

CARYN CARPENTER VAUGHN

George Lynn Cross Distinguished Research Professor
President's Associates Presidential Professor
Oklahoma Biological Survey & Department of Biology
111 E. Chesapeake Street, University of Oklahoma, Norman, OK 73019
(405) 325-4034, cvaughn@ou.edu
<http://carynvaughn.com>

My research focuses on the ecology and conservation biology of streams, in particular the functional roles of freshwater mussels, and in quantifying the ecosystem services provided by stream organisms. Freshwater mussels are one of the world's most imperiled faunas, largely because their life history traits make them highly vulnerable to climate change, habitat destruction and alteration, and introduction of non-native species. Until recently, most work in mussel conservation focused on documenting and propagating the rarest species. However, most mussel species are declining and it is the common species that do most of the work in ecosystems. Over the past 15 years, integrative research in my lab has demonstrated that mussels are important "biofilters" that transfer energy and nutrients in aquatic food webs and even subsidize terrestrial ecosystems. The biophysical processes performed by mussels vary with species and environmental conditions, particularly flow and temperature, and are highest in the most diverse communities.

Google scholar profile: <https://scholar.google.com/citations?user=dSAMFFQAAAAJ&hl=en>
Researchgate: https://www.researchgate.net/profile/Caryn_Vaughn

EDUCATION

Postdoctoral studies, Marine Biology, Rice University (1986-88)
Ph.D., Zoology, University of Oklahoma, 1984 (Alan P. Covich advisor)
M.S., Zoology, University of Oklahoma, 1979 (Alan P. Covich advisor)
B.S., Zoology, University of Oklahoma, 1977

PROFESSIONAL EXPERIENCE

Director, Oklahoma Biological Survey, University of Oklahoma (1999-2013)
Associate Professor (1999-2007) & Assistant Professor (1994-99), Department of Zoology, University of Oklahoma
Coordinator (1995-99) & Heritage Biologist (1990-99), Oklahoma Natural Heritage Inventory, Oklahoma Biological Survey, University of Oklahoma
Adjunct Assistant Professor, Department of Zoology, University of Oklahoma (1990-94)
Research Associate, University of Oklahoma Biological Station (1989)
Assistant Professor, Department of Biological Sciences, Southwestern Oklahoma State University, Weatherford, Oklahoma (1988-89)
Research Associate, Department of Biology, Rice University, Houston, Texas (1986-88)
Adjunct Instructor (Biology & Zoology), Departments of Biology, University of Houston Downtown, Houston Community College, and North Harris County College, Houston, Texas (1987-88)
Instructor (Marine Biology), Department of Geology and Geophysics, Rice University (1986)
Environmental Consultant, ERM-Southwest, Inc., and Enseco, Inc., Houston, Texas (1985-87)
Lecturer (Invertebrate Zoology), Department of Zoology, University of Oklahoma (1984-85)

AWARDS & HONORS

George Lynn Cross Distinguished Research Professorship, University of Oklahoma (2016)
 Lifetime Achievement Award, Freshwater Mollusk Conservation Society (2013)
 Byliner Award, Association for Women in Communications (2010)
 Donald W. Tinkle Research Excellence Award, Southwestern Association of Naturalists (2007)
 President's Associates Presidential Professorship, University of Oklahoma (2005)

PUBLICATIONS (*graduate student, **undergraduate student)**Manuscripts in preparation**

Castro, Antonio J., Jason P. Julian, C. Mickle-Martin** and Caryn C. Vaughn. Supply and demand of ecosystem services across US-watersheds: a systematic review.

Olson, Patrick, Caryn C. Vaughn, Carla L. Atkinson and James Cureton. Population connectivity among *Amblema plicata* in the Kiamichi River, Oklahoma.

*Irmscher, Pascal, Caryn C. Vaughn and Jason P. Julian. Factors influencing freshwater mussel distribution in river reaches.

Julian, Jason P., Caryn C. Vaughn and Carla L. Atkinson. Managing reservoir water releases to mitigate downstream ecosystem impacts during extreme heat and drought.

*Sansom, Brandon J. and Caryn C. Vaughn. Freshwater mussels alleviate drought stress for fish in isolated pools.

*Sansom, Brandon, Caryn C. Vaughn and Jeffrey F. Kelly. Using $\delta^{15}\text{N}$ to trace bottom-up transfer of mussel-derived nutrients in a stream food web.

Vaughn, Caryn C. and Timothy Hoellein. Global decline of non-marine mollusks and their ecosystem services. *Annual Review of Ecology, Evolution, and Systematics* (invited).

Manuscripts in review

Atkinson, Carla L., Brandon Sansom*, Caryn C. Vaughn and Kenneth J. Forshay. Ecosystem importance of spatially heterogeneous but temporally stable animal aggregations.

*Irmscher, Pascal and Caryn C. Vaughn. Sinking velocities and drift distances of juvenile unionid mussels in streams.

Sansom, Brandon J., Brent N. Tweedy and Caryn C. Vaughn. Effects of mussels on fish community structure.

Tweedy, Brent N., Brandon J. Sansom and Caryn C. Vaughn. Live weights and lengths can be accurately predicted for a diverse group of adult stream fishes preserved in ethanol

Refereed Journal Articles and Book Chapters

(78) Vaughn, Caryn C. Ecosystem services provided by freshwater mussels. *Hydrobiologia* (invited). In press.

(77) *Sansom, Brandon, Carla L. Atkinson and Caryn C. Vaughn. 2016. Growth and age estimates for southeastern Oklahoma mussel populations. *Freshwater Mollusk Biology and Conservation* 19:19-26.

(76) Castro, Antonio J., Caryn C. Vaughn, Marina Garcia-Llorente, Jason P. Julian and Carla L. Atkinson. 2016. Willingness to pay for ecosystem services among stakeholder groups in a south-central U.S. watershed with regional conflict. *Journal of Water Resource Planning and Management* 142:05016006

(75) Freshwater Mollusk Conservation Society (contributing authors listed alphabetically: Bradley, Megan, Robert S. Butler, Heidi L. Dunn, Catherine Gatenby, Patricia A. Morrison, Teresa J. Newton, Matthew Patterson, Kathryn E. Perez, Caryn C. Vaughn, Daelyn A. Woolnough and Steve J. Zigler). 2016. A national strategy for the conservation of native freshwater mollusks. *Freshwater Mollusk Biology and Conservation* 19:1-21.

- (74) Castro, Antonio J., Caryn C. Vaughn, Jason P. Julian and Maria Garcia Llorente. 2016. Social demand of ecosystem services for watershed management. *Journal of the American Water Resources Association*. 52: 209-221.
- (73) *Irmscher, Pascal and Caryn C. Vaughn. 2015. Limited movement of freshwater mussel fish hosts in a southern US river. *Hydrobiologia* 757:223-233.
- (72) Castro, Antonio J., Berta Martin-Lopez, Enrique Lopez-Carrique, Tobias Plieninger, Domingo Alcaraz-Segura, Caryn C. Vaughn and Javier Cabello. 2015. Do protected areas networks ensure the supply of ecosystem services? Evidence from two nature reserve systems in semi-arid Spain. *Applied Geography*. DOI 10.1016/j.apgeog.2015.02.012
- (71) Castro, A.J., Caryn C. Vaughn, Jason P. Julian, Marine Garcia Llorente, and Kelsey N. Bowman**. 2015. Social perception and supply of ecosystem services: a watershed approach for carbon related ecosystem services. *Biodiversity and Ecosystems – Linking Structure and Function*. Lo, Y., J.A. Blanco and S. Roy (editors). Intech.
- (70) Vaughn, Caryn C., Carla L. Atkinson and Jason P. Julian. 2015. Drought-induced changes in flow regimes lead to long-term losses in mussel-provided ecosystem services. *Ecology and Evolution* 5:1291-1305.
- (69) Gates, Kiza K., Caryn C. Vaughn and Jason P. Julian. 2015. Incorporating species traits in a guild approach to develop environmental flow recommendations for freshwater mussels. *Freshwater Biology* 60:620-635.
- (68) Atkinson, Carla L. and Caryn C. Vaughn. 2015. Biogeochemical hotspots: temporal and spatial scaling of the impact of a multispecies community of freshwater mussels on ecosystem function. *Freshwater Biology* 60:563-574. (Invited)
- (67) Castro, Antonio J., Peter H. Verburg, Berta Martín-López, Marina García-Llorente, Caryn C. Vaughn and Javier Cabello. 2014. Ecosystem service trade-offs from the supply to the demand-side: a landscape-scale spatial analysis. *Landscape and Urban Planning* 132:102-110.
- (66) *Atkinson, Carla L., Jason P. Julian and Caryn C. Vaughn. 2014. Species and function lost: role of drought and land cover structuring stream communities. *Biological Conservation* 176:30-38.
- (65) *Atkinson, Carla L., Jeffrey F. Kelly and Caryn C. Vaughn. 2014. Tracing consumer-derived nitrogen in riverine foodwebs. *Ecosystems* 17:485-496. *Won Hynes award from the Society for Freshwater Science*.
- (64) *Atkinson, Carla L., Alan D. Christian, Daniel E. Spooner and Caryn C. Vaughn. 2014. Long-lived organisms provide an integrative footprint of agricultural land use. *Ecological Applications* 24:375-384.
- (63) Newton, Teresa J., Caryn C. Vaughn, Daniel E. Spooner and Michael Arts. 2013. Profiles of biochemical tracers in unionid mussels across a broad geographic range. *Journal of Shellfish Research* 32:497-507.
- (62) Allen, Daniel C., Heather S. Galbraith, Caryn C. Vaughn and Daniel E. Spooner. 2013. A tale of two rivers: implications of water management practices for mussel biodiversity outcomes during droughts. *Ambio* 42:881-891.
- (61) *Atkinson, Carla L., Caryn C. Vaughn, Kenneth J. Forshay and Joshua T. Cooper*. 2013. Aggregated filter-feeding consumers alter nutrient limitation – Consequences for ecosystem and community dynamics. *Ecology* 94:1359-1369. *Highlighted by the Faculty of 1000*.
- (60) *Atkinson, Carla L., Jason P. Julian and Caryn C. Vaughn. 2012. Scale-dependent longitudinal patterns in mussel communities. *Freshwater Biology* 57:2272-2289.
- (59) *Allen, Daniel C., Caryn C. Vaughn, Jeffrey F. Kelly, Joshua T. Cooper* and Michael H. Engel. 2012. Bottom-up biodiversity effects increase resource subsidy flux between ecosystems. *Ecology* 93:2165-2174. *Selected by the Faculty of 1000 as a "must read" paper. Won Hynes award from the Society for Freshwater Science*.

