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EDUCATION

- 1984: Ph.D., Biology. University of California, Los Angeles.
- 1978: M.A., Biology. University of Kansas, Lawrence.
- 1976: B.Sc., Zoology cum laude. Iowa State University, Ames

POSITIONS HELD- RESEARCH AND TEACHING

- 2015-present: Distinguished Professor of Biology, Missouri State University.
- 2001-2015: Professor of Biology, Missouri State University.
- 1996-2001: Associate Professor of Biology, Missouri State University.
- 1991-1996: Assistant Professor of Biology, Missouri State University.
- 1988-90: Lecturer, Department of Biology, University of San Diego, San Diego, CA.
- 1986-88: Postdoctoral Researcher and Lecturer, Biology, University of California, Irvine.
- 1984-86: Postdoctoral Research Fellow, Alberta Heritage Foundation for Medical Research, U. of Calgary.
- 1982: Research Assistant, Smithsonian Tropical Research Institute, Panama.
- 1979-82: Teaching Fellow, University of California, Los Angeles.
- 1977-78: Graduate Teaching Assistant, University of Kansas, Lawrence

AWARDS AND RECOGNITION

- 2017. Outreach and Education External Partnership Award, Missouri Department of Conservation
- 2017. Gift of Time Nominee, City of Springfield/Springfield Council of Churches
- 2016. Award for Faculty Excellence in Research, College of Natural and Applied Science, MSU
- 2016. Faculty Excellence in Community Service Award, Missouri State University
- 2015. Special Recognition, Friends of the Gardens, Springfield MO.
- 2015. Board of Governors Faculty Excellence in Public Affairs Award, MSU Board of Governors
- 2014. Award for Faculty Excellence in Service, College of Natural and Applied Science, MSU.
- 2012. Award for Faculty Excellence in Research, College of Natural and Applied Science, MSU.
- 2012. Director's Award for Outstanding Faculty Research, Honors College, MSU.
- 2012. Missouri State University Faculty Spotlight.
- 2012, 2009. Bancorp South Academic Spotlight.
- 2011. Lifetime Achievement Award, Freshwater Mollusk Conservation Society.
- 2010. Collaborator of the Year Award, Missouri Department of Conservation.
- 2009. Conservation Champion Appreciation Award, US. Fish and Wildlife Service.
- 2009. Outstanding Thesis Advisor Award, Graduate College, Missouri State University.
- 2006, 2003, 2000: College Recognition Awards for Service, Missouri State University.
- 2005: Foundation Award for Research, Missouri State University
- 2004: Outstanding Faculty Mentor, Graduate College, Missouri State University.
- 2002: College Recognition Award for Research, Missouri State University
- 2001: College Recognition Award for Teaching, Missouri State University
- 2000-2004: University Fellow, Missouri State University.

- 2000: Silver Award, Radio News Feature, with Don Hendrix and Mike Smith, KSMU Radio. Council for the Advancement and Support of Education.
- 1999, 1997: University Recognition Awards for Research. Missouri State University.
- 1995: Summer Faculty Fellowship. Missouri State University.
- 1994: Excellence in Teaching Award. Missouri State University.
- 1984-1986: Postdoctoral Fellow, Alberta Heritage Foundation for Medical Research
- 1984: Robert Lasiewski Award for Excellence in Research, University of California, Los Angeles.
- 1978-1982: Chancellor's Intern Fellow, University of California, Los Angeles.
- 1976-1978: University of Kansas Graduate School Honors Fellowship, University of Kansas.
- 1976: Thomas H. MacBride Scholarship in Natural Sciences, University of Iowa.
- 1976: Phi Beta Kappa, Iowa State University.
- 1976: Sigma Xi Undergraduate Research Scholar, Iowa State University.
- 1974: N.S.F. Undergraduate Research Program Participant, Iowa State University.

PUBLICATIONS - CAREER SUMMARY

- 67 peer-reviewed journal articles and books
- 42 technical reports to funding agencies
- 33 articles in popular press, instructional manuals, newsletters and abstracts

