

CURRICULUM VITAE

JASON H. KNOUFT

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CURRENT POSITION

- Assistant Professor, Department of Biology, Saint Louis University
- Associate Director, Center for Environmental Sciences, Saint Louis University

EDUCATION

- 1994 B.S. Biology Drexel University
1996 M.S. Biology Drexel University
Thesis: “Effects of urbanization and pollution on the home range and movements of brown trout (*Salmo trutta*) in Valley Creek, Valley Forge, Pennsylvania”
Advisor: Dr. James Spotila
2001 Ph.D. Biology University of Illinois, Urbana-Champaign
Dissertation: “Evolutionary and ecological patterns of body size in North American freshwater fishes” Advisor: Dr. Lawrence Page

PROFESSIONAL EXPERIENCE

- 1997 - 2001 Graduate Research Assistant, Illinois Natural History Survey, University of Illinois.
2001 - 2002 Postdoctoral Research Associate, Department of Biological Sciences, University of Notre Dame. Advisor: Dr. Gary Lamberti
2002 - 2005 Visiting Scholar, Department of Biological Sciences, University of Notre Dame.
2002 - 2004 NSF Postdoctoral Fellow in Biological Informatics, Department of Biology, Washington University in St. Louis. Advisor: Dr. Jonathan Losos
2004 - 2006 Assistant Professor, Department of Ecology and Evolutionary Biology, University of Colorado, Boulder.
2004 - 2006 Curator of Vertebrates, University of Colorado Museum.
2006 - Assistant Professor, Department of Biology, Saint Louis University.
2006 - Adjunct Assistant Professional Scientist, Illinois Natural History Survey.
2011 - Associate Director, Center for Environmental Sciences, Saint Louis University

PUBLICATIONS

- Knouft, J. H.** and Page, L. M. 2011. Climate, elevation, stream channel diversity, and geographic clines in species richness of North American freshwater fishes. *Journal of Biogeography* 38:2259–2269.
- Trumbo, D. R., Burgett, A. A., and **Knouft, J. H.** 2011. Testing climate-based species distribution models with recent field surveys of pond-breeding amphibians in eastern Missouri. *Canadian Journal of Zoology* 89:1074–1083.

- Knouft, J. H.**, Caruso, N. M., Dupre, P. J., Anderson, K. A., Trumbo, D. R., and Puccinelli, J. 2011. Using fine-scale GIS data to assess the relationship between intra-annual environmental niche variability and population density in a local stream fish assemblage. *Methods in Ecology and Evolution* 2:303-311.
- Luxbacher, A. M. and **Knouft, J. H.** 2009. Assessing concurrent patterns of environmental niche and morphological evolution among species of Horned Lizards (*Phrynosoma*). *Journal of Evolutionary Biology* 22:1669-1678.
- Mitchell, A. L. and **Knouft, J. H.** 2009. Non-native fishes and native species diversity in freshwater fish assemblages across the United States. *Biological Invasions* 11:1441-1450.
- Albert, J. S., Johnson, D. M., and **Knouft, J. H.** 2009. Fossils provide better estimates of ancestral body size than do extant taxa in fishes. *Acta Zoologica* 90(Supp1):308-335.
- Knouft, J. H.** 2009. Defense against pathogens and predators during the evolution of parental care in fishes. In: *Fish defenses: pathogens, parasites, and predators*. Eds. G. Zaccane, M. J. Manning, C. J. Secombes and B.G. Kapoor. Science Publishers.
- Johnson, J. R., **Knouft, J. H.**, and Semlitsch, R. D. 2007. Sex and seasonal differences in the spatial terrestrial distribution of gray treefrog (*Hyla versicolor*) populations. *Biological Conservation* 140:250-258.
- Knouft, J. H.**, Losos, J. B., Glor, R. E., and Kolbe J. J. 2006. Phylogenetic analysis of the evolution of the niche in lizards of the *Anolis sagrei* group. *Ecology* 87:S29-S38.
- Langerhans, R. B., **Knouft, J. H.**, and Losos, J. B. 2006. Shared and unique features of evolutionary diversification in Greater Antillean *Anolis* ecomorphs. *Evolution* 60:362-369.
- Taylor, C. A. and **Knouft, J. H.** 2006. Historical influences on genital morphology among sympatric crayfishes: systematics and gonopod evolution in the genus *Orconectes* (Cambaridae). *Biological Journal of the Linnean Society* 89:1-12.
- Calsbeek, R., **Knouft, J. H.**, and Smith, T. B. 2006. Variation in scale numbers is consistent with ecologically based natural selection acting within and between lizard species. *Evolutionary Ecology* 20(4) 377-394.
- Miller, A. J., and **Knouft, J. H.** 2006. GIS-based characterization of the ecological niches of wild and cultivated populations of the Mesoamerican fruit tree, *Spondias purpurea* (Anacardiaceae). *American Journal of Botany* 93:1757-1767.
- Brinkerhoff, R. J., Markeson, A. B., **Knouft, J. H.**, Gage, K. L., and Montenieri, J. A. 2006. Abundance patterns of two *Oropsylla* (Ceratophyllidae: Siphonaptera) species on black-tailed prairie dog (*Cynomys ludovicianus*) hosts. *Journal of Vector Ecology* 31:355-363.
- Knouft, J. H.** 2004. Latitudinal variation in the shape of the species body size distribution: an analysis using freshwater fishes. *Oecologia* 139:408-417.

