# Matthew A. Barnes

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## Education

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|---|---|
| University of Notre Dame | Ph.D., June 2013<br>Advisor: Dr. David M. Lodge<br>Dissertation: *Prediction, detection, and management of aquatic invasive species* |
| Southwestern University | B.A. in Biology with Departmental Honors, Minor in Sociology, May 2006<br>Honors Advisor: Dr. Romi L. Burks<br>Honors Thesis: *The snail or the egg? Investigations of early life history stages of applesnails* |

## Appointments

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| Associate Professor | Texas Tech University<br>Department of Natural Resources Management<br>September 2020 – Present |
| Assistant Professor | Texas Tech University<br>Department of Natural Resources Management<br>September 2014 – August 2020 |
| Postdoctoral Research Associate | Environmental Change Initiative<br>June 2013 – July 2014<br>Advisor: Dr. David M. Lodge |

## Peer-Reviewed Publications (N = 48; see Google Scholar Profile for citation data)

Key: mentored postdoctoral researcher; mentored graduate student; mentored undergraduate; mentored high school student

Rosas EG, Bashara C, Christie D, **Barnes MA**, and Burks RL. 2025. Winning the shell game: environmental DNA (eDNA) confirms local control of the invasive apple snail, *Pomacea maculata*. *Management of Biological Invasions* 16: 397–410.

Yilmaz EÇ and **Barnes MA**. 2025. Comparative study of rates of eDNA accumulation and degradation in water and sediment from model plant (*Egeria densa*) and animal (*Daphnia magna*) species. *Science of the Total Environment* 971: 179057.

Orton G, **Barnes MA**, Syed SB, Reid JW, and Smith AC. 2025. Challenges for activating undergraduate research: a summary from the 2021 American Society of Microbiology Conference for Undergraduate Educators. *Journal of Microbiology & Biology Education* 26: e00099-24.

Merson Z, Jahn E, **Barnes MA**, Spurgeon E, Rex P, Elstner J, Chacon Y, Anderson J, Jones W, and Lowe C. 2025. eDNA metabarcoding detection of nearshore juvenile white sharks (*Carcharodon carcharias*) and prey fish communities. *Journal of Experimental Marine Biology and Ecology* 583: 152084.

Burks RL, Reynolds C, Rosas E, Bashara C, Dolapchiev L, Jerde CL, and **Barnes MA**. 2024. Snail slime in real time: challenges in predicting the relationship between environmental DNA and apple snail biomass. *Management of Biological Invasions* 15: 415–435.

Johnson MD and **Barnes MA**. 2024. Macrobial airborne environmental DNA analysis: a review of progress, challenges, and recommendations for an emerging application. *Molecular Ecology Resources* 24: e13998. [Invited Technical Review]

Whitehead AP, Plate KA, Bunker P, DeShon DL, Steinkraus B, Hall N, and **Barnes MA**. 2024. Advancing early detection technologies for *Dreissena polymorpha* (Pallas, 1771): comparing mussel detection in environmental samples with environmental DNA (eDNA) and scent detection canines. *Management of Biological Invasions* 15: 219–238.

Roth S, Griffis-Kyle K, and **Barnes MA**. 2024. *Batrachochytrium dendrobatidis* in the arid and thermally extreme Sonoran Desert. *EcoHealth* 20: 370–380.

Delaune KD, Pease AA, Patiño R, Brown CL, and **Barnes MA**. 2024. Gulf Killifish (*Fundulus grandis*) in the Pecos River: unique ecological traits in a nonnative, inland population. *Southwestern Naturalist* 68: 1–12.

DeVleeschower A, Deines AM, Goldberg J, Pasko SR, and **Barnes MA**. 2023. Developing a recipe for success: commentary on Seaman et al. (2021) "Eating invasives: chefs as an avenue to control through consumption". *Food, Culture & Society* https://doi.org/10.1080/15528014.2023.2230785

Willbanks P, Hays H, Kabat KL, and **Barnes MA**. 2023. Preliminary analysis suggests freshwater invertebrate environmental DNA is more concentrated in benthic sediments than in surface water. *Texas Journal of Science* 75: Article 5.

Hays HC, Pease AA, Fleming P, and **Barnes MA**. 2023. Distribution and habitat use of a rare native crayfish: implications for conserving data deficient species. *Aquatic Conservation: Marine and Freshwater Ecosystems* 33: 751–760.

Johnson MD, **Barnes MA**, Garrett N, and Clare E. 2023. Answers blowing in the wind: detection of birds, mammals, and amphibians with airborne environmental DNA in a natural environment over a yearlong survey. *Environmental DNA* 5: 375–387.

Banerjee P, Stewart K, Antognazza C, Bunholi I, Deiner K, **Barnes MA**, Saha S, Verdier H, Doi H, Maity JP, Chan W, and Chen CY. 2022. Plant-animal interactions in the era of environmental DNA (eDNA) – a review. *Environmental DNA* 4: 987–999.

Nagarajan RP, Bedwell M, Holmes AE, Sanches T, Acuña S, Baerwald M, **Barnes MA**, Blankenship S, Connon RE, Deiner K, Gille, D, Goldberg CS, Hunter ME, Jerde CL, Luikart G, Meyer RS, Watts A, and Shreier A. 2022. Environmental DNA methods for ecological monitoring and biodiversity assessment in estuaries. *Estuaries and Coasts* 45: 2254–2273.

Johnson MD, Cox RD, Fokar M, and **Barnes MA**. 2021. Airborne environmental DNA metabarcoding detects more diversity, with less sampling effort, than a traditional plant community survey. *BMC Ecology and Evolution* 21: 218. [*Nature Ecology & Evolution* Blog Post: https://ecoevocommunity.nature.com/posts/the-power-of-air-airborne-environmental-dna-plant-community-monitoring?channel_id=behind-the-paper] [*Science* news coverage: https://www.science.org/content/article/airborne-dna-plants-could-reveal-invasive-species-impact-climate-change]

**Barnes MA**, Klymus K, and Yamanaka H. 2021. Editorial: Environmental DNA innovations for conservation. *Frontiers in Ecology and Evolution* 9: 785077. [available as introduction to edited eBook: https://www.frontiersin.org/research-topics/12863/environmental-dna-innovations-for-conservation]

Rodriguez-Ezpeleta N, Morissette O, Bean CW, Manu S, Banerjee P, Lacoursière-Roussel A, Beng KC, Alter SE, Roger F, Holman LE, Stewart KA, Monaghan MT, Mauvisseau Q, Mirimin L, Wangensteen OS, Antognazza CM, Helyar

SJ, de Boer H, Monchamp M, Nijland R, Abbott CL, Doi H, **Barnes MA**, Leray M, Hablützel PI, Deiner K. 2021. Trade-offs between reducing complex terminology and producing accurate interpretations from environmental DNA: Comment on "Environmental DNA: What's behind the term?" by Pawlowski et al. (2020). *Molecular Ecology* 30: 4601–4605.

Johnson MD, Cox RD, Grisham BA, Lucia D, and **Barnes MA**. 2021. Airborne eDNA reflects human activity and seasonal changes on a landscape. *Frontiers in Environmental Science* 8: 563431. [Texas Tech University press release: https://www.depts.ttu.edu/agriculturalsciences/news/posts/2021/06/nrm-airborne-edna-research-offers-clues-about-species-presence.php]

**Barnes MA**, Chadderton WL, Jerde CL, Mahon AR, Turner CR, and Lodge DM. 2021. Environmental conditions influence eDNA particle size distribution in aquatic systems. *Environmental DNA* 3: 643–653.

