

BEN F. BRAMMELL

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BACKGROUND

EDUCATION

Ph.D., Biology – Department of Biology, University of Kentucky. Characterization of pollutant response in teleosts with varying degrees of pollutant sensitivity.

M.S., Biology – Department of Biology, Tennessee Technological University. Evaluation of brook trout restoration efforts in the Great Smoky Mountains National Park.

B.S., Biology – Department of Biological Sciences, Eastern Kentucky University.

PROFESSIONAL EXPERIENCE

Professor (2020 – present) – Department of Science and Health, Asbury University, Wilmore, KY.

Associate Professor (2013 – 2020) – Department of Science and Health, Asbury University, Wilmore, KY.

Assistant Professor (2010 – 2013) – Department of Science and Health, Asbury University, Wilmore, KY.

Research Scientist I (2008-2010) – Department of Civil Engineering, University of Kentucky, Lexington, KY.

Lecturer (full time) (2004-2008) – Department of Biology, Morehead State University, Morehead, KY.

Research and Teaching Assistant (2000-2004) – Department of Biology, University of KY, Lexington, KY.

Research Assistant (1998-2000) – Department of Biol. Sciences, Ten. Technological Univ., Cookeville, TN.

SCHOLARLY ACTIVITIES

PUBLICATIONS (10 since joining Asbury, *undergraduate coauthor)

In Review:

Brammell, Ben F., Elizabeth K. Strasko*, Sara A. Brewer*, Madeline M. Cox. and Jarrett R. Johnson. eDNA monitoring of a rare salamander: The use of eDNA in detection of *Eurycea junaluska* in the Great Smoky Mountains National Park. *In Review*.

In print or press:

- (15) Brewer, Sara A.*, Rebecca R. Piche*, Florene G. Bell*, Angie F. Flores*, Kenton L. Sena, Thomas A. Maigret, Chi Jing Leow*, and **Ben F. Brammell**. 2023. The use of eDNA in detection of Northern Red (*Pseudotriton ruber*) and Spring (*Gyrinophilus porphyriticus*) Salamanders: development and validation of quantitative PCR assays with notes on phylogeographic effectiveness. *In Press*, Herpetology Notes.
- (14) **Brammell, Ben F.**, Elizabeth K. Strasko*, Sara A. Brewer*, Rebecca R. Piche*, Cierla M. Sams*, Cy L. Mott, Malinda A. Stull. 2023. Detecting fossorial salamanders using eDNA; development and validation of quantitative and end-point PCR assays for the detection of five species of *Ambystoma*. *Conservation Genetics Resources* 15(4):187-198. <https://doi.org/10.1007/s12686-023-01322-6>
- (13) Strasko, Elizabeth K.*, Rebecca R. Piche*, and **Ben F. Brammell**. 2023. Development and validation of PCR primers for detecting *Ambystoma texanum* (smallmouth salamander) from eDNA samples. *Tennessee Journal of Herpetology* 6:4-18. <https://www.tnherpsociety.org/copy-of-template-12>
- (12) Bell, Florene F.*, Angie F. Flores*, Kenton L. Sena, Thomas A. Maigret, Chi Jing Leow*, Ronald B. Sams*, David K. Peyton, and **Ben F. Brammell**. 2022. Development and validation of qPCR assays for use in eDNA detection of southern two-lined (*Eurycea cirrigera*) and northern dusky (*Desmognathus fuscus*) salamanders. *Herpetological Conservation and Biology* 17(2):398-412. [https://www.herpconbio.org/Volume 17/Issue 2/Bell etal 2022.pdf](https://www.herpconbio.org/Volume%2017/Issue%202/Bell%20etal%202022.pdf)

- (11) Guivas, Ramon M.* and **Ben F. Brammell**. 2020. Evaluation of biomass and filtration method on eDNA detection of fantail darters (*Etheostoma flabellare*). International Journal of Zoology 3:1-7. <https://doi.org/10.1155/2020/4731686>
- (10) Sena, Kenton L., **Ben F. Brammell**, and S. Ray Smith. 2016. Converting hayfield to switchgrass increases small mammal relative abundance. Journal of the KY Academy of Science 77(1-2):11-18.
- (9) **Brammell, Ben F.**, David J. Price, Wesley J. Birge, Adria A. Elskus. 2013. Lack of CYP1A responsiveness in species inhabiting chronically contaminated habitats: two varieties of resistance? Comparative Biochemistry and Physiology, Part C 52:2317-2322.
- (8) **Brammell, Ben F.** and Shawn M. Banks. 2011. Notes on the Crayfish of Blackburn Fork Watershed, Jackson and Putnam County, Tennessee. Journal of the TN Academy of Science 86:105-107.
- (7) **Brammell, Ben F.** and A.W. Wigginton. 2010. Differential gene expression in zebrafish (*Danio rerio*) following exposure to gaseous diffusion plant effluent and effluent receiving stream water. American Journal of Environmental Sciences 6 (3): 286-294.
- (6) **Brammell, Ben F.**, David J. Price, Wesley J. Birge, Adria A. Elskus. 2010. Differential sensitivity of CYP1A to 3,3',4',4 – tetrachlorobiphenyl and benzo(a)pyrene in two *Lepomis* species. Comparative Biochemistry and Physiology, Part C 152:42-50.
- (5) **Brammell, Ben F.**, Scott J. McLain, James T. Oris, David J. Price, Wesley J. Birge and Adria A. Elskus. 2010. CYP1A Expression in Caged Rainbow Trout Discriminates Among Sites with Various Degrees of Polychlorinated Biphenyl Contamination. Archives of Environmental Contamination and Toxicology 58:772-782.
- (4) **Brammell, Ben F.**, Ian T. Struewing*, David M. Klarer, Scott G. Lynn. 2009. An Evaluation of the Ichthyofauna of Old Woman Creek Estuary, a Unique Aquatic Resource. Journal of Freshwater Ecology 24:521-527.
- (3) Craig E. Wheelock, Kai Eder, Inge Werner, Huazhang Huang, Paul D. Jones, **Benjamin F. Brammell**, Adria A. Elskus, Inge Werner, Bruce D. Hammock. 2005. Individual variability in esterase activity and CYP1A levels in Chinook salmon (*Oncorhynchus tshawytscha*) exposed to esfenvalerate and chlorpyrifos. Aquatic Toxicology 74:172-192.
- (2) **Brammell, Ben F.**, David J. Price, Wesley J. Birge, Adria A. Elskus. 2004. Apparent lack of CYP1A response to high PCB body burdens in fish from a chronically contaminated PCB site. Marine Environmental Research 58:251-255.
- (1) Shepherd, Brian. S., Katherine Drennon, **Ben F. Brammell**, Adria A. Elskus. 2002. Effects of Aroclor 1254 on endocrine physiology in the channel catfish (*Ictalurus punctatus*). In Endocrine Disruptors: Mechanisms and Impacts. M. Vijayan, A. Hontel and D. Mackinlay eds. pp 63-68.

NON-SCIENTIFIC WORKS

Jesus and the Genome: The Intersection of Christology and Biology (Cambridge University Press, forthcoming 2024).
 Mike L. Peterson, Timothy Pawl, and **Ben F. Brammell**. An exploration of the intersection of evolutionary biology, as understood through modern genomics, and Christianity.

GRANTS AND FUNDING (\$77,705 since joining Asbury, Career Total=\$931,605)

- \$19,780. United States Geological Survey, 104b Grant Program. Kenton L. Sena, Cy l. Mott, and **Ben F. Brammell**. Evaluating effects of ecological restoration efforts on ecosystem function in the inner Bluegrass (via traditional and molecular [eDNA metabarcoding] surveys of amphibian communities).
- \$1,790. Kentucky Academy of Science, Summer Research Grant. **Ben F. Brammell**. Assessment of biodiversity in freshwater lotic Galápagos habitats (San Cristóbal) through the use of eDNA metabarcoding.
- \$19,533. United States Geological Survey, 104b Grant Program. Kenton L. Sena and **Ben F. Brammell**. 2023. Evaluating the effects of ecological restoration efforts on stream health in the inner Bluegrass (through the use of eDNA metabarcoding of aquatic invertebrate communities).
- \$500. Asbury University, internal research grant. **Ben F. Brammell**. 2023. Multiple methods of detection of semiaquatic salamanders in small lotic systems: A comparison of traditional (leaf litter bags) and molecular (eDNA) detection methods.