- Knouft, J. H.** and Page, L. M. 2004. Nest defense against predators by the male Fringed Darter (*Etheostoma crossopterygum*). *Copeia* 2004:915-918.
- Knouft, J. H.** and Page, L. M. 2003. The evolution of body size in extant groups of North American freshwater fishes: speciation, size distributions, and Cope's rule. *American Naturalist* 161:413-421.
- Knouft, J. H.** 2003. Convergence, divergence, and the effect of congeners on body size ratios in stream fishes. *Evolution* 57:2374-2382.
- Knouft, J. H.**, Page, L. M., and Plewa, M. J. 2003. Antimicrobial egg cleaning by the fringed darter (Perciformes: Percidae: *Etheostoma crossopterygum*): implications of a novel component of parental care in fishes. *Proceedings of the Royal Society of London: Biological Sciences* 270:2405-2411.
- Knouft, J. H.** 2002. Regional analysis of body size and population density in stream fish assemblages: testing predictions of the energetic equivalence rule. *Canadian Journal of Fisheries and Aquatic Sciences* 59:1350-1360.
- Knouft, J. H.** and Spotila, J. R. 2002. Assessment of movements of resident stream brown trout (*Salmo trutta*) among contiguous sections of stream. *Ecology of Freshwater Fish* 11:85-92.
- Hardman, M., Page, L. M., Sabaj, M. H., Armbruster, J. W., and **Knouft, J. H.** 2002. A comparison of fish surveys made in 1908 and 1998 of the Potaro, Essequibo, Demerara, and coastal river drainages of Guyana. *Ichthyological Explorations of Freshwater* 13:225-238.
- Taylor, C. A., **Knouft, J. H.**, and Hiland, T. 2001. Consequences of stream impoundment on fish communities in a small North American drainage. *Regulated Rivers: Research and Management* 17:687-698.
- Page, L. M. and **Knouft, J. H.** 2000. Variation in egg-mimic size in the Guardian Darter, *Etheostoma oophylax* (Percidae). *Copeia* 2000:782-785.
- Armbruster, J. W., Sabaj, M. H., Hardman, M., Page, L. M., and **Knouft, J. H.** 2000. The catfish genus *Corymbophanes* (Loricariidae: Hypostominae) with description of one new species: *Corymbophanes kaiei*. *Copeia* 2000:997-1006.
- MANUSCRIPTS SUBMITTED/IN REVISION**
- Chien, H. and **Knouft J. H.** In revision. The potential impacts of climate change on streamflow in agricultural watersheds of the Midwestern United States. *Journal of Hydrology*.
- Michel, M. J. and **Knouft J. H.** Submitted. Environmental niche plasticity and its consequences for species distribution models. *Ecological Applications*.
- Trumbo, D. R., Burgett, A. A., Hopkins, R. L., Biro, E. G., Chase, J. M., and **Knouft, J. H.** Submitted. Integrating local breeding pond, landcover, and climate factors in predicting amphibian distributions. *Landscape Ecology*.

BOOK REVIEW

Knouft, J. H. and Page, L. M. 1999. *Collection Building in Ichthyology and Herpetology* - T.W. Pietsch and W.D. Anderson, Jr., eds. [Book Review]. *Collection Forum* 13:93-94.