Bittner RE, Roesler EL, and **Barnes MA**. 2020. Using species distribution models to guide seagrass management. *Estuarine, Coastal and Shelf Science* 240: 106790

**Barnes MA**, Brown AD, Daum MN, de la Garza KA, Driskill J, Garrett K, Goldstein MS, Luk A, Maguire JI, Moke R, Ostermaier EM, Sanders YM, Sandhu T, Stith A, and Suresh VV. 2020. Detection of the amphibian pathogens chytrid fungus (*Batrachochytrium dendrobatidis*) and Ranavirus in west Texas using environmental DNA. *Journal of Wildlife Diseases* 56: 702–706.

**Barnes MA** and Patiño R. 2020. Predicting suitable habitat for dreissenid mussel invasion in Texas based on climatic and lake physical characteristics. *Management of Biological Invasions* 11:63–79.

Makiola A, Compson ZG, Baird DJ, **Barnes MA**, Boerlijst SP, Bouchez A, Brennan G, Bush A, Canard E, Cordier T, Creer S, Curry A, David P, Dumbrell AJ, Gravel D, Hajibabaei M, Hayden B, van der Hoorn B, Jarne P, Jones I, Karimi B, Keck F, Kelly M, Knot I, Krol L, Massol F, Monk W, Murphy K, Pawlowski J, Poisot T, Porter T, Randall K, Ransome E, Ravigné V, Raybould A, Robin S, Schrama M, Schatz B, Tamaddoni-Nezhad A, Trimbos KB, Vacher C, Vasselon V, Wood SA, Woodward G, and Bohan DA. 2020. Key questions for next-generation biomonitoring. *Frontiers in Environmental Science* 7:197.

Johnson MD, Cox RD, and **Barnes MA**. 2019. The detection of a non-anemophilous plant species using airborne eDNA. *PLoS ONE* 14: e0225262.

Johnson MD, Cox RD, and **Barnes MA**. 2019. Analyzing airborne environmental DNA: a comparison of extraction methods, primer type, and trap type on the ability to detect airborne eDNA from terrestrial plant communities. *Environmental DNA* 1: 176–185.

**Barnes MA**, Cox RD, and Spott J. 2019. Place-based learning with out-of-place species and students: teaching international students about biological invasions. *American Biology Teacher* 81: 503–506.

Limon DA, Garcia CJ, Gregory BB, Stevens RD, and **Barnes MA**. 2018. The status of *Pseudogymnoascus destructans* in Louisiana. *The Southwestern Naturalist* 63:216–219.

Pickman BN and **Barnes MA**. 2017. Preliminary analysis reveals sediment burial decreases mass loss and increases survival of the aquatic invasive plant *Hydrilla verticillata* following desiccation over short time scales. *Management of Biological Invasions* 8: 517–522.

**Barnes MA** and Turner CR. 2016. The ecology of environmental DNA and implications for conservation genetics. *Conservation Genetics* 17: 1–17. (invited review)

Lodge DM, Simonin PW, Burgiel SW, Keller RP, Bossenbroek JM, Jerde CL, Kramer AM, Rutherford ES, **Barnes MA**, Wittmann ME, Chadderton WL, Apriesnig JL, Beletsky D, Cooke RM, Drake JM, Egan SP, Finnoff DC, Gantz CA, Grey EK, Hoff MH, Howeth JG, Jensen RA, Larson ER, Mandrak NE, Mason DM, Martinez FA, Newcomb TJ, Rothlisberger JD, Tucker AJ, Warziniack TW, and Zhang H. 2016. Risk analysis and bioeconomics of invasive species to inform policy and management. *Annual Reviews of Environment and Resources* 41: 453–488.

Wittmann ME, **Barnes MA**, Jerde CL, Jones LA, and Lodge DM. 2016. Confronting species distribution model predictions with species functional traits. *Ecology and Evolution* 6: 873–880. [included in the British Ecological Society cross-journal special feature, "Demography Beyond the Population"]

**Barnes MA**, Jerde CL, Wittmann ME, Chadderton WL, Ding J, Jialiang Z, Purcell M, and Lodge DM. 2014. Geographic selection bias of occurrence data influences transferability of invasive *Hydrilla verticillata* distribution models. *Ecology and Evolution* 4: 2584–2593.

Turner CR, **Barnes MA**, Xu CCY, Jones SE, Jerde CL, and Lodge DM. 2014. Particle size distribution and optimal capture of aqueous macrobial environmental DNA. *Methods in Ecology and Evolution* 5: 676–684.

**Barnes MA**, Deines AM, Gentile RM, and Grieneisen LE. 2014. Adapting to invasions in a changing world: invasive species as an economic resource. In: Ziska LH and Dukes JS (eds.). *Invasive Species and Global Climate Change*, pp. 326–344, CAB International.

**Barnes MA**, Turner CR, Jerde CL, Renshaw MA, Chadderton WL, and Lodge DM. 2014. Environmental conditions influence eDNA persistence in aquatic systems. *Environmental Science & Technology* 48: 1819–1827.

**Barnes MA**, Jerde CL, Keller D, Chadderton WL, Howeth JG, and Lodge DM. 2013. Viability of aquatic plant fragments following desiccation. *Invasive Plant Science and Management* 6: 320–325.

Egan SP, **Barnes MA**, Hwang C-T, Mahon AR, Feder JL, Ruggiero ST, Tanner CE, Lodge DM. 2013. Rapid invasive species detection by combining environmental DNA with Light Transmission Spectroscopy. *Conservation Letters* 6: 402–409.

McAlarnen LA, **Barnes MA**, Jerde CL, and Lodge DM. 2012. Simulated overland transport of Eurasian watermilfoil: survival of desiccated plant fragments. *Journal of Aquatic Plant Management* 50: 147–149.

Mahon AR, **Barnes MA**, Li F, Egan SP, Tanner CE, Ruggiero ST, Feder JL, and Lodge DM. 2012. DNA-based species detection capabilities using Laser Transmission Spectroscopy. *Journal of the Royal Society Interface* 10: 20120637.

Lodge DM, Deines A, Gherardi F, Yeo DCJ, Arcella T, Baldridge AK, **Barnes MA**, Chadderton WL, Feder JL, Gantz CA, Howard GW, Jerde CL, Peters BW, Peters JA, Sargent LW, Turner CR, Wittmann ME, and Zeng Y. 2012. Global introductions of crayfishes: evaluating impact of species invasions on ecosystem services. *Annual Review of Ecology, Evolution, and Systematics* 43: 449–472.

Choate DM, Prather CM, Michel MJ, Baldridge AK, **Barnes MA**, Hoekman D, Patrick CJ, Rüegg J, and Crowl TA. 2012. Integrating theoretical components: a graphical model for graduate students and researchers. *BioScience* 62: 594–602.

Lodge DM, Turner CR, Jerde CL, **Barnes MA**, Chadderton L, Egan SP, Feder JL, Mahon AR, and Pfrender ME. 2012. Conservation in a cup of water: estimating biodiversity and population abundance from environmental DNA. *Molecular Ecology* 21: 2555–2558.