- (58) Vaughn, Caryn C. 2012. Life history traits and abundance can predict local colonization and extinction rates of freshwater mussels. *Freshwater Biology* 57:982-992.
- (57) *Spooner, Daniel E. and Caryn C. Vaughn. 2012. Species traits and environmental gradients interact to govern primary production in freshwater mussel communities. *Oikos* 121:403-416.
- (56) *Spooner, Daniel E., Caryn C. Vaughn and Heather S. Galbraith*. 2012. Species traits and environmental conditions govern the relationship between biodiversity effects across trophic levels. *Oecologia* 168:533-548.
- (55) *Allen, Daniel C. and Caryn C. Vaughn. 2011. Density-dependent biodiversity effects on physical habitat modification by freshwater bivalves. *Ecology* 92:1013-1019. *Nature* highlight of this article, January 27 2011, 469:466.
- (54) *Galbraith, Heather S. and Caryn C. Vaughn. 2011. Effects of reservoir management on the condition and reproductive traits of downstream mussel populations. *River Research and Applications* 27:193-201.
- (53) *Galbraith, Heather S., Daniel E. Spooner* and Caryn C. Vaughn. 2010. Synergistic effects of regional climate patterns and local water management on freshwater mussel communities. *Biological Conservation* 143:1175-1183
- (52) *Allen, Daniel C. and Caryn C. Vaughn. 2010. Complex hydraulic and substrate parameters limit freshwater mussel species richness: a test of the substrate stability hypothesis. *Journal of the North American Benthological Society* 29:383-394.
- (51) Vaughn, Caryn C. 2010. Biodiversity losses and ecosystem function in freshwaters: emerging conclusions and research directions. *BioScience* 60:25-35.
- (50) Matthews, William J., Caryn C. Vaughn, Keith B. Gido and Edith Marsh-Matthews. 2010. Southern Plains Rivers, pp. 118-135, in: Field Guide to Rivers of North America, A. C. Benke and C. E. Cushing, editors. Academic Press, Burlington, MA.
- (49) *Galbraith, Heather S. and Caryn C. Vaughn. 2009. Temperature and food interact to influence gamete development in freshwater mussels. *Hydrobiologia* 636:35-47.
- (48) Vaughn, Caryn C. Mollusca. 2009. *Encyclopedia of Inland Waters*. Likens, G.E. (Editor), Elsevier, Oxford. 2:361-371. (Invited)
- (47) *Galbraith, Heather S., Sarah Frazier**, Brenda Allison** and Caryn C. Vaughn. 2009. Comparison of gill surface morphology across a guild of suspension feeding bivalves. *Journal of Molluscan Studies* 75:103-107.
- (46) *Spooner, Daniel E. and Caryn C. Vaughn. 2009. Species richness increases secondary production of freshwater mussels through complementarity: A partitioning approach applied to natural communities. *Ecology* 90:781-790.
- (45) *Allen, Daniel C. and Caryn C. Vaughn. 2009. Burrowing behavior of freshwater mussels in experimentally manipulated communities. *Journal of the North American Benthological Society* 28:93-100.
- (44) *Spooner, Daniel E. and Caryn C. Vaughn. 2008. A trait-based approach to species' roles in stream ecosystems: climate change, community structure, and material cycling. *Oecologia* 158:307-317.
- (43) Vaughn, Caryn C., S. Jerrine Nichols and Daniel E. Spooner*. 2008. Community and foodweb ecology of freshwater mussels. *Journal of the North American Benthological Society* 27:409-423. (Invited)
- (42) *Galbraith, Heather S., Daniel E. Spooner* and Caryn C. Vaughn. 2008. Status of rare and endangered freshwater mussels in southeastern Oklahoma rivers. *Southwestern Naturalist* 53:45-50.
- (41) *Galbraith, Heather S., Caryn C. Vaughn and C. Kate Meier*. 2008. Environmental variables interact across spatial scales to structure trichopteran assemblages. *Hydrobiologia* 596:401-411.

- (40) Vaughn, Caryn C., Daniel E. Spooner* and Heather S. Galbraith*. 2007. Context-dependent species identity effects within a functional group of filter-feeding bivalves. *Ecology* 88:1654-1662.
- (39) Elderkin, Curt L., Alan D. Christian, Caryn C. Vaughn, Janice L. Metcalfe-Smith and David J. Berg. 2007. Population genetics of the freshwater mussel *Amblema plicata* (Say 1817)(Bivalvia: Unionidae): evidence of high dispersal and post-glacial colonization. *Conservation Genetics* 8:355-372.
- (38) *Spooners, Daniel E. and Caryn C. Vaughn. 2007. Mussels of the Mountain Fork River, Arkansas and Oklahoma. *Publications of the Oklahoma Biological Survey* 8:14-18.
- (37) Vaughn, Caryn C. and Daniel E. Spooner*. 2006. Unionid mussels influence macroinvertebrate assemblage structure in streams. *Journal of the North American Benthological Society* 25:691-700.
- (36) Vaughn, Caryn C. and Daniel E. Spooner*. 2006. Scale-dependent associations between native freshwater mussels and invasive *Corbicula*. *Hydrobiologia* 568:331-339.
- (35) *Spooners, Daniel E. and Caryn C. Vaughn. 2006. Context-dependent effects of freshwater mussels on the benthic community. *Freshwater Biology* 51:1016-1024, 1188.
- (34) Graening, G.O., Dante B. Fenolio*, Elizabeth A. Bergey and Caryn C. Vaughn. 2006. Annotated checklist of the amphipod crustaceans of Oklahoma, with emphasis on groundwater habitats. *Proceedings of the Oklahoma Academy of Science* 86:65-74.
- (33) Matthews, William J., Caryn C. Vaughn, Keith B. Gido and Edie Marsh-Matthews. 2005. Southern Plains rivers. Pages 283 - 325 in, *Rivers of North America*, A.C. Benke and C.E. Cushing (eds). Elsevier, 1168 pp.
- (32) Vaughn, Caryn C. 2005. Freshwater mussel populations in southeastern Oklahoma: population trends and ecosystem services. Proceedings of Oklahoma Water 2005, Tulsa, OK. Paper #18. Oklahoma Water Resources Institute, Stillwater, OK. 12 pp.
- (31) Martinez, A. David., Daniel E. Spooner*, Todd G. Adornata, Suzanne Y. Duding and Caryn C. Vaughn. 2004. Occurrence of the Rock Pocketbook mussel, *Arcidens confragosus* (Bivalvia: Unionidae), in the Poteau and Deep Fork Rivers of Oklahoma. *Proceedings of the Oklahoma Academy of Sciences* 84:79-80.
- (30) Vaughn, Caryn C. and Daniel E. Spooner*. 2004. Status of the mussel fauna of the Poteau River and implications for commercial harvest. *American Midland Naturalist* 152:136-152.
- (29) Vaughn, Caryn C., Keith B. Gido and Daniel E. Spooner*. 2004. Ecosystem processes performed by unionid mussels in stream mesocosms: species roles and effects of abundance. *Hydrobiologia* 527:35-47.
- (28) Vaughn, Caryn C. 2003. The mussel fauna of the Glover River, Oklahoma. *Proceedings of the Oklahoma Academy of Sciences* 83:1-6.
- (27) Vaughn, Caryn C., Daniel E. Spooner* and Bruce W. Hoagland. 2002. River weed growing epizooically on freshwater mussels. *Southwestern Naturalist* 47:604-605.
- (26) Vaughn, Caryn C. and Christine C. Hakenkamp. 2001. The functional role of burrowing bivalves in freshwater ecosystems. *Freshwater Biology* 46:1431-1446.
- (25) Vaughn, Caryn C. and Christopher M. Taylor. 2000. Macroecology of a host-parasite relationship. *Ecography* 23:11-20.
- (24) Vaughn, Caryn C. 2000. Changes in the mussel fauna of the middle Red River drainage: 1910 - present. Pages 225-232 in Tankersley, R.A, Warmolts, D.I., Watters, G.T., Armitage, B.J., Johnson, P.D., and Butler, R.S. (Editors). Freshwater Mollusk Symposium Proceedings. Ohio Biological Survey, Columbus, Ohio. 274 pp.
- (23) Vaughn, Caryn C. and Christopher M. Taylor. 1999. Impoundments and the decline of freshwater mussels: a case study of an extinction gradient. *Conservation Biology* 13:912-920.
- (22) *Pyron, Mark, Caryn C. Vaughn, Matthew R. Winston* and Jimmie Pigg. 1998. The long-term fish assemblage of the Kiamichi River, Oklahoma. *The Southwestern Naturalist* 43:46-53.

- (21) Vaughn, Caryn C. 1997. Catastrophic decline of the mussel fauna of the Blue River, Oklahoma. *Southwestern Naturalist* 42:333-336.
- (20) Vaughn, Caryn C. 1997. Regional patterns of mussel species distributions in North American rivers. *Ecography* 20:107-115.
- (19) Vaughn, Caryn C., Christopher M. Taylor* and Kelly J. Eberhard*. 1997. A comparison of the effectiveness of timed searches vs. quadrat sampling in mussel surveys. Pages 157-162, in Cummings, K.S., A.C. Buchanan, C.A. Mayer and T.J. Naimo (eds), Conservation and Management of Freshwater Mussels II: Initiatives for the Future. Proceedings of a UMRCC symposium, 16-18 October 1995, St. Louis, Missouri. Upper Mississippi River Conservation Committee, Rock Island, Illinois.
- (18) Vaughn, Caryn C., Charles M. Mather, Mark Pyron*, Patricia Mehlhop, and Estelle K. Miller. 1996. The current and historical mussel fauna of the Kiamichi River, Oklahoma. *Southwest Naturalist* 41:325-328.
- (17) *Johnson, Sherri L. and Caryn C. Vaughn. 1995. A hierarchical analysis of macroinvertebrate recolonization of disturbed patches along longitudinal gradients in a prairie stream, USA. *Freshwater Biology* 34:531-540.
- (16) Vaughn, Caryn C. and Mark Pyron*. 1995. Population ecology of the endangered Ouachita Rock Pocketbook Mussel, *Arkansia wheeleri* (Bivalvia: Unionidae), in the Kiamichi River, Oklahoma. *American Malacological Bulletin* 11:145-151.
- (15) Kawakatsu, Masaharu, Caryn C. Vaughn and Robert W. Mitchell. 1995. *Dendrocoelopsis americana* (Hyman, 1939) from Christian School Cave, the Ozark Plateau, U.S.A. *Bulletin of the Fuji Women's College*, No. 33, Ser. II. (December 1995), 71-78.
- (14) Mehlhop, Patricia and Caryn C. Vaughn. 1994. Threats to and sustainability of ecosystems for freshwater mollusks. Pp. 68-77 in Covington, W. and L.F. Dehand (eds), Sustainable Ecological Systems: Implementing an Ecological Approach to Land Management. General Technical Report Rm-247 for Rocky Mountain Range and Forest Experimental Station. U.S. Forest Service, U.S. Department of Agriculture, Fort Collins, CO. 363 pp.
- (13) Covich, Alan P., Todd A. Cowl, James E. Alexander and Caryn C. Vaughn. 1994. Predator-avoidance responses in freshwater decapod-gastropod interactions mediated by chemical stimuli. *Journal of the North American Benthological Society* 13:283-290.
- (12) Vaughn, Caryn C., Frances P. Gelwick* and William J. Matthews. 1993. Effects of algivorous minnows on production of grazing stream invertebrates. *Oikos* 65:119-128.
- (11) Vaughn, Caryn C., Susan M. Glenn and I. Butler. 1993. Distribution and characterization of prairie mole cricket chorusing sites in Oklahoma. *American Midland Naturalist* 130:364-371.
- (10) Vaughn, Caryn C. 1993. Can biogeographic models be used to predict the persistence of mussel populations in rivers? Pp. 117-122 in, Cummings, K.S., A.C. Buchanan and L. M. Koch (eds), Conservation and Management of Freshwater Mussels. Proceedings of a UMRCC symposium, 12-14 October 1992, St. Louis, Missouri. Upper Miss. River Cons. Com., Rock Island, IL. 189 pp.
- (9) *Creighton, J. Curtis, Caryn C. Vaughn and Brian R. Chapman. 1993. Habitat preference of the endangered American Burying Beetle (*Nicrophorus americanus*) in Oklahoma. *Southwestern Naturalist* 38:275-277.
- (8) Vaughn, Caryn C. and Frank M. Fisher. 1992. Dispersion of the salt marsh periwinkle *Littoraria irrorata* (Say): effects of water level, size and season. *Estuaries* 15:246-250.
- (7) Vaughn, Caryn C. and Frank M. Fisher. 1988. Vertical migration as a refuge from predation in intertidal marsh snails: a field test. *Journal of Experimental Marine Biology and Ecology* 123:163-176.
- (6) Vaughn, Caryn C. 1987. Substratum preference of the caddisfly *Helicopsyche borealis* (Hagen)(Trichoptera: Helicopsychidae). *Hydrobiologia* 154:201-205.