PUBLICATIONS – LAST 10 YEARS

- Ning Wang, James Kunz, Chris Ivey, Chris Ingersoll, Chris Barnhart, Elizabeth Glidewell. 2017. Toxicity of Chromium (VI) to two mussels and an amphipod in Water-Only Exposures with or without a co-stressor of elevated temperature, zinc, or nitrate. Archives of Environmental Contamination and Toxicology. DOI: 10.1007/s00244-017-0377-x
- Cavallaro, Michael C., M. Christopher Barnhart, and W. Wyatt Hoback. 2017. Causes of rapid carrion beetle (Coleoptera: Silphidae) death in flooded pitfall traps and tests of soil flooding, immersion tolerance, and swimming behavior. Environmental Entomology Environmental Entomology, 46(2), 2017, 362–368. doi: 10.1093/ee/nvw165
- Wang, N., Ivey, C. D., Ingersoll, C. G., Brumbaugh, W. G., Alvarez, D., Hammer, E. J., Bauer, C. R., Augspurger, T., Raimondo, S. and Barnhart, M. C. 2016. Acute sensitivity of a broad range of freshwater mussels to chemicals with different modes of toxic action. Environ Toxicol Chem. doi:10.1002/etc.3642
- Douda, K., Martin, M., Glidewell, E., Barnhart, C. 2016. Stress-induced variation in host susceptibility to parasitic freshwater mussel larvae. Hydrobiologia 1-9, DOI: 10.1007/s10750-016-2895-3.
- Leonard, Jeremy A., W. Gregory Cope, Tom Augspurger, Edward J. Hammer, M. Christopher Barnhart, and Robert B. Bringolf. 2016. Extending the toxicity-testing paradigm for freshwater mussels: Assessing chronic reproductive effects of the synthetic estrogen 17 α -ethinylestradiol on the unionid mussel *Elliptio complanata*. Comp. Biochem. Physiol. Part C Toxicology & Pharmacology. Sep 2016.
- Boogaard, M.A., T.J. Newton, T.D. Hubert, C.A. Kaye, M.P. Henson, and M.C. Barnhart. 2015. Evaluation of the acute toxicity of 3-trifluoromethyl-4-nitrophenol (TFM) to multiple life stages of *Epioblasma triquetra* and its host fish (*Percina caprodes*). Environmental Toxicology and Chemistry 34(7):1634-41.
- Leonard, J.A., W.G. Cope, M.C. Barnhart, R.B. Bringolf. 2014. Metabolomic, behavioral, and reproductive effects of the aromatase inhibitor fadrozole hydrochloride on the unionid mussel *Lampsilis fasciola*. General and Comparative Endocrinology, 206: 213–226
- Leonard, J.A., W.G. Cope, M.C. Barnhart, and R.B. Bringolf. 2014. Metabolomic, behavioral, and reproductive effects of the synthetic estrogen 17 α -ethinylestradiol on the Unionid mussel *Lampsilis fasciola*. Aquatic Toxicology 150:103–116.

- Miller, E.J., J.J. Tomasic and M.C. Barnhart. 2014. A comparison of freshwater mussels (Unionidae) from a Late-Archaic archeological excavation with recently sampled Verdigris River, Kansas populations. *American Midland Naturalist* 171:16–26.
- Fritts, A.K., M.C. Barnhart, M. Bradley, N. Liu, E. Hammer, W.G. Cope, W. Gregory, and R. Bringolf. 2014. Assessment of toxicity test endpoints for freshwater mussel larvae (glochidia). *Environmental Toxicology and Chemistry* 33 (1), 199-207.
- Hazelton, P.D., W.G. Cope, S. Moshe, T.J. Pandolfo, J.B. Belden, M.C. Barnhart, R.B. Bringolf. 2013. Fluoxetine alters adult freshwater mussel behavior and larval metamorphosis. *Science of the Total Environment* 445-446:94–100.
- Hinck, J.E., M.C. Barnhart et al. 2012. Conserving mussel diversity in the Meramec River basin, Missouri, USA. *Journal of Fish and Wildlife Management* 3(2): 319-331.
- Hazelton, P., G. Cope, T. Pandolfo, S. Mosher, M. Strynar, C. Barnhart, R. Bringolf. 2012. Partial life-cycle and acute toxicity of perfluoroalkyl acids to freshwater mussels. *Environmental Toxicology and Chemistry* 31(7):1611-20.
- McMurray, S. M. C. Barnhart, S. Faiman, A. Roberts, B. Simmons. 2012. Field Guide to Missouri Mussels. Missouri Department of Conservation. 94p.
- Crane, A.L., A.K. Fritts, A. Mathis, J.C. Lisek, and M.C. Barnhart. 2011. Do gill parasites influence the foraging and antipredator behaviour of rainbow darters, *Etheostoma caeruleum*? *Animal Behaviour* 82:817-823
- Wang, Ning, R.A. Consbrock, C.G. Ingersoll, and M. C. Barnhart. 2011. Evaluation of influence of sediment on the sensitivity of a unionid mussel (*Lampsilis siliquoidea*) to ammonia in 28-day water exposures. *Environmental Toxicology and Chemistry* 30 (10): 2270–2276.
- Tiemann, J.S., S.E. McMurray, M.C. Barnhart, and G.T. Watters. 2011. Review of the Interactions between Catfishes and Freshwater Mollusks in North America. *In: "Conservation, Ecology, & Management of Worldwide Catfish Populations & Habitats"*. American Fisheries Society Symposium 77:733–743.
- Miao, Jingjing, M.C. Barnhart, E. L. Brunson, D.K. Hardesty, C.G. Ingersoll, N. Wang. 2011. Lack of influence of substrate on the sensitivity of juvenile freshwater mussels (fatmucket, *Lampsilis siliquoidea*) to the acute toxicity of ammonia. *Environmental Toxicology and Chemistry*, Vol. 29, No. 9, pp. 2112–2116.
- Pandolfo, T.J., W.G. Cope, C. Arellano, R.B. Bringolf, M.C. Barnhart, E. Hammer. 2010. Beating the heat: upper thermal tolerances of early life stages of freshwater mussels. *Journal of the North American Benthological Society* 29(3):959–969
- Wang, N., C.G. Ingersoll, C.D. Ivey, D.K. Hardesty, T.W. May, A.D. Roberts, T. Augspurger, E. van Genderen, and M.C. Barnhart. 2010. Sensitivity of early life stages of freshwater mussels (Unionidae) to acute and chronic toxicity of lead, cadmium, and zinc. *Environmental Toxicology and Chemistry*, Vol. 29, No. 9, pp. 2053–2063.
- Wang, N., C.A. Mebane, J.L. Kunz, C.G. Ingersoll, T.W. May, W.R. Arnold, R.C. Santore, T. Augspurger, F.J. Dwyer, and M.C. Barnhart. 2009. Evaluation of acute copper toxicity to juvenile freshwater mussels (fatmucket, *Lampsilis siliquoidea*) in natural and reconstituted waters. *Environmental Toxicology and Chemistry*. 28(11):2367-2377. doi:10.1897/08-655.1.
- Barnhart, M. C. 2008. A compact recirculating system for laboratory culture of freshwater bivalves. *Hatchery International* Jan/Feb 2008. p. 27.
- Barnhart, M. C., W. R. Haag & W. N. Roston. 2008. Adaptations to host infection and larval parasitism in the Unionoida. *Journal of the North American Benthological Society* 27(2): 370-394.
- Cope, W. G., R. B. Bringolf, D. B. Buchwalter, T. J. Newton, C. G. Ingersoll, N. Wang, T. Augspurger, F. J. Dwyer, M. C. Barnhart, R. J. Neves, and E. Hammer. 2008. Differential exposure, duration, and sensitivity of unionoidean bivalve life stages to environmental contaminants. *Journal of the North American Benthological Society*. 27(2): 451-462.
- Pandolfo, Tamara J., W. Gregory Cope, Robert B. Bringolf, and M. Christopher Barnhart. 2008. Sensitivity of early life stages of freshwater mussels to a range of common and extreme water temperatures. *Proceedings: Second Thermal Ecology and Regulation Workshop: October 2 – 3, 2007*. EPRI, Palo Alto, CA: 2008. 1016809. Pages 10-1 - 10-7.