Jerde CL, **Barnes MA**, DeBuysser EK, Noveroske A, Chadderton WL, and Lodge DM. 2012. Eurasian watermilfoil fitness loss and invasion potential following desiccation during overland transport. *Aquatic Invasions* 7: 135–142.

Li F, Mahon AR, **Barnes MA**, Feder J, Lodge DM, Hwang C-T, Schafer R, Tanner CE, and Ruggiero ST. 2011. Quantitative and rapid DNA detection by Laser Transmission Spectroscopy. *PLoS ONE* 6: e29224.

Mahon AR, **Barnes MA**, Senapati S, Feder JL, Darling JA, Chang H-C, and Lodge DM. 2011. Molecular detection of invasive species in heterogenous mixtures using a microfluidic carbon nanotube platform. *PLoS ONE* 6: e17280.

**Barnes MA**, Fordham RK, Burks RL, and Hand JJ. 2008. Fecundity of the exotic applesnail, *Pomacea insularum*. *Journal of the North American Benthological Society* 27: 738–745.

Boland BB, Meerhoff M, Fosalba C, Mazzeo N, **Barnes MA**, and Burks RL. 2008. Juvenile snails, adult appetites: contrasting resource consumption between two species of applesnails. *Journal of Molluscan Studies* 74: 47–54.

## Grants & Fellowships Awarded N = 24 awards Total = $2,331,610

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| 2024 | Texas University Fund Investment Opportunity (Internal Competition). "Maintaining global leadership in the field of genetic biodiversity surveillance through an investment in state-of-the-art technology" | $63,283 |
| 2024 | Australian Research Council. "Airborne eDNA for northern bettongs" | $320,000 |
| 2023 | Davis College Catalyst Planning Grant (Internal Competition). "Math & Ecology Synthesis for Agriculture (MESA) Network" | $50,000 |
| 2021 | ExxonMobil Upstream Research Company (Private Contract). "Optimizing environmental DNA (eDNA) methods for detection of terrestrial reptiles" | $160,000 |
| 2021 | US Fish and Wildlife Service. "Advancing early detection technologies for dreissenid mussel invasion in Texas" | $233,641 |
| 2020 | US Department of Defense. "Canid tortoise predation study at Marine Corps Air Ground Combat Center" | $139,195 |
| 2019 | USDA National Institute of Food and Agriculture HSI Education Grants. "Program in Inquiry and Investigation ($Pi^2$): Food, Natural Resources, and Human Sciences" | $274,281 |
| 2019 | US Army Corps of Engineers. Cooperative Agreement Award. Natural Resources BMGR East Management Support, Arizona. | $232,500 |
| 2019 | Atlas Sands (Private Contract). "Locating the dunes sagebrush lizard with environmental DNA" | $165,542 |
| 2019 | Atlas Sands (Private Contract). "Methods for creating or enhancing habitat for dunes sagebrush lizard" | $181,249 |
| 2019 | Atlas Sands (Private Contract). "Captive breeding of dunes sagebrush lizard at the Dallas Zoo" | $41,869 |
| 2019 | Texas Parks and Wildlife Division Traditional Section 6 Grants. "Distribution and habitat use of the Kisatchie Painted Crayfish in northeast Texas with investigation of multi-scale environmental influences on crayfish community structure" | $85,803 |
| 2018 | Department of Defense. "Desert wildlife waters and amphibians" | $320,000 |
| 2016 | Texas Parks and Wildlife Division. "Evaluation of research needs related to tilapia in Texas and areas with high potential risks to SGCN fishes" | $34,825 |
| 2016 | New Mexico Department of Game and Fish Share with Wildlife. "eDNA detection of invaders and fish species of greatest conservation need in the lower Pecos River system" | $49,500 |
| 2016 | Texas Parks and Wildlife Division. "Environmental DNA-based range delineation of invasive bigheaded carp in Texas" | $34,590 |
| 2016 | Texas Parks and Wildlife Division. "Assessing the risk of dreissenid mussel invasion in Texas based on lake physical characteristics and potential for downstream dispersal" | $36,420 |
| 2015 | Louisiana Department of Wildlife and Fisheries. "Bats – White-nose syndrome (WNS) surveillance in Louisiana" | $31,199 |
| 2014 | United States Army Corps of Engineers, subcontract via Ecology & Environment, Inc. "Predicting potential range of the aquatic invasive plant *Hydrilla verticillata* to aid risk assessment in the Great Lakes" | $115,049 |
| 2010 | Eck Institute for Global Health, Genomics, and Bioinformatics Pilot Project Award. "Using genetics of *Bythotrephes longimanus* to assess the relationship between human movement and species spread" | $11,000 |

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| 2009 | United States Army Corps of Engineers, Cooperative Environmental Studies Unit agreement #W912HZ-08-2-0014, modification P00003. "Predicting the potential range of the aquatic invasive plant *Hydrilla verticillata* in the United States" | $18,095 |
| 2009 | Center for Aquatic Conservation Graduate Student Fellowship. "Controlling the spread of aquatic invasive plants using knowledge about desiccation tolerance and the recreational boat transportation vector" | $10,000 |
| 2007 | University of Notre Dame Environmental Research Center Fellowship. "Interactions between Chinese mystery snails (*Cipangopaludina chinensis*) and native fauna at the University of Notre Dame Environmental Research Center" | $7,100 |
| 2006 | Texas Academy of Science Research Award. "The snail or the egg: determining susceptibility to predation of different life history stages of exotic applesnails" | $750 |

## Presentations

### Invited Oral Presentations (Presented Only; N = 37)

**Barnes MA.** August 2025. Biodiversity detection with eDNA: are the answers blowin' in the wind? Symposium: eDNA is everywhere: moving eDNA from research to decision making. Ecological Society of America. Baltimore, MD.

**Barnes MA.** January 2025. Biodiversity detection with eDNA: are the answers blowin' in the wind? Texas Tech University Department of Biology Seminar. Lubbock, TX.

**Barnes MA.** November 2025. Winds of change: what can we detect with airborne environmental DNA? USGS Columbia Environmental Research Center. Columbia, MO.

**Barnes MA.** June 2024. Keep looking up with airborne environmental DNA. Plenary address to the Southern eDNA Society airDNA workshop. Canberra, Australia. (Barnes virtual)

**Barnes MA.** April 2024. Reflecting on a decade of eDNA research at Texas Tech: sky's the limit? Plenary Address to the Texas Tech University NRM Research Day. Lubbock, TX.

**Barnes MA.** July 2023. Answers blowing in the wind with airborne environmental DNA. XXIII$^{rd}$ International Congress of Genetics; Invited speaker for Genetics & The Environment: Environmental Genetics session. Melbourne, Australia.

**Barnes MA.** July 2023. Environmental DNA innovations for conservation. XXIII$^{rd}$ International Congress of Genetics. Invited speaker for Biodiversity Genomics – A Global Perspective satellite meeting. Melbourne, Australia.

**Barnes MA.** June 2023. Is environmental DNA (eDNA) analysis up to scale? Consensus Study Committee for *Research at Multiple Scales: A Vision for Continental Scale Biology*, National Academies of Sciences, Engineering, and Medicine. (Virtual)

**Barnes MA.** March 2023. Answers blowing in the wind with airborne environmental DNA. Texas eDNA Workshop and Symposium. Denton, TX.