- \$7,102. Great Smoky Mountains Conservation Association, Carlos C. Campbell Memorial Fellowship. **Ben F. Brammell**, Jarrett Johnson, and Elizabeth Strasko. 2023. Assessment of salamander distribution in the GSMNP through the use of eDNA metabarcoding with an emphasis on a reexamination of the distribution of the rare salamander, *E. junaluska*.
- \$500. Asbury University, internal research grant. **Ben F. Brammell**. 2022. Assessment of biodiversity in freshwater lotic Galápagos habitats (San Cristóbal) through the use of eDNA metabarcoding.
- \$500. Asbury University, internal research grant. **Ben F. Brammell**. 2021. Detecting fossorial salamanders using eDNA; development and validation of quantitative and end-point PCR assays for the detection of five species of Ambystomid salamanders.
- \$3,000. Lilly Fellows Program Small Grant. Dan Strait and **Ben F. Brammell**. 2021. Boundaries and Horizons: Engaging Faith, Science, and Humanities. Provided funds to support an on-campus symposium on Faith and Science.
- \$500. Asbury University, internal research grant. **Ben F. Brammell**. 2019. Use of eDNA to detect salmonids and amphibian species in high elevation habitats in the Sierra Nevada in Sequoia-Kings Canyon National Park.
- \$10,000. Daniel Strait and **Ben F. Brammell**. 2019. Funds accompanying selection as Lilly Faculty Fellows designated for the development of a Lilly Faculty Fellow program on Asbury's campus.
- \$500. Asbury University, internal research grant. **Ben F. Brammell**. 2018. Use of eDNA to detect salmonids and amphibian species in high elevation habitats in the Sierra Nevada in Sequoia-Kings Canyon National Park.
- \$3,000. Kentucky Academy of Science, Summer Research Grant. **B. F. Brammell**. 2018. Use of environmental DNA in detection of an endangered species in remote, high elevation habitats in the Sierra Nevada.
- \$500. Asbury University, internal research grant. **Ben F. Brammell**. 2017. Use of environmental DNA to determine the distribution of *Rana sierrae* and *Rana muscosa* (mountain yellow legged frog species complex) along a 70 mile transect of the Pacific Crest Trail (Kings Canyon National Park, CA).
- \$5,000. Kentucky Water Resource Research Institute. David K. Peyton and **Ben F. Brammell**. 2012. Development and calibration of biomarkers in native sunfish (*Lepomis spp.*) for use in detection of endocrine active compounds.
- \$5,000. Kentucky Water Resource Research Institute. **Ben F. Brammell**. 2011. Use of gene expression in longear sunfish (*Lepomis megalotis*) and green sunfish (*Lepomis cyanellus*) as a biomarker of polychlorinated biphenyl and metal exposure.
- \$440,000. Commonwealth of Kentucky, Environmental and Public Protection Cabinet, Department of Environmental Protection, Division of Waste Management. 2010. Wigginton, A.W. and **Ben F. Brammell**. Genetic markers and ecological and chemical assessment of low level environmental impact at the Paducah Gaseous Diffusion Plant, Paducah, McCracken County, Kentucky.
- \$412,000. Commonwealth of Kentucky, Environmental and Public Protection Cabinet, Department of Environmental Protection, Division of Waste Management. 2008. Wigginton, A.W. and **Ben F. Brammell**. Assessment of ecological conditions compared to environmental sampling at the Paducah Gaseous Diffusion Plant with a reassessment of previous analysis.
- \$1,000. Morehead State University. 2006. Wymer, C. L., R.D. Boram, M.L. Wallace, J. O'Keefe, **Ben F. Brammell**, and J.M. Whitworth. Evaluation of the understanding of foundational science concepts by pre-service elementary school teachers at Morehead State University.
- \$800. Kentucky Academy of Science, Graduate Research Grant. **Ben F. Brammell**. 2004. Linking chemical tolerance to reproductive fitness in fish from contaminated environments.
- \$600. Sigma Xi. **Ben F. Brammell**. 2003. Effects of Pollution Resistance on Polychlorinated Biphenyl Mediated Endocrine Disruption.

PRESENTATIONS AT PROFESSIONAL MEETINGS (75 presentations with 45 undergraduate coauthors since joining Asbury, 31 presentations prior to joining Asbury)

- (75) Brown, Hope A. Brown, Abigail K. Fletcher, Sara A. Brewer, Joanne Jung, Mary R. Johnson, Cierla V. McGuire, Malinda A. Stull, and **Ben F. Brammell**. 2023. Development of environmental DNA (eDNA) qPCR assays for the detection of darter species: Significance of phylogeography in assay

- efficacy. 108th Annual Kentucky Academy of Science Meeting, Nov. 3-4, 2023, Northern KY Univ. Highland Heights, KY. Poster.
- (74) Brewer, Sara A., Cy L. Mott, Rebecca R. Piche, Florene G. Bell, Elizabeth K. Strasko, Jarrett R. Johnson, Kenton L. Sena, Thomas A. Maigret, **Ben. F. Brammell**. 2023. eDNA detection of four-toed salamanders (*Hemidactylium scutatum*): Significance of mitochondrial evolution rates in assay development. 108th Annual Kentucky Academy of Science Meeting, Nov. 3-4, 2023, Northern KY Univ. Highland Heights, KY. Poster.
- (73) **Brammell, Ben F.**, Sara A. Brewer, Elizabeth K. Strasko, Jarrett R. Johnson and Madeline Cox. 2023. eDNA monitoring of a rare salamander: The use of eDNA in detection of *Eurycea junaluska* in the Great Smoky Mountains National Park. 108th Annual Kentucky Academy of Science Meeting, Nov. 3-4, 2023, Northern KY Univ. Highland Heights, KY. Poster.
- (72) Brewer, Sara A. Florene G. Bell, Angie F. Flores, Kenton L. Sena, Thomas A. Maigret, Chi Jing Leow, and **Ben F. Brammell**. 2023. The use of eDNA in detection of Northern Red (*Pseudotriton ruber*) and Spring (*Gyrinophilus porphyriticus*) Salamanders: Development and validation of quantitative PCR assays with notes on phylogeographic effectiveness. 108th Annual Kentucky Academy of Science Meeting, Nov. 3-4, 2023, Northern KY Univ. Highland Heights, KY. Poster.
- (71) Brammell, Ben F., Sara A. Brewer, Elizabeth K. Strasko, Jarrett R. Johnson and Madeline Cox. 2023. The search for a rare salamander: the use of eDNA in detection of *Eurycea junaluska* in the Great Smoky Mountains National Park. Annual meeting of the Tennessee Herpetological Society, Sept. 28-29th, 2023, Union City, TN. Poster.
- (70) Brewer, Sara A., Cy L. Mott, Rebecca R. Piche, Florene G. Bell, Elizabeth K. Strasko, Jarrett R. Johnson, Kenton L. Sena, Thomas A. Maigret, **Ben. F. Brammell**. 2023. An improved assay for eDNA detection of four toed salamanders (*Hemidactylium scutatum*): significance of mitochondrial genome region in primer development. Annual meeting of the Tennessee Herpetological Society, Sept. 28-29th, 2023, Union City, TN. Poster.
- (69) Brewer, Sara A. Florene G. Bell, Angie F. Flores, Kenton L. Sena, Thomas A. Maigret, Chi Jing Leow, and **Ben F. Brammell**. 2023. eDNA detection of northern red (*Pseudotriton ruber*) and spring (*Gyrinophilus porphyriticus*) salamanders in eastern Kentucky streams. Kentucky Water Resources Annual Symposium, September 15, 2023, Lexington, KY. Poster.
- (68) Brewer, Sara A. Florene G. Bell, Angie F. Flores, Kenton L. Sena, Thomas A. Maigret, Chi Jing Leow, and **Ben F. Brammell**. 2022. eDNA detection of northern red (*Pseudotriton ruber*), spring (*Gyrinophilus porphyriticus*), and mud (*Pseudotriton ruber*) salamanders in eastern Kentucky streams. 107th Annual Kentucky Academy of Sci. Meeting, Nov. 10-12, 2022, Morehead State Univ., Morehead, KY. Poster.
- (67) Fletcher, Abigail K., Mary R. Johnson, Cierla V. McGuire, Sara A. Brewer, Joanne Jung, Malinda A. Stull, and **Ben F. Brammell**. 2022. eDNA detection of darters (Percidae: *Etheostomatinae*) in central Kentucky streams. 107th Annual Kentucky Academy of Science Meeting, Nov. 10-12, 2022, Morehead State Univ., Morehead, KY. Poster.
- (66) Jeffrey, Brendan C., Sara A. Brewer, Florene G. Bell, and **Ben F. Brammell**. 2022. eDNA detection of four toed salamanders (*Hemidactylium scutatum*): significance of mitochondrial genome region in primer development. 107th Annual Kentucky Academy of Science Meeting, Nov. 10-12, 2022, Morehead State Univ., Morehead, KY. Poster.
- (65) Brewer, Sara A. Florene G. Bell, Angie F. Flores, Kenton L. Sena, Thomas A. Maigret, Chi Jing Leow, and **Ben F. Brammell**. 2022. Use of eDNA in the detection of semiaquatic salamanders in eastern Kentucky streams. Meeting of the Tennessee Herpetological Society, Sept. 29-30th, 2022, Austin Peay Univ., Clarksville, TN. Poster.
- (64) Jeffrey, Brendan C., Sara A. Brewer, Florene G. Bell, and **Ben F. Brammell**. 2022. Development and validation of qPCR assays for detection of four toed salamanders (*Hemidactylium scutatum*). Meeting of the Tennessee Herpetological Society, Sept. 29-30th, 2022, Austin Peay Univ., Clarksville, TN. Poster.
- (63) Brewer, Sara A. Florene G. Bell, Angie F. Flores, Kenton L. Sena, Thomas A. Maigret, Chi Jing Leow, and **Ben F. Brammell**. 2022. Development and validation of qPCR assays for use in eDNA detection of four species of semiaquatic salamanders. Kentucky Water Resources Annual Symposium, September 18, 2022, Lexington, KY. Poster.

