

## CURRICULUM VITAE

# **Douglas Craig Woodhams, Ph.D.**

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## **Education**

- 2003 Ph.D. Zoology and Tropical Ecology**, James Cook University, Townsville, Queensland.  
Thesis: The ecology of chytridiomycosis, an emerging infectious disease of Australian rainforest frogs.  
Advisor: Dr. Ross Alford
- 1999 B.Sc. Zoology, Honors College**, Michigan State University, East Lansing, Michigan.  
Independent Research Project: Cold hardiness in two helminth parasites of the freeze-tolerant wood frog, *Rana sylvatica*.  
Advisors: Dr. Heather Eisthen, Dr. Richard Hill

## **Appointments**

- Senior Research Associate.** Institute of Zoology, University of Zürich. 2008-present.  
**Ecology Group Leader:** Prof. Dr. Heinz-Ulrich Reyer
- Instructor.** Department of Biology, James Madison University. 2007-2008.  
**Advisor:** Dr. Reid Harris
- Post-doctoral Fellow.** Department of Microbiology and Immunology, Vanderbilt University Medical Center. 2003-2007.  
**Advisor:** Dr. Louise Rollins-Smith

## **Academic and Professional Honors**

- Institutional Training Grant Postdoctoral Fellowship, 2003-2004,  
(Immunobiology of Blood and Vascular Systems Training Program)
- Doctoral Research Scholarship, James Cook University, 2003
- Supplementary Internal Research Account Scholarship, 2003
- Sigma-Xi, The Scientific Research Society Grant-in-Aid-of-Research, 2003
- International Post-Graduate Research Scholarship, James Cook University, 2000-2003
- Senior promise in zoology award, Michigan State University, 2000
- Jeffrey and Kathryn Cole International Study Award, 1999
- Ryder Scholarship for Overseas Study, 1999
- Dow AgroSciences Undergraduate Scholarship in Environmental Science, 1998
- James W. Butcher and Karl A. Stiles Outstanding Zoology Sophomore Award, 1998
- George H. Lauff Tuition Award (Kellogg Biological Station), 1998, 1999
- Honors College Research Fund Grant, 1998
- College of Natural Science Undergraduate Research Support Grant, 1998
- Rosa Parks Scholarship Award, 1996 - 1997

## Peer-Reviewed Publications

1. **Woodhams DC**, JP Costanzo, JD Kelty, & RE Lee, Jr. 2000. Cold hardiness in two helminth parasites of the freeze-tolerant wood frog, *Rana sylvatica*. *Canadian Journal of Zoology* 78:1085-1091.
2. **Woodhams DC**, RA Alford, & G Marantelli. 2003. Emerging disease of amphibians cured by elevated body temperature. *Diseases of Aquatic Organisms* 55:65-67.
3. **Woodhams DC** & RA Alford. 2005. The ecology of chytridiomycosis in rainforest stream frog assemblages of tropical Queensland. *Conservation Biology* 19:1449-1459.
4. Rollins-Smith LA, LK Reinert, CJ O'Leary, LE Houston, and **DC Woodhams**. 2005. Antimicrobial peptide defenses in amphibian skin. *Integrative and Comparative Biology*. 45:137-142.
5. **Woodhams DC**, LA Rollins-Smith, C Carey, LK Reinert, MJ Tyler, & RA Alford. 2006a. Population trends associated with antimicrobial peptide defenses against chytridiomycosis in Australian frogs. *Oecologia*. 146:531-540.
6. Rollins-Smith LA, **DC Woodhams**, LK Reinert, VT Vredenburg, CJ Briggs, PF Nielsen, & JM Conlon. 2006. Antimicrobial peptide defenses of the mountain yellow-legged frog (*Rana muscosa*). *Developmental and Comparative Immunology*. 30:831-842.
7. **Woodhams DC**, J Voyles, KR Lips, C Carey, & LA Rollins-Smith. 2006b. Predicted disease susceptibility in a Panamanian amphibian assemblage based on skin peptide defenses. *Journal of Wildlife Diseases*. 42:207-218.
8. **Woodhams, DC**, LA Rollins-Smith, CJ Briggs, VT Vredenburg, MA Simon, D Billheimer, B Shakhmouradian, Y Shyr, & R Harris. 2007a. Symbiotic bacteria contribute to innate immune defenses of the threatened mountain yellow-legged frog, *Rana muscosa*. *Biological Conservation*. 138:390-398.
9. **Woodhams, DC**, K Ardipradja, RA Alford, R Harris, G Marantelli, LK Reinert, & LA Rollins-Smith. 2007b. Resistance to chytridiomycosis varies by amphibian species and is correlated with skin peptide defenses. *Animal Conservation*. 10:409-508.
10. **Woodhams, DC**, LA Rollins-Smith, RA Alford, MA Simon, & RN Harris. 2007c. Innate immune defenses of amphibian skin: antimicrobial peptides and more. *Animal Conservation*. 10: 425-428.
11. Conlon, JM, **DC Woodhams**, H Razaa, L Coquet, J Leprince, T Jouenne, H Vaudry, LA Rollins-Smith. 2007. Peptides with differential cytolytic activity from skin secretions of the Lemur leaf frog *Hylomantis lemur* (Hylidae: Phyllomedusinae). *Toxicon*. 50:498-506.
12. **Woodhams, DC**, DG Boyle, AD Hyatt, & LA Rollins-Smith. 2008. The northern leopard frog *Rana pipiens* is a widespread reservoir species harboring *Batrachochytrium dendrobatidis* in North America. *Herpetological Review*. 39(1):66-68.
13. **Woodhams, DC**, RA Alford, CJ Briggs, M Johnson, & LA Rollins-Smith. 2008. Life history trade-offs influence disease in changing climates: strategies of an amphibian pathogen. *Ecology*. 89(6), 1627-1639.
14. Rollins-Smith, LA, JP Ramsey, LK Reinert, **DC Woodhams**, LJ Livo, & C Carey. 2008. Use of *Xenopus laevis* and *Bufo boreas* to study the immune defenses of amphibians against the lethal amphibian chytrid fungus, *Batrachochytrium dendrobatidis*. *Frontiers in Bioscience*. In press.