**Barnes MA.** March 2023. Comparing *in situ* detection of invasive zebra mussels (*Dreissena polymorpha*) using environmental DNA and detection canines in Texas reservoirs. Collaborative Conservation and Adaption Strategy Toolbox (CCAST) Webinar Series. (Virtual)

**Barnes MA**. September 2022. Environmental DNA Innovations for Conservation. Baylor University Department of Biology Seminar. Waco, TX.

**Barnes MA.** October 2021. Environmental DNA Innovations for Conservation. Plenary Address to the 5$^{th}$ Annual Environmental DNA Technical Exchange Workshop. (Virtual)

**Barnes MA**. April 2021. Environmental DNA for Everyone! Maine-eDNA Seminar Series. (Virtual)

**Barnes MA**. March 2021. Environmental DNA for Everyone! University of Florida Fisheries and Aquatic Seminar Series. (Virtual)

**Barnes MA**, Delaune KD, Pease AA. January 2020. The ecology of environmental DNA, an emerging tool for the detection and management of invasive species. How to Achieve a True Consensus for Best Environmental DNA Practices Workshop. Davis, CA.

Erickson K, **Barnes MA (co-presenter)**, and Hebebrand K. June 2019. Great Lakes hydrilla risk assessment. Hydrilla Collaborative webinar. (Virtual)

**Barnes MA**. February 2019. Understanding ecosystems with eDNA: what have we learned over the past decade, and where do we go from here? Sam Houston State University Department of Biological Sciences departmental seminar. Huntsville, TX.

**Barnes MA**. November 2018. Serving invasive species with a side of awareness: using harvest as a management, education, and outreach tool. Keynote Presentation at the Alaska Invasive Species Workshop. Homer, AK.

**Barnes MA**. November 2018. CSI: Environment and the latest tools for managing invasive species. Public Seminar at the Alaska Invasive Species Workshop. Homer, AK.

**Barnes MA**. November 2018. The ecology of environmental DNA: an emerging tool for the detection and management of invasive species. Alaska Invasive Species Workshop. Homer, AK.

**Barnes MA**. September 2018. Understanding ecosystems with eDNA: what have we learned over the past decade, and where do we go from here? Keynote Presentation at the First Annual Meeting of the eDNA Society of Japan. Tokyo, Japan.

**Barnes MA**. September 2018. Understanding ecosystems with eDNA: what have we learned over the past decade, and where do we go from here? Ryukoku University Department of Environmental Solution Technology seminar. Shiga, Japan.

**Barnes MA**. September 2018. Predicting and detecting species ranges to aid conservation and management in coastal ecosystems. Kyoto University Maizuru Fisheries Research Station seminar. Kyoto, Japan.

**Barnes MA**. September 2018. Understanding ecosystems with eDNA: what have we learned over the past decade, and where do we go from here? Kobe University Department of Human Environmental Science seminar. Kobe, Japan.

**Barnes MA**. October 2017. Assessing the risk of dreissenid mussel invasion in Texas based on lake physical characteristics and potential for downstream dispersal. Zebra Mussel Prevention and Management Partner Meeting. Texas Parks and Wildlife Division webinar.

**Barnes MA**. October 2016. The ecology of environmental DNA. University of Texas Department of Integrative Biology seminar. Austin, TX.

**Barnes MA**. May 2016. Detection of invasive species using environmental DNA. Texas Tech University Climate Science Center seminar. Lubbock, TX. Available online: https://www.youtube.com/watch?v=bTN0HP7AUEk

**Barnes MA**. April 2016. Ecology OF environmental DNA, ecology BY environmental DNA: genetic capabilities and interests in the Barnes Lab. Texas Tech University Association of Natural Resources Scientists seminar. Lubbock, TX.

**Barnes MA**. February 2016. Research at a snail's pace and beyond: an SU alumnus' experience building a research program in aquatic invasion ecology. Southwestern University Inquiry Initiative Seminar Series. Georgetown, TX.

**Barnes MA**. April 2014. Prediction, detection, and management of aquatic invasive species. Texas Tech University Department of Natural Resources Management seminar. Lubbock, TX.

**Barnes MA**. October 2013. Prediction, detection, and management of aquatic invasive species. Indiana State University Department of Biology seminar. Terre Haute, IN.

**Barnes MA**. March 2013. Prediction, detection, and management of aquatic invasive species. Rhodes College Department of Biology seminar. Memphis, TN.

**Barnes MA** and Deines AM. November 2012. Recipes for success? Exploring consumption as a strategy for managing invasive species. New York Partnerships for Regional Invasive Species Management conference call.

**Barnes MA**. March 2011. Invasions and pathways in the Great Lakes. Illinois-Indiana Sea Grant Program "Reduce aquatic invasions through student stewardship" workshop. Chicago, IL.

**Barnes MA**, Jerde CL, Noveroske A, DeBuysser EK, Chadderton WL, and Lodge DM. September 2009. Hung out to dry: fitness loss due to desiccation of aquatic invasive plants and implications for effective management. Mississippi River Basin Panel on Aquatic Nuisance Species. Pittsburgh, PA.

Burks RL, **Barnes MA (co-presenter)**, and Boland BB (co-presenter). April 2006. A tale of two snails and the biologists who study them: insights gained by studying Texas and Uruguayan populations of applesnails. Southwestern University Board of Visitors Meeting. Georgetown, TX.

Burks RL and **Barnes MA (co-presenter)**. February 2006. A tale of two snails. Rice University Department of BioSciences seminar. Houston, TX.

### Contributed Oral Presentations (Presented Only; N = 14)

**Barnes MA.** May 2025. Expanding horizons of eDNA methods in freshwater systems: airborne eDNA detection of aquatic organisms. Society for Freshwater Science. San Juan, Puerto Rico.

**Barnes MA,** Bunker P, DeShon D, Plate K, Steinkraus B, Whitehead A, and Hall N. May 2022. Comparing *in situ* detection of invasive zebra mussels (*Dreissena polymorpha*) using environmental DNA and detection canines in Texas reservoirs. Joint Aquatic Sciences Meeting. Grand Rapids, MI.

**Barnes MA**, Delaune K, and Pease A. August 2018. Seasonal variation in environmental conditions and species ecology influence environmental DNA monitoring results for species of greatest conservation need in the lower Pecos River system, New Mexico. American Fisheries Society 148$^{th}$ Annual Meeting. Atlantic City, NJ.

**Barnes MA**. August 2016. Environmental DNA particle size distributions across multiple freshwater ecosystems: implications for collection and analysis. Inaugural Environmental DNA Training and Technical Exchange Workshop hosted by Government eDNA Working Group. Denver, CO.

**Barnes MA**, Soto SD, Mach C, Portillo-Quintero C, Rockwell C, and Erickson K. July 2016. Combining multiple species distribution modeling approaches to predict suitable habitat for the invasive aquatic macrophyte *Hydrilla verticillata*. Aquatic Plant Management Society 56$^{th}$ Annual Meeting. Grand Rapids, MI.

**Barnes MA**, Turner CR, Jerde CL, and Lodge DM. May 2014. Environmental DNA particle size distributions: implication for collection and analysis. Joint Aquatic Sciences Meeting. Portland, OR.

**Barnes MA**, Turner CR, Jerde CL, Renshaw MA, Chadderton WL, and Lodge DM. August 2013. Environmental conditions influence eDNA persistence in aquatic systems. American Fisheries Society 143$^{rd}$ Annual Meeting. Little Rock, AR.