- (62) Fletcher, Abigail K., Mary R. Johnson, Cierla V. McGuire, Sara A. Brewer, Joanne Jung, Malinda A. Stull, and **Ben F. Brammell**. 2022. Development of eDNA protocols for detection of four darter (*Percidae: Etheostomatinae*) species in central Kentucky streams. Kentucky Water Resources Annual Symposium, September 18, 2022, Lexington, KY. Poster.
- (61) **Brammell, Ben F.**, Cierla M. Sams, Elizabeth K. Strasko, Rebecca R. Piche, Cy L. Mott, Malinda A. Stull. 2021. Detecting fossorial salamanders using eDNA; development and validation of quantitative and end-point PCR assays for the detection of five species of Ambystomid salamanders. 2021 Meeting of the Tennessee Herpetological Society, Dec. 6-7, 2021, Chattanooga, TN. Poster.
- (60) Strasko, Elizabeth K., Rebecca R. Piche, and **Ben F. Brammell**. 2021. Development and validation of qPCR assays for use in eDNA detection of *Ambystoma texanum* and *Ambystoma talpoideum*. 2021 Meeting of the Tennessee Herpetological Society, Dec. 6-7, 2021, Chattanooga, TN. Poster.
- (59) Piche, Rebecca R., Eliza M. Crawford, and **Ben F. Brammell**. 2021. Multiple methods of detection of semiaquatic salamanders in small lotic systems: A comparison of eDNA and leaf litter bags. 2021 Meeting of the Tennessee Herpetological Society, Dec. 6-7, 2021, Chattanooga, TN. Poster.
- (58) Piche, Rebecca R., Eliza M. Crawford, and **Ben F. Brammell**. 2021. A comparison of detection methods for semiaquatic salamanders: eDNA and leaf litter bags. 106th Annual Kentucky Academy of Science Meeting, Nov. 5, 2021, Virtual presentation.
- (57) Strasko, Elizabeth K., Rebecca R. Piche, and **Ben F. Brammell**. 2021. Development and validation of qPCR assays for use in eDNA detection of *Ambystoma texanum*, *Ambystoma talpoideum*, and *Notophthalmus viridescens*. Annual KY Academy of Science Meeting, Nov. 5, 2021, Virtual presentation.
- (56) Piche, Rebecca R. and **Ben F. Brammell**. 2021. Comparison of leaf litter bag and environmental DNA in detection of salamanders in Maywoods Environmental and Educational Laboratory. Kentucky Water Resources Annual Symposium, September 13, 2021, Lexington, KY. Poster.
- (55) Sams, Cierla M. Elizabeth K. Strasko, Rebecca R. Piche, Cy L. Mott, Malinda A. Stull, and **Ben F. Brammell**. 2021. Development and validation of qPCR assays for use in eDNA detection of *Ambystoma* species. KY Water Res. Annual Symposium, September 13, 2021, Lexington, KY. Poster.
- (54) Day, Faith H., Rebecca R. Piche, and **Ben F. Brammell**. Effects of predation hazard on habitat selection of fathead minnows (*Pimephales promelas*). 106th Annual Kentucky Academy of Science Meeting, Nov. 6, 2020, Virtual presentation.
- (53) Bell, Florene G., Angie F. Flores, Kenton L. Sena, Thomas A. Maigret, Chi Jing Leow, David K. Peyton and **Ben F. Brammell**. 2019. Seasonal detection of four salamander species using eDNA in eastern Kentucky streams. 105th Annual KY Academy of Sci. Meeting, Nov. 1-2, 2019, Berea, KY. Poster.
- (52) Beery, Elle, S., Marvin S. Ruffner, and **Ben F. Brammell**. 2019. Development of eDNA detection tools for queen snakes (*Regina septemvittata*) and northern water snakes (*Nerodia sipedon*) in central Kentucky. 105th Annual Kentucky Academy of Science Meeting, Nov. 1-2, 2019, Berea, KY. Poster.
- (51) Peyton, David K., Bell, Florene G., and Ben F. Brammell. 2019. Verification of eDNA salamander detection using cloned amplicons. 105th Annual Kentucky Academy of Science Meeting, Nov. 1-2, 2019, Berea, KY. Poster.
- (50) Bell, Florene G., Angie F. Flores, Kenton L. Sena, Thomas A. Maigret, Chi Jing Leow and **Ben F. Brammell**. 2019. Use of eDNA to detect multiple salamander species in eastern Kentucky streams. Kentucky Water Resources Annual Symposium, March 25, 2019, Lexington, KY. Poster.
- (49) Guivas, Ramon A. Kyle T. Laufenburger and **Ben F. Brammell**. 2019. Evaluation of biomass and filtration method on eDNA detection of fantail darters (*Etheostoma flabellare*). Kentucky Water Resources Annual Symposium, March 25, 2019, Lexington, KY. Poster.
- (48) **Ben F. Brammell**, Sumathi Sankaran-Walters, Kayceline Deguzman, Chi Jing Leow, and Michael C. McGrann. 2018. Use of eDNA in a wilderness setting to detect multiple species of conservation interest. SEKI Science Symposium, Nov. 14-15, 2018, Three Rivers, CA. Poster.
- (47) Bell, Florene G., Angie F. Flores, Kenton L. Sena, Thomas Maigret, Chi Jing Leow and **Ben F. Brammell**. 2018. Use of eDNA to detect multiple salamander species in eastern Kentucky streams. 104th Annual Kentucky Academy of Science Meeting, Nov. 2-3, 2018, Bowling Green, KY. Poster.
- (46) Guivas, Ramon A. Kyle T. Laufenburger and **Ben F. Brammell**. 2018. Evaluation of biomass and filtration method on eDNA detection of fantail darters (*Etheostoma flabellare*). 104th Annual Kentucky Academy of Science Meeting, Nov. 2-3, 2018, Bowling Green, KY. Poster.

- (43) Leow, Chi Jing, Michael C. McGrann, Sumathi Sankaran-Walters, Christopher C. Pauley, Ronald B. Sams, Cierla V. McGuire, Malinda A. Stull, and **Ben F. Brammell**. 2018. Use of eDNA to detect salmonids and amphibian species in high elevation habitats in the Sierra Nevada in Sequoia-Kings Canyon National Park, CA. 104th Annual Kentucky Academy of Science Meeting, Nov. 2-3, 2018, Bowling Green, KY. Poster.
- (42) Nesselroade, Andrew W., Sams, Ronnie B., Cierla V. McGuire, Malinda A. Stull and **Ben F. Brammell**. 2018. Seasonal fluctuations in salamander eDNA in central KY streams. Kentucky Water Resources Annual Symposium, March 19, 2018, Lexington, KY. Poster.
- (41) Guivas, Ramon A., Kyle T. Laufenburger, Mary R. Johnson, Cierla V. McGuire, Annissia L. Wood, Harold A. Brabon, Malinda A. Stull, and **Ben F. Brammell**. 2018. Relationship between fish biomass and eDNA in central Kentucky Streams. Kentucky Water Resources Annual Symposium, March 19, 2018, Lexington, KY. Poster.
- (40) Guivas, Ramon A., Kyle T. Laufenburger, Mary R. Johnson, Cierla V. McGuire, Annissia L. Wood, Harold A. Brabon, Malinda A. Stull, and **Ben F. Brammell**. 2017. Relationship between fish biomass and eDNA in central Kentucky Streams. 103rd Annual Kentucky Academy of Science Meeting, Nov. 3-4, 2017, Murray, KY. Poster.
- (39) Nesselroade, Andrew W., David J. Eisenhour, Brooke A. Washburn, Lynn V. Eisenhour, Harold A. Brabon and **Ben F. Brammell**. 2017. Detection of *Percopsis omiscomaycus* (trout perch) using eDNA in eastern Kentucky streams. 103rd Annual Kentucky Academy of Science Meeting, Nov. 3-4, 2017, Murray, KY. Poster.
- (38) Nesselroade, Andrew W., Sams, Ronnie B., Cierla V. McGuire, Malinda A. Stull and **Ben F. Brammell**. 2017. Seasonal fluctuations in salamander eDNA in central KY streams. 103rd Annual Kentucky Academy of Science Meeting, Nov. 3-4, 2017, Murray, KY. Poster.
- (37) Hughes, Mitchell, **Ben Brammell** and Andrew Wigginton. 2017. Using eDNA to Determine the Presence of the Streamside Salamander, Hellbender, and the Rainbow Darter in a Kentucky Stream. EKV Research Symposium, Oct. 27, 2017.
- (36) Nesselroade, Andrew W., Harold A. Brabon, David J. Eisenhour, Brooke A. Washburn, Lynn V. Eisenhour, and **Ben F. Brammell**. 2017. Use of eDNA in detection of trout perch (*Percopsis omiscomaycus*) in eastern Kentucky streams. Kentucky Water Resources Annual Symposium, March 20, 2017, Lexington, KY. Poster.
- (35) Sams, Ronnie B., Cierla V. McGuire, Andrew M. Nesselroade, Malinda A. Stull and **Ben F. Brammell**. 2017. Seasonal fluctuations in salamander eDNA in central KY streams. Kentucky Water Resources Annual Symposium, March 20, 2017, Lexington, KY. Poster.
- (34) Sams, Ronnie B., Cierla V. McGuire, Andrew M. Nesselroade, Malinda A. Stull and **Ben F. Brammell**. 2016. Seasonal variation in salamander eDNA in central KY streams. 102nd Annual Kentucky Academy of Science Meeting, Nov. 4-5, 2016, Louisville, KY. Poster.
- (33) Pauley, Christopher C., Michael C. McGrann, Ronald B. Sams, Cierla V. McGuire, Malinda A. Stull, Brett J. Furnas, Brittany A. Joe, and **Ben F. Brammell**. 2016. Detection of species using eDNA in high elevation habitats in the Sierra Nevada in Sequoia-Kings Canyon National Park, CA.. 102nd Annual Kentucky Academy of Science Meeting, Nov. 4-5, 2016, Louisville, KY. Poster.
- (32) Bain, Ashton M., Robert L. Washburn, **Ben F. Brammell**, and Malinda A. Stull. 2016. Sequencing cytochrome b from tissue and swab collected DNA from central Kentucky salamander species. 102nd Annual Kentucky Academy of Science Meeting, Nov. 4-5, 2016, Louisville, KY. Poster.
- (31) Brabon, Harold A., David J. Eisenhour, Brooke A. Washburn, Lynn V. Eisenhour, and **Ben F. Brammell**. 2016. Use of eDNA in detection of trout perch (*Percopsis omiscomaycus*) in eastern Kentucky streams. Kentucky Water Resources Annual Symposium, March 28, 2016, Lexington, KY. Poster.
- (30) Sams, Ronnie B., Cierla V. McGuire, and **Ben F. Brammell**. 2015. Seasonal fluctuations in salamander eDNA in small, central KY streams. Kentucky Water Resources Annual Symposium, March 28, 2016, Lexington, KY. Poster.
- (29) Pauley, Christopher C., Michael C. McGrann, Ronald B. Sams, Cierla V. McGuire, Malinda A. Stull, Brett J. Furnas, Brittany A. Joe, and **Ben F. Brammell**. 2015. Use of eDNA to detect multiple species in high elevation habitats in the Sierra Nevada in Sequoia-Kings Canyon Nation Park, CA. 101st Annual Kentucky Academy of Science Meeting, Nov. 13-14, 2015, Highland Heights, KY. Poster.