- Serb, J. M. and M. C. Barnhart. 2008. Congruence and conflict between molecular and reproductive characters when assessing biological diversity in the western fanshell *Cyprogenia aberti* (Bivalvia: Unionidae). *Annals of the Missouri Botanical Garden* 95(2): 248-261.
- Wang, N., R. J. Erickson, C.G. Ingersoll, C.D. Ivey, E.L. Brunson, T. Augspurger, and M. C. Barnhart. 2008. Influence of pH on the toxicity of ammonia to juvenile mussels (fatmucket, *Lampsilis siliquoidea*). *Environmental Toxicology and Chemistry* 27(5):1141–1146.
- Bringolf RB, Cope WG, Barnhart MC, Mosher S, Lazaro PR, Shea D. Acute and chronic toxicity of pesticide formulations (atrazine, chlorpyrifos and permethrin) to glochidia and juveniles of *Lampsilis siliquoidea* (Unionidae). *Environmental Toxicology and Chemistry* 26(10):2101-2107.
- Bringolf RB, Cope WG, Eads CB, Lazaro PR, Barnhart MC, Shea D. Acute and chronic toxicity of technical grade pesticides to glochidia and juveniles of freshwater mussels (Unionidae). *Environmental Toxicology and Chemistry* 26(10):2086-2093.
- Bringolf RB, Cope WG, Mosher S, Barnhart MC, Shea D. Acute and chronic toxicity of glyphosate compounds to glochidia and juvenile *Lampsilis siliquoidea* (Unionidae). *Environmental Toxicology and Chemistry* 26(10):2094-2100.
- Wang N, Augspurger T, Barnhart MC, Bidwell JR, Cope WG, Dwyer FJ, Geis S, Greer IE, Ingersoll CG, Kane CM, May TW, Neves RJ, Newton TJ, Roberts AD, Whites DW. 2007. Intra- and interlaboratory variability in acute toxicity tests with glochidia and juveniles of freshwater mussels (Unionidae). *Environmental Toxicology and Chemistry* 26(10):2029-2035.
- Wang N, Ingersoll CG, Greer IE, Hardesty DK, Ivey CD, Kunz JL, Brumbaugh WG, Dwyer FJ, Roberts AD, Augspurger T, Kane CM, Neves RJ, Barnhart MC. 2007. Chronic toxicity of copper and ammonia to juvenile freshwater mussels (Unionidae). *Environmental Toxicology and Chemistry* 26(10):2048-2056.
- Wang N, Ingersoll CG, Hardesty DK, Ivey CD, Kunz JL, May TW, Dwyer FJ, Roberts AD, Augspurger T, Kane CM, Neves RJ, Barnhart MC. 2007. Acute toxicity of copper, ammonia, and chlorine to glochidia and juveniles of freshwater mussels (Unionidae). *Environmental Toxicology and Chemistry* 26(10):2036-2047.

