calculus, Biology and Chemistry, and SAT Preparation.

- Managed all aspects of this private business, including marketing and finances.

Tutorfind, Inc., Manassas, VA

October 2002-March 2005

- Developed and taught SAT preparation and study skills courses.
- Taught on-line math classes to students of all ages.

Search & Rescue, Andover, MA

September-November 1991

- Taught a group of six Phillips Academy students the fundamentals of rock climbing, mountain safety, orienteering, and canoeing.

PRESENTATIONS

6th World Congress of Herpetologists

Manaus, Brazil; August 2008

- "SAVE THE FROGS! Nonprofit Organization: The Future of Amphibian Conservation"

Joint Meeting of Ichthyologists and Herpetologists

St. Louis, Missouri; July 2007

- "Breeding Habitat, Altitude, and Chytridiomycosis"

Centre for Innovative Conservation Strategies Seminar Series, Invited Speaker

- 50-minute lecture: "The Ecology of Chytridiomycosis in Eastern Australia" Gold Coast, QLD; May 2007

Joint Meeting of the New Zealand Ecological Society and Ecological Society of Australia

- "Climate, Morphology, and Chytridiomycosis" Wellington, NZ; August 2006

Joint Meeting of Ichthyologists and Herpetologists

New Orleans, Louisiana; July 2006

- "Seasonal and Latitudinal Variation in the Prevalence of Chytridiomycosis in *Litoria lesueuri*"

Australian Society of Herpetologists Conference

- "Latitudinal and Temporal Variation in the Prevalence and Severity of Chytridiomycosis in Stoney Creek Treefrogs (*Litoria lesueuri* complex)" Healesville, Victoria; April 2006

Ecological Society of Australia Conference

- "Temporal, Spatial and Inter-Specific Variability in Levels of Chytridiomycosis in Frogs of Southeast Queensland" Brisbane, Queensland; November 2005

Joint Meeting of Ichthyologists and Herpetologists

Tampa, Florida; July 2005

- "Chytridiomycosis in Frogs of Southeast Queensland"

Australian Society of Herpetologists Conference

- "Techniques for Detecting Chytridiomycosis in Wild Frogs: Comparing Histological with Real-Time Taqman PCR" Springbrook, Queensland; February 2005

Captivity, Reintroduction and Disease Control Technologies for Amphibians Conference

- "Techniques for Detecting Chytridiomycosis in Wild Frogs: Comparing Histological with Real-Time Taqman PCR." Werribee, Victoria; December 2004

Mountain Lake Biological Station Seminar Series, Invited Speaker

Mountain Lake, Virginia; July 2004

- Presented a 50-minute lecture entitled "Chytridiomycosis and Global Amphibian Declines".

ACTIVITIES

Photography:

- Photographed and produced a 2009 wall calendar, "Frogs of Australia", and a poster by the same name, that are distributed in Australia and the United States. Proceeds go to endangered frog research.
- Photographed and produced a "How to Help Save Frogs" poster that appears in schools, museums and zoos worldwide.

Travel:

- Self-financed 18 months of independent travel through Asia, South America, and the South Pacific.
- Self-taught Spanish and Portuguese.

Classical Music of Northern India:

August 1996-present

- Study bamboo flute with India's renowned flute master, Pandit Vijay Raghav Rao.
- Recorded 3 CDs: "Evening Ragas", "Corridors of the Mind" and "Live in Buenos Aires 2002"
- Performances in the USA, Argentina and Mexico.

National Outdoor Leadership School (NOLS):

June 1992

- Lived on glaciers in the Alaska Range for one month while practicing ice climbing, rock climbing, crevasse rescue and mountain safety skills.

MEMBERSHIPS

- Herpetologists' League
- Ecological Society of Australia
- Australian Society of Herpetologists
- Research and Analysis Network for Neotropical Amphibians (RANA)
- Endangered Frog Research Centre
- Centre for Innovative Conservation Strategies

References Available Upon Request