**Barnes MA**, Deines AM, Gentile RM, and Grieneisen LE. June 2013. Adapting to biological invasions through harvest: what can we learn from existing "experiments?" International Association for Great Lakes Research 56th Annual Conference. West Lafayette, IN.

**Barnes MA**, Jerde CL, Keller D, Chadderton WL, and Lodge DM. August 2011. Built to last: the influence of structure on desiccation rate of aquatic plants and implications for dispersal. Ecological Society of America 96th Annual Meeting. Austin, TX.

**Barnes MA**, Jerde CL, Noveroske A, DeBuysser EK, Chadderton WL, and Lodge DM. July 2009. Hung out to dry: fitness loss due to desiccation of aquatic invasive plants and implications for effective management. Aquatic Plant Management Society 49th Annual Meeting. Milwaukee, WI.

**Barnes MA**, Jerde CL, Noveroske A, DeBuysser EK, Chadderton WL, and Lodge DM. May 2009. Aquatic plants out of water: implications of desiccation tolerance for predicting invasiveness. North American Benthological Society 57th Annual Meeting. Grand Rapids, MI.

**Barnes MA**, Jerde CL, Noveroske A, DeBuysser EK, Chadderton WL, and Lodge DM. April 2009. Hung out to dry: fitness loss due to desiccation of Eurasian watermilfoil (*Myriophyllum spicatum*) and implications for efficient risk management. 16th International Conference on Aquatic Invasive Species. Montreal, Quebec, Canada.

**Barnes MA**, Hensley SA, Youens AK, and Burks RL. March 2007. In too deep: egg clutch water exposure may suppress hatching and increase conspecific predation of eggs in the potentially invasive applesnail *Pomacea insularum*. Texas Academy of Science 110th Meeting. Waco, TX.

**Barnes MA** and Burks RL. March 2006. The snail or the egg? Early life history factors contribute to invasive success of applesnails. Texas Academy of Science 109th Annual Meeting. Beaumont, TX.

### Poster Presentations (Presented Only; N = 2)

**Barnes MA**, Boland BB, Meerhoff M, Fosalba C, Mazzeo N, and Burks RL. June 2006. That's the way the egg hatches: determining patterns in egg size, clutch variability, and hatchling emergence in an exotic versus native population of applesnails. North American Benthological Society 54th Annual Meeting. Anchorage, AK.

**Barnes MA** and Burks RL. July 2005. Growth under pressure: effects of predator cues on egg clutches and hatchling growth of the channeled applesnail, *Pomacea "canaliculata"*. Southwestern University Biology Summer Research Program. Georgetown, TX.

### Oral Presentations by Mentored Students (N = 31)

Key: mentored graduate student authors; mentored undergraduate authors

Bullock J and **Barnes MA**. February 2025. Environmental DNA detection of the endangered Rio Grande Silvery Minnow. Texas Academy of Science 128th Annual Meeting. Waco, TX. *Awarded 1st Place, Conservation Ecology Undergraduate Student Competition.

Hays H and **Barnes MA**. February 2025. Does taxonomy REALLY matter? Using functional traits to predict aquatic insect presence under altered hydrologic conditions. Texas Academy of Science 128th Annual Meeting. Waco, TX.

Humphries K, Hays H, and **Barnes MA**. February 2025. Increased salinity suppresses diversity of colonizing invertebrates in a field mesocosm experiment. Texas Academy of Science 128th Annual Meeting. Waco, TX. *Awarded 1st Place, Freshwater Science Undergraduate Student Competition.

Hays H, Longing S, and **Barnes MA**. March 2024. The effects of invasive feral hog on channel conditions and benthic macroinvertebrate communities in the South Llano River. Texas Academy of Science 127th Annual Meeting. Odessa, TX. *Awarded 1st Place, Graduate Student Competition.

Knauss M, **Barnes MA**, Begum MZFA, Fokar M, and Lockwood S. March 2024. Assessing the diversity of fishes along the Texas Gulf Coast using environmental DNA metabarcoding. Texas Academy of Science 127th Annual Meeting. Odessa, TX.

Rosas E, Reynolds C, Christie D, **Barnes MA**, and Burks RL. March 2024. Telling a snail's tale: assessment of eDNA analysis as a tool to monitor removal efforts of *Pomacea maculata* in South Austin. Texas Academy of Science 127th Annual Meeting. Odessa, TX.

Roth S, **Barnes MA**, and Griffis-Kyle K. March 2024. Evaluating patterns of red-spotted toad occurrence and reproduction in a dynamic desert system. Texas Academy of Science 127th Annual Meeting. Odessa, TX.

Kabat K, Longing S, and **Barnes MA**. March 2023. Diet of Jerusalem crickets (*Ammopelmatus monahansensis*) in west Texas. 126th Annual Meeting of the Texas Academy of Science. San Angelo, TX.

Bashara C, Dolapchiev L, Vaughn C, Bittner S, **Barnes MA**, and Burks RL. March 2023. Now you see them, now you don't? Using eDNA to confirm removal of invasive snails by local agency. 126th Annual Meeting of the Texas Academy of Science. San Angelo, TX.

Plate K, Whitehead AP, and **Barnes MA**. May 2022. Particle size distribution of zebra mussel environmental DNA in a Texas reservoir. Joint Aquatic Sciences Meeting. Grand Rapids, MI.

Whitehead AP, Plate K, and **Barnes MA**. May 2022. Downstream transport of zebra mussel (*Dreissena polymorpha*) environmental DNA and implications for analysis. Joint Aquatic Sciences Meeting. Grand Rapids, MI.

Hays HC and **Barnes MA**. May 2022. Distribution and habitat use of Kisatchie painted crayfish in northeast Texas with investigation of multi-scale environmental influences on crayfish community structure. Joint Aquatic Sciences Meeting. Grand Rapids, MI.

Bashara C, Dolapchiev L, Vaughn C, Bittner S, **Barnes MA**, and Burks RL. May 2022. Now you see them, now you don't? Using eDNA to confirm removal of invasive snails by local agency. Joint Aquatic Sciences Meeting. Grand Rapids, MI.

Hays HC and **Barnes MA**. February 2022. Distribution and habitat use of Kisatchie painted crayfish in northeast Texas with investigation of multi-scale environmental influences on crayfish community structure. Texas Academy of Science 125th Meeting. Clear Lake, TX.

Bashara C, Dolapchiev L, Burks R, Vaughn C, and **Barnes M**. February 2022. Snail (*Pomacea maculata*) days of summer: associations between reproductive output, snail removal efforts, and environmental DNA (eDNA) concentration. Texas Academy of Science 125th Meeting. Clear Lake, TX. *Awarded 1st Place, Freshwater Science Undergraduate Student Competition.

Dolapchiev L, Bashara C, **Barnes M**, and Burks R. February 2022. Filter me… if you can: using size fractionation to separate and determine the size of *Pomacea maculata* eDNA. Texas Academy of Science 125th Meeting. Clear Lake, TX. *Awarded 2nd Place, Freshwater Science Undergraduate Student Competition.

Johnson MD, Fokar M, Cox R, and **Barnes MA**. July 2021. Airborne environmental DNA metabarcoding as a plant community survey method. Botany. Online.