- (28) Brabon, Harold A., David J. Eisenhour, Brooke A. Washburn, Lynn V. Eisenhour, and **Ben F. Brammell**. 2015. Use of eDNA in detection of trout perch (*Percopsis omiscomaycus*) in eastern Kentucky streams. 101st Annual KY Academy of Sci. Meeting, Nov. 13-14, 2015, Highland Heights, KY. Poster.
- (27) McGuire, Cierla V., Malinda A. Stull, and **Ben F. Brammell**. 2015. Use of eDNA to detect salamander species in lentic habits in central Kentucky (Jessamine County). 101st Annual Kentucky Academy of Science Meeting, Nov. 13-14, 2015, Highland Heights, KY. Poster.
- (26) Sams, Ronnie B., Cierla V. McGuire, and **Ben F. Brammell**. 2015. Seasonal fluctuations in salamander eDNA in small, central KY streams. 101st Annual Kentucky Academy of Science Meeting, Nov. 13-14, 2015, Highland Heights, KY. Poster.
- (25) Johnson, Mary R., Annessia L. Wood, Cierla V. McGuire, Harold A. Brabon, Malinda A. Stull, Ashton M. Bain, and **Ben F. Brammell**. 2015. Use of eDNA to detect darter species in central Kentucky streams. Kentucky Water Resources Annual Symposium, March 9, 2015, Lexington, KY. Poster.
- (24) Sams, Ronald B., Christopher C. Pauley, Mary R. Johnson, Malinda A. Stull, Andrew J. Wigginton, and **B.F. Brammell**. 2015. Use of eDNA in hellbender (*Cryptobranchus alleganiensis*) detection. Kentucky Water Resources Annual Symposium, March 9, 2015, Lexington, KY. Poster.
- (23) Johnson, Mary R., Cierla V. McGuire, Annessia L. Wood, Harold A. Brabon, Malinda A. Stull, and **Ben F. Brammell**. 2014. Development of eDNA protocols for detection of four darter species in central Kentucky streams. 100th Annual KY Academy of Science Meeting, Nov. 15, 2014, Lex., KY. Poster.
- (22) Pauley, Christopher C., Ronald B. Sams, Mary R. Johnson, Cierla V. McGuire, Malinda A. Stull, Andrew J. Wigginton, and **B.F. Brammell**. 2014. Development of an eDNA protocol for detection of hellbenders (*Cryptobranchus alleganiensis*) in central Kentucky streams. 100th Annual Kentucky Academy of Science Meeting, Nov. 15, 2014, Lexington, KY. Poster.
- (21) Adams, Ben M. and **Ben F. Brammell**. 2014. Effects of atrazine on the chemical alarm cue response in longear sunfish (*Lepomis megalottis*). KY Water Res. Ann. Symp., March 10, 2014, Lex., KY. Poster.
- (20) Adams, Ben M. and Ben F. Brammell. 2013. Effects of atrazine on the chemical alarm cue response in longear sunfish (*Lepomis megalottis*). 99th Annual Kentucky Academy of Science Meeting, Nov. 9, 2013, Morehead State University, Morehead, KY. Poster.
- (19) Burr, Samantha J., Joshua M. Lusk, **Ben F. Brammell**, and David K. Peyton. 2013. Use of eDNA to detect non-native species in small lentic systems. 99th Annual Kentucky Academy of Science Meeting, Nov. 9, 2013, Morehead State University, Morehead, KY. Poster.
- (18) Johnson, Matthew D., **Ben F. Brammell**, David K. Peyton, Ben M. Adams, and Andrew J. Wigginton. 2013. Gene expression in sunfish as a biomarker of contaminant exposure. Kentucky Water Resources Annual Symposium, March 18, 2013, Lexington, KY. Poster.
- (17) Adams, Ben M., Demetria M. Todd, and **Ben F. Brammell**. 2013. Effects of atrazine on the chemical alarm cue response in centrarchid species. Kentucky Water Resources Annual Symposium, March 18, 2013, Lexington, KY. Poster.
- (16) Adams, Ben M., Demetria M. Todd, and **Ben F. Brammell**. 2012. Effects of atrazine on the chemical alarm cue response in centrarchid species. Annual Kentucky Academy of Science Meeting, Oct. 19-20, 2012, Eastern Kentucky University, Richmond, KY. Poster.
- (15) Cox, Jordan, A., Graham H. Howell, and **Ben F. Brammell**. 2012. The Fishes of Hickman and Jessamine Creek Watershed. Annual Kentucky Academy of Science Meeting, Oct. 19-20, 2012, Eastern Kentucky University, Richmond, KY. Poster.
- (14) Johnson, Matthew D., **Ben F. Brammell**, David K. Peyton, Ben M. Adams, and Andrew J. Wigginton. 2012. Gene expression in sunfish as a biomarker of contaminant exposure. Annual Kentucky Academy of Science Meeting, Oct. 19-20, 2012, Eastern Kentucky University, Richmond, KY. Poster.
- (13) Kirtland, Marina D., Meredith Eckstein, David K. Peyton, **Ben. F. Brammell**, Andrew J. Wigginton, and Scott G. Lynn. Gene expression in native sunfish as a biomarker of contaminant exposure. Annual Kentucky Academy of Science Meeting, Oct. 19-20, 2012, Eastern Kentucky University, Richmond, KY. Poster.
- (12) **Brammell, Ben F.**, David K. Peyton, Kelly R. Barnett, Joshua C. Ferrell, Scott G. Lynn, and Andrew J. Wigginton. 2011. Use of gene expression in caged zebrafish (*Danio rerio*) and native sunfish (*Lepomis*) as a biomarker of contaminant exposure. 97th Annual Kentucky Academy of Science Meeting, Nov. 4-5, 2011, Murray State University, Murray, KY. Poster.

- (11) Todd, Demetria M. and **Brammell, Ben F.** 2011. Chemical alarm cue response in two centrarchid species exhibiting varying degrees of piscivory. Annual Kentucky Academy of Science Meeting, Nov. 4-5, 2011, Murray State University, Murray, KY. Poster.
- (10) Engler, Matt W. and **Ben F. Brammell.** 2011. A survey of the crayfish of the Hickman and Jessamine Creek watersheds. Annual Kentucky Academy of Science Meeting, Nov. 4-5, 2011, Murray State University, Murray, KY. Poster.
- (9) Howell, Graham H. and **Ben F. Brammell.** 2011. The Fishes of the Jessamine Creek Watershed. Annual Kentucky Academy of Science Meeting, Nov. 4-5, 2011, Murray St. Univ., Murray, KY. Poster.
- (8) **Brammell, Ben F.,** David K. Peyton, Kelly R. Barnett, Joshua C. Ferrell, Scott G. Lynn, and Andrew J. Wigginton. 2011. Gene expression in caged zebrafish (*Danio rerio*) and native sunfish (*Lepomis*) as biomarkers of contaminant exposure. Annual Meeting of North American SETAC, Nov. 13-17, 2011, Boston, Massachusetts. Poster.
- (7) Wigginton, Andrew J., Rodney Umbstead, John Walker, and **Ben F. Brammell.** 2011. Benthic Macroinvertebrate Metrics Correlated with Heptageniid Mayfly Whole Body Metal Concentrations in a Stream Near a Uranium Enrichment Plant. Annual Meeting of North American SETAC, Nov. 13-17, 2011, Boston, Massachusetts. Poster.
- (6) **Brammell, Ben F.,** David K. Peyton, Kelly R. Barnett, Joshua C. Ferrell, and Andrew J. Wigginton. 2011. Differential gene expression in zebrafish and native sunfish following exposure to gaseous diffusion plant effluent. KY Water Res. Annual Symposium, March 21, 2011, Lexington, KY. Poster.
- (5) Andrew J. Wigginton, Li Yinglei, **Ben F. Brammell,** and Arne C. Bathke. 2011. Long term monitoring and evaluation of pollutant levels at a gaseous diffusion plant. Kentucky Water Resources Annual Symposium, March 21, 2011, Lexington, KY. Poster.
- (4) **Brammell, Ben F.,** David K. Peyton, Kelly R. Barnett, Joshua C. Ferrell, and Andrew J. Wigginton. 2010. Differential gene expression as a biomarker of contaminant exposure. 96th Annual Kentucky Academy of Science Meeting, Nov. 12-13, 2010, Western KY Univ., Bowling Green, KY. Poster.
- (3) Walker, John, **B.F. Brammell** and A.J. Wigginton. 2010. A Comparison of Aquatic Benthic Macroinvertebrate communities found in a stream near the Paducah Gaseous Diffusion Plant (PGDP) in western Kentucky. 96th Annual Kentucky Academy of Science Meeting, Nov. 12-13, 2010, Western Kentucky University, Bowling Green, KY. Poster.
- (2) **Brammell, Ben F.,** David K. Peyton, Kelly R. Barnett, Joshua C. Ferrell, and Andrew J. Wigginton. 2010. Differential gene expression as a biomarker of contaminant exposure. 96th Annual Meeting of North American SETAC, Nov. 7-10, 2010, Portland, Oregon. Poster.
- (1) Wigginton, A.J. and **B.F. Brammell.** 2010. Use of aquatic macroinvertebrate ecological surveys in assessing impact at the Paducah Gaseous Diffusion Plant: 20 years ago and today 96th Annual Meeting of North American SETAC, Nov. 7-10, 2010, Portland, Oregon. Poster.