PRESENTATIONS - CAREER SUMMARY

- 232 presentations at professional meetings, authored or coauthored.
- 59 invited presentations, 7 keynote or plenary.

PRESENTATIONS – LAST 5 YEARS

2017. 10th Biennial Symposium of the Freshwater Mollusk Conservation Society. Cleveland, OH

- Kern, Morgan A. Beth Glidewell and Chris Barnhart, Simplifying methods for in vitro metamorphosis of glochidia.
- Loyd, Kendell, Beth Glidewell, Chris Barnhart, Bernard Sietman, and Mike Davis. Synchronization of reproduction by temperature in deertoie mussel (*Truncilla truncata*).
- Martin, Kathryn C., Beth Glidewell, and Chris Barnhart. Upper thermal limits of freshwater mussels (Bivalvia, Unionoida) in ramped temperature exposures.
- Maynard, Bryce, Chris Barnhart, and Marc Owen. A year-long mark-recapture study of the threatened Rabbitsfoot Mussel (*Quadrula cylindrica cylindrica*).
- Moore, Adrian P., Robert B. Bringolf, and M. Christopher Barnhart. Use of partial lifecycle tests to determine effects of nitrate and an estrogen on fatmucket (*Lampsilis siliquoidea*).

2016. *4th Interior Highlands Mollusk Conservation meeting. Tahlequah, OK*

- Maynard, Bryce and Chris Barnhart. Linking shell morphology to the reproductive behavior of the threatened Rabbitsfoot mussel (*Quadrula cylindrica cylindrica*).
- Maynard, Amy, Laszlo Kovacs and Chris Barnhart. Sex-associated mitochondrial genes: tools for understanding Unionid reproduction and development.
- Kern, Morgan and Chris Barnhart. Simplifying methods for in vitro metamorphosis of glochidia.
- Loyd, Kendell and Chris Barnhart. Testing the possible role of chemoreception in spawning of Deertoe Mussel (*Truncilla truncata*).
- Martin, Kathryn and Chris Barnhart. Critical thermal limits of freshwater mussels in ramped temperature exposures.
- Glidewell, Beth, Amy Maynard, James Kunz, Ning Wang and Chris Barnhart. Culturing early juvenile mussels in pulsed flow-through beaker systems.
- Barnhart, Chris. Sacrificial clams: the conservation significance of freshwater mussels.

2016. *California Society of Ecological Restoration Annual Meeting. Kings Beach CA*

- Jonathan Young, Niveen Ismail, Chris Barnhart. 2016. Urban Restoration of a Native Freshwater Mussel: Collaboration, Conservation, and Ecological Engineering.

2015. *2nd International Seminar: Rearing of Unionoid Mussels. Clervaux, Luxembourg, November 24-27.*

- Barnhart, Chris. 100 years of mussel propagation: What have we learned, and where are we going? Invited
- Barnhart, Chris. Pulsed flow systems for early juvenile culture. Invited.

2015. *9th Biennial Symposium of the Freshwater Mollusk Conservation Society. St. Louis.*

- Martin, Kathryn, Chris Barnhart, and Nathan Eckert. Upper thermal limits of juvenile *Megaloniais nervosa* in ramped temperature exposures.
- Kunz, James L., Chris G. Ingersoll, Ning Wang, and M. Chris Barnhart. Refining test conditions for conducting water-only toxicity tests with juvenile freshwater mussels.
- Maynard, Amy, Chris Barnhart, and Laszlo Kovacs. Sperm MT-DNA of *Venustaconcha pleasii*.
- Glidewell, Beth, Chris Barnhart. Propagation of western pearlshell, *Margaritifera falcata*.
- Ingersoll, Chris G., M. Chris Barnhart, John M Besser, Chris D Ivey, Nile E Kemble, James L Kunz, and Ning Wang. Development of methods for conducting laboratory sediment toxicity tests with juvenile freshwater mussels.
- Wang, Ning, Chris G. Ingersoll, Chris D. Ivey, James L. Kunz, Rebecca A. Dorman, John M. Besser, William G. Brumbaugh, Ed Hammer, Candice Bauer, Tom Augspurger, and M. Chris Barnhart. Acute and chronic sensitivity of freshwater mollusks to select chemicals.
- Barnhart, Chris and Monte McGregor. One hundred years of mussel propagation: What have we learned, and where are we going?
- Douda, Karel, Michael Martin, Elizabeth Glidewell, and Chris Barnhart. The effects of glochidia infection intensity and stress levels on the metamorphic success of *Lampsilis siliquoidea*.
- Fobian, Todd, Chris Barnhart, and Bryce Maynard. Comparison of reproduction and host fish among populations of rabbitsfoot, *Quadrula cylindrica cylindrica*.
- Barnhart, Chris. Mussel Propagation: from Capture to Culture. Invited.