Galassini K, Nyaberi E, **Barnes MA**, and Burks RL. January 2020. Old school or new school? Comparing the efficiency of traditional eDNA sampling and the ANDe™ Backpack. 6th Annual Texas Conservation Symposium. Georgetown, TX.

Muskara LE, Miller SD, **Barnes MA**, and Burks RL. January 2020. Indicating invasion with eDNA: detecting apple snails along Oyster Creek. 6th Annual Texas Conservation Symposium. Georgetown, TX.

Nyaberi E, Galassini K, **Barnes MA**, and Burks RL. January 2020. Degradation of eDNA in the presence of microplastics. 6th Annual Texas Conservation Symposium. Georgetown, TX.

Roesler EL, Grabowski TB, and **Barnes MA**. April 2019. Data collection methods and species traits influence species distribution modelling predictions. Texas Tech Annual Biological Sciences Symposium 10th Annual Meeting. Lubbock, TX.

Muskara LE, Miller SE, **Barnes MA**, and Burks RL. March 2019. A snail out of water: apple snail detection along Oyster Creek (Missouri City/Sugar Land, TX). Texas Academy of Science 122nd Meeting. Brownwood, TX.

Delaune K, **Barnes MA**, and Pease A. August 2018. Environmental DNA as a complement to traditional monitoring methods for detection of fish species of greatest conservation need in the lower Pecos River, New Mexico. American Fisheries Society 148th Annual Meeting. Atlantic City, NJ.

Roesler EL, Bittner RE, Grabowski TB, and **Barnes MA**. August 2018. Data collection methods and species traits influence species distribution model predictions. Ecological Society of America 103rd Annual Meeting. New Orleans, LA.

Roesler EL, McGarrity M, and **Barnes MA**. April 2018. Evaluating suitable habitat of invasive tilapia and forecasting hotspots for potential impacts on imperilled fishes of Texas. Texas Tech Annual Biological Sciences Symposium 9th Annual Meeting. Lubbock, TX.

Roesler EL, McGarrity M, and **Barnes MA**. March 2018. Evaluating suitable habitat of invasive tilapia and forecasting hotspots for potential impacts on imperilled fishes of Texas. Texas Academy of Science 121st Meeting. Midland, TX.

Granier M, **Barnes MA**, and Burks RL. March 2018. Following the curve: environmental DNA accumulation and degradation rates utilizing apple snails. Texas Academy of Science 121st Meeting. Midland, TX.

Granier M, **Barnes MA**, and Burks RL. March 2017. Snail slime in real time: qPCR detection of environmental DNA with apple snails. Texas Academy of Science 120th Meeting. Belton, TX. *Awarded 1st Place, Conservation Ecology Undergraduate Student Competition.

Soto SD and **Barnes MA**. March 2016. Elevated humidity and bunching decrease desiccation rate and increase survival of air-exposed fragments of the aquatic invasive plant *Hydrilla verticillata*. Texas Tech Association of Biological Sciences Symposium 7th Annual Meeting. Lubbock, TX. *Awarded 2nd Place, Natural Resources Management Student Competition.

Soto SD and **Barnes MA**. March 2016. Elevated humidity and bunching decrease desiccation rate and increase survival of air-exposed fragments of the aquatic invasive plant *Hydrilla verticillata*. Texas Academy of Science 119th Meeting. Junction, TX.

McAlarnen LA, **Barnes MA**, and Lodge DM. December 2010. The effect of desiccation from simulated overland transport on Eurasian watermilfoil fragments of varying length and location on the plant. Midwest Fish and Wildlife Conference 71st Annual Meeting. Minneapolis, MN.

**Poster Presentations by Mentored Students (N = 30)**

Key: mentored graduate authors; mentored undergraduate authors; mentored high school student authors)

Ye V, Jennison M, Plate K, and **Barnes MA**. February 2025. Detection of non-native freshwater jellyfish *Craspedacusta sowerbii* in central Texas using environmental DNA. Texas Academy of Science 128th Annual Meeting. Waco, TX.

Roth S, Griffis-Kyle K, and **Barnes MA**. October 2024. Dynamics of the amphibian pathogen *Batrachochytrium dendrobatidis* (Bd) in the Sonoran Desert. The Wildlife Society 31st Annual Conference. Baltimore, MD. *Awarded 1st Place, Student Poster Competition.

King E, Roth S, Griffis-Kyle K, and **Barnes MA**. March 2024. Presence of *Batrachochytrium dendrobatidis* (Bd) on amphibians and in environmental samples in west Texas. Texas Academy of Science 127th Annual Meeting. Odessa, TX. *Awarded 1st Place, Freshwater Science Undergraduate Student Competition.

Bullock J, Tucker E, Ye V, Angle JC, Jaffe BD, and **Barnes MA**. March 2024. Quantification of environmental DNA (eDNA) shedding by the terrestrial lizard *Sceloporus consobrinus* using a CTAB-chloroform DNA extraction method. Texas Academy of Science 127th Annual Meeting. Odessa, TX.

Tucker E, Bullock J, Ye V, Angle JC, Jaffe BD, and **Barnes MA**. March 2024. Quantification of environmental DNA (eDNA) shedding by the terrestrial lizard *Sceloporus consobrinus* using a Macherey-Nagel NucleoSpin DNA extraction method. Texas Academy of Science 127th Annual Meeting. Odessa, TX.

Ye V, Bullock J, Tucker E, Angle JC, Jaffe BD, and **Barnes MA**. March 2024. Quantification of environmental DNA (eDNA) shedding by the terrestrial lizard *Sceloporus consobrinus* using a QIAGEN Power Soil DNA extraction method. Texas Academy of Science 127th Annual Meeting. Odessa, TX.

Rosas E, Reynolds C, Christie D, Barnes MA, and Burks RL. January 2024. Looking for "a snail in a pond": investigating how eDNA contributes to eradication efforts of the invasive apple snail, *Pomacea maculata*. Society for Integrative and Comparative Biology. Austin, TX.

Reynolds C, Rosas E, **Barnes MA**, and Burks RL. March 2023. Large snails & small DNA: relating *Pomacea maculata* biomass & environmental DNA concentration. 126th Annual Meeting of the Texas Academy of Science. San Angelo, TX.

Reynolds C, Rosas E, **Barnes MA**, and Burks RL. January 2023. Large snails & small DNA: relating *Pomacea maculata* biomass & environmental DNA concentration. Society for Integrative and Comparative Biology. Austin, TX.

Iida HS, Cooper-Norris CE, Norris AB, **Barnes MA**, and Cox RD. October 2022. Monitoring species trends across the Texas Tech University Native Rangeland. Texas Section of the Society for Range Management Annual Meeting. Denton, TX.

Roth S, Griffis-Kyle K, and **Barnes MA**. August 2022. *Batrachochytrium dendrobatidis* (Bd) persists in the Sonoran Desert despite temperature and hydrologic conditions that exceed its known physiological tolerances. Global Amphibian and Reptile Disease 1st Meeting. Knoxville, TN. *Awarded 1st Place, Graduate Student Competition.

Willbanks P and **Barnes MA**. February 2022. Invertebrate environmental DNA is more concentrated in the water column than the sediment in a freshwater lake. Texas Academy of Science 125th Meeting. Clear Lake, TX. *Awarded 1st Place, Freshwater Science Undergraduate Student Competition.