Prior to Asbury

- (31) **Brammell, Ben F.** and Andrew J. Wigginton. 2010. Physiological alterations in Daphnia (*Daphnia pulex*) and Zebrafish (*Danio rerio*) following exposure to effluent and effluent containing stream water from a gaseous diffusion plant. KY Water Res. Annual Symposium, March 23, 2010, Lexington, KY. Poster.
- (30) **Brammell, Ben F.** and Andrew J. Wigginton. 2009. Physiological alterations in Daphnia (*Daphnia pulex*) and Zebrafish (*Danio rerio*) following exposure to effluent and effluent containing stream water from a gaseous diffusion plant. 95th Annual Meeting of North American SETAC, Nov. 19-23, 2009, New Orleans, Louisiana. Poster.
- (29) Wigginton, Andrew, Danny Branham, Alissa Carlton, and **Ben Brammell.** 2009. Heavy metal accumulation in Heptageniid mayflies near a gaseous diffusion plant near Paducah, Kentucky. 95th Annual Meeting of North American SETAC, Nov. 19-23, 2009, New Orleans, Louisiana. Poster.
- (28) **Brammell, Ben F.** and Adria A. Elskus. 2009. Linking chemical tolerance to reproductive fitness: initial results of *in vitro* experiments examining pollutant effects in teleost primary cell culture. Kentucky Water Resources Annual Symposium, March 2, 2009, Lexington, KY. Poster.

- (27) **Brammell, Ben F.** and Adria A. Elskus. 2008. Linking chemical tolerance to reproductive fitness: initial results of *in vitro* experiments examining pollutant effects in teleost primary cell culture. 94th Annual Kentucky Academy of Science Meeting, Oct. 31 - Nov. 1, 2008, University of Kentucky, Lexington, KY. Poster.
- (26) **Brammell, Ben F.**, Eleana M. Harmel-Laws, and Adria A. Elskus. 2007. Effects of Polybrominated Diphenyl Ethers on Fish Physiology and Development. Annual Meeting of the North Atlantic Chapter SETAC, June 15, 2007, Bristol, RI. Platform.
- (25) **Brammell, Ben F.**, Stephen McCormick, Amy Moeckel, Eleana M. Harmel-Laws, and Adria A. Elskus. 2006. Effects of Polybrominated Diphenyl Ethers on Fish Physiology and Development. 92nd Annual Kentucky Academy of Science Meeting, Nov. 9-11, 2006, Morehead, KY. Poster.
- (24) **Brammell, Ben F.** CYP1A Expression in *Lepomis* Species Following PCB and PAH Exposure. 2005. 91st Annual Kentucky Academy of Science Meeting, Nov. 10-12, 2005, Eastern Kentucky University, Richmond, KY. Poster.
- (23) **Brammell, Ben F.**, Eleana M. Harmel, John A. Hitron, Xabier Arzuaga, David J. Price, Wesley J. Birge, and Adria A. Elskus, 2005. CYP1A Expression in *Lepomis* Species Following PCB and PAH Exposure. Kentucky Water Resources Annual Symposium, March 3, 2005, Lexington, KY. Poster.
- (22) **Brammell, Ben F.**, Eleana M. Harmel, John A. Hitron, Xabier Arzuaga, David J. Price, Wesley J. Birge, Adria A. Elskus. 2004. CYP1A Expression in *Lepomis* Species Following PCB and PAH Exposure. Fourth SETAC World Congress, Nov. 13-18, 2004, Portland, Oregon. Poster.
- (21) **Brammell, Ben F.**, Eleana M. Harmel, John A. Hitron, Xabier Arzuaga, David J. Price, Wesley J. Birge, Adria A. Elskus. 2004. CYP1A Expression in *Lepomis* Species Following PCB and PAH Exposure. 90th Annual Kentucky Academy of Science Meeting, Nov. 4-6, 2004, Murray, KY. Poster.
- (20) **Brammell, Ben F.**, David J. Price, Wesley J. Birge, Adria A. Elskus. 2004. Pollutant response in species inhabiting chronically contaminated habitats. Annual Meeting of Ohio Valley Chapter SETAC, May 14, 2004, Columbus, OH. Platform.
- (19) **Brammell, Ben F.**, David J. Price, Wesley J. Birge, Adria A. Elskus. 2004. Pollutant response in species inhabiting chronically contaminated habitats. Center for Ecology, Evolution, and Biology Research Symposium, University of KY, Lexington, KY, May 14, 2004, Lexington, KY. Platform.
- (18) **Brammell, Ben F.**, David J. Price, Wesley J. Birge, Adria A. Elskus. 2004. Pollutant response in species inhabiting chronically contaminated habitats: two varieties of resistance? Kentucky Water Resources Annual Symposium, Feb. 19, 2004, Lexington, KY. Platform.
- (17) **Brammell, Ben F.**, David J. Price, Wesley J. Birge, Adria A. Elskus. 2003. Pollutant response in species inhabiting chronically contaminated habitats: two varieties of resistance? Annual Meeting of North American SETAC, Nov. 8-13, 2003, Austin, Texas. Poster.
- (16) Wigginton, Andrew J., **Ben F. Brammell**, Joeseeph R. Shaw, and Wesley J. Birge. 2003. Variation in the toxicity of cadmium between four crayfish species in two genera. Annual Meeting of North American SETAC, Nov. 9-14, 2003, Austin, Texas. Poster.
- (15) Wigginton, Andrew J., **Ben F. Brammell**, Joeseeph R. Shaw, and Wesley J. Birge. 2003. Variation in the toxicity of cadmium between four crayfish species in two genera. 89th Annual Meeting of Kentucky Academy of Science, Nov. 6-8, 2003, Bowling Green, Kentucky. Poster.
- (14) **Brammell, Ben F.**, David J. Price, Wesley J. Birge, Adria A. Elskus. 2003. Lack of CYP1A response to high PCB body burdens in fish from a chronically contaminated PCB site: evidence of acquired resistance? Annual Meeting of KAS, Nov. 6-8, 2003, Bowling Green, Kentucky. Poster.
- (13) **Brammell, Ben F.**, J. Scott McClain, James T. Oris, David J. Price, Wesley J. Birge, and Adria A. Elskus. 2003. Use of caged rainbow trout and field collected fish as biomonitoring tools for evaluating the effectiveness of a PCB remediation project. 12th International Pollutant Response in Marine Organisms Symposium (PRIMO), May 9-13, 2003, Safety Harbor, FL. Poster.
- (12) **Brammell, Ben F.**, J. Scott McClain, James T. Oris, and Adria A. Elskus. 2003. Use of rainbow trout as a biomonitor for evaluating the effectiveness of a PCB remediation project. Kentucky Water Resources Annual Symposium, Feb. 20, 2003, Lexington, KY. Platform.
- (11) **Brammell, Ben F.**, David J. Price, Xabier Arzuaga, Wesley J. Birge, and Adria Elskus. 2003. CYP1A expression in longear sunfish as a biomarker of PCB exposure. Kentucky Water Resources Annual Symposium, Feb. 20, 2003, Lexington, KY. Platform.