Mid-Continent Warm Water Fish Culture Workshop, Hilton Branson Convention Center, Branson, MO February 2nd – 4th.

- Barnhart, Chris. Progress in the captive culture of native freshwater mussels. Invited.

2014. *State University of New York, Buffalo. Invited seminar.*

- Barnhart, Chris. Sacrificial Clams- the Conservation Significance of Freshwater Mussels.

2014. *Freshwater Mollusk Conservation Society Workshop. Portland, Maine.*

- Maynard, Bryce, J. Persinger, Z. Ford, S. McMurray, and M.C. Barnhart. Quantitative Habitat Assessment of Mussel Communities in the Lower Pomme de Terre and Sac Rivers.
- Wilhelm, Caitlin and M.C. Barnhart. Comparison of filter feeding and deposit feeding in the invasive Asian clam, *Corbicula fluminea*, and the fatmucket, *Lampsilis siliquoidea*.
- Maynard, Amy, M.C. Barnhart and L. Kovacs. Sperm and sex determination in Unionidae.

2014. *Kansas Natural Resources Conference.*

- Barnhart, M.C. Sacrificial clams: the conservation significance of native freshwater mussels. *Plenary*

2013. *Society for Environmental Toxicology and Chemistry North America 34th Annual Meeting, Nashville.*

- Bringolf, R.B., A.K. Fritts, M.C. Barnhart, W. Cope. Glochidia toxicity testing: the viability endpoint and standardizing test duration.
- Leonard, J., W.G. Cope, M.C. Barnhart, R.B. Bringolf. Using Traditional and Emerging Endpoints to Assess Endocrine Disruption in Freshwater Mussels Exposed to the Synthetic Estrogen 17-Ethinylestradiol.
- Ivey, C.D., R.A. Consbrock, J.L. Kunz, C.G. Ingersoll, N. Wang, E. Hammer, C.R. Bauer, T. Augspurger, S. Raimondo, C. Barnhart, B.G. Brumbaugh. Sensitivity of freshwater mussels at two life stages to acute or chronic effects of sodium chloride or potassium chloride.
- Bolton, G. A. Linan, and M.C. Barnhart. Effects of larval age and duration of parasitism on the sensitivity of newly metamorphosed freshwater mussels to NaCl and copper.
- Maynard, A, and C. Barnhart. Effects of glochidia age on metamorphosis and juvenile condition in freshwater mussels.
- Leonard, J. W.G. Cope, C. Barnhart, R.B. Bringolf. Disrupting the Steroid Hormone Cascade: Effects of the Aromatase Inhibitor Fadrozole Hydrochloride on the Unionid Mussel *Lampsilis fasciola*.
- Wang, N. C.G. Ingersoll, C.D. Ivey, B.G. Brumbaugh, J.M. Besser, E. Hammer, C. Bauer, T. Augspurger, S. Raimondo, B.K. Shephard, J.E. Bartoszek, C. Barnhart, N. Eckert. Acute sensitivity of freshwater mollusks and commonly tested invertebrates to select chemicals with different toxic modes of action.

2013. *Association of Zoos and Aquariums, National Annual Meeting, Kansas City MO.*

- Barnhart, M.C. 2013. Propagation of native freshwater mussels for research and restoration. *Invited*

2013. *8th Biennial Symposium of the Freshwater Mollusk Conservation Society. Lake Guntersville State Park, AL.*

- Leonard, J.A., W.G. Cope, M.C. Barnhart, and R.B. Bringolf. Metabolomic, behavioral, and reproductive effects of the synthetic estrogen 17 α -ethinylestradiol on the unionid mussel *Lampsilis fasciola*.
- Leonard, J.A., W.G. Cope, M.C. Barnhart, and R.B. Bringolf. Assessing acute and chronic biochemical and reproductive effects of the synthetic estrogen 17 α -ethinylestradiol on the unionid mussel *Elliptio complanata*.
- Newton, T., M. Boogaard, T. Hubert, C. Kaye, and M.C. Barnhart. Evaluation of the acute toxicity of a lampricide on multiple life stages of the snuffbox mussel.
- Wang N, Ingersoll CG, Ivey CD, Hammer E, Bauer CR, Augspurger T, Raimondo S, Shephard B, Bartoszek J, Barnhart C, Eckert N. Acute sensitivity of freshwater mussels to selected chemicals with differing toxic modes of action.
- Leonard, J.A., W.G. Cope, M.C. Barnhart, and R.B. Bringolf. Disrupting the steroid hormone cascade: Effects of the aromatase inhibitor fadrozole hydrochloride on the unionid mussel *Lampsilis fasciola*.
- McMurray, S.E., M.C. Barnhart, J.S. Faiman, T.L. Moore, A.D. Roberts, B.R. Simmons, and M.S. Taylor. Status of Rare and Endangered Freshwater Mussels (Bivalvia: Unionoida) in Missouri.
- Barnhart, M.C. Is the larva of *Margaritifera* a glochidium?
- Glidewell, B. C. Barnhart, J. Howard, C. Ingersoll, and N. Wang. Propagation and captive culture of western pearlshell, *Margaritifera falcata*.