- (5) Vaughn, Caryn C. 1986. The role of periphyton abundance and quality in the microdistribution of a stream grazer, *Helicopsyche borealis* (Trichoptera: Helicopsychidae). *Freshwater Biology* 16:485-493.
- (4) Vaughn, Caryn C. 1985. Life history of *Helicopsyche borealis* (Hagen) (Trichoptera: Helicopsychidae) in Oklahoma. *American Midland Naturalist* 113:76-83.
- (3) Vaughn, Caryn C. 1985. Evolutionary ecology of case architecture in the snailcase caddisfly, *Helicopsyche borealis* (Trichoptera: Helicopsychidae). *Freshwater Invertebrate Biology* (renamed *Journal of the North American Benthological Society* with volume 5) 4:178-186.
- (2) Vaughn, Caryn C. 1982. Distribution of chironomids in the littoral zone of Lake Texoma, Oklahoma and Texas. *Hydrobiologia* 89:177-188.
- (1) Covich, Alan P., William Shepard, Elizabeth A. Bergey and Caryn S. Carpenter (Vaughn). 1978. Effects of fluctuating flow rates and water levels on chironomids: direct and indirect alterations of habitat stability. In, *Energy and Environmental Stress in Aquatic Systems*, ed. by J.H. Thorp and J.W. Gibbons, ERDA Symp Series, Oak Ridge Press. pp. 141-156.

Popular articles, book reviews and encyclopedia entries

- Atkinson, C.L., K.J. Forshay, and C.C. Vaughn. 2013. Native mussels alter nutrient availability and reduce blue-green algae abundance. EPA Science Brief. EPA/600/F-13/231.
- Capps, K.A., C.L. Atkinson, A. Rugenski, C. Baxter, K.S. Boersma, C.C. Carey, P.B. McIntyre, J.W. Moore, W.H. Nowlin and C.C. Vaughn. 2012. Impacts of species addition and species loss on ecosystem function in freshwater systems. *Bulletin of the Ecological Society of America* 93:402-408.
- Vaughn, Caryn C., Daniel C. Allen, Pascal Irmscher and Carrie J. Miller. 2009. Review of *Freshwater Mussel Ecology: A Multifactor Approach to Distribution and Abundance* by David L. Strayer. *Journal of the North American Benthological Society* 28:515-516.
- Allen, Daniel C., Dane Morris and Caryn C. Vaughn. 2008. *Nerodia sipedon* (Northern Water Snake) killed by mussel. *Herpetological Review* 39:471-472.
- Vaughn, Caryn C. 2007. The Oklahoma Biological Survey. *Encyclopedia of Oklahoma History and Culture*, <http://digital.library.okstate.edu/encyclopedia>
- Vaughn, Caryn C. 2000. Two siphons up, review of *The Freshwater Mussels of Tennessee* by Paul Parmalee and Arthur Bogan. *BioScience* 50:263-264.
- Spooner, Daniel E. and Caryn C. Vaughn. 2000. Impact of drought conditions on a mussel bed in the Kiamichi River, southeastern Oklahoma. *Ellipsaria*, fall 2000, 10 -11.
- Vaughn, Caryn C. 1998. The Kiamichi River. In, Master, Lawrence L. Stephanie R. Flack and Bruce A. Stein (editors). *Rivers of Life: Critical Watersheds for Protecting Freshwater Biodiversity*. The Nature Conservancy, Arlington, Virginia.
- Vaughn, Caryn C. and Susan M. Glenn. 1993. Heritage programs and NABS members: Think globally, act locally. *Bulletin of the North American Benthological Society* 10:358-360.
- Vaughn, Caryn C. 1992. Prairie mole crickets doing ok in Oklahoma. *Okla. Conservator News* 18:11.

EXTRAMURAL RESEARCH FUNDING

National Science Foundation

Collaborative Research: Near-bed flow, turbulence, and emergent hydrodynamics of biologically-conditioned labile river channels. Collaborative project with SUNY Buffalo (Sean Bennett & Joseph Atkinson) and Univ. Iowa (George Contantinescu), 2017-2020, \$423,823 total (Vaughn OU PI \$36,645).

REU: Does fish-host mercury affect freshwater mussel larvae at a crucial developmental stage? Oklahoma NSF Epscor, \$5,000, 2016 (Vaughn, PI).

Collaborative Research: Shifting hotspots - How do consumer aggregations interact to influence resource heterogeneity and fluxes in streams? Collaborative project with Kansas State University, 2015-18, \$775,233 total (Vaughn OU PI – \$483,153; Gido KSU PI - \$282,080).

Dissertation Research: How does biodiversity influence resource subsidy flux? A test with freshwater mussels and aquatic-terrestrial linkages, 2009-12, \$14,996 (Vaughn, PI; D.C. Allen, co-PI).

Dissertation Research: How does community structure affect ecosystem function? An integrative approach linking physiological performance and species interactions, 2006-08, \$9,334 (Vaughn, PI; D.E. Spooner, co-PI).

Effects of species composition and environmental context on redundancy within a functional group: a test with freshwater mussels, 2002-06, \$275,000 (Vaughn, PI). REU supplement, 2005, \$4,875.

Biodiversity of freshwater mussel assemblages and their associated macroinvertebrate fauna in streams of the Ouachita Uplands, 1998-2003, \$212,520 (Vaughn, PI). Supplements: 2002-2003, \$11,254; 2001-2002, \$4,500 (REU); 2000-2001, \$5,000 (REU); 1999-2000, \$10,090 (REU).

A test of metapopulation models at two spatial scales using freshwater mussels, 1993-95, \$13,835 (Vaughn, PI).

Effects of grazing by algivorous minnows on secondary production of co-occurring benthic macroinvertebrates in streams, Research Opportunity Award for Small College Faculty, 1989-90, \$13,948 (W.J. Matthews, PI; Vaughn co-PI).

Effects of salinity gradients in reservoirs, Student Originated Studies grant, 1978 (supported MS research).

U.S. Fish and Wildlife Service

Monitoring federally listed mussels in the Little River watershed, 2014-16, \$100,000 (Vaughn, PI).

Determination of unionid mussel dispersal through host fish movement and juvenile drift on the Little River Wildlife Refuge, 2011-12, \$9,200 (Vaughn, PI; P. Irmischer, co-PI).

Mussel study in the Kiamichi and Little Rivers, Oklahoma, 2001-02, \$3,078 (Vaughn, PI)

Aquatic cave invertebrate survey, 2000-02, \$3,997 (Vaughn, co-PI; E.A. Bergey, PI).

Pre-planning for studies of reproduction by rare mussel species in Oklahoma, 1995-97, \$4,500 (Vaughn, PI).

Survey for *Arkansia wheeleri* in the lower Little River, 1994-95, \$5,000 (Vaughn, PI).

Mussel biodiversity inventory, 1994, \$7,500 (Vaughn, PI).

Ouachita Mountain Shiner status survey, 1993-94, \$2,020 (Vaughn, co-PI; C.M. Taylor, PI).

Landuse analysis for the historical range of *Arkansia wheeleri*, 1992-93, \$5,000 (Vaughn, PI).

Ecological characterization of the Kiamichi River, 1992-94, \$14,000, (Vaughn, PI).

Survey for rare and candidate invertebrates in Ozark caves in Oklahoma, 1990-92, \$20,000, (Vaughn, PI; B.R. Chapman, co-PI).

Survey for *Arkansia wheeleri* in the Little River, Oklahoma, 1991-92, \$3,500 (Vaughn, PI).

Survey for the three-toothed long-horned caddisfly at historical locations, 1990-91 \$2,000 (Vaughn, PI)

Survey for rare species and significant communities on the Little River Wildlife Refuge, 1989-91, \$30,000 (Vaughn, co-PI; L.E. Watson PI, S.M. Glenn, B.R. Chapman, G.D. Schnell, co-PIs).

U.S. Forest Service

The effects of changing flow regimes on the dispersal of juvenile mussels in southeastern Oklahoma rivers, 2011-12, \$15,514 (Vaughn, PI; P. Irmischer, co-PI).

Mussel biodiversity of the Mountain Fork River, 1999, \$15,000 (Vaughn, PI).

Glover River mussel survey, 1995-96, \$7,000 (Vaughn, PI).

Applicability of instream flow models to tropical streams, 1995-96, \$15,000 (Vaughn, co-PI; S.L. Johnson, PI).

Survey for *Arkansia wheeleri* and other rare unionids in the Tiak District, 1993-94, \$5,500 (Vaughn, PI).

Status survey for *Lythrurus snelsoni*, 1993, \$5,000 (Vaughn, co-PI; C.M. Taylor, PI).

U.S. Geological Survey,

South-Central Climate Science Center, 2012-17, \$3,992,893 (Moore III, Berrien (PI), Vaughn (co-PI, along with six others at OU and others at OSU, LSU and Texas Tech).

U.S. Department of Education

GAANN Fellowships in Ecology and Evolutionary Biology at the University of Oklahoma, 2012-15, \$399,798, (J. Kelly PI, Vaughn, Hewes, Kaspari, Knapp, Hambright, Weider, Yeary co-PIs).

U.S. Department of Defense

Aquatic invertebrate survey of Fort Sill, 1999-2002, \$60,000 (Vaughn, PI).

Evaluation of rare and endangered species at Fort Chaffee, AK, 1991-92, \$66,387 (Vaughn, co-PI; G.D. Schnell, PI, L.E. Watson, co-PI).

Oklahoma Department of Wildlife Conservation

Assessment of distribution, status and habitat needs of rare mussel species in the Little River Watershed in Oklahoma, 2014-16, \$125,110 (Vaughn, PI).

Evaluation of environmental flow requirements for freshwater mussels of greatest conservation need in the Mountain Fork, Kiamichi and Little Rivers, Oklahoma, 2011-13, \$113,460 (Vaughn, PI).

Surveys for rare mussel species and determination of hydrological characteristics of mussel habitat in southeastern Oklahoma, 2006-08, \$91,941 (Vaughn, PI; D. Allen, co-PI).

Reproductive biology of freshwater mussels in the Little River, Oklahoma, 2005-07, \$67,000 (Vaughn, PI; H. Galbraith, co-PI).

Arkansia wheeleri monitoring in the Kiamichi River, 2003-05, \$37,000 (Vaughn, PI).

Physiological determination of mussel sensitivity to water management practices in the Kiamichi River, 2003-05, \$25,263 (Vaughn, PI).

Grand Lake commercial freshwater mussel stock assessment, 1997-98, \$30,525 (co-funded by U.S. Department of Commerce, National Oceanic and Atmospheric Administration) (Vaughn, PI).

Survey for *Arkansia wheeleri* in major tributaries of the Kiamichi River, 1997-98, \$12,000 (Vaughn, PI).

Distribution and habitat preference of the Neosho Mucket in Oklahoma, 1994-97, \$64,900 (Vaughn, PI).

Determination of the current and historical distribution of the Texas horned lizard (*Phrynosoma cornutum*) in Oklahoma, 1991-93, \$12,500 (Vaughn, PI).

Status survey for three candidate stream-dwelling invertebrates in the Arbuckle Mountains, 1993-95, \$22,000 (Vaughn, PI).

Distribution and land use history of prairie mole cricket lek sites in Oklahoma, 1991-92 \$6,000 (Vaughn, PI; I. Butler & S.M. Glenn, co-PIs).

Habitat use and genetic characterization and variability in the American Burying Beetle, *Nicrophorus americanus*, in Oklahoma, 1990-92, \$18,900 (Vaughn, PI; B.R. Chapman, R. Rudman and J.C. Creighton, co-PIs).

Taxonomy of Ozark cave crayfish based on genetic divergence, 1991-92, \$4,100 (Vaughn, PI).

Habitat use and reproductive biology of *Arkansia wheeleri* in the Kiamichi River, Oklahoma, 1990-93, \$55,000 (Vaughn, PI).

Oklahoma Department of Transportation

Highway Biological Studies Program, 2012-13, \$335,000; 2011-12, \$335,000; 2010-11, \$335,000; 2009 – 10, \$335,000; 2008-09, \$335,000; 2007-08, \$450,000; 2006-07, \$450,000; 2005-06, \$450,000; 2004-05, \$220,000; 2003-04, \$220,000; 2002-03, \$100,000; 2001-02, \$75,000 (Vaughn, PI; B.W. Hoagland, co-PI).

