

CURRICULUM VITAE – Jesse L. Brunner

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RESEARCH INTERESTS

My research focuses on the ecology of infectious diseases. I use laboratory experiments, mesocosm and field experiments, surveys, and mathematical and statistical models to understand how variation in the routes, forms, and rates of transmission influence the emergence, persistence, and evolutionary trajectories of infectious disease.

PROFESSIONAL APPOINTMENTS

- 2011 – **Assistant professor**, School of Biological Science, Washington State University, Pullman, WA.
- 2008 – 2010 **Assistant professor**, Department of Environmental and Forest Biology, SUNY College of Environmental Science and Forestry, Syracuse, NY.
- 2008 – present **Visiting scientist**, Cary Institute of Ecosystem Studies, Millbrook, NY.
- 2009 – 2010 **Visiting & adjunct professor**, Vassar College, Poughkeepsie, NY.
- 2005 – 2007 **Postdoctoral research associate** with Dr. Richard S. Ostfeld, Institute of Ecosystem Studies, Millbrook, NY.
- 2004 – 2005 **Postdoctoral research associate** with Dr. James P. Collins, School of Life Sciences, Arizona State University, Tempe, AZ.

EDUCATION

- 1998 – 2004 Ph.D., Biology, Arizona State University, Tempe, AZ.
Dissertation: *Ecology of an amphibian pathogen: transmission, persistence, and virulence*. Advisor: Dr. James P. Collins.
- 1993 – 1997 B.A., Biology, Carleton College, Northfield, MN. *Magna cum laude*.

RECENT GRANTS

- 2011 – 2012 WSU New Faculty *Seed Grant*: *Mapping viral host range: Developing ranaviruses as a model of host range evolution*.
- 2009 – 2011 NSF-EID: *Fear, food, and infections: linking host behavior to disease transmission in the ranavirus-salamander system*.
- 2009 – 2011 NIH-R03: *Overwintering mortality of nymphal Ixodes scapularis, Lyme disease vector, in a changing climate*. Co-PI with Richard S. Ostfeld (PI) and Mary Killilea.

- 2009 – 2010 SUNY ESF Seed Grant: *Fluorescent frogs and viruses: Developing novel methods for studying pathogen transmission.*
- 2008 – 2013 NSF Collaborative Research: *The ecology of Anaplasma phagocytophilum: Reservoirs, risk, and incidence.* Co-PI with Felicia Keesing (PI), Mike Tibbetts, Ken Schmidt, Kathleen LoGiudice, and Richard S. Ostfeld
- 2008 – 2011 EPA-STAR-F1: *Mechanisms linking host biodiversity to Lyme disease risk.* Co-PI with Richard S. Ostfeld (PI), Felicia Keesing, Charles Canham, and Mary Killilea

PUBLICATIONS

Brunner, J.L., L. Cheney, F. Keesing, M. Killilea, K. LoGiudice, A. Previtali, and R.S. Ostfeld. 2011. Molting success of *Ixodes scapularis* varies among individual blood meal hosts and species. *Journal of Medical Entomology*. 48:860-866

Brunner, J.L., K.E. Barnett, C.J. Gosier, S.A. McNulty, M.J. Rubbo, and M.B. Kolozsvary. 2011. Ranavirus infection in die-offs of vernal pool amphibians in New York, USA. *Herpetological Review*. 42:76-79

Warne, R.W., E.J. Crespi, and **J.L. Brunner**. 2011. Escape from the pond: Stress and developmental responses to ranavirus infection in wood frog tadpoles. *Functional Ecology* 25:139-146.

Brunner, J.L., and J.P. Collins. 2009. Testing assumptions of the trade-off theory of the evolution of parasite virulence. *Evolutionary Ecology Research* 2009:1169-1188.

Hemmingway, V., **J.L. Brunner**, L. Berger, and R. Speare. 2009. Viral and bacterial diseases of amphibians. Chapter 2 in Heatwole, H., and J.W. Wilkinson, *eds.* *Amphibian Decline: Diseases, Parasites, Maladies, and Pollution*. Surrey Beatty Pty. Ltd., Baulkham Hills, NSW, Australia.

Keesing, F., **J. Brunner**, S.T. Duerr, M. Killilea, K. Logiudice, K. A. Schmidt, H. Vuong, and R. Ostfeld. 2009. Hosts as ecological traps for the vector of Lyme disease. *Proceedings of the Royal Society B-Biological Sciences* 276:3911-3919.

Greer, A.L., D.M. Schock, **J.L. Brunner**, R.A. Johnson, A.M. Picco, S.D. Cashins, R.A. Alford, L.F. Skerratt, and J.P. Collins. 2009. Guidelines for the safe use of disposable gloves with amphibian larvae in light of pathogens and possible toxic effects. *Herpetological Review* 40:145-147.

Greer, A.L., **J.L. Brunner**, and J.P. Collins. 2009. Spatial and temporal patterns of *Ambystoma tigrinum* virus (ATV) prevalence in tiger salamanders (*Ambystoma tigrinum nebulosum*). *Diseases of Aquatic Organisms* 85:1-6.

Brunner, J.L. and R.S. Ostfeld. 2008. Multiple causes of variable tick burdens on small-mammal hosts. *Ecology* 89: 2259-2272.

Brunner, J.L. K. LoGiudice, and R.S. Ostfeld. 2008. Estimating reservoir competence of *Borrelia burgdorferi* hosts: prevalence and infectivity, sensitivity and specificity. *Journal of Medical Entomology* 45: 139-147.

Brunner, J.L., D.M. Schock, and J.P. Collins. 2007. Transmission dynamics of the amphibian ranavirus *Ambystoma tigrinum* virus. *Diseases of Aquatic Organisms* 77:87-95.