- Simmons, B., A. Roberts, T. Divis, S. McMurray, and M.C. Barnhart. Mussel restoration in the lower Osage river.
- Amy Cravens, Rowena Woode and Chris Barnhart. Effects of glochidia age on juvenile condition in freshwater mussels.
- Madeline Pletta and Chris Barnhart. Particle size, capture efficiency and clearance rates by juvenile unionid mussels.
- Wilhelm, C., M. Plummer, and C. Barnhart. The effects of increasing population size of Asiatic clam, *Corbicula fluminea*, on predation by an omnivorous turtle, *Sternotherus odoratus*.
- Bringolf, R.B., A.K. Fritts, M.C. Barnhart, and W.G. Cope. Is glochidia viability indicative of infectivity, the ability to attach and metamorphose?

2012. *Fish Culture Section, Fish and Wildlife Services Branch, Ontario Ministry of Natural Resources, Toronto, ON.*

- Barnhart, M.C. Culture and propagation of native freshwater mussels. Invited

2012. *Ontario Ministry of Natural Resources, Peterborough, ON. Invited.*

- Barnhart, M.C. The conservation significance of native freshwater mussels. Invited

2012. *Society for Freshwater Science, Louisville, KY May 20-24*

- Levine, T.D., M.E. Bradley, B.R. Bosman, M.C. Barnhart and J.B. Sickel. Natural history and range expansion of *Plectomerus dombeyanus*.

2012. *Society for Environmental Toxicology and Chemistry North America 33rd Annual Meeting, Long Beach, CA.*

- Wang N, Ingersoll CG, Ivey CD, Hammer E, Bauer CR, Augspurger T, Raimondo S, Shephard B, Bartoszek J, Barnhart C, Eckert N. Acute sensitivity of freshwater mussels to select chemicals with various toxic modes of action. Poster RP200

2012. *International Meeting on Biology and Conservation of Freshwater Mussels. Brancaga, Portugal.*

- Barnhart, M.C. 2012. Host specificity of Unionoid mussels. Oral, *Invited Keynote.*
- Barnhart, Chris. 2012. Culture methods for freshwater mussels. 4-7 September, Brancaga, Portugal. Poster. *Invited.*

2012 *Ozark Summit, Springfield MO. June 13.*

- Barnhart, Chris and Bryan Simmons. Culture of native freshwater mussels for research and restoration.
- Pletta, Madeline and Chris Barnhart. Testing the selectivity of a biocide against the invasive zebra mussel.
- Simmons, Bryan, Andy Roberts and Chris Barnhart. The Lower Osage River protection and enhancement program.

2012. *Department of Zoology, Southern Illinois University. Carbondale IL 4-12-12.*

- Barnhart, Chris. Wonders down under: the conservation significance of native freshwater mussels." Invited

2012. *Interior Highlands Mussel Meeting, Buffalo National River National Park Service, Harrison, AR,*

- Cravens, Amy and Chris Barnhart. 2012. Testing effects of larval age on viability, metamorphosis, and juvenile condition in freshwater mussels.
- Barnhart, M. C. 2011. Taxonomy and diversity. Freshwater Mussel Conservation & Identification Workshop. Missouri Department of Conservation, Powder Valley Nature Center, 8/29/11
- Barnhart, M. C. 2011. Biology and reproduction. Freshwater Mussel Conservation & Identification Workshop. Missouri Department of Conservation, Powder Valley Nature Center, 8/30/11
- Barnhart, M. C. Overview of Unionoida. USEPA Region 5 webinar: "Laboratory Culturing and Testing of Freshwater Mussels and Use of Mussel Data for Water Quality Management" July 12, 2011 Invited

GRANTS AND CONTRACTS- CAREER SUMMARY

- 90 research grants and contracts
- \$2.5 million total

GRANTS AND CONTRACTS- CURRENT

- 2017-18. Propagation for Augmentation of Arkansas Fatmucket Mussel, in the Saline River Basin. Arkansas Game and Fish Commission/USFWS Region 4.
- 2015-18. Mountain Lake California *Anodonta* Propagation. Presidio Trust, San Francisco Ca
- 2015-18. Developing Methods for Laboratory Culture of Diverse Species of Freshwater Mussels. US Geological Survey /CERC
- 2015-17. Propagation and Genetic Variability of *Lampsilis powellii*. Arkansas Game and Fish Commission.
- 2016-17. Mussel Surveying and Assessment at Ft. Leonard Wood, MO. US Army Corps Of Engineers
- 2016-17. Peoria Tribe Staff Training for Freshwater Mussel Propagation. Peoria Tribe Of Indians
- 2015-17. Propagation and Augmentation of the Ouachita Rock Pocketbook. Oklahoma Department of Wildlife Conservation.
- 2015-20. Propagation and Culture of Winged Mapleleaf Mussel for Restoration in the Duck River, Tennessee. USFWS Region 4.
- 2014-17. Propagation and Captive Culture of Freshwater Mussels or Restoration in the Ohio River. USFWS Region 3. Ohio River restoration fund.
- 2014-18. Propagation and Restoration of the Rabbitsfoot Mussel In The Upper Verdigris River In Kansas. Kansas Wildlife and Parks/USFWS Region 6.