Relocation of Neosho Muckets, 1998, \$5,670 (Vaughn, PI).

Survey for American Burying Beetle (*Nicrophorus americanus*) near Red Oak, Latimer, Co., 1991, \$3,475 (Vaughn, co-PI; B.R. Chapman, PI).

The Nature Conservancy

Element occurrence specifications, 1998, \$1,150 (Vaughn, PI).

Survey of mussel assemblages in the Glover River, 1996, \$5,000, (Vaughn, PI).

Habitat use by *Lythrus snelsoni* in Cucumber Creek, Oklahoma, 1993-94, \$4,100 (Vaughn, co-PI; C.M. Taylor, PI).

Ecological inventory of the Tallgrass Prairie Preserve, 1991-93, \$58,118 (Vaughn, co-PI; L.E. Watson PI, S.M. Glenn and B.R. Chapman co-PIs).

Other

American Electrical Power, Large-scale assessment of mussel habitat condition and connections in the Kiamichi River to protect *Arkansia wheeleri*, 2012-15, \$150,000 (Vaughn, PI).

National Geographic Society, Dispersal of juvenile freshwater mussels: relationships with flow and mussel density, 2012-14, \$15,510 (Vaughn, PI; P. Irmischer, co-PI).

Oklahoma Water Resources Research Institute, Incorporating ecological costs and benefits into environmental flow recommendations for Oklahoma rivers: Phase 1, Southeastern Oklahoma, 2011-12 \$75,000 (Vaughn, PI; J. Julian, co-PI).

Pushmataha County, Rural Water District #3, Survey for *Arkansia wheeleri* at a proposed water intake structure on the Kiamichi River, 1994, \$1,300 (Vaughn, co-PI; C.M. Taylor, PI).

DeCastro & Associates, Inc., Survey of *Arkansia wheeleri* at the proposed Tuskahoma bridge site, 1992 \$5,093 (Vaughn, PI).

Trans-Ok., Inc, Survey for the American Burying Beetle near a pipeline right of way, 1991, \$3,475 (Vaughn, PI; J.C. Creighton, co-PI).

Bureau of Land Management, Prairie mole cricket survey on the BLM wild horse sanctuary, 1991, \$9,343 (Vaughn, PI)

Panhandle Eastern Company, Endangered species survey in Latimer County, 1990, \$11,612, (Vaughn, co-PI; P. Mehlhop, PI).

Sigma Xi, Grant-in-Aid of Research, 1982-83, \$500.

INTRAMURAL RESEARCH FUNDING

University of Oklahoma

Research Council

Using an ecosystem services framework to examine the social, economic and ecological tradeoffs of different water management scenarios in the Kiamichi River, 2013-14, \$9,475 (Vaughn, PI).

A Floating Upweller System (FLUPSY) for Holding Freshwater Mussels, 2009-10, \$5,470 (Vaughn, PI).

The functional role of bivalves in streams, 1998-99, \$5,735 (Vaughn, PI).

Regional and local processes as determinants of mussel community structure, 1996-97, \$6,000 (Vaughn, PI).

Macroecology of a host-parasite relationship: distribution patterns of fish, mussels and insects at multiple spatial scales, 1994-95, \$4,098 (Vaughn, PI).

A test of metapopulation models at two spatial scales using freshwater mussels, 1992-94, \$4,802, (Vaughn, PI).

Vice President for Research

A low-cost, shared greenhouse facility for faculty and students in the Oklahoma Biological Survey, 2002, \$21,000 (Vaughn, PI, E.A. Bergey, co-PI).

Molecular Ecology and Evolution Facility, 2002, \$22,318 (Vaughn, co-PI, Weider PI, Wellborn, Thompson & Vitt co-PIs).

Faculty Senate

Measurement of near-bed flows within freshwater mussel beds to determine the ecosystem function of biodiversity, 2006, \$2,500 (Vaughn, PI).

South Central Climate Science Center

Using an ecosystem services framework to examine the social, economic and ecological tradeoffs of different water management scenarios in the Kiamichi River, 2013-14, \$20,000 (Vaughn, PI).

Southwestern Oklahoma State University

Comparative benthic community ecology of southwestern prairie streams, 1988-89, \$8,195 (Vaughn, PI).

INVITED PRESENTATIONS

Seminars

Consumer aggregations act as hotspots of ecosystem services in rivers. Ohio State University, 3 November 2016.

Consumer aggregations act as hotspots of ecosystem services in rivers. Idaho State University, 7 April 2016.

When and why species matter: ecosystem function, freshwater mussels and conservation. Texas State University, 6 March 2011.

When and why species matter: ecosystem function, freshwater mussels and conservation. Jones Research Center, Ichaway, Georgia, 15 February 2008.

When and why species matter: ecosystem function, freshwater mussels and conservation. Odum School of Ecology, University of Georgia, 12 February 2008.

Water management and mussel status in Oklahoma Rivers. Rivers Center, University of Georgia, 11 February 2008.

When and why species matter: Freshwater mussels, ecosystem function and conservation. Department of Natural Resource Ecology and Management, Iowa State University, 9 November 2007.

When and why species matter: Freshwater mussels, ecosystem function and conservation. Department of Biological Sciences, Kansas State University, 13 October 2006.

When and why species matter: Freshwater mussels, ecosystem function and conservation. Department of Zoology, University of Oklahoma, 13 September 2006.

Macroecology of a host-parasite relationship: mussels, fishes and extinction. 1999. Institute of Ecosystem Studies, Millbrook, New York.

Macroecology of a host-parasite relationship: mussels, fishes and extinction. 1998. Departments of Zoology, University of Oklahoma and Oklahoma State University.

Islands in the stream: mussels, macroecology and conservation. 1998. Department of Zoology, Miami University, Oxford, Ohio.

Heritage methodology and conservation. 1998. Miami University at Hamilton, Hamilton, Ohio.

Regional patterns of riverine mussel species distribution and implications for conservation. 1996. Department of Ecology and Systematics, University of Kansas.

Regional patterns of riverine mussel species distribution and implications for conservation. 1995.

Centre for Applied Conservation Biology, Department of Forestry Sciences, University of British Columbia.

Islands in the stream: Hierarchical patterns of mussel species distribution and implications for conservation. 1994. Department of Zoology, University of Oklahoma.

Islands in the stream: ecological scale and mussel distribution patterns. 1993. Biology Department Seminar, Southwest Missouri State University.

Using biogeographic models to examine conservation questions in riverine systems. 1992. Botany Department Seminar, University of Oklahoma.

Rare and endangered species and the Oklahoma Natural Heritage Inventory. 1990. Northeastern Oklahoma State University.

Vertical migration as a refuge from predation in intertidal marsh snails. 1988. Houston Area Ecologists.

Evolutionary ecology of the snailcase caddisfly, *Helicopsyche borealis*. 1984 - 88. Rice University, East Carolina University, University of North Carolina at Asheville, Carroll College, University of Oklahoma, Southwest Texas State University, Southwestern Oklahoma University.

Presentations to Policy Makers

Sustainable river flows and ecosystem services in the Kiamichi River basin.

Oklahoma Water Research Conference, Midwest City, October 2013.

South Central Climate Science Center, University of Oklahoma, September 2013.

Choctaw Nation tribal headquarters, Durant, May 2013.

Incorporating ecological costs and benefits into environmental flow recommendations for Oklahoma rivers: Phase 2: Assigning monetary value to ecosystem services, Water Research Advisory Board, Stillwater, OK, 4 January 2013.

Incorporating ecological costs and benefits into environmental flow recommendations for Oklahoma rivers: Phase I, SE Oklahoma. Water Research Advisory Board, Norman, OK, 31 July 2012.

Biology of the Kiamichi River. Okla. Freshwater Initiative Workshop, February 27, 2003, Oklahoma City.

Oklahoma water availability and biodiversity. October 2001. Presentation to the Oklahoma legislature, Oklahoma City.

Ecological impacts of commercial mussel harvest in Oklahoma. October 1999. Presentation to the Oklahoma Wildlife Commission, Oklahoma Department of Wildlife Conservation, Oklahoma City.

Status and biodiversity value of the Kiamichi River. 1998. Kiamichi River Conservation Planning Group, Tulsa, OK.

Status of Oklahoma's cave fauna. 1997. The Nature Conservancy Board of Directors, Oklahoma City, Oklahoma.

Oklahoma's Aquatic Biodiversity. 1996. Conference on Biodiversity, Oklahoma City.

The Oklahoma Natural Heritage Inventory: Activities and Conservation Role. 1996. The Nature Conservancy Board of Directors, Norman, Oklahoma.

Status of the Ozark cavefish in Oklahoma. 1991. Ozark Cavefish Conference, Springfield, Missouri.

Status of the prairie mole cricket in Oklahoma. 1990. U.S. Fish and Wildlife Service Conference on the listing of the prairie mole cricket. Tulsa, OK.

Biology of *Arkansia wheeleri*. 1990. Presented at a public hearing for the proposed listing of *Arkansia wheeleri* as an endangered species, held in Antlers, OK, Nov. 1.

Conferences and Workshops

Mercury contamination and thermal stress combine to have detrimental effects on freshwater mussel-driven ecosystems. Student Award finalist, Society for Environmental Toxicology and Chemistry NA meeting, Orlando, FL, November 2016 (co-author, B. Tweedy presenter).

From endangered species to ecosystem services: 25 years of research in the Kiamichi River. Kiamichi River Watershed Symposium. Antlers, OK. 15 June 2016.

Freshwater mussels and ecosystem services. Oklahoma Biodiversity Forum. Norman, OK. 5 March 2016.

Do freshwater mussels affect mercury contamination of aquatic food webs? Student Award finalist, Society for Environmental Toxicology and Chemistry N.A. meeting, Salt Lake City, November 2015 (co-author, B. Tweedy presenter).

- Ecosystem services provided by freshwater mussels. Plenary presentation, International Meeting on the Biology and Conservation of Freshwater Bivalves, Buffalo, NY, October 2015.
- An ecosystem services framework to sustain biodiversity in a watershed in conflict: socio-cultural and monetary valuation. Ecological Society of America Annual Meeting, Baltimore, Maryland, August 2015. (co-author, A. Castro presenter).
- An ecosystem services framework to sustain biodiversity in a watershed in conflict: supply of consumer-provided services. Ecological Society of America Annual Meeting, Baltimore, Maryland, August 2015. (co-author, K. Gates presenter).
- How to save an imperiled fauna in an increasingly threatened landscape: from endangered species to ecosystem services. Special talk for undergraduates (Instars). Society for Freshwater Science, Milwaukee, WI, May 2015.
- Species traits: are stoichiometric and thermal traits linked? Joint Aquatic Sciences Meeting, Society for Freshwater Science, Portland, Oregon, May 2014. (co-author, C. Atkinson presenter).
- Scaling up nutrient regeneration hotspots: two approaches with freshwater mussels. Joint Aquatic Sciences Meeting, Society for Freshwater Science, Portland, Oregon, May 2014.
- Tracing consumer-derived nitrogen in stream communities. American Fisheries Society, Little Rock, AR, September 2013. (co-author, C. Atkinson presenter).
- Ecosystem services provided by freshwater mussels. American Fisheries Society, Little Rock, AR, September 2013.
- Modeling the relationship between mussel ecosystem services and environmental flows. Society for Freshwater Science, Jacksonville, Florida, May 2013.
- Conservation of freshwater invertebrates. Special talk for undergraduates (Instars). Society for Freshwater Science, Jacksonville, Florida, May 2013.
- Alteration of relative storage and cycling of nutrients by freshwater mussels. Society for Freshwater Science, Jacksonville, Florida, May 2013 (co-author, C. Atkinson presenter).
- Valuing ecosystem services from supply to demand side: an interdisciplinary approach for water management in southeast Oklahoma, Freshwater Mollusk Conservation Society biennial symposium, Guntersville, AL, 11 March 2013 (co-author, A. Castro presenter).
- Tracing mussel-derived nitrogen in riverine foodwebs. Freshwater Mollusk Conservation Society biennial symposium, Guntersville, AL, 11 March 2013 (co-author, C. Atkinson presenter).
- Modeling the relationship between mussel ecosystem services and environmental flows. Freshwater Mollusk Conservation Society biennial symposium, Guntersville, AL, 11 March 2013.
- Drought decreases ecosystem services provided by mussels, Ecological Society of America, Portland, Oregon, 9 August 2012.
- Drought decreases ecosystem services provided by mussels. North American Congress for Conservation Biology, Oakland, CA, 18 July 2012.
- Translocation of nutrients by freshwater mussels- alteration of ecosystem and community processes. Society for Freshwater Science, Louisville, Kentucky, 20 May 2012 (co-author, C. Atkinson presenter).
- Drought decreases ecosystem services provided by mussels. Society for Freshwater Science, Louisville, Kentucky, 20 May 2012.
- Drought reduces ecosystem services provided by freshwater mussels. Incorporating Environmental Flows, Climate Change and Ecosystem Services into Freshwater Mussel Conservation and Management. Special Workshop, Freshwater Mollusk Conservation Society, 20 April 2012, Athens, Georgia.
- Drought effects on mussels in southeastern Oklahoma rivers. Oklahoma Water Research Symposium – Governor’s Water Conference, Embassy Suites, Norman, OK, 18 October 2011.
- Invasive species and the south-central Climate Science Center. USGS site visit to the University of Oklahoma to evaluate Climate Science Center finalists, 11 July 2011.

