

CURRICULUM VITAE

Douglas C. Woodhams, Ph.D.

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Appointments

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

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
- 1999 Undergraduate Program, Organization for Tropical Studies,** Duke University, Field Tropical Biology semester abroad in Costa Rica, www.ots.ac.cr/

Academic and Professional Honors

Swiss National Science Foundation Award, 2009-2012, project: “**Ecology of Amphibian Disease: the interaction of microbiota and innate immune defenses**”

Research Grants from Claraz Foundation and Balsler Stiftung für Biologische Forschung, 2009

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

Invited Talks

European Science Foundation research conference “The Impact of the Environment on Innate Immunity: The Threat of Diseases,” May, 2009
Zoological Institute, University of Zurich, Switzerland, July, 2007
Integrated Research Challenges in Environmental Biology (IRCEB), Tempe, Arizona, November 2003, 2004, 2005, 2006, 2007, 2009
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

Principle Investigator- Smithsonian Tropical Research Institute, Panama: **The interaction of biodiversity and emerging disease in neotropical amphibians**, 2004-2007
Course instructor for Disease Ecology and Ecology/Conservation Biology
Review Editor for *Endangered Species Research*, 2004 - present
Advisory Committee for www.savethefrogs.com
Research Grant Reviewer for the UK BBRC and US NSF
Ad-Hoc Reviewer for BioScience, Molecular Ecology, Journal of Animal Ecology, Animal Conservation, Conservation Letters, Diseases of Aquatic Organisms, Mycological Research, Wildlife Research, Ecography, Diversity and Distributions, Journal of Experimental Zoology, Comparative Biochemistry and Physiology, Journal of Herpetology, and Herpetological Review
Ph. D. supervisor for Leyla Davis, University of Zurich, 2008-present
Master’s project supervisor for Janine Hall, 2009
Advisor for Tara A. Adiseshan, independent research at James Madison University, 2008
Advisor for Danish Khan, research project at Vanderbilt University Summer Science Academy, 2006
Teaching Assistant:
Biometrics (Biological Statistics) 2002,
Introductory Ecology 2001,
Australian Tropical Herpetology 2000
Environmental studies intern at Au Sable Institute of Environmental Studies, Mancelona, Michigan, 2000, www.ausable.org/
Conservation volunteer with Indo-Pacific Sea Turtle Conservation Group, 2002

Professional Societies

Society for Conservation Biology (SCB) www.conbio.org/

Society of Integrative and Comparative Biology (SICB) www.sicb.org/

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”

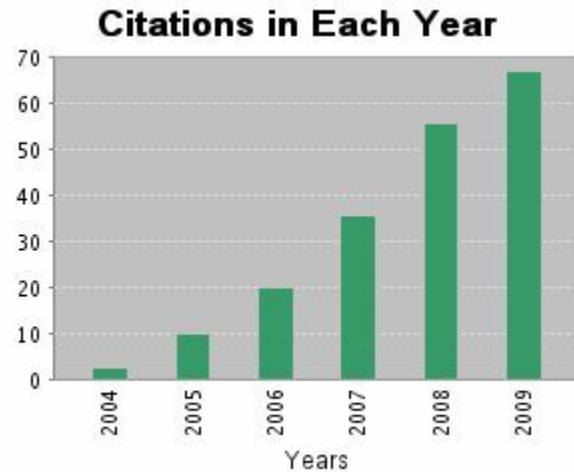
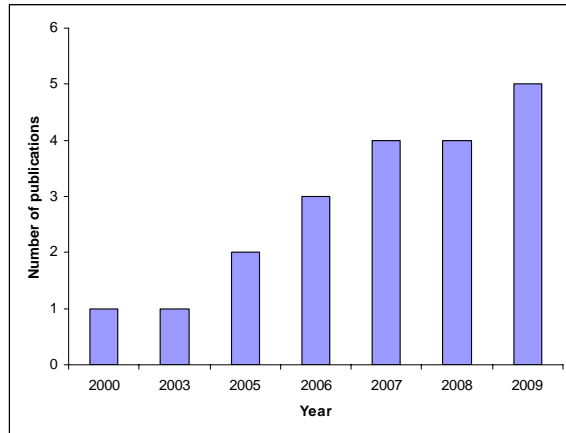
<http://lifesciences.asu.edu/irceb/amphibians/text/members.htm>

Swiss Laboratory Animal Science Association www.sgv.org/

International Association for Ecology and Health (EcoHealth) www.ecohealth.net/

Emerging Scholars Network www.intersity.org/gfm/esn/

Publications



2009

20. **Woodhams, DC**. 2009. Converting the religious: putting amphibian conservation in context. *BioScience*. 59(6):462-463.
19. Conlon, JM, A Demandt, PF Nielson, J Leprince, H Vaudry, **DC Woodhams**. 2009. The alyteserins: two families of antimicrobial peptides from the skin secretions of the midwife toad *Alytes obstetricans* (Alytidae). *Peptides*. 30:1069-1073.
18. Rollins-Smith, LA, JP Ramsey, LK Reinert, **DC Woodhams**, LJ Livo, & C Carey. 2009. Immune defenses of *Xenopus laevis* against *Batrachochytrium dendrobatidis*. *Frontiers in Bioscience*. S1:68-91.
17. Harris, RN, RM Brucker, JB Walke, MH Becker, CR Schwantes, DC Flaherty, BA Lam, **DC Woodhams**, CJ Briggs, VT Vredenburg, KPC Minbiole. 2009. Skin microbes on frogs prevent morbidity and mortality caused by a lethal skin fungus. *The ISME Journal*. 3:818-824.
16. Tennessen, JA, **DC Woodhams**, P Chaurand, LK. Reinert, D Billheimer, Y Shyr, RM Caprioli, MS Blouin, LA Rollins-Smith. 2009 in press. Variations in the expressed antimicrobial peptide repertoire of northern leopard frog (*Rana pipiens*) populations suggest intraspecies differences in resistance to pathogens. *Developmental and Comparative Immunology*. 33:1247-1257.

2008

15. **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. **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**, VL Kilburn, LK Reinert, J Voyles, D Medina, R Ibáñez D., AD Hyatt, DG Boyle, JD Pask, DM Green, & LA Rollins-Smith. 2008. Chytridiomycosis and amphibian population declines continue to spread eastward in Panama. *EcoHealth*. 5:268-274.
<http://www.springerlink.com/content/u614775128852478/fulltext.pdf>

12. Abdel-Wahaba, YHA, GJ Powera, PR Flatta, **DC Woodhams**, LA Rollins-Smith, & JM Conlon. A peptide of the phylloseptin family from the skin of the frog *Hylomantis lemur* (Phyllomedusinae) with potent in vitro and in vivo insulin-releasing activity. *Peptides*. 29:2136-2143.

2007

11. **Woodhams, DC**, LA Rollins-Smith, CJ Briggs, VT Vredenburg, MA Simon, D Billheimer, B Shakhtour, 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.
10. **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.
9. **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.
8. 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.

2006

7. **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.
5. **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.

2005

4. **Woodhams DC** & RA Alford. 2005. The ecology of chytridiomycosis in rainforest stream frog assemblages of tropical Queensland. *Conservation Biology* 19:1449-1459.
3. 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.

2003

2. **Woodhams DC**, RA Alford, & G Marantelli. 2003. Emerging disease of amphibians cured by elevated body temperature. *Diseases of Aquatic Organisms* 55:65-67.

2000

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.

Published Abstracts

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.
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.
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.
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.
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.