COURSES TAUGHT

- Biogeography (undergraduate and graduate)
- Parasitology (advanced undergraduate/graduate)
- Invertebrate Zoology (advanced undergraduate/graduate)
- General Biology (introductory course for university undergraduate biology majors)
- Survey of Biology (general education course for undergraduates)
- Aquatic Entomology (graduate)
- Senior Seminar (advanced undergraduate)
- Comparative Animal Physiology (advanced undergraduate/graduate)
- General Physiology (advanced undergraduate/graduate level)
- Respiration Physiology (graduate level).
- Streams Seminar (graduate level)
- Biology of Freshwater Mollusks (graduate level).
- Biology of Freshwater Crustacea (graduate level)
- Biological Invasions (graduate level).
- Species Concepts (graduate level).

MASTERS THESES SUPERVISED

- Martin, Kathryn. 2016. Upper thermal limits of freshwater mussels (Bivalvia, Unionoida) in ramped temperature exposures.
- Maynard, Amy. 2015. Sperm mitochondria genetics and sexual reproduction in Unionid mussels.
- Pletta, Madeline. 2013. Particle capture by freshwater bivalves: implications for feeding ecology and biopesticide delivery.
- Bosman, Ben. 2012. Host relations and reproductive biology of the ebonyshell, *Fusconaia ebena*.
- Bradley, Megan. 2011. Byssus production in freshwater mussels (Bivalvia: Unionoidea).
- Brondel, Rebecca 2010. Size-dependent predation of a native crayfish (*Orconectes neglectus*) on a native bivalve (*Lampsilis siliquoidea*).
- Duzan, Matt 2010. Effects of flow and substrate on burying behavior and drift of early juvenile freshwater mussels.
- Crownhart, Andrea 2009. Factors affecting metamorphosis success of the parasitic larvae of freshwater mussels, Unionidae.
- Pillow, Mike 2009. Acute toxicity of ammonia and copper to mussel (Bivalvia: Unionidae) glochidia inside and outside of conglutinates.
- Duzan, Jennifer 2008. Factors affecting feeding and growth of juvenile freshwater mussels (Unionidae).
- Beussink, Zachary 2007. Effects of sediment exposure on host suitability for the parasitic glochidia larvae of Unionid mussels.
- Fobian, Todd 2007. Host utilization and reproductive timing among populations of *Quadrula cylindrica*.
- Bowers, Jolene. 2006. Innate cross-immunity of host fish to the parasitic larvae of Unionoid mussels.
- Kaiser, Brianna 2005. The effects of glochidiosis on fish respiration.
- Dodd, Ben 2005. Immune responses of host fish to the parasitic glochidia larvae of Unionid mussels.
- Eckert, Nathan 2003. Reproductive biology and host requirements among isolated populations of *Cyprogenia aberti* (Conrad 1850).
- Bigham, Shannon 2002. Host specificity of freshwater mussels: a critical factor in conservation.
- Delp, Angela 2002. Rhabdocoel flatworms as predators of juvenile freshwater mussels.
- Shiver, Melissa 2001. Reproductive biology of the Neosho mucket, *Lampsilis rafinesqueana*.
- Baird, Michael. 2000. Life history and population structure of the spectaclecase mussel, *Cumberlandia monodonta* (Bivalvia, Margaritiferidae).
- Riusech, Frank. 1999. Genetic and life history characteristics of the freshwater bivalves, *Venustaconcha ellipsiformis* and *Venustaconcha pleasii*, in the Ozark Plateaus region.
- Hansen, Darby. 1998. Hypoxia and ventilation of the marsupium in the amphipod, *Gammarus pseudolimnaeus* Bousfield.
- Mills, Nathan. 1998. Effects of hypoxia on embryonic development and hatching in two *Ambystoma* and two *Rana* species.
- Roberts, Andrew. 1997. Reproductive biology of the flat floater mussel, *Anodonta suborbiculata* Say, 1831 (Bivalvia: Unionidae).
- Hoback, Wyatt. 1995. Hypoxia-limited survival, respiration, and mate-guarding behavior in the amphipod, *Gammarus pseudolimnaeus* Bousfield.