- Incorporating ecological costs and benefits into environmental flow recommendations: ecosystem services provided by freshwater mussels. Annual meeting of the Ecological Society of America, Austin, TX, 7 August 2011.
- How do we quantify ecosystem services provided by freshwater mussels? Annual meeting of the North American Benthological Society, Providence, RI, 22 May 2011.
- Using freshwater mussel communities to examine how changes in community structure and environmental gradients interact to influence ecosystem function, American Society of Limnology and Oceanography / North American Benthological Society Joint Meeting. June 2010. Santa Fe, New Mexico.
- The functional role of freshwater mussels in ecosystems, Symposium: Beneath the surface – the freshwater mollusks of the southeastern United States. Society for Conservation Biology, Chattanooga, Tennessee. 14 July 2008.
- Context-dependent effects of freshwater mussel communities on stream ecosystem function, Freshwater Mollusk Conservation Society Workshop on Recovery of Freshwater Mollusks, Society for Conservation Biology, Chattanooga, Tennessee. 15 July 2008.
- Context-dependent effects of freshwater mussels on stream ecosystem function. Special session on “Tipping Points”, North American Benthological Society, Salt Lake City, Utah, 27 May 2008.
- Potential role of the Oklahoma Biological Survey in a Biodiversity Center. Workshop on establishing a Biodiversity Center at the University of Oklahoma. University of Oklahoma, 2 May 2008.
- Context-dependent effects of freshwater mussels, land management and climate change. Workshop on establishing a Biodiversity Center at the University of Oklahoma. University of Oklahoma, 2 May 2008.
- Impacts of biodiversity losses on ecosystem function, Special session on *Progress, Challenges and Opportunities in Freshwater Conservation*, North American Benthological Society, Columbia, SC, June 2007.
- Community and foodweb ecology of freshwater mussels, plenary lecture, 5th biennial Freshwater Mollusk Conservation Society Symposium, *Directions in Freshwater Mollusk Conservation: Molecules to Ecosystem*, Little Rock, AR, 12 March 2007. Vaughn primary author, S.J. Nichols and D.E. Spooner co-authors.
- Freshwater mussels: Species roles, ecosystem services, and conservation, 98th Annual Meeting of the National Shellfisheries Association, Monterey, CA., March, 2006. Vaughn primary author, multiple co-authors.
- Community ecology of freshwater mussel beds: the role of temperature and dominant species on community structure and rendered ecological services, 98th Annual Meeting of the National Shellfisheries Association, Monterey, CA., March, 2006. D.E. Spooner primary author, Vaughn co-author.
- Biology and conservation status of freshwater mussels, American Fisheries Society, Freshwater Mussel Workshop, Ardmore, OK, February, 2006.
- Sampling methods and strategies for freshwater mussels, American Fisheries Society, Freshwater Mussel Workshop, Ardmore, OK, February, 2006.
- Freshwater mussels: species roles, ecosystem services and conservation, plenary lecture, Oklahoma-Texas Aquatic Research Group biannual meeting, University of Oklahoma Biological Station, October, 2005.
- Freshwater mussel populations in southeastern Oklahoma: population trends and ecosystem services. Oklahoma Water Conference, Tulsa, September, 2005.
- Context-dependent species effects in freshwater mussel communities. Special session on Integrative Approaches in Unionid Ecology, North American Benthological Society, New Orleans, May, 2005. Vaughn primary author, D.E. Spooner coauthor.

- Physiological ecology of freshwater mussel communities: effects of temperature on community structure and ecological services. Special session on Integrative Approaches in Unionid Ecology, North American Benthological Society, New Orleans, May, 2005. D.E. Spooner primary author, Vaughn co-author.
- An integrative approach to understanding freshwater mussel (Unionidae) community structure: linking biodiversity, environmental context, and physiology. Gordon Research Conference on the Metabolic Basis of Ecology, Bates College, Maine, July, 2004. D.E. Spooner primary author, Vaughn coauthor.
- Comparative and experimental evidence for the functional role of freshwater mussels in streams. 2002. 94th Annual Meeting of the National Shellfisheries Association, Mystic, CT. Vaughn primary author, D.E. Spooner, M. Moore and K.B. Gido, coauthors.
- Small-scale ecological function of freshwater mussels (Unionidae) in the Kiamichi River, OK. 2002. 94th Annual Meeting of the National Shellfisheries Association, Mystic, CT. D.E. Spooner primary author, Vaughn coauthor.
- Hierarchical analysis of MtDNA variation in *Amblema plicata*, a widespread mussel species. 2002. 94th Annual Meeting of the National Shellfisheries Association, Mystic, CT. D.J. Berg primary author, Vaughn, C.L. Elderkin, J.L. Metcalfe-Smith, A.D. Christian and S.I. Guttman, coauthors.
- "Biology of freshwater mussels" and "Sampling strategies for freshwater mussels". 1998. American Fisheries Society, Freshwater Mussel Workshop, Fayetteville, AR.
- Ecology of an endangered, endemic Ouachita mussel. 1994. Southern Division of the American Fisheries Society.
- Distribution and habitat preference of the endangered Rock Pocketbook Mussel (*Arkansia wheeleri*) in Oklahoma. 1992. Oklahoma Chapter of the Wildlife Society.

Other

- What's up at the Oklahoma Biological Survey? Featured after dinner speaker, spring field meeting of the Oklahoma Academy of Science, Lake Murray, April, 2004.
- The Oklahoma Biological Survey. 2000. University of Science and Arts of Oklahoma.
- Oklahoma's Aquatic Biodiversity. 2000. Sam Noble Oklahoma Museum of Natural History.
- The Oklahoma Biological Survey. 2000. Chairs and Directors luncheon, University of Oklahoma. Graduate School.
1993. Careers in Biology class, Southwestern Oklahoma State University.
- Status and conservation of aquatic animals. 1992. American Penwomen.
- How heritage information is used to protect rare species. 1991. Southwestern Okla. State University.
- Prairie mole crickets. 1991. Norman Bird Club.
- Rare species in Oklahoma. 1991. Redbud Garden Club.

COURSES TAUGHT

University of Oklahoma

- Senior Capstone (Human Evolution and the Environment), spring 2010
- Stable Isotopes in Ecology (graduate seminar), spring 2010
- Principles of Ecology, fall 2006, 2008, 2012, 2014, 2016
- Invertebrate Zoology, fall 1984, spring 1995, 1996, 1998, 1999, 2001, 2004, 2006
- Stream Ecology, spring 1997, 2000, 2002, 2005; fall 2007, 2011; summers 2013, 2015
- Current Topics in Aquatic Ecology (graduate seminar), fall 1996 - 2007
- Integrative Approaches to Understanding Environmental Change (graduate seminar), spring 2008, fall 2008
- Biodiversity (graduate seminar), fall 1995
- Conservation of Freshwater Ecosystems (graduate seminar), spring 1994
- Introductory Zoology, Lecture, fall 1984; Laboratories, spring 1985

Southwestern Oklahoma State University

Biological Concepts - lecture and laboratory, fall 1988, spring 1989, fall 1989

Methods for Science Teachers - lecture and laboratory, fall 1988, fall 1989

Rice University

Marine Biology, fall 1986

Houston Community College

Biology I - lecture and laboratory, fall 1987

University of Houston

Introductory Biology - laboratory, spring 1988

North Harris County College

Zoology - lecture and laboratory, spring 1988

POSTDOCS MENTORED

Christopher M. Taylor (1994-95). Dr. Taylor is a Professor at University of Texas Pan American.

Keith B. Gido (2000). Dr. Gido is a Professor at Kansas State University.

Antonio J. Castro Martinez (2012 -15). Dr. Castro is an Assistant Professor at Idaho State University.

Kiza K. Gates (2013 – 2016). Dr. Gates is a Water Science Team Leader at the Washington Department of Fish and Game.

Thomas J. Parr (2016 – current).

GRADUATE STUDENTS MENTORED***Current graduate students:***

Brent Tweedy, Ph.D. in Ecology and Evolutionary Biology in progress (2012 -)

Traci Popejoy, Ph.D. in Ecology and Evolutionary Biology in progress (2015 -)

Kathryn Murphy, M.S. in Biology in progress (2014 -)

Patrick Olson, M.S. in Biology in progress (2014 -)

Former graduate students:

Sherri L. Johnson, Ph.D. in Zoology July 1995, "Prairie stream ecosystem dynamics: transport and retention of particulate organic carbon". (Co-advised with Alan Covich). Dr. Johnson is currently lead scientist for the U.S. Forest Service Pacific Northwest Research Station, adjunct faculty at Oregon State University, and co-PI for the Andrews Experimental Forest NSF LTER.

Michael M. Fuller, M.S. in Zoology December 1998, "Extremal dynamics in temporary ponds: biotic communities as complex adaptive systems". Dr. Fuller went on to earn a PhD at the University of New Mexico and did several postdocs. He is currently an Adjunct Asst. Professor at UNM.

Melissa Moore, M.S. in Zoology July 2002, "Color change in heptageniid mayflies; Color change or color choice?" Melissa teaches at a community college in Florida.

Ferrella March, M.S. in Zoology December 2006, "Changes in the chironomid fauna of Lake Texoma since impoundment". Ferrella works for the Oklahoma Department of Environmental Quality.

Daniel E. Spooner, PhD. in Zoology July 2007, "An integrative approach to understanding the structure and function of mussel communities". M.S. in Zoology June 2002, "A field experiment examining the effects of freshwater mussels (Unionidae) on sediment ecosystem function". Dr. Spooner is currently a Research Scientist with the U.S. Geological Survey.

Kathleen Reagan, M.S. in Zoology May 2008, "Relatedness of *Amblema plicata* within and between rivers". Kathleen teaches at SUNY Brockport.

Heather S. Galbraith, Ph.D. in Zoology May 2009, "Reproductive timing and isolation in freshwater mussel species". M.S. in Zoology November 2004, "How does environmental variation explain benthic invertebrate distributions at multiple spatial scales?" Dr. Galbraith is a Research Scientist with the U.S. Geological Survey.

Daniel C. Allen, PhD in Ecology and Evolutionary Biology May 2011, "Integrating biodiversity and landscape ecosystem processes: tests with freshwater mussels." Dr. Allen is an Assistant Professor at the University of Oklahoma. He received the Hyne's Award for Best Young Investigator at the 2014 meeting of the Society for Freshwater Science.