GRANT PROPOSALS FUNDED

- 1994 The effects of urbanization and pollution on the home range and movements of brown trout, (*Salmo trutta*), in Valley Creek, Valley Forge, Pennsylvania. Trout Unlimited, \$2,000.
- 1998 Fishes of the Essequibo River, Guyana, 90 years after Eigenmann's expedition. National Geographic Society, \$24,650. (with L. M. Page, M. H. Sabaj, and J. W. Armbruster)
- 2000 Local community patterns in body size of North American stream fishes. University of Illinois Graduate College Dissertation Travel Grant, \$4,888; Clark Research Grant, University of Illinois, \$981.
- 2000 - 01 Factors influencing evolutionary and ecological patterns of body size in North American freshwater fishes. Doctoral Dissertation Improvement Grant, National Science Foundation, \$5,439.
- 2002 - 04 Macroecological patterns in a model taxonomic group: integration of ecological, phylogenetic, and historical data from Caribbean *Anolis* lizards. Postdoctoral Fellowship in Biological Informatics, National Science Foundation, \$100,000.
- 2002 - 05 Role of large woody debris in restoring stream ecosystem function in managed U.S. forests. USDA - NRI, \$375,000. (Co-PD with J. L. Tank (PD) and G. A. Lamberti)
- 2005 - Chemical adaptations in fishes during freshwater invasions: an evolutionary perspective. University of Colorado Junior Faculty Development Award, \$5,000.
- 2005 - 06 Island-Net (Phase I): a web accessible database for the integration and study of global taxonomic and environmental data on islands. (PI) National Science Foundation, \$50,000.
- 2008 - Status, distribution, and resource requirements of the Longnose Dace in Illinois. Illinois Department of Natural Resources, \$6,464 (with C. Taylor and J. Tiemann).
- 2008 - 11 Assessing and reducing the threat of flood disasters and ecosystem destruction along the Missouri and Mississippi Rivers using satellite data, flow measurements and climate models. Kemper-Stupp Foundation, \$250,000. (with T. Kusky (PI), W. Dannevik, Z. Pan, A. Ghulam (Co-PIs))
- 2009 - 14 Development of GIS applications for the study of aquatic biodiversity: assessing environmental factors regulating fish assemblages across multiple scales. National Science Foundation Career Award, \$503,291.
**Supplement to Career Award to establish a morphometrics workstation and initiate research on the relationship between morphological variation in fishes and hydrologic variability. National Science Foundation, \$58,660.
**Research Opportunity Award Supplement to Career Award to study the distribution of endangered wetland plants in Illinois and Missouri. National Science Foundation, \$23,000.
- 2009 - 12 Combining climate model predictions, hydrological modeling, and ecological niche modeling algorithms to predict the impacts of climate change on aquatic biodiversity. Environmental Protection Agency, Science To Achieve Results (STAR) - Consequences of Global Change for Water Quality program. \$246,149.

- 2010 - 11 Assessing the impact of climate on freshwater fish: relationships between annual temperature, stream flow, and species traits in the Johnny Darter (*Etheostoma nigrum*). Beaumont Award, Saint Louis University. \$4,983.
- 2010 - 11 Climate and local adaptation to temperature and flow regimes in the Bluntnose Minnow (*Pimephales notatus*). President's Research Fund, Saint Louis University. \$24,165.
- 2011 - 13 Impacts of climate and land use changes on flooding in urbanized human and natural systems. Saint Louis University STEM-Plus Award, \$117,271. PI with J. Ganning, A. Ghulam, and Z. Pan.

TEACHING EXPERIENCE

Lecturer

University of Notre Dame

2002 Ecology in the 21st Century: Crisis and Challenge.
(undergraduate)

University of Colorado

2005 Biogeography (graduate)

2005 Evolution, Science, and Society (graduate)

Saint Louis University

2006, 2007, 2008, 2010, 2011 GIS in Biology (graduate and undergraduate)

2008, 2009, 2010 Principles of Biology II (undergraduate)

2009 Current Topics in Ecology and Evolution (graduate)

INVITED PRESENTATIONS

2001 Murray State University

2002 University of Kansas; Grand Valley State University

2003 Queens College

2004 University of Manitoba; University of Colorado; Fordham University

2006 Purdue University, Saint Louis University, University of Wisconsin, Eau-Claire, Washington University in St. Louis, University of Missouri-St. Louis, Lindenwood University

2007 National Science Foundation; New York Botanical Garden; Meeting of the Association for Tropical Biology and Conservation (member of symposium)

2008 Meeting of the Society for the Study of Evolution (member of symposium)

2010 Missouri University of Science and Technology

2011 Arkansas State University

GRADUATE STUDENTS SUPERVISED

Melissa Anthony, 2011 – current, Ph.D., Integrative and Applied Sciences, Saint Louis Univ.