- (10) Wigginton, Andrew J., **Ben F. Brammell**, Joseph R. Shaw, and Wesley J. Birge. 2003. Variation in the toxicity of cadmium between two related crayfish species. Kentucky Water Resources Annual Symposium, Feb. 20, 2003, Lexington, KY. Poster.
- (9) **Brammell, Ben F.**, David J. Price, Xabier Arzuaga, Wesley J. Birge, and Adria Elskus. 2002. CYP1A expression in longear sunfish as a biomarker of PCB exposure. Annual Meeting of North American Society of Environmental Toxicology and Chemistry (SETAC), Nov. 16-20, 2002, Salt Lake City, Utah. Poster.
- (8) **Brammell, Ben F.**, J. Scott McClain, James T. Oris, and Adria A. Elskus. 2002. Use of rainbow trout as a biomonitor for evaluating the effectiveness of a PCB remediation project. Annual Meeting of North American SETAC, Nov. 16-20, 2002, Salt Lake City, Utah. Poster.
- (7) Wigginton, Andrew J., **Ben F. Brammell**, Joseph R. Shaw, and Wesley J. Birge. 2002. Variation in the toxicity of cadmium between two related crayfish species. Annual Meeting of North American SETAC, Nov. 16-20, 2002, Salt Lake City, Utah. Poster.
- (6) Shepherd, Brian S., Katherine D. Drennon, **Ben F. Brammell** and Adria A. Elskus. 2002. Effects of Arochlor 1254 on endocrine physiology in the channel catfish (*Ictalurus punctatus*). International Congress on the Biology of Fishes (ICBF), July 21-26, 2002, Vancouver, British Columbia. Platform.
- (5) Drennon, Katherine D., **Ben F. Brammell**, Adria Elskus and Brian S. Shepherd. 2002. Environmental stressors and plasma growth hormone (GH) levels in the channel catfish (*Ictalurus punctatus*). Annual Meeting of Ohio Valley Conference SETAC Chapter, May 16-17, 2002, University of Louisville, Louisville, KY. Poster.
- (4) **Brammell, Ben F.** and S. Bradford Cook. 2000. An assessment of brook trout restoration efforts in the Great Smoky Mountains National Park. Department of Biological Sciences, Tennessee Technological University, Cookeville, TN. Departmental Seminar.
- (3) **Brammell, Ben F.** and S. Bradford Cook. 2000. Assessment of brook trout restoration efforts in two Great Smoky Mountains National Park streams. East Coast Trout Workshop, June 6-8, 2000, Frostburg, Maryland. Platform.
- (2) **Brammell, Ben F.** and S. Bradford Cook. 2000. Assessment of brook trout restoration efforts in two Great Smoky Mountains National Park streams. Annual Meeting of Tennessee Chapter of the American Fisheries Society Meeting, March 29-31, 2000, Fall Creek Falls State Park, TN. Platform.
- (1) **Brammell, Ben F.** and S. Bradford Cook. 2000. Assessment of brook trout restoration efforts in two Great Smoky Mountains National Park streams. Annual Meeting of Southern Division of the American Fisheries Society, Feb. 3-6, 2000, Savannah, Georgia. Platform.

PUBLISHED GENBANK SEQUENCES (36 sequences with 20 undergraduate coauthors, all since joining Asbury)

- (37) Fetter, Karsner, S., Lauren L. Slone, Sara A. Brewer, and **Ben F. Brammell**. 2024. *Etheostoma blennioides*, cytochrome b, partial cds, 1132 BP, GB Submission #2840497
- (36) Brewer, Sara A., Brendan C. Jeffrey, Rebecca R. Piche, Kenton L. Sena, Thomas A. Maigret, David K. Peyton and **Ben F. Brammell**. 2024. *Hemidactylium scutatum* (Breathitt Co., KY), cytochrome b, partial cds, 565 BP, Accession # PP537787.1
- (35) Brewer, Sara A., Elizabeth K. Strasko, and **Ben F. Brammell**. 2024. *Eurycea wilderae* (GSMNP 7/16/23), cytochrome b, partial cds, 707 BP, Accession # PP496518.1
- (34) Brewer, Sara A. and **Ben F. Brammell**. 2024. *Eurycea wilderae* (TWP 165), cytochrome b, partial cds, 694 BP, GB Accession # PP393049.1
- (33) Brewer, Sara A., and **Ben F. Brammell**. 2024. *Eurycea wilderae* (TWP 053), cytochrome b, partial cds, 702 BP, GB Accession # PP393050.1
- (32) Brewer, Sara A., and **Ben F. Brammell**. 2024. *Eurycea wilderae* (TWP 170), cytochrome b, partial cds, 640 BP, GB Accession # PP393048.1
- (31) Brewer, Sara A., and **Ben F. Brammell**. 2024. *Eurycea junaluska* cytochrome b, partial cds, 635 BP, GB Accession # PP277535.1
- (30) Brewer, Sara A., Rebecca R. Piche, Florene G. Bell, Angie F. Flores, Kenton L. Sena, Thomas A. Maigret, Chi Jing Leow, Jung, Joanne, and **Ben F. Brammell**. 2023. *Pseudotriton ruber ruber* cytochrome b, partial cds, 861 BP, GB Accession # OQ376719

- (29) Strasko, Elizabeth K., Jarrett R. Johnson, and **Ben F. Brammell**. 2022. *Ambystoma tigrinum* cytochrome b, partial cds, 778 BP, Submission # OM289825
- (28) Strasko, Elizabeth K., Jarrett R. Johnson, and **Ben F. Brammell**. 2022. *Ambystoma tigrinum* cytochrome b, partial cds, 782 BP, Submission # OM289824
- (27) Strasko, Elizabeth K., Jarrett R. Johnson, Rebecca R. Piche, and **Ben F. Brammell**. 2022. *Ambystoma texanum* cytochrome b, partial cds, 746 BP, Accession # OM236537
- (26) **Brammell, Ben F.**, Elizabeth K. Strasko, and Rebecca R. Piche. 2021. *Ambystoma barbouri* cytochrome b, partial cds, 935 BP, Accession # OL456142
- (25) Strasko, Elizabeth K., Rebecca R. Piche, Jarrett R. Johnson, and **Ben F. Brammell**. 2021. *Ambystoma tigrinum* cytochrome b, partial cds, 769 BP, Accession # OL456143
- (24) Sams, Cierla M., Robert Washburn, Rebecca R. Piche, Elizabeth K. Strasko, and **Ben F. Brammell**. 2021. *Ambystoma barbouri* cytochrome b, partial cds, 337 BP, Accession #OK040169
- (23) Piche, Rebecca R., Elizabeth K. Strasko, Cy L. Mott, and **Ben F. Brammell**. 2021. *Notophthalmus viridescens* cytochrome b, partial cds, 272 BP, Accession # MZ962319
- (22) Strasko, Elizabeth K., Rebecca R. Piche, Mary E. Johnson, and **Ben F. Brammell**. 2021. *Ambystoma tigrinum* cytochrome b, partial cds, 770 BP, Accession # MZ962317
- (21) Strasko, Elizabeth, K., Rebecca R. Piche, Cy L. Mott, and **Ben F. Brammell**. 2021. *Ambystoma jeffersonianum* cytochrome b, partial cds, 749 BP, Accession # MZ962318
- (20) McGuire, Cierla V., Ronald B. Sams, Malinda A. Stull, and **Ben F. Brammell**. 2021. *Ambystoma maculatum* cytochrome b, partial cds, 411 BP, Accession # MZ485477
- (19) Bell, Florene G., Angie F. Flores, Chi Jing Leow, Kenton L. Sena, Thomas A. Maigret, and **Ben F. Brammell**. 2021. *Desmognathus fuscus* cyt. b, partial cds, 633 BP, Accession # MZ485476
- (18) Bell, Florene G., Angie F. Flores, Chi Jing Leow, Kenton L. Sena, Thomas A. Maigret, and **Ben F. Brammell**. 2021. *Eurycea cirrigera* cytochrome b, partial cds, 380 BP, Accession # MZ485475
- (17) Bell, Florene G., Angie F. Flores, Chi Jing Leow, Kenton L. Sena, Thomas A. Maigret, and **Ben F. Brammell**. 2021. *Gyrinophilus porphyriticus* cytochrome b, partial cds, 363 BP, Accession # MZ507696
- (16) Bell, Florene G., Angie F. Flores, Chi Jing Leow, Bret D. Kuss, and **Ben F. Brammell**. 2021. *Pseudotriton montanus* cytochrome b, partial cds, 839 BP, Accession # MZ507697
- (15) **Brammell, Ben F.** and Ramon A. Guivas. 2021. *Desmognathus monticola* cytochrome b, partial cds, 364 BP, Accession # MZ418126
- (14) **Brammell, Ben F.**, Mary R. Johnson, Ronald B. Sams, Cierla V. McGuire. 2015. *Etheostoma caeruleum* cytochrome b, partial cds. Accession # KT880220.
- (13) **Brammell, Ben F.**, Mary R. Johnson, Cierla V. McGuire, and Ronald B. Sams. 2015. *Etheostoma flabellare* cytochrome b, partial cds. Accession # KT880219.
- (12) **Brammell, Ben F.**, Mary R. Johnson, Ronald B. Sams, Christopher C. Pauley, and Cierla V. McGuire. 2015. *Etheostoma blennioides* cytochrome b, partial cds. Accession # KT880218.
- (11) **Brammell, Ben F.**, Mary R. Johnson, Christopher C. Pauley, Cierla V. McGuire, and Ronald B. Sams. 2015. *Percina caprodes* cytochrome b, partial cds. Accession # KT880217.
- (10) **Brammell, Ben F.**, Mary R. Johnson, Cierla V. McGuire, Harold A. Brabon, and Ronald B. Sams. 2015. *Aplodinotus grunniens* cytochrome b, partial cds. Accession # KT880216.
- (9) **Brammell, Ben F.**, Harold A. Brabon, and David J. Eisenhour, Brooke A. Washburn, Lynn V. Eisenhour. 2015. *Percopsis omiscomaycus* cytochrome b, partial cds. Accession # KT873717.1
- (8) McGuire, Cierla V., **Brammell, Ben F.**, Ronald B. Sams, and Malinda A. Stull. 2015. *Eurycea lucifuga* cytochrome b, partial cds. Accession # KT873718.
- (7) McGuire, Cierla V. **Brammell, Ben F.**, Ronald B. Sams, and Malinda A. Stull. 2015. *Ambystoma opacum* cytochrome b, partial cds. Accession # KT780868.
- (6) **Brammell, Ben F.**, Cierla V. McGuire, Ronald B. Sams, and Malinda A. Stull. 2015. *Ambystoma jeffersonianum* cytochrome b, partial cds. Accession # KT780869.
- (5) **Brammell, Ben F.**, David K. Peyton, Kelly R. Barnett, Joshua C. Ferrell, and Andrew J. Wigginton. 2011. *Lepomis cyanellus* metallothionein, mRNA. Accession # JF497772.
- (4) **Brammell, Ben F.**, David K. Peyton, Kelly R. Barnett, Joshua C. Ferrell, and Andrew J. Wigginton. 2011. *Lepomis cyanellus* glutathione S-transferase, mRNA. Accession # JF497773.