Bashara C, Dolapchiev L, **Barnes M**, and Burks R. February 2022. Stop escargot in San Antonio: developing best methodology for detecting *Pomacea maculata* using environmental DNA (eDNA). Texas Academy of Science 125th Meeting. Clear Lake, TX. *Awarded 2nd Place, Freshwater Science Undergraduate Student Competition.

Kabat KL and Barnes MA. July 2021. Development of a species-specific environmental DNA assay to detect the dunes sagebrush lizard (*Sceloporus arenicolus*). Joint Meeting of Ichthyologists and Herpetologists. Online.

Roth S, Barnes MA, and Griffis-Kyle K. August 2020. Presence of *Batrachochytrium dendrobatidis* in isolated Sonoran Desert waters. Ecological Society of America 105th Annual Meeting. Online.

Roth S, Barnes MA, and Griffis-Kyle K. March 2020. Presence of an amphibian pathogen in isolated waters of the Sonoran Desert. Texas Academy of Science 124th Annual Meeting. Online.

Roth S, Barnes MA, and Griffis-Kyle K. March 2020. Presence of an amphibian pathogen in isolated waters of the Sonoran Desert. Celebrating the Sonoran Desert 6th Tri-National Symposium. Ajo, AZ.

Muskara LE, Miller SE, Burks RL, and **Barnes MA**. March 2019. A snail out of water! Hitting the target on primer optimization for apple snail detection. Society for Freshwater Science Annual Meeting. Salt Lake City, UT.

Jones MO, Heath K, Conway WC, and **Barnes MA**. March 2019. Evaluating the health of saline lakes via environmental DNA analysis of microbial communities. Texas Academy of Science 122nd Annual Meeting. Brownwood, TX.

Miller SE, Muskara LE, **Barnes MA**, and Burks RL. March 2019. Bullseye! Hitting the target on primer optimization. Texas Academy of Science 122nd Annual Meeting. Brownwood, TX.

Johnson MD and **Barnes MA**. August 2018. The impact of human activity on the detection of airborne environmental DNA (eDNA). Ecological Society of America 103rd Annual Meeting. New Orleans, LA.

Bittner RE, Roesler EL, and **Barnes MA**. March 2018. Predicting the distribution of seagrass habitat along the Texas Gulf Coast using Maxent. Texas Academy of Science 121st Annual Meeting. Midland, TX. *Awarded 1st Place, Conservation Ecology Undergraduate Student Competition.

Roesler EL, **Barnes MA**, Grabowski TB, Martinez-Andrade F, and Bittner R. March 2017. Influence of climate change, freshwater inflows, and changing land use on the distribution of Dwarf Seahorse on the Texas coast. Texas Tech Annual Biological Sciences Symposium 8th Annual Meeting. Lubbock, TX.

Granier M, **Barnes MA**, and Burks RL. August 2017. Snail slime in real time: qPCR detection of environmental DNA with apple snails. Ecological Society of America 102nd Annual Meeting. Portland, OR.

Limon DA, Garcia CJ, Gregory BB, Stevens RD, and **Barnes MA**. March 2017. Comparing traditional and novel genetic surveillance for white-nose syndrome across Louisiana bats. Texas Academy of Science Annual 120th Meeting. Belton, TX. *Awarded 1st Place, Conservation Ecology Undergraduate Student Competition.

Soto SD, Mach C, Portillo C, Rockwell C, Erickson K, and **Barnes MA**. August 2016. Incorporation of biotype alters species distribution model predictions of suitable habitat for the invasive aquatic macrophyte *Hydrilla verticillata*. Ecological Society of America 101st Annual Meeting. Fort Lauderdale, FL.

Soto SD, Mach C, Portillo C, Rockwell C, Erickson K, and **Barnes MA**. July 2016. Incorporation of biotype alters species distribution model predictions of suitable habitat for the invasive aquatic macrophyte *Hydrilla verticillata*. Aquatic Plant Management Society 56th Annual Meeting. Grand Rapids, MI. *Awarded 1st Place, Graduate Student Poster Competition.

Pickman BN and **Barnes MA**. March 2016. Sediment burial decreases weight loss and increases survival following simulated drawdown conditions in the aquatic invasive plant *Hydrilla verticillata*. Texas Academy of Science 119th Annual Meeting. Junction, TX. *Awarded 1st Place, Conservation Ecology Undergraduate Student Competition.

Roesler EL, **Barnes MA**, Grabowski TB, Martinez-Andrade F, and Bittner R. January 2016. Influence of climate change, freshwater inflows, and changing land use on the distribution of Dwarf Seahorse on the Texas coast. Annual Meeting of the Texas Chapter of the American Fisheries Society. Kerrville, TX.

DeBuysser J, Andrezejeski K, Sisk D, and **Barnes M**. November 2012. Influence of DNA extraction technique on genetic detection of goldfish in an aquatic environment. Indiana Junior Academy of Science 81st Annual Meeting. Bloomington, IN.

### Organized Symposia, Workshops, and Meetings

**Barnes MA** and Turner CR. August 2016. Understanding the ecology of environmental DNA (eDNA) from diverse disciplines. Ecological Society of America 101st Annual Meeting. Fort Lauderdale, FL.

## Teaching & Mentorship

**Teaching Experience** (All courses offered at Texas Tech University unless otherwise noted)

| | |
|---|---|
| **Instructor, Graduate Level** | Natural Resources Biopolitics (face-to-face and online) |
| **Instructor, Undergraduate Level** | Introduction to Freshwater Ecology and Fisheries<br>Natural Resources Policy<br>Quantitative Methods in Natural Resources Management<br>Aquatic Plants and Algae<br>Inquiry & Investigation - Life Sciences in the 21st Century<br>Inquiry & Investigation - Food, Agriculture, Natural Resources, and Human Sciences |
| **Guest Lecturer, Graduate Level** | Science Communication, Texas A&M Corpus Christi<br>Integrated Natural Resource-Climate Response Modeling |
| **Guest Lecturer, Undergraduate Level** | Diversity of Life<br>Fisheries Conservation and Management<br>Advanced Writing: Writing about Science, Southwestern University<br>Evolution, University of Notre Dame |
| **Teaching Assistant, Undergraduate Level** | Biostatistics, University of Notre Dame<br>General Biology Laboratory: Evolution, Organisms, and Environment, University of Notre Dame<br>Senor Capstone Seminar: Invasive Species, Southwestern University<br>Molecular Genetics Lab, Southwestern University |
| **Volunteer Curling Instructor** | Compton Family Ice Arena, Notre Dame, IN |

### Invited Pedagogical Presentations (N = 3)

Boye A and **Barnes MA**. November 2017. Putting it together: strategies for effective group formation and cohesion in the classroom. Texas Tech University Teaching, Learning, and Professional Development Center Teaching and Learning Workshop Series. Lubbock, TX.

**Barnes MA**, Buckner MM, and Stetson A (panel discussion). April 2017. The rewards of peer observation. Texas Tech University Teaching, Learning, and Professional Development Center. Lubbock, TX.

**Barnes MA** and Burks RL. February 2016. You are what you tweet: applying your work as a teacher-scholar to Twitter. Southwestern University Inquiry Initiative Pedagogical Workshop Series. Georgetown, TX.