Sophia Niu, 2010 - current, Ph.D., Department of Biology, Saint Louis University

Collin Beachum, 2009 - current, Ph.D., Department of Biology, Saint Louis University

Daryl Trumbo, 2007 - 2009, M.S., Department of Biology, Saint Louis University

Alison Mitchell, 2005 - 2007, M.S., Ecology and Evolutionary Biology, Univ. of Colorado

Amy Schneider, 2005 - 2007, M.S., Ecology and Evolutionary Biology, Univ. of Colorado

AWARDS

- 1999 Ranked as excellent (top 10%) by students among teaching assistants at the University of Illinois. Ichthyology.
- 2002 National Science Foundation Postdoctoral Fellowship in Biological Informatics
- 2003 Visiting Scholar, University of California at Berkeley, Museum of Vertebrate Zoology
- 2004 Invited member of NSF-sponsored Ecological Informatics Training Workshop - Science Environment for Ecological Knowledge (SEEK). January, Albuquerque, New Mexico.
- 2009 National Science Foundation Career Award
- 2009 Grantwinner Award for Excellence in Research, Saint Louis University

SERVICE

- 2002 Stoye Award Judge, Meeting of the American Society of Ichthyologists and Herpetologists
- 2005 Stoye Award Judge, Meeting of the American Society of Ichthyologists and Herpetologists
- 2004 – 05 University of Colorado: Museum Project Committee; Museum Collections Committee; Annual Report and Technology Committee; Zoology Collection Manager Search (Co-Chair)
- 2005 – 06 University of Colorado: Departmental Executive Committee; Graduate Committee; Annual Merit Evaluation Committee; Curriculum Committee
- 2006 – 07 Saint Louis University: Graduate Committee; Reis Biological Station Committee
- 2007 Organization committee member for 2007 Annual Meeting of the American Society of Ichthyologists and Herpetologists in St. Louis
- 2007 – 08 Saint Louis University: Graduate Committee; Departmental Financial Advisory Committee; Reis Biological Station Committee
- 2008 – 09 Saint Louis University: Ecology, Evolution, and Systematics Section (Chair); Departmental Financial Advisory Committee; Reis Biological Station Committee
- 2009 – 10 Saint Louis University: Ecology, Evolution, and Systematics Section (Chair); Departmental Financial Advisory Committee; Reis Biological Station Committee; Department of Biology Faculty Search Committee
- 2010 – 11 Saint Louis University: Animal Care IACUC Committee; College of Arts and Sciences Nominations Committee

MANUSCRIPT REVIEWS

African Journal of Environmental Science and Technology, American Midland Naturalist, American Naturalist, Austral Ecology, Australian Journal of Zoology, Behavioral Ecology, Biodiversity and Conservation, Biology Letters, Canadian Journal of Fisheries and Aquatic Sciences, Conservation Biology, Copeia, Ecography, Ecological Applications, Ecological Modeling, Ecological Monographs, Ecology Letters, Ecology of Freshwater Fish, Evolution, Freshwater Biology, Global Change Biology Bioenergy, Global Ecology and Biogeography, Journal of Animal Ecology, Journal of Biogeography, Journal of Fish Biology, Journal of Tropical Ecology, Molecular Phylogenetics and Evolution, Nature Education, Oecologia, Oikos, Proceedings of the National Academy of Sciences, Proceedings of the Royal Society of London, B, Proteomics, Philosophical Transactions of the Royal Society of London, Trends in Ecology and Evolution, Zoology

INVITED REVIEW PANELS

- 2008 NSF Cyber-Enabled Discovery and Innovation Pre-proposal Review Panel
- 2008 NSF Cyber-Enabled Discovery and Innovation Full Proposal Review Panel
- 2009 NSF Dissertation Improvement Grant Proposal Review Panel
- 2009 NSF Population and Community Ecology Panel/Ecosystem Studies Joint CAREER Award Proposal Review Panel
- 2010 NSF Population and Community Ecology Panel