Current MS students

- Kern, Morgan. Refining *in vitro* culture methods for Unionid mussels
- Loyd, Kendall. Control of spawning behavior in freshwater mussels.
- Maynard, Bryce. Morphological and behavioral adaptations of *Quadrula cylindrica*.
- Wilhelm, Caitlin. Feeding behavior of *Corbicula fluminea* and juvenile *Lampsilis siliquoidea*
- Martin, Michael. The freshwater drum as a host of native mussels, Unionidae

SERVICEUniversity/College Service

- Faculty Grants Committee 2004-05, Chair 2005-2006, 2008-2013, Member 2015-present
- Intellectual Property Committee 2015-present
- University Futures Task Force 2005-06
- Chair, Enhancing Research and Creativity Subgroup, University Long Range Plan
- University Whistle Blower Committee 2006
- Academic Advisory Development Committee 2006
- Research Task Force 2004-05
- Faculty Leave Committee 2001-03, 2004-05, Chair 2002-03
- Presidential Scholar Interviewer 2003
- Convocations Committee 2001-02
- University Awards Committee Chair 1999-2000
- College Council 1999-2000.

Department Service

- Aquatic Biologist Search Committee Chair 2015-2016.
- Scholarship Committee Chair 1999-2006, 2008-2013. 2015-present
- Internet Committee Chair 1999-2006, 2008-2011
- Seminar Committee Chair 1999-2011.

Professional Service:

- U.S. Department of the Interior, NCTC Training Course: "Conservation Biology of Freshwater Mussels". Taught annually 2012-2016, scheduled for 2017.
- Missouri Department of Conservation, freshwater mollusk professional training workshops, taught annually 2005-2014.
- Society for Ecological Toxicology and Chemistry (SETAC), Freshwater Mollusk Toxicology Workshops, taught 5 times at National Meeting.
- Chair, Propagation and Restoration Committee, Freshwater Mollusk Conservation Society (FMCS). 1999-2003, organized National Workshop for FMCS at US DOI National Conservation Training Center, Shepherdstown WV in 2003.
- Journals and organizations for which I have reviewed manuscripts and grant proposals: American Aquaculture, American Malacological Bulletin, American Midland Naturalist, American Zoologist, Aquaculture, Archiv für Hydrobiologie, Biological Bulletin Woods Hole, Biological Conservation, BioMedCentral Research Notes, Comparative Biochemistry and Physiology, Ecology, Environmental Toxicology and Chemistry, Freshwater Science, Hydrobiologia, Invertebrate Biology, Journal of Applied Ecology, Journal of Comparative Physiology, Journal of Experimental Biology, Journal of Morphology, Journal of the American Water Resources Association, Limnologica, Marine Behavior & Physiology, Missouri Department of Conservation, National Fish and Wildlife Foundation, National Science Foundation, Oecologia, Physiological Zoology, Southeastern Naturalist, Southwestern Naturalist, Transactions of the American Fisheries Society, U. S. Fish and Wildlife Service, U.S. Geological Survey, Veliger.

Community Service

- Curator, Roston Native Butterfly House, Greene County Botanical Center. 2009-present. Responsible for infrastructure, docent training, and breeding program. Approximately ½ time summer commitment.
- Board Member, Friends of the Garden, 2008-2015. Provide input on pest control, invasive and native plants, help coordinate annual Butterfly Festival.
- Conservation Committee, Joplin Audubon Nature Center. 2002-2007. Planning interpretive displays for Wildcat Glades Nature Center.
- Ozark Science and Engineering Fair judge & section chair, 10 years. Sponsored two Division winners and two Grand Prize winners (both competed at the Intel International fair).
- I make frequent presentations on science and natural history to local schools, conservation groups, and service organizations annually. Some recent examples:
 - ✓ “Sacrificial Clams-The Significance of Freshwater Mussels.” 2017 Meramec Hills Master Naturalists, Rolla. 2014. Springfield Free Thinkers, at Library Station.
 - ✓ “Special Delivery–The Beauty of Plant-Pollinator Partnerships” 2017, 2016. Public lectures for Springfield Conservation Nature Center, Ozark Native Plants Society, Ozark Master Gardeners Workshop.
 - ✓ “Nature Quotes Illustrated” 2017. "Touched by Butterflies" 2015, 2016. Photo displays at Springfield Conservation Nature Center and Springfield Botanical Center.
 - ✓ “Flying Flowers: Raising the Native Silk Moths”. Annually for 23 years as part of Springfield Conservation Nature Center “Insect-o-Rama” program. We provide rearing kits to teachers and others.
 - ✓ “Butterflies Lives” and “Keeping Caterpillars” Annual Programs for Butterfly House docents at Springfield Botanical Center
 - ✓ “Wonders Down Under” 2015. Lecture for Missouri Master Naturalists Statewide Convention.
 - ✓ “Emerald Ash Borer: Kiss Your Ash Goodbye”. 2014. Lecture for Missouri Native Plants Society at Springfield Botanical Center.
 - ✓ “World of Weeds: Invasive Species and the Homogenization of Nature”. 2014. CNAS Lecture at Springfield Public Library.
 - ✓ “Touched by Butterflies: Opportunities for Ecological Education”. 2014. Lecture for Missouri Department of Conservation Southwest Regional Volunteer Conference, MSU Darr Center.