Carla L. Atkinson, Ph.D. in Ecology and Evolutionary Biology December 2013, "Hierarchical controls on the impact of consumer stoichiometric regulation: from species traits to ecosystem level consequences". Dr. Atkinson is an Assistant Professor at the University of Alabama. Her dissertation was awarded the Provost's prize for best Science and Engineering Dissertation at the University of Oklahoma for 2013 and she received the Hyne's Award for Best Young Investigator at the 2015 meeting of the Society for Freshwater Science.

Brandon Sansom, M.S. in Biology December 2013. "The influence of fish on mussel populations". Brandon is currently a PhD student at SUNY Buffalo.

Pascal Irmscher, Ph.D. in Ecology and Evolutionary Biology, August 2014. "Unionid drift dispersal in small rivers". Dr. Irmscher is a postdoctoral researcher at the Institute for Applied Ecology in Germany.

Service on current graduate student advisory committees:

Christopher Acy, M.S. in Biology in progress

Joey Brown, M.S. in Biology in progress

Thayer Hallidayschult, Ph.D. in Ecology and Evolutionary Biology in progress

Rachel Hartnett, Ph.D. in Ecology and Evolutionary Biology in progress

Garrett Hopper, Ph.D. in Biology in progress (Kansas State University)

Emily Kiehnau, Ph.D. in Ecology and Evolutionary Biology in progress

Kai Wang, M.S. in Biology in progress

Service on past graduate student committees (listed chronologically):

William David Partridge, M.S. in Zoology May 1991, "Effects of grazing minnows on downstream transport processes in temperate streams".

Matthew R. Winston, Ph.D. in Zoology July 1993, "Species boundaries within a river system".

Christopher M. Taylor, Ph.D. in Zoology May 1994, "Factors affecting the distribution of fishes at continental, regional, and local scales".

Amy Maria Miller, M.S. in Zoology December 1994, "Colonization patterns of invertebrates in prairie-margin streams".

Mark Pyron, Ph.D. in Zoology December 1994, "Mate choice in fishes".

Michelle N. Moodie, M.S. in Zoology May 1995, "Male response to female color dimorphisms in the damselfly, *Enallagma civile*".

Frances P. Gelwick, Ph.D. in Zoology July 1995, "Effects of grazers and their shared predator on algal heterogeneity: consequences for stream-fish interactions".

V. M. Mottethadka, Ph.D. in Botany December 1995, "Effect of clipping and photosynthetic pathway on compensation and vsm colonization in four North American and two African grasses".

Sheila Strawn, Interdisciplinary Ph.D. in Zoology, Botany and Geography December 1995, "A model of static/dynamic disturbance cycling as it affects grassland heterogeneity"

Melissa Songer, M.S. in Zoology May 1996, "Fragment quality and niche dynamics of two species of *Peromyscus* in Olympic National Forest"

Paul Gier, Ph.D. in Zoology 1997, "Iguanid mating systems: ecological causes and sexual selection consequences".

Robert E. Gropp, Ph.D. in Botany 1997, "Grasslands as model systems for looking at ecological constructs".

- Kirsten Work, Ph.D. in Zoology 1997, "Distribution and cyclomorphosis in a newly invasive population of *Daphnia lumholtzi*".
- Darrell Pogue, Ph.D. in Zoology in 1998, "Landscape-level habitat evaluation of migratory and resident birds".
- Elizabeth Kroese, M.S. in Zoology 1998, "Fragmentation of grasslands by woody vegetation patches: effects on avian composition".
- Beth Welch (Stackpole), M.S. in Science Education 1998.
- Rob Channell, Ph.D. in Zoology 1998, "Geographic range collapse".
- Dave Perault, Ph.D. in Zoology 1998, "Landscape heterogeneity and the role of corridors in determining the spatial structure of insular mammal populations".
- Jason Hood, M.S. in Zoology 1998, "Distribution and reproductive biology of a minnow".
- Peter Leimgruber, Ph.D. in Zoology December 1998. "Effects of scale and logging on landscape structure in a forest mosaic".
- Tabatha Franklin, M.S. in Zoology May 1999, "Effects of fragmentation on shrews in the Olympic National Forest, Washington".
- Geoffrey Canty, Ph.D. in Environmental Engineering May 1999, "Remediation of underground mine areas through the treatment of fly ash".
- Steve Yanoviak, Ph.D. in Zoology May 1999, "Community ecology of water-filled tree holes of Barro Colorado Island, Panama".
- Keith Gido, Ph.D. in Zoology May 1999, "Multi-year variation in the fish assemblage of Lake Texoma".
- Julian Hilliard, M.S. in Zoology, spring 2000, "Defining functional tooth morphotypes in extant and extinct crocodylians, with dietary and feeding implications".
- Kerri Pratt, M.S. in Zoology, spring 2000, "Life history traits of the rocky shiner, *Notropis suttkusi*".
- David L. Certain, Ph.D. in Zoology fall 2000, "Habitat structure and nest success".
- Jeffrey B. Basara, Ph.D. in Meteorology spring 2001, "The value of point-scale measurements of soil moisture in planetary boundary layer simulations".
- Thomas Haner, Ph.D. in Zoology, spring 2002, "Dynamics of small mammal communities in habitat patches on a tallgrass prairie in southwestern Kansas".
- Niki Iverson, M.S. in Environmental Science, Spring 2003. "Ecological health of three Oklahoma streams impacted by mine drainage".
- Dante Fenolio, M.S. in Zoology fall 2003, "Ecology of the grotto salamander, *Typhlotriton spelaeus*, in northeastern Oklahoma".
- Shane Jones, M.S. in Zoology July 2004, "Distribution, habitat use, and life history characteristics of three crayfish species from the upper Kiamichi River watershed: implications for conservation".
- Chad Hargrave, Ph.D. in Zoology May 2005, "The effects of fish diversity on ecosystem function".
- David Max Smith, M.S. in Zoology, December 2005, "Effects of wildfire on the habitat of riparian birds along the Middle Rio Grande, New Mexico".
- Allison Fortner, M.S. in Zoology December 2006, "Density-dependent effects on growth and reproduction of *Etheostoma spectabile*".
- Raelynn Deaton, PhD. in Zoology in December 2006, "Effect of parasites on male reproductive success in the livebearing fish, *Gambusia affinis*".
- Nicole Luke, M.S. in Zoology May 2007, "Golden algae in Lake Texoma".
- David Gillette, PhD. in Ecology and Evolutionary Biology August 2007, "Importance of patch context in determining within-patch abundance of two functional groups of invertivorous stream fishes".
- Dave Hensley, M.S. in Environmental Science fall 2007, "Mussels as biofilters for acid mine drainage".
- Rachael Remington, Ph.D. in Zoology May 2008, "Disturbance and fish feeding ecology: effects of long-term changes in turbidity on fish communities".
- Jonathan Clifton. M.S. Environmental Science May 2009. "Using rapid bioassessment to measure biological quality of streams in northeastern Oklahoma".

- Priscilla Crawford, Interdisciplinary Ph.D. in Botany, Geography and Zoology, May 2009, "Exploring ecological and biogeographic questions using biological databases derived from natural history collections and surveys".
- Lauren Niemann, M.S. in Zoology, December 2009, "Spatial patterns in avian assemblages of mixed-grass prairie landscapes of western Oklahoma".
- Jeff Wesner, Ph.D. in Zoology in May 2010, "Terrestrial insect subsidies and fish trophic dynamics in streams".
- Emily Remmel, M.S. in Zoology December 2010, "Golden algae toxins".
- Nathan R. Franssen, Ph.D. in Zoology in May 2011, "Multi-scale effects of habitat alternation on stream fishes: from genotypes to communities".
- Judith Barkstedt, M.S. in Zoology December 2011, "Downstream effects of an omnivorous minnow (*Cyprinella lutrensis*) on ecosystem function".
- Jacob Thompson, M.S. in Zoology July 2012, "Influence of habitat complexity on reproduction and survival of red river pupfish in the presence of red shiner".
- Emily Khazan, M.S. in Biology May 2014, "Tests of biological corridor efficacy for conservation of a Neotropical damselfly".
- Russell C. Dutnell, PhD in Civil Engineering and Environmental Science May 2015, "Investigation of the hydrology, fluvial geomorphology, and sediment transport in the Lake Thunderbird watershed in central Oklahoma".
- Brian Hudson, Ph.D. in Native Literatures May 2015, "First beings: relationships with nonhuman animals in native American literatures".
- Amber Macowicz, Ph.D. in Ecology and Evolutionary Biology May 2015
- Aaron Geheber, Ph.D. in Biology in May 2015, "Phylogenetic and proximate mechanisms affect darter (Percidae: Etheostomatinae) community structure".
- Brenda Allison Witt, M.S. in Biology December 2015, "Effect of the toxigenic alga *Prymnesium parvum* on a natural zooplankton community".
- Aime'e Yousey, M.S. in Biology December 2015.
- Zachery Zbinden, M.S. in Biology May 2016, "Beta diversity of stream fish communities: partitioning variation between abiotic spatial factors and assessing the relative contributions of spatial turnover and nestedness".
- Shelly Wu, M.S. in Biology in Biology May 2016, "Epibiotic diatom assemblages on freshwater turtles".
- Jackson Helms, Ph.D. in Ecology and Evolutionary Biology in May 2016, "Found or fly: reproduction, dispersal, and predation of ant queens".
- Ferreira Rodríguez, Noé. PhD December 2016 Universidade de Vigo, Spain. "Invasive ecology of *Corbicula fluminea*". (External Examiner)

DIRECTION OF UNDERGRADUATE RESEARCH

Student	Topic	Year
Carter Miller	Prairie mole cricket distribution.	1991
Tambra Browning	Color variation in terrestrial isopods.	1992-93 (UROP award)
Julian Hilliard	Mussel ecology	1995
Curtis Gamble	Fish diversity in the Illinois River	1995-96
	Mussel aging techniques	1997
Jean-Francois Desvignes	Longitudinal distribution of fishes	1996
Mariam Rose	Benthos zonation	1996-97
Beth Stackpole	Gill ectoparasites	1995-97
Todd Trower	Fish diversity in the Illinois River	1995-97
Jennifer Johnson	Mussel population ecology	1997-98

Andrew Greenhaw	Functional role of bivalves in streams	1999
Chad Kolkman	Bacterial populations in streams	1999-00 (UROP award)
Jennifer Holmes	Biology of sponges (directed reading)	2001
Amanda Tunnell	Use of invertebrates in the pharmaceutical industry (directed reading)	2001
Sarah Martin	Ecology of coral reefs (directed reading)	2002
Sarah Smith	Gill ultrastructure in mussels (Honors reading and research)	2005-06 (UROP award)
Daniel Rhodes	Species-specific mussel decay rates: nutrient sinks in streams.	2006-07
Dane Morris	Age structure of mussel populations in relation to impoundments. Mussel effects on sediment bacterial populations	2006-07 2008
Jesse Jarman	Control of feral hogs	2007
Brenda Allison	Gill ultrastructure in mussels Fish effects in foodwebs	2007 2008 - 09
Sarah Carter	Mussel body size and excretion rates	2007
Michale Knight	Mussel effects on stream insect drift	2007
Meredith Evans	Mussel feeding and behavior (Honors reading and research)	2011-13
Christine Hickson	Corbicula decay rates	2013
Natasha Patel	Corbicula decay rates	2013
Janell Hartwell	Mercury effects on mussel life history (Epscor NSF REU funded)	2016

PROFESSIONAL SERVICE

Officer / Boards:

President, Freshwater Mollusk Conservation Society (2011-13); President Elect (2009-11); Past President (2013-15)

Board of Directors, Sutton Avian Research Center (2000-13).