Picco, A.M., **J.L. Brunner**, and J.P. Collins. 2007. Susceptibility of the endangered California tiger salamander, *Ambystoma californiense*, to ranavirus infection. *Journal of Wildlife Diseases* 43:286-290.

Brunner, J.L., K. Richards, and J.P. Collins. 2005. Dose and host characteristics influence virulence of ranavirus infections. *Oecologia* 144: 399-406.

Collins, J.P., **J.L. Brunner**, J. Jancovich, and D.M. Schock. 2004. A model host-pathogen system for studying infectious disease dynamics in amphibians: tiger salamanders (*Ambystoma tigrinum*) and *Ambystoma tigrinum* virus. *Herpetological Journal* 14: 195-200.

Brunner, J.L., D.M. Schock, J.P. Collins, and E.W. Davidson. 2004. The role of an intraspecific reservoir in the persistence of a lethal ranavirus. *Ecology* 85: 560-566.

Carey, C., D.F. Bradford, **J.L. Brunner**, J.P. Collins, E.W. Davidson, J.E. Longcore, M. Ouellet, A.P. Pessier, and D.M. Schock. 2003. Biotic factors in amphibian population declines. pp. 153-208. *In: G. Linder, D.W. Sparling, and S.K. Krest, eds. Multiple stressors and declining amphibian populations: evaluating cause and effect.* Society of Environmental Toxicology and Chemistry (SETAC), Pensacola, Florida.

Collins, J.P., **J.L. Brunner**, V. Miera, M. Parris, D. Schock, and A. Storfer. 2003. Ecology and evolution of infectious disease: pp. 137-151. *In: R.D. Semlitsch, ed. Amphibian conservation.* Smithsonian Institution Press, Washington, D.C.

Davidson, E.W., M. Parris, J.P. Collins, J.E. Longcore, A. Pessier, and **J.L. Brunner**. 2003. Pathogenicity and transmission of Chytridiomycosis in tiger salamanders (*Ambystoma tigrinum*). *Copeia* 2003: 601-607.

COURSES AND WORKSHOPS

- WSU *General Ecology*, lecture.
 Herpetology, lecture and lab.
 Experimental Design & Analysis (tbd).
- SUNY-ESF *Principles of Evolution*, lecture
 Emerging Diseases of Fish and Wildlife, lecture and lab.
 Tools of the Ecological Detective, lecture, discussion, and lab.
 Wildlife disease ecology, seminar.
 Adaptive peaks seminar series.
 Statistics module at the Cranberry Lake Biological Station.
 Introduction to R two-day workshop.

GRADUATE MENTORING

Brooke Reeve M.S. at SUNY-ESF, 2011. Thesis: *Ranavirus-exposed wood frog tadpoles are robust to three natural environmental challenges.*

Angela Johnson Ph.D. at WSU, started Spring 2011. Topic TBD

Member of steering committee or examiner for an additional three M.S. and six Ph.D. students at SUNY-ESF.

UNDERGRADUATE MENTORING

Independent Research Mentored independent research students in NSF-funded Research Experience for Undergraduates Programs (1 at CIES, 3 at ASU) and Vassar College's Undergraduate Research Summer Institute (1), as well as WSU's Research Training for Undergraduates in Biological and Mathematical Sciences.

Volunteers Involved seven undergraduate students at SUNY-ESF in all aspects of ongoing research, and three at ASU.

INVITED LECTURES

2011 Department of Entomology, Washington State University, WA
2010 School of Biological Sciences & School for Global Animal Health, Washington State University, WA
2010 Department of Biological Sciences, University of Notre Dame, IN
2009 Department of Biology, University of North Carolina Greensboro, NC
2007 Department of Environmental and Forest Biology, SUNY-ESF, NY
2007 Division of Biology and Health Sciences, Wilkes University, PA
2007 Biology program at Bard College, NY
2007 Department of Biology, Union College, NY
2007 Department of Biological Sciences, University at Albany, SUNY, NY
2005 Cary Institute of Ecosystem Studies, NY
2004 Division of Biological Sciences, University of Montana, MT.

PROFESSIONAL SERVICE

2011 Co-organizer of the International Symposium on Ranaviruses, Joint Meeting of Ichthyologists and Herpetologists.
2011 Panelist for Ecology of Infectious Diseases program, NSF.
2009 – present Associate editor for Amphibian Diseases section of Herpetological Review.

- 2007 – present External proposal reviews for *National Science Foundation* and *Natural Sciences and Engineering Research Council of Canada*.
- 2004 – present Manuscript reviews for *EcoHealth*, *American Naturalist*, *Diseases of Aquatic Organisms*, *Animal Conservation*, *Journal of Wildlife Diseases*, *Conservation Biology*, *Ecology*, *Ecological Applications*, *Journal of Herpetology*, *Journal of Natural Resource Modeling*, *Proceedings of the Royal Society: Biological Sciences*, and *Zoology*.
- 2007 Co-organizer of organized oral session on *Commercial trade of plants and wildlife in a changing world: research to inform policy*, Ecological Society of America, San Jose, CA.
- 2006 Institute of Ecosystem Studies Ecology and Environment Award Judge, Dutchess County Science Fair, Poughkeepsie, NY.
- 2005 Grand Awards Judge, Environmental Section of International Intel Science and Engineering Fair, Phoenix, AZ.
- 2004 – 2005 Ask-A-Biologist volunteer, answering biology questions submitted by K-12 students at the website: <http://askabiologist.asu.edu>.
- 2003 Co-organizer of discussion session on *Ecology of disease in natural systems*, Ecological Society of America, Savannah, GA.

PROFESSIONAL SOCIETIES

American Society of Naturalists
Ecological Society of America
Entomological Society of America

Society for the Study of Amphibians and Reptiles
Wildlife Disease Association