GRANT REVIEWS

National Science Foundation, National Climate Center, U.S. Civilian Research and Development Foundation, United States-Israel Binational Science Foundation, United States Geological Survey

MEMBERSHIP IN SOCIETIES

American Fisheries Society, American Geophysical Union, American Society of Ichthyologists and Herpetologists, American Society of Naturalists, Ecological Society of America

WORKSHOPS ORGANIZED

- 1999 North American Native Fishes Association Annual Meeting, Champaign, Illinois
“Identification of North American Freshwater Fishes”
- 2000 American Fisheries Society Meeting, Illinois Chapter, Mt. Vernon, Illinois
“Identification and Ecology of Species of Illinois Darters and Madtoms”
- 2007 GIS Applications in Ecology and Evolutionary Biology. Washington University in St. Louis
- 2010 GIS Applications in Aquatic Ecology and Evolutionary Biology, Saint Louis University (June 16-18 and August 11-13).
- 2011 GIS Applications in Aquatic Ecology and Evolutionary Biology, Saint Louis University (June 22-24 and August 17-19).

PRESENTATIONS AT PROFESSIONAL MEETINGS

- 1999 • Joint Meeting of the Society for the Study of Evolution, the Society of Systematic Biologists, and the American Society of Naturalists. Madison, Wisconsin. (1 oral presentation, first-authored)
- 2000 • Ethology and Evolutionary Ecology of Fishes and Darterfest. Athens, Georgia. (2 oral presentations, 1 first-authored)
 - Meeting of the American Society of Ichthyologists and Herpetologists. La Paz, Mexico. (1 oral presentation, first-authored)
- 2001 • Meeting of the North American Benthological Society. La Crosse, Wisconsin. (1 oral presentation, first-authored)
 - Joint Meeting of the Society for the Study of Evolution, the Society of Systematic Biologists, and the American Society of Naturalists. Knoxville, Tennessee. (1 oral presentation, first-authored)
- 2002 • Meeting of the North American Benthological Society. Pittsburgh, Pennsylvania. (1 oral presentation, first-authored)
 - Meeting of the American Society of Ichthyologists and Herpetologists. Kansas City, Missouri. (1 oral presentation, first-authored)

- 2003 • Greater Everglades Ecosystem Restoration Conference. Tampa, Florida. (1 oral presentation, secondary author)
- Joint Meeting of the Society for the Study of Evolution, the Society of Systematic Biologists, and the American Society of Naturalists. Chico, California. (1 oral presentation, first-authored)
- 2004 • Meeting of the American Society of Ichthyologists and Herpetologists. Norman, Oklahoma. (2 oral presentations, 1 first-authored)
- 15th Symposium of the International Association of Astacology. London, England. (1 oral presentation, secondary author)
- 2005 • Joint Meeting of the Society for the Study of Evolution, the Society of Systematic Biologists, and the American Society of Naturalists. Fairbanks, Alaska. (1 oral presentation, first-authored)
- 2006 • Meeting of the American Society of Ichthyologists and Herpetologists. Tampa, Florida. (2 oral presentations, 1 first-authored)
- 2007 • Meeting of the Association for Tropical Biology and Conservation. Morelia, Mexico (2 oral presentations, 1 first-authored)
- Meeting of the American Society of Ichthyologists and Herpetologists. St. Louis, Missouri. (2 oral presentations, 1 first-authored)
- Midwest Ecology and Evolution Conference. Kent, Ohio. (1 poster, secondary author)
- 2008 • Meeting of the Society for the Study of Evolution, the Society of Systematic Biologists, and the American Society of Naturalists. Minneapolis, Minnesota. (1 oral presentation, first-authored)
- Meeting of the American Society of Ichthyologists and Herpetologists. Montreal, Canada. (1 oral presentation, first-authored; 1 poster, secondary author)
- Flood Forum: Finding the balance between floods, flood protection, and river navigation. St. Louis, Missouri. (1 oral presentation, first-authored)
- 2009 • American Fisheries Society Meeting. Nashville, Tennessee. (1 oral presentation, first-authored)
- Meeting of the American Society of Ichthyologists and Herpetologists. Portland, Oregon. (1 oral presentation, secondary author)
- 2010 • Meeting of the American Society of Ichthyologists and Herpetologists. Providence, Rhode Island. (3 oral presentations, 1 first-authored)
- Meeting of the American Geophysical Union. San Francisco, California. (1 poster presentation)