Board of Governors, Southwestern Association of Naturalists (1994-97, 1997-2000, 2001-04)

Advisory Board, Friends of the University of Oklahoma Biological Station (2001-05)

Chair, Conservation Committee, Southwestern Association of Naturalists (1993-98)

Co-Chair, Aquatic Ecosystem Services Comm., North American Benthological Society (2002-05)

Executive Committee, North American Benthological Society (1995-97)

Editor:

Associate Editor, *Freshwater Science* (formerly *J. North American Benthological Society*) (2004-15)

Associate Editor for Invertebrate Zoology, *American Midland Naturalist* (2001-05)

Editorial Board, *Freshwater Mollusk Biology and Conservation* (2011 -)

Guest Editor, *Ecological Applications* (2015)

Panelist:

National Science Foundation: Dissertation Improvement Award Panel (twice), Conservation & Restoration Biology Panel, Ecology Panel (three panels), Population and Community Ecology Pre-proposal Panel (twice).

Member:

Freshwater Mollusk Conservation Society

Technical Guidelines Committee (1998-2001)

Planning Committee for 2017 Symposium (2016 -)

Oklahoma Department of Wildlife Conservation

Zebra Mussel Task Force (1993 -)

Wildlife Diversity Technical Committee (1990-2008)

Oklahoma Cave Conservation Committee (1990-2001)

Society for Freshwater Science (North American Benthological Society):

Award of Excellence Committee (2015 -)

Hynes Award Committee (2010-13)

Elections and Place Committee (2002-03; 2006 -07)

Conservation Committee (1993-97)

Southwestern Association of Naturalists:

Long-term Planning Committee (1998 -)

Conservation Committee (1990 –2000)

The Nature Conservancy

Kiamichi River Initiative Core Team (1999-05)

U.S. Fish & Wildlife Service:

Gulf Coastal Prairie Landscape Conservation Cooperative, Instream Flow Group, Steering Committee and Flow-Ecology Committee, (2012-15)

Winged Mapleleaf (*Quadrula fragosa*) Recovery Team (2009 -)

Neosho Mucket (*Lampsilis rafinesqueana*) Recovery Team (2015 -)

Reviewed proposals for: Commission on Minnesota Resources, Hudson River Foundation, National Geographic Society, National Science Foundation, The Nature Conservancy

Reviewed manuscripts for: *American Malacological Bulletin*, *American Midland Naturalist*, *Animal Conservation*, *Annales de Limnologie*, *Aquatic Science*, *Biological Conservation*, *Biological Invasions*, *Biological Reviews*, *Bioscience*, *Biotropica*, *Canadian Journal of Fisheries and Aquatic Sciences*, *Conservation Biology*, *Copeia*, *Ecography*, *Ecohydrology*, *Ecology*, *Ecological Applications*, *Ecological Economics*, *Ecosystems*, *Environmental Engineering*, *Environmental Management*, *Environmental Science and Technology*, *Estuaries*, *Freshwater Biology*, *Freshwater Mollusk Biology and Conservation*, *Freshwater Mollusk Conservation Proceedings*, *Freshwater Science*, *Functional Ecology*, *Fundamental and Applied Limnology*, *Global Ecology and Biogeography Letters*, *Great Lakes Research*, *Great Plains Research*, *Hydrobiologia*, *Journal of Applied Ecology*, *Journal of Fish and Wildlife Research*, *Journal of the Kansas Entomological Society*, *Journal of Molluscan Studies*, *Journal of the North American Benthological Society*, *Journal of Shellfish Research*, *Landscape Ecology*, *Limnology and Oceanography*, *Marine Behavior and Physiology*, *Oecologia*, *Oikos*, *PLOS ONE*, *Proceedings of the Oklahoma Academy of Science*, *Proceedings of the Royal Society B*, *River Research and Applications*, *Science of the Total Environment*, *Southeastern Naturalist*, *Southwestern Naturalist*, *Transactions of the American Fisheries Society*, *Walkerana*

Judge:

Best conservation paper, *The Southwestern Naturalist* (1991-2002)

Best student paper, Freshwater Mollusk Conservation Society (2005, 2009, 2011)

Best student papers, Society for Freshwater Science (N.A. Benthological Society) (1986-2015).

Best student paper, World Congress of Malacology (2010)

Buell award, Ecological Society of America (1991)

Wilkes Award for best student paper, Southwest. Association of Naturalists (1995-96, 2001)

Organizer for symposium/workshop/contributed paper sessions:

American Fisheries Society, Freshwater Mussel Workshops, Ardmore, OK (2006), Fayetteville, AR (1998)

Ecological Society of America & Nature Conservancy, joint meeting, Albuquerque, NM (1997)

Freshwater Mollusk Conservation Society: Workshop: "Freshwater mussels, environmental flows, climate change and ecosystem services", Athens, GA (2012)

Oklahoma Academy of Science, Biodiversity Conference, Norman (1993)

Oklahoma Governor's Water Conference/Oklahoma Water Research Symposium, "Updates and New Developments", Norman, OK (2011)

Society for Freshwater Science (North American Benthological Society):

Special session- "Linking environmental change, community change, and ecosystem function in streams", Santa Fe (2010)

Special session- "From genes to ecosystems: integrative approaches in unionid ecology", New Orleans (2005)

Southwestern Association of Naturalists 50th Anniversary Meeting, Norman (Member of local and program committee) (2003)

The Nature Conservancy, Heritage Program and Conservation Data Center Conference, Norman (1992)

Session Moderator:

Ecological Society of America Annual Meeting (1997)

Freshwater Mollusk Conservation Symposium (2005, 2009, 2013, 2015)

International Meeting on the Biology and Conservation of Freshwater Bivalves (2015)

Oklahoma Governors Water Conference (2011)

Oklahoma-Texas Aquatic Research Group Meeting (2005)

North American Benthological Soc. Ann. Meeting (1992, 1995, 1997, 1999, 2001, 2004-06, 2010)

Society for Conservation Biology Annual Meeting (1995)

Southwestern Association of Naturalists Annual Meeting (1995, 1999, 2003, 2008, 2014)

The Nature Conservancy, Heritage Program and Conservation Data Center Conference (1992)

PROFESSIONAL SOCIETY MEMBERSHIPS

American Malacological Union (joined in 1992)

Ecological Society of America (1980)

Freshwater Mollusk Conservation Society (1998)

Great Plains Limnological Society (1978)

National Shellfisheries Association (2002)

Oklahoma Academy of Science (1976)

Society for Conservation Biology (1992)

Society for Freshwater Science (formerly North American Benthological Society; 1978)

Southwestern Association of Naturalists (1980)

UNIVERSITY SERVICE: *University of Oklahoma*

Biology/Zoology Department:

Aquatic Research Facility Steering Committee, Chair (2014 -).

Graduate Selections Committee (1994-95, 2000- 01, 2003-04, 2005-06).

Graduate Scholarship Committee, Chair (2013 -).

Graduate Studies Committee (1995-99, 2001-03, 2013 - 2016).

College/University:

Conservation Biology Curriculum Development Committee, College of Arts & Sciences (1993).

Environmental Biology Task Force, College of Arts & Sciences (1999-2001).
 Executive Committee, College of Arts & Sciences (2002-03).
 Faculty Mentor Program (1992-94).
 Faculty Senate Representative (for PSA) (1992-94).
 O.U. Speakers Service (1992-94).
 River Runners Club, Faculty Sponsor (1996-99).
 Research Council, Presidential appointee (2004-07; Chair 2006-07).
 Sam Noble Museum of Natural History, Life Sciences Exhibits Planning Committee (1995-99).
 Tenure and Promotion Committee, College of Arts & Sciences (2008-10).
 Water Innovation Research Laboratory Planning Committee (2012-).
 Women's Issues Advisory Committee, College of Arts and Sciences (2004-07)

Oklahoma Biological Survey:

Chemical Safety Officer, Oklahoma Biological Survey (1995-2000)
 Co-editor, *BioSurvey News* (OBS newsletter) (2003-13)
 Committee A, Oklahoma Biological Survey (1995-97, 1999-2013, 2015 -)
 Director (1999-2013)
 Web Committee, Oklahoma Biological Survey (1999-2015)

Search Committees (listed reverse chronologically):

Environmental Leadership Search (3 positions), Vice President for Research Office (2015-17).
 Cluster Hire in Geographical Ecology (3 positions), Biology Department (2014-16) (Committee Chair)
 Assistant Director, Sutton Avian Research Center (2011-12) (Committee Chair)
 Director, Oklahoma Water Survey (2011-12)
 GIS/Remote Sensing, Department of Geography (outside member) (2009-10)
 Director, Sam Noble Oklahoma Museum of Natural History (2002-03)
 Director of Research, Sutton Avian Research Center (2002-03)
 Chair, Department of Zoology (2001-02) (Committee Co-chair).
 Freshwater Invertebrate Biologist, Oklahoma Biological Survey & Dept. of Zoology (1999-2000)
 Botanical Specialist, Oklahoma Biological Survey (2000)
 Research Director, University of Oklahoma Biological Station and Dept. of Zoology (1997-98)
 Plant Systematist and Herbarium Director, Oklahoma Biological Survey (1996-97)
 Aquatic Ecologist, Department of Zoology (Committee Chair) (1995-96).
 Plant Community Ecologist, Oklahoma Biological Survey (1995-96).
 Aquatic Ecologist, Dept. of Zoology (1994-95).
 Terrestrial Zoologist, Dept. of Zoology and Oklahoma Biological Survey (1992)

UNIVERSITY SERVICE: *Southwestern Oklahoma State University*

Advisor to all students majoring in secondary biology education (1988-89)
 Faculty Research Committee (1989)
 Introductory Biology Laboratory Revision Committee, Curriculum and Manual (1988)
 Search Committee for Department Chair, Biology Department (1989)
 Teacher Education Council (1989)

COMMUNITY SERVICE

Board of Directors, Norman Area Land Conservancy (2011 -). <http://www.oknorman.org/nalc/>
 City of Norman Greenbelt Commission, Mayoral Appointee representing Ward 3 (2004-10)

CONTRIBUTED PAPERS PRESENTED AT PROFESSIONAL MEETINGS

AMERICAN ECOLOGICAL ENGINEERING SOCIETY – National Meeting

2015. Tweedy, B.N. and C.C. Vaughn

AMERICAN ECOLOGICAL ENGINEERING SOCIETY – Regional Meeting

2015. Tweedy, B.N. and C.C. Vaughn

AMERICAN FISHERIES SOCIETY

2016. Hopper, G., K. Gido, C. Vaughn, K. Gates and C. Atkinson

ECOLOGICAL SOCIETY OF AMERICA:

2011. Allen, D.C. and C.C. Vaughn

1997. Vaughn, C.C.

1990. Vaughn, C.C., W.J. Matthews and F.P. Gelwick.

1988. Vaughn, C.C. and F.M. Fisher

1984. Vaughn, C.C.

1983. Vaughn, C.C.

GREAT PLAINS LIMNOLOGICAL SOCIETY

2011. Vaughn, C.C. and C.L. Atkinson

2008. Vaughn, C.C.

2008. Allen, D.C. and C.C. Vaughn

2002. Vaughn, C.C. and D.E. Spooner

2002. Spooner, D.E. and C.C. Vaughn

2000. Spooner, D.E. and C.C. Vaughn

1989. Vaughn, C.C.

1982. Vaughn, C.C.

HORNED LIZARD CONSERVATION SOCIETY

1993. St. Clair, R., C.C. Carpenter, P. Gier, and C.C. Vaughn

NATIONAL SHELLFISHERIES ASSOCIATION

2006. Galbraith, H.S. and C.C. Vaughn

2006. Reagan, K. and C.C. Vaughn

OKLAHOMA ACADEMY OF SCIENCE

2001. Vaughn, C.C. and D.E. Spooner

2001. Spooner, D.E. and C.C. Vaughn

1999. Vaughn, C.C.

1996. Vaughn, C.C.

1993. Vaughn, C.C.

1991. Vaughn, C.C. and M. Pyron

1989. Vaughn, C.C.

1979. Vaughn, C.C.

1977. Carpenter (Vaughn), C.S

OKLAHOMA GOVERNORS' WATER CONFERENCE

- 2011. Vaughn, C.C. and C.L. Atkinson
- 2011. Irmischer, P. and C.C. Vaughn
- 2010. Miller-DeBoer, C. and C.C. Vaughn
- 2010. Irmischer, P. and C.C. Vaughn
- 2010. Allen, D.C. and C.C. Vaughn
- 2009. Miller-DeBoer, C. and C.C. Vaughn
- 2009. Irmischer, P. and C.C. Vaughn
- 2009. Allen, D.C. and C.C. Vaughn
- 2005. Spooner, D.E. and C.C. Vaughn
- 2005. Fisher, W.L., J.R. Bidwell, C.A. Davis, D. Turton and C.C. Vaughn