## Published Abstracts

1. **Woodhams DC**, RA Alford, G Marantelli, and LA Rollins-Smith. 2002. Temperature and chytridiomycosis. Abstract for Australasian Amphibian Declines Symposium, *Ecological Society of Australia*. Cairns, Australia December 3-4, 2002.
2. **Woodhams DC**. 2004. The ecology of chytridiomycosis, an emerging infectious disease of Australian rainforest frogs. Ph.D. Thesis Abstract. *Bulletin of the Ecological Society of Australia* 34:4.
3. **Woodhams DC**, RA Alford, M Johnson, CJ Briggs, and LA Rollins-Smith. 2005. Disease-associated amphibian population declines fit model of pathogen growth and host innate immunity. Abstract from annual meeting presentation. *Integrative and Comparative Biology* 44:667.
4. **Woodhams DC**, JP Ramsey, LA Rollins-Smith. 2006. Effects of cold temperature on antimicrobial peptide synthesis and release in northern leopard frogs, *Rana pipiens*. Abstract from annual meeting presentation. *Integrative and Comparative Biology* 45:1099.
5. **Woodhams, DC**, RA Alford, CJ Briggs, M Johnson, & LA Rollins-Smith. 2008. Life history trade-offs influence disease in changing climates: strategies of an amphibian pathogen. *Bulletin of the Ecological Society of America* 89(2):146.

## Invited Talks

Zoological Institute, University of Zurich, Switzerland, July, 2007

Integrated Research Challenges in Environmental Biology (IRCEB), Tempe, Arizona, November 2003, 2004, 2005, 2006, 2007

Department of Microbiology and Immunology, Vanderbilt University School of Medicine, Research in Progress Seminar, May, 2005 and March, 2007

“A New Generation of Research on Amphibian Declines” symposium of the annual meeting of ASIH, Tampa, Florida, July 2005

Department of Zoology, University of Canterbury, New Zealand, March 2005

Participant and lecturer in the Advanced Training course in Amphibian Population Decline Research, La Selva Biological Station and University of Costa Rica, Jan. 2004

Department of Zoology and Tropical Ecology, James Cook University, Townsville, Australia, September 2003

Ecological Society of Australia conference presentation and Declining Frog Symposium presentation, August 2002

## Professional Activities

**Review Editor** for *Endangered Species Research*, 2004 - present

**Research Grant Reviewer** for the UK BBRC (biotechnology and biological sciences research council)

**Ad-Hoc Reviewer** for Mycological Research, Journal of Animal Ecology, Journal of Herpetology, and Herpetological Review

**Advisor** for student project at Vanderbilt University Summer Science Academy, 2006

**Advisor** for student research at James Madison University, 2008

### Teaching Assistant:

Biometrics (Biological Statistics) 2002,

Introductory Ecology 2001,

Australian Tropical Herpetology 2000

**Environmental studies intern** at AuSable Institute, K-7, Mancelona, Michigan, 2000

**Conservation volunteer** with Indo-Pacific Sea Turtle Conservation Group, 2002

## **Professional Societies**

Society for Conservation Biology

Society for the Study of Amphibians and Reptiles

Society of Integrative and Comparative Biology

Society of Wildlife Diseases

Ecological Society of America

Research and Analysis network for Neotropical Amphibians (RANA)

<http://rana.biologia.ucr.ac.cr/ingles/index.html>,

NSF Integrated Research Challenges in Environmental Biology (IRCEB)

project "Host-pathogen biology and the global decline of amphibians"

<http://lifesciences.asu.edu/irceb/amphibians/text/members.htm>