- (3) **Brammell, Ben F.**, David K. Peyton, Kelly R. Barnett, Joshua C. Ferrell, and Andrew J. Wigginton. 2011. *Lepomis megalotis* glutathione S-transferase, mRNA. Accession # JF497774.
- (2) **Brammell, Ben F.**, David K. Peyton, Kelly R. Barnett, Joshua C. Ferrell, and Andrew J. Wigginton. 2011. *Lepomis megalotis* metallothionein, mRNA. Accession # JF497775.
- (1) **Brammell, Ben F.**, David K. Peyton, Kelly R. Barnett, Joshua C. Ferrell, and Andrew J. Wigginton. 2011. *Lepomis cyanellus* cytochrome P4501A, mRNA. Accession # JF497776.

AWARDS AND FELLOWSHIPS

- 2019–2021 Lilly Faculty Fellow**, \$5,000. Selected with colleague Daniel Strait as members of the first cohort of the Lilly Faculty Fellows program.
- 2019 Faculty Scholar**, Asbury University, Awarded annually to faculty for a record of high scholarly productivity, two awarded in 2019.
- 2017 Joe and Caroline Butler Distinguished Service Award**, \$500, awarded annually to department faculty member for outstanding service.
- 2004 SETAC Travel Award**, \$500. Merit based award that provides travel funds to the annual SETAC national meeting.
- 2003 Ohio Valley Chapter SETAC Travel Award**. Merit based award that provides travel funds to the annual SETAC national meeting.
- 2001 University of Kentucky, Graduate Student Development Award**, Merit based award presented to one graduate student in the Department of Biology annually.
- 2001 University of Kentucky, Ribble Scholarship**, \$2,500. Provides stipend for research activities during the summer for graduates students in the Department of Biology.
- 1997 Dean’s Award Recipient, Eastern Kentucky University**. Awarded to students who have been on the Dean’s list (GPA of 3.5 or greater) three times.
- 1996 Eastern Kentucky University, Outstanding Junior in Biological Sciences**. Awarded annually to one student in the Department based on GPA and scholastic achievement.

UNDERGRADUATE RESEARCH MENTORING (*32 senior research mentees since joining, 17 student research awards at professional meetings, 5 extramural undergraduate research funded proposals*)

UNDERGRADUATES SENIOR RESEARCH PROJECT STUDENTS (*32 since joining Asbury*)

Natalie Hill - 2025
 Karson Fetter - 2025
 Ethan Hoogerheide – 2024
 Hope Brown – 2024
 Sara Brewer – 2024
 Abigail Fletcher – 2023
 Brendan Jeffry – 2022
 Rebecca Piche – 2022
 Faith Day – 2021
 Angie Flores – 2021
 Florene Bell – 2020
 Ramon Guivas – 2019
 Kyle Lafenburger – 2018
 Elle Berry – 2018 (co-mentored with Marvin Ruffner, Ph.D.)
 Ronnie Sams – 2017
 Robert Washburn – 2017
 Ashton Bain – 2017
 Harold Brabon – 2017
 Cierla McGuire – 2016
 Rebecca Blackburn – 2016
 Dallas Murphy – 2016

Christopher Pauley – 2016
Annisia Wood – 2015
Mary Johnson – 2015
Trevor Smith – 2015
Samantha Burr – 2014
Matt Johnson – 2013
Jordan Cox – 2013
Ben Adams – 2013
Demetria Todd – 2012
Graham Howell – 2012
Matt Engler – 2011

Non-Senior Research Project Students

Lauren Slone – 2024
Joanne Jung – 2024
Elizabeth Strasko – 2021
Chi Jing Leow – 2020
Andrew Nesselrode - 2019

UNDERGRAD RESEARCH MENTEE STUDENT AWARDS *(17 awards with 13 Asbury undergraduates)*

Sara Brewer – Fall 2023, “Thoroughbred” designation (highest award), 2023 Annual KY Academy of Science Meeting, November 2023
Hope Brown – Fall 2023, “Thoroughbred” designation (highest award), 2023 Annual KY Academy of Science Meeting, November 2023
Sara Brewer – Fall 2023, Best Student Poster Presentation, Tennessee Herpetological Society, Annual Meeting, September 2023
Sara Brewer – Fall 2023, Niemiller Travel Scholarship, Tennessee Herpetological Society, Annual Meeting, September 2023
Abigail Fletcher – Fall 2022, “Thoroughbred” designation (highest award), 2022 Annual KY Academy of Science Meeting, November 2022
Brendan Jeffry – Fall 2022, “Thoroughbred” designation (highest award), 2022 Annual KY Academy of Science Meeting, November 2022
Sara Brewer – Fall 2022, “Thoroughbred” designation (highest award), 2022 Annual KY Academy of Science Meeting, November 2022
Abigail Fletcher – Fall 2022, Most Outstanding Undergraduate Poster, Annual Kentucky Water Resource Research meeting, September 2022
Elizabeth Strasko – Niemiller Travel Scholarship, Tennessee Herpetological Society, Annual Meeting, December 2021
Rebeca Piche – Fall 2021, 2nd place Ecology undergraduate student poster, 2021 Annual KY Academy of Science meeting
Rebecca Piche – Fall 2021, Most Outstanding Undergraduate Poster, Annual Kentucky Water Resource Research meeting
Ramon Guivas – Fall 2018, 2nd place Ecology undergraduate student poster, 2018 Annual KY Academy of Science meeting
Ronnie Sams – Fall 2015, 1st place Ecology and Environmental Science undergraduate student poster, 2015 Annual KY Academy of Science meeting
Cierla McGuire – Fall 2015, 3rd place Ecology and Environmental Science undergraduate student poster, 2015 Annual KY Academy of Science meeting
Christopher Pauley and Ronnie Sams – Fall 2014, 2nd place Ecology and Environmental Science undergraduate student poster, 2014 Annual KY Academy of Science meeting
Ben Adams – Fall 2013, 3rd place Ecology and Environmental Science undergraduate student poster, 2013 Annual KY Academy of Science meeting
Demetria Todd – Fall 2011, 3rd place, Ecology and Environmental Science undergraduate student poster, 2011 Annual KY Academy of Science meeting

UNDERGRADUATE RESEARCH STUDENT FUNDED PROPOSALS (*Five awards, \$2,389 total*)

- \$468. Kentucky Academy of Science. Sara A. Brewer and B. F. Brammell. 2023. Development and validation of qPCR assays for three species of Plethodon salamanders.
- \$459. ECU Division of Natural Areas Grant in Aid of Research. Rebecca R. Piche and Ben F. Brammell. 2021. Comparison of leaf litter bags and environmental DNA in detection of salamanders in Maywoods Environmental and Educational Laboratory.
- \$512. Kentucky Academy of Science. Ramon A. Guivas and B. F. Brammell. 2018. Use of eDNA in multiple species fish biomass determinations in small to mid-sized lotic systems.
- \$500. Kentucky Academy of Science. Ben M. Adams and B. F. Brammell. 2012. The effects of atrazine on chemical alarm cue response in predator and prey centrarchid species.
- \$450. Kentucky Academy of Science. Matthew W. Engler and B. F. Brammell. 2011. A survey of the distribution and habitat preferences of the crayfish of Hickman and Jessamine Creek watersheds.

TEACHING

ASBURY UNIVERSITY (*2010-present*)

- Bio 100 – Introductory biology for non-majors
- Bio 101 – Introductory biology lab for non-majors
- Bio 100O – Introductory biology for non-majors (On-line)
- Bio 101O – Introductory biology lab for non-majors (On-line)
- Bio 201 – Introductory biology for majors
- Bio 221 – Ecology
- Bio 217 – Environmental Science
- Bio 272 – Principles of Plant Science
- Bio 293 – Aquatic and Wetland Biology
- Bio 352 – Physiology (first taught Spring 2015)
- Bio 352X – Physiology lab (first taught Spring 2015)
- Bio 374 – Cell and Molecular biology lab
- Bio 393 – Biogeography of the Galapagos Islands

EASTERN KENTUCKY UNIVERSITY (*Adjunct work, continuously from 2010 – present*)

- Bio 171: Human anatomy with lab
- Bio 100: Introductory biology for non-majors

MOREHEAD STATE UNIVERSITY (*Lecturer, Fall 2004-Summer 2008*)

- Bio 105 – Introductory biology for non-biology majors
- Bio 110 – Biology for education majors with multiple lab sections, also served as lab coordinator
- Bio 171 lab – Introductory biology lab for biology majors
- Bio 217 – Medical microbiology with multiple lab sections
- Bio 231 – Human anatomy
- Bio 232 – Human physiology

CREATION OF TEACHING MATERIAL

- Created a total of 129 multiple choice questions for specified categories of Bloom's taxonomy of learning For The Economy of Nature, 6th edition (Ecology textbook) (MacMillan Higher Ed), 2014 – 2015.
- Reviewed three chapters for Biology Now (W.W. Norton and Company), a new biology textbook, December 2014 – February 2015.
- Created supplemental teaching material (activities, instructor's notes, misconception alerts, quizzes) for Chapter 7 (DNA) of Biology for a Changing World, 2nd edition (MacMillan Higher Ed), 2013.
- Reviewed nine chapters and test banks for eleven other chapters for Life: The Science of Biology, 10th edition (Sinauer Associates), May – December 2012.