SOCIETY FOR CONSERVATION BIOLOGY

- 1995. Vaughn, C.C. and C.M. Taylor

SOCIETY FOR ENVIRONMENTAL TOXICOLOGY AND CHEMISTRY – Regional meeting

- 2016. Tweedy, B.N. and C.C. Vaughn
- 2015. Tweedy, B.N. and C.C. Vaughn

SOCIETY FOR FRESHWATER SCIENCE (NORTH AMERICAN BENTHOLOGICAL SOCIETY)

- 2016. Tweedy, B.N. and C.C. Vaughn
- 2016. Olson, P., C.C. Vaughn and R.J. Broughton
- 2016. Murphy, K. and C.C. Vaughn
- 2015. Gates, K.K., C.C. Vaughn and J.P. Julian
- 2015. Castro, A.J., C.C. Vaughn and J.P. Julian
- 2015. Tweedy, B.N. and C.C. Vaughn
- 2014. Castro, A.J., C.C. Vaughn and J.P. Julian
- 2014. Castro, A.J., M. Garcia Llorente, C.C. Vaughn and J.P. Julian
- 2014. Sansom, B.J., B.N. Tweedy and C.C. Vaughn
- 2013. Sansom, B., C.C. Vaughn, W.L. Shelton and G. Summers.
- 2013. Irmischer, P. and C.C. Vaughn
- 2011. Allen, D.C. and C.C. Vaughn
- 2011. Atkinson, C.L. and C.C. Vaughn
- 2010. Allen, D.C. and C.C. Vaughn
- 2010. Miller-DeBoer, C.J. and C.C. Vaughn
- 2010. Irmischer, P. and C.C. Vaughn
- 2009. Allen, D.C. and C.C. Vaughn
- 2009. Miller, C.J. and C.C. Vaughn
- 2009. Vaughn, C.C., D.E. Spooner, H.S. Galbraith and D.C. Allen
- 2008. Allen, D.C. and C.C. Vaughn
- 2007. Allen, D.C. and C.C. Vaughn
- 2006. Vaughn, C.C., D.E. Spooner, H.S. Galbraith, K. Reagan & D.E. Allen.
- 2006. Reagan, K. and C.C. Vaughn
- 2005. Galbraith, H.S. and C.C. Vaughn
- 2005. Reagan, K. and C.C. Vaughn
- 2004. Vaughn, C.C. and D.E. Spooner
- 2004. Spooner, D.E. and C.C. Vaughn
- 2004. Galbraith, H.S., C.K. Meier and C.C. Vaughn

2003. Vaughn, C.C., D.E. Spooner, M. Moore and F. March.
 2003. Elderkin, C., D.J. Berg, J.L. Metcalfe-Smith, C.C. Vaughn and S.I. Guttman
 2002. Vaughn, C.C., M.E. Moore and D.E. Spooner
 2002. Spooner, D.E. and C.C. Vaughn
 2002. Berg, D.J., Elderkin, C., Christian, A.D., Metcalfe-Smith, J.L., Vaughn, C.C, Guttman,S.I.
 2001. Vaughn, C.C., Spooner, D.E., Moore, M., Gido, K.B.
 2001. Spooner, D.E., Vaughn, C.C.
 2001. Moore, M, Vaughn, C.C.
 2001. Berg, D.J., Christian, A.D., Metcalfe-Smith, J.L., Vaughn, C.C, Guttman, S.I.
 2000. Vaughn, C.C., K.B. Gido and D.E. Spooner
 2000. Spooner, D.E., C.C. Vaughn, M. Moore and J. Johnson
 1999. Vaughn, C.C. and C.L. Hakenkamp
 1998. Vaughn, C.C.
 1998. Meier, C.K. and C.C. Vaughn
 1997. Vaughn, C.C. and C.M. Taylor
 1995. Vaughn, C.C. and C.M. Taylor
 1994. Vaughn, C.C., M. Pyron and M.R. Winston
 1994. Johnson, S.L. and C.C. Vaughn
 1993. Certain, D. and C.C. Vaughn
 1993. Covich, A.P., T.A. Cowl, J. Alexander, and C.C. Vaughn
 1992. Vaughn, C.C. and M. Pyron
 1991. Vaughn, C.C., P. Mehlhop, W.D. Partridge, and E.K. Miller
 1990. Vaughn, C.C.
 1983. Vaughn, C.C.
 1982. Vaughn, C.C.

SOUTHWESTERN ASSOCIATION OF NATURALISTS

2014. Castro, A.J., C.C. Vaughn, J.P. Julian and M. Garcia Llorente
 2014. Tweedy, B.N., B.J. Sansom and C.C. Vaughn
 2014. Vaughn, C.C., C.L. Atkinson and J.P. Julian
 2011. Irmischer, P. and C.C. Vaughn
 2010. Vaughn, C.C., D.E. Spooner, H.S. Galbraith and D.C. Allen
 2010. Irmischer, P. and C.C. Vaughn
 2010. Miller-DeBoer, C.J. and C.C. Vaughn
 2008. Vaughn, C.C., H.S. Galbraith and D.E. Spooner
 2004. Vaughn, C.C. and D.E. Spooner
 2003. Vaughn, C.C., D.E. Spooner, M. Moore and F. March
 2003. Spooner, D.E. and C.C. Vaughn
 2001. Spooner, D.E., Vaughn, C.C.
 2000. Vaughn, C.C., K.B. Gido, and D.E. Spooner
 2000. Moore, M., C.C. Vaughn, D.E. Spooner, and J. Johnson
 1999. Vaughn, C.C.
 1997. Vaughn, C.C.
 1997. Taylor, C.M. and C.C. Vaughn
 1995. Vaughn, C.C.
 1994. Vaughn, C.C.
 1993. Vaughn, C.C. and M. Pyron
 1992. Vaughn, C.C. and M. Pyron

1991. Vaughn, C.C., P. Mehlhop, W.D. Partridge, and E.K. Miller
 1990. Vaughn, C.C.
 1988. Vaughn, C.C. and F.M. Fisher
 1987. Vaughn, C.C. and F.M. Fisher

SYMPOSIUM OF THE FRESHWATER MOLLUSK CONSERVATION SOCIETY

2015. Vaughn, C.C. and C.L. Atkinson
 2015. Tweedy, B.L. and C.C. Vaughn
 2015. Gates, K.K., C.C. Vaughn and J.P. Julian
 2015. Castro, A.J. and C.C. Vaughn
 2013. Harris, A. and C.C. Vaughn
 2013. Sansom, B., C.C. Vaughn, W.L. Shelton and G. Summers
 2013. Irmscher, P. and C.C. Vaughn
 2011. Vaughn, C.C.
 2011. Allen, D.C. and C.C. Vaughn
 2011. Atkinson, C.L. and C.C. Vaughn
 2011. Atkinson, C.L. and C.C. Vaughn (poster)
 2009. Vaughn, C.C., D.E. Spooner, H.S. Galbraith and D.E. Allen
 2009. Allen, D.E. and C.C. Vaughn
 2009. Irmscher, P. and C.C. Vaughn
 2009. Miller, C. and C.C. Vaughn
 2007. Reagan, K.E. and C.C. Vaughn
 2007. Allen, D.E. and C.C. Vaughn
 2005. Vaughn, C.C., D.E. Spooner and H.S. Galbraith
 2005. Spooner, D.E. and C.C. Vaughn
 2005. Galbraith, H.S. and C.C. Vaughn
 2005. Reagan, K. and C.C. Vaughn
 2003. Vaughn, C.C., D.E. Spooner, M. Moore and F. March
 2003. Spooner, D.E. and C.C. Vaughn
 2003. Elderkin, C., D.J. Berg, J.L. Metcalfe-Smith, C.C. Vaughn and S.I. Guttman
 2001. Vaughn, C.C., Gido, K.B., Spooner, D.E.
 2001. Spooner, D.E., Vaughn, C.C.
 1999. Vaughn, C.C.
 1995. Vaughn, C.C., C.M. Taylor and K.J. Eberhard
 1992. Vaughn, C.C.

WORLD CONGRESS OF MALACOLOGY

2010. Vaughn, C.C., D.E. Spooner, D.C. Allen and C.L. Atkinson
 2007. Vaughn, C.C., D.E. Spooner, H.S. Galbraith and D.C. Allen
 2004. Vaughn, C.C. and D.E. Spooner

TECHNICAL REPORTS SUBMITTED TO FUNDING AGENCIES

- Vaughn, Caryn C. and Kiza K. Gates. "Monitoring federally listed mussels in the Little River Watershed. Annual report to the US Fish and Wildlife Service. December 2015.
 Gates, Kiza K., Carla L. Atkinson, James Cureton and Caryn C. Vaughn. Large-scale assessment of mussel habitat conditions and population connectivity in the Kiamichi River to protect *Arkansia wheeleri*. Final Report to American Electrical Power. December 2015.

- Vaughn, Caryn C. Assessment of distribution, status and habitat needs of rare mussel species in the Little River watershed, Oklahoma. Annual report to the Oklahoma Department of Wildlife Conservation. October 2015.
- Irmscher, Pascal and Caryn C. Vaughn. "Dispersal of juvenile freshwater mussels: relationships with flow and mussel density". Final report to the National Geographic Society. August 2014.
- Vaughn, Caryn C., Kiza K. Gates and Carla L. Atkinson. "Evaluation of environmental flow requirements for freshwater mussels of greatest conservation need in the Mountain Fork, Kiamichi and Little Rivers, Oklahoma". Final report to the Oklahoma Department of Wildlife Conservation. February 2014.
- Irmscher, Pascal and Caryn C. Vaughn. "The effects of changing flow regimes on the dispersal of juvenile mussels in southeastern Oklahoma rivers". Final report to U.S.D.A. Forest Service. January 2014.
- Vaughn, Caryn C. and Jason P. Julian. "Incorporating ecological costs and benefits into environmental flow recommendations for Oklahoma rivers: Phase I, Southeastern Oklahoma". Final report to the Oklahoma Water Resources Research Institute. May 2013.
- Allen, Daniel C. and Caryn C. Vaughn. "How does biodiversity influence resource subsidy flux? A test with freshwater mussels and aquatic-terrestrial linkages". Final report to the National Science Foundation. May 2012.
- Vaughn, Caryn C. and Carla L. Atkinson. Evaluation of environmental flow requirements for freshwater mussels of greatest conservation need in the Mountain Fork, Kiamichi and Little Rivers, Oklahoma. Annual Report to the Oklahoma Department of Wildlife Conservation, June 2012.
- Vaughn, Caryn C. and Jason P. Julian. Incorporating ecological costs and benefits into environmental flow recommendations for Oklahoma rivers: Phase 1, Southeastern Oklahoma. Interim report to the Oklahoma Water Resources Research Institute, May 2012.
- Spooner, Daniel E. and Caryn C. Vaughn. "How does community structure affect ecosystem function? An integrative approach linking physiological performance and species interactions". Final report to the National Science Foundation. October 2008.
- Allen, Daniel C. and Caryn C. Vaughn. "Surveys for rare mussel species and determination of hydrological characteristics of mussel habitat in southeastern Oklahoma". Final report to Oklahoma Department of Wildlife Conservation. September 2008.
- Galbraith, Heather S. and Caryn C. Vaughn. "Reproductive timing and success of freshwater mussels in the Little River, Oklahoma". Final report to Oklahoma Department of Wildlife Conservation. April 2008.
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