SERVICE

PROFESSIONAL SERVICE

Advisory Editor, Environmental Biology of Fishes. Appointed May 2021. 4 manuscripts 2021, 3 in 2022, 5 in 2023, 1 to date in 2024.
Amphibian Taxa Team Support Member, 2023 Kentucky State Wildlife Action Plan

MANUSCRIPT REVIEW

2024- Journal of Freshwater Ecology (1 manuscript)
2024- Journal of Herpetology (1 manuscript)
2021- Archives of Environmental Contamination and Toxicology (1 manuscript)
2021- Environmental Biology of Fishes (1 manuscript)
2021- Environmental Science and Pollution Research (1 manuscript)
2020- Environmental Biology of Fishes (1 manuscript)
2020- Ecotoxicology and Environmental Safety (1 manuscript)
2019- Ecotoxicology and Environmental Safety (1 manuscript)
2018- Archives of Environmental Contamination and Toxicology (1 manuscript)
2018- Ecotoxicology and Environmental Safety (1 manuscript)
2017- Ecotoxicology (1 manuscript)
2017- Archives of Environmental Contamination and Toxicology (1 manuscript)
2013- 2015- Ecotoxicology and Environmental Safety (3 manuscripts)
2013- Canadian Journal of Fisheries and Aquatic Sciences (1 manuscript)
2011- Fisheries Science (1 manuscript)
2011- Comparative Biochemistry and Physiology (1 manuscript)
2005- Comparative Biochemistry and Physiology (1 manuscript)

PROFESSIONAL SOCIETY LEADERSHIP/SERVICE

Chair of the 2023 Kentucky Academy of Science Ecology Section, Northern Kentucky University, November 3-4, 2023.
Secretary of the 2022 Kentucky Academy of Science Ecology Section, Morehead State University, November 10-12, 2022.
STEM Lilly Faculty Fellows Program Representative, Valparaiso University, Asbury University, appointed August 2022.
Chair of the 2019 Kentucky Academy of Science Environmental Science Section. Berea College, November 1- 2, 2019.
Secretary of the 2018 Kentucky Academy of Science Environmental Science Section, Western Kentucky University, November 2018.
Chair of the 2016 Kentucky Academy of Science Ecology and Environmental Science Section, University of Louisville, November 4-5, 2016.
Secretary of the 2015 Kentucky Academy of Science Ecology and Environmental Science Section, Northern Kentucky University, November 13-14, 2015.
Chair of the 2005 Kentucky Academy of Science Physiology and Biochemistry Section, held in Richmond, Kentucky, November 2005.
Chair of the 2004 Kentucky Academy of Science Physiology and Biochemistry Section, held in Murray, Kentucky, November 5-6, 2004.

OUTREACH/INVITED PRESENTATIONS

2024 – “Molecular ecology: The use of eDNA in biodiversity surveys,” Invited seminar to the Biology Department at Murray State University, April 12th, 2024.
2022 - “Ichthyofauna of Central Appalachia” - Invited lecture in the “Appalachian Natural History Seminar Series,” Lewis Honors College, University of Kentucky, Feb. 2, 2022.
2021- Led electrofishing collecting trip for Bluegrass Fish Keepers Association to multiple sites in Madison County, KY, June 5, 2021.
2021- “Thoughts on Kentucky fish” - Invited lecture, Bluegrass Fish Keepers Association, May 15, 2021.

- 2017- Presented ecology lecture and activity (owl pellets) to third grade class at Hattie Warner Elementary School, Nicholasville, KY - May 8, 2017.
- 2014 - Presented invited talk to Asbury University faculty at fall 2014 annual faculty retreat titled: "DNA or: How I Learned to Stop Worrying and Love Franken-Science" - August 11, 2014.
- 2014 - Presented lecture on reptiles and amphibians for the children at the Lexington Hearing and Speech Center, Lexington, KY - April 29, 2014.
- 2013 - Presented lecture on reptiles and amphibians to preschool children at Trinity Christian Academy, Lexington, KY - May 13, 2013.
- 2013 - Presented lecture on reptiles and amphibians for the children at the Lexington Hearing and Speech Center, Lexington, KY - March 26, 2013.
- 2012 - Conducted a one-day outdoor ecology laboratory at Bluegrass Christian Camp for the 120 6th grade students of the Lexington Christian Academy - October 9, 2012.
- 2012 - Conducted a brief (three meetings) after school course on reptiles for elementary students at the Lexington Christian Academy - September and October 2012.
- 2012 - Conducted a brief (eight meetings) summer school course on reptiles for elementary students at the Lexington Christian Academy - June and July, 2012.
- 2011 - Conducted a one-day outdoor ecology laboratory at Bluegrass Christian Camp for the 120 6th grade students of the Lexington Christian Academy - October 2, 2011.

JUDGING

- 2023- Served as judge for undergraduate and graduate research presentations, Ecology Section, Kentucky Academy of Science meeting, November 3, 2023.
- 2022- Served as judge for undergraduate and graduate research presentations, Ecology Section, Kentucky Academy of Science meeting, November 11, 2022.
- 2021- Served as judge for undergraduate and graduate research presentations, Environmental Science Section, Kentucky Academy of Science meeting, November 6, 2021.
- 2020- Served as judge for undergraduate and graduate research presentations, Environmental Science Section, Kentucky Academy of Science meeting, November 7, 2020.
- 2019 - Served as judge for undergraduate and graduate research presentations, Environmental Science Section, Kentucky Academy of Science meeting, Berea University, November 1-2, 2019.
- 2018 - Served as judge for undergraduate and graduate research presentations, Environmental Science Section, Kentucky Academy of Science meeting, Western Kentucky University, November 2-3, 2018.
- 2018 - Served as a judge evaluating science fair projects for the Southern Middle School annual science fair, January 11, 2018, Southern Middle School, Lexington, KY.
- 2017 - Served as judge for undergraduate and graduate research presentations, Ecology and Environmental Science Section, Kentucky Academy of Science meeting, Murray University, November 3-4, 2017.
- 2016 - Served as judge for undergraduate and graduate research presentations, Ecology and Environmental Science Section, Kentucky Academy of Science meeting, Univ. of Louisville, November 4-5, 2016.
- 2015 - Served as judge for undergraduate and graduate research presentations, Ecology and Environmental Science Section, KAS meeting, Northern Kentucky University, November 13-14, 2015.
- 2015 - Served as a judge evaluating science fair projects in the Animal Science Division of the Kentucky Science & Engineering Fair, March 28, 2015 at Eastern Kentucky University, Richmond, KY.
- 2015 - Served as a judge for high school science fair at Clark County High School, Jan. 27, 2015.
- 2014 - Served as judge for undergraduate research presentations, Ecology and Environmental Science Section, Kentucky Academy of Science meeting, Nov. 15, 2014, Lexington Convention Center.
- 2014 - Served as a judge evaluating science fair projects in the Earth Science Division of the Kentucky Science & Engineering Fair, March 29, 2014 at Eastern Kentucky University, Richmond, KY.
- 2013 - Served as judge for undergraduate research presentations, Biochemistry and Physiology Section, at the annual Kentucky Academy of Science meeting, Nov. 9, 2013, Morehead State University.
- 2013 - Served as a "best of show judge" evaluating science fair projects in the Earth Science Division of the Kentucky Science & Engineering Fair, Eastern Kentucky University, Richmond, KY, March 30, 2013.
- 2012 - Served as a judge evaluating science fair projects in the Earth Science Division of the Kentucky Science & Engineering Fair, March 31, 2012 at Eastern Kentucky University, Richmond, KY

- 2010 - Served as a “best of show judge” evaluating science fair projects in the Earth Science Division of the Kentucky Science & Engineering Fair, April 2, 2010, Eastern Kentucky University, Richmond, KY
- 2010 - Served a judge evaluating science fair projects in the Earth Science Division of the Kentucky Science & Engineering Fair, April 3, 2010, Eastern Kentucky University, Richmond, KY
- 2005 - Served a judge evaluating science fair projects in the Earth Science Division of the Kentucky Science & Engineering Fair, March 2004, 2005; Eastern Kentucky University, Richmond, KY
- 2004 - Served as judge evaluating middle school science fair projects, grades 6-8, February 11, 2004, Morton Middle School, Lex., KY
- 2003 - Served as judge evaluating elementary school science projects, grades 4-5, January 23, 2003, KY American Water Company Science Fair, Glendover Elementary School, Lexington, KY

GRADUATE COMMITTEE SERVICE

Jill Fisk, KY State University, Project title – Salamander diversity in Bernheim Forest, advisory role.

UNIVERSITY COMMITTEE SERVICE

Tenure and Promotion Committee (2021–present)
Academic Policy and Curriculum (2018–2023)
Institutional Review Board (2020–2023)
Faculty Interview Committee (2016–2018)
Learning Resources Committee (2011–2016)

OTHER COMMITTEE SERVICE

Appalachian Math and Science (AMSP) Biology Education Committee – Met seven times between Dec. 2006 -April 2007 to develop a new standardized biology course for elementary education majors.

Ohio Valley Chapter of the Society of Environmental Toxicology and Chemistry (SETAC) Student Affairs Committee, May 2003 – August 2004.

PROFESSIONAL MEMBERSHIPS

Kentucky Academy of Science
Tennessee Herpetological Society

COLLECTING PERMITS HELD

Kentucky Department of Fish and Wildlife Resources, Scientific and Educational Collecting Permit, Brammell #SC2311090

Great Smoky Mountains National Park, Scientific Research and Collecting Permit, Brammell #GRSM-2023-SCI-1191

Tennessee Wildlife Resources Agency, Aquatic Collecting Permit, Brammell #6095