**Contributed Pedagogical Workshops (N = 1)**

Orton G, Smith AC, Barnes MA, and Lawver D. June 2021. Easy as $Pi^2$: Facilitating experiential learning in faculty research laboratories for early-career undergraduates. American Society for Microbiology Conference for Undergraduate Educators. Online.

## Graduate Student Committee Chair (N = 7 MS + 5 PhD)

| | |
|---|---|
| Kelbi Delaune | PhD 2020 (co-chair: Dr. Allison Pease); *Dissertation: Aquatic biodiversity in the Pecos River: investigating threats, resources, and new monitoring methods* |
| Hayden Hays | PhD in progress |
| Morgan Jennison (née Smith) | MS 2017; *Thesis: Quantifying zebra mussel impacts on harmful algal blooms in Texas reservoirs using environmental DNA surveys* |
| Mark Johnson | MS 2017; *Thesis: Detection and analysis of airborne environmental DNA from terrestrial plant communities*; PhD 2022; Dissertation: Airborne environmental DNA metabarcoding and ecology for terrestrial species detection |
| Kristin Kabat | MS 2022; *Thesis: Assessing environmental DNA as a detection method for the dunes sagebrush lizard* Sceloporus arenicolus |
| Kaitlin Plate | MS 2023; *Thesis: Environmental influences on particle size distribution of* Dreissena polymorpha *environmental DNA in a Texas reservoir* |
| Elizabeth Roesler | PhD 2021; *Dissertation: Tools in the SDM tackle box: how to maximize model performance when predicting fish distributions* |
| Sadie Roth | MS 2022 (co-chair: Dr. Kerry Griffis-Kyle); *Thesis: Sonoran Desert amphibians in isolated waters: investigating threats posed by drought and pathogens*; PhD in progress |
| Sasha Soto | MS 2017; *Thesis: Consideration of biotype to improve invasive species management* |
| Ashley Whitehead | MS 2023; *Thesis: Downstream transport of zebra mussel (*Dreissena polymorpha*) environmental DNA and implications for analysis* |

## Graduate Student Committee Member (N = 17)

| | |
|---|---|
| Stephen Opoku Afriyie | PhD in progress, Biological Sciences |
| Kaley Cave | PhD in progress, Biology, University of North Texas |
| David Creamer | MS 2023, Natural Resources Management |
| Brenton Dunn | Professional Science Masters 2022 |
| Owen George | MS 2022, Natural Resources Management |
| Aaron Gray | MS in progress, Natural Resources Management |
| Jenna Grimshaw | PhD in progress, Biological Sciences |
| Madelyn Knauss | MS 2022, Biological Sciences |
| Zach Merson | MS 2024, Biological Sciences, Cal State Long Beach |
| Joe Richards | MS in progress, Natural Resources Management |

| | |
|---|---|
| Emily Richardson | MS 2019, Natural Resources Management |
| Bailey Robertory | MS 2022, Natural Resources Management |
| Lauren Soliz | MS 2023, Natural Resources Management |
| Breana Trevino | Professional Sciences Masters 2022 |
| Seydou Toe | MS 2017, Natural Resources Management |
| Ryan Vazquez | PhD 2021, Biological Sciences |
| Jordi Wagner | MS 2020, Natural Resources Management |

### Teaching Awards & Fellowships

2022: Initiated into Texas Tech University Teaching Academy
https://www.depts.ttu.edu/tlpdc/Teaching_Academy/Current_Members/members2020.php
2021: Texas Tech University Teaching, Learning, & Professional Development Center STEM Teaching, Engagement & Pedagogy (STEP) Program Specialist
2020: Texas Tech University Teaching, Learning, & Professional Development Center STEM Teaching, Engagement & Pedagogy (STEP) Program Fellow
2019: Texas Tech University Forum Chapter of Mortar Board, Apple Polishing Mentor Recognition Luncheon honoree
2017: Texas Tech University Teaching, Learning, & Professional Development Center Faculty Spotlight Award recipient
2016: Texas Tech University Teaching Mentoring through Peer Observation (TeMPO) Fellow
2015: Texas Tech University Teaching Mentoring through Peer Observation (TeMPO) Fellow

## Outreach

### Non-Scientific Literature Publications (N = 4)

Kabat KL, Jacobi C, Ryan A, **Barnes MA**, Cox RD, Portillo C, Subedi M, and Perry G. 2021. Texas lizards at risk. *Texas Wildlife* 36: 32-34. Available online: https://issuu.com/texaswildlifeassociation/docs/2021-4-april_proof4

Grabowski T, Roesler E, Martinez-Andrade F, and **Barnes M**. 2018. Data sources matter – a case study of the Dwarf Seahorse. *Outdoor News Bulletin* 72. Available online: https://wildlifemanagement.institute/outdoor-news-bulletin/july-2018/data-sources-matter-case-study-dwarf-seahorse

**Barnes MA**. 2014. Invasion biology: a very brief history. *The Pieris Project*. Available online: http://www.pierisproject.org/cool-stuff/invasion-biology-a-very-brief-history

**Barnes MA** and Baldridge AK. 2009. Louisiana crayfish: good, bad, and delicious. *LiveScience*. Available online: http://www.livescience.com/environment/090403-bts-crayfish.html

### Media Appearances

December 2022: Washington Post comment on ancient DNA study. Available online: https://www.washingtonpost.com/climate-environment/2022/12/07/greenland-dna-study-mastodon/

January 2022: Popular Science magazine interview re: studies of airborne eDNA. Available online: https://www.popsci.com/animals/air-animal-dna/

July 2021: Science Magazine interview re: preprint studies of airborne eDNA. Available online: https://science.sciencemag.org/content/373/6553/376

April 2021: Texas Tech University Agriculturalist feature on the Aquatic Sciences program at Texas Tech. Available online: https://ttuagriculturist.com/2021/04/22/aquatics-program-plans-to-emerge-as-a-leader-in-aquatic-ecology/

April 2021: LiveScience interview re: eDNA in the news. Available online: https://www.livescience.com/dna-collected-air.html

February 2018: Texas Tech University Agriculturist feature on eDNA research in the Barnes Lab. Available online: https://ttuagriculturist.wordpress.com/2017/12/12/a-fork-in-the-river/

February 2017: Texas Tech University Agriculturist feature on eDNA research in the Barnes Lab. Available online: https://ttuagriculturist.wordpress.com/2016/12/05/collaborating-to-catch-criminals/

February 2017: New Scientist interview re: eDNA in the news. Available online: https://www.newscientist.com/article/2120289-rare-baby-dragons-discovered-in-five-new-caves-thanks-to-dna/

## Service

### Elected Positions

2021 – 2025: Executive Board Member, Texas Academy of Science
- 2024 – 2025: Immediate Past President
- 2023 – 2024: President
- 2022 – 2023: President-Elect
- 2021 – 2022: Vice President

2018 – 2021: Texas Tech University Faculty Senate
2018 – 2021: Texas Academy of Science Freshwater Science Chair

### Editorial Boards & Reviewing

2023 – present: Editorial Board, *BioScience*
2020: Guest Subject Matter Editor (1 manuscript), *Ecological Applications*
2019 – present: Associate Editor, *Biological Invasions*
2018 – present: Deputy Editor-in-Chief for Inland Water Invasions, *Management of Biological Invasions*
2015 – 2018: Associate Editor, *Management of Biological Invasions*

**Manuscript Reviews for:** *The American Biology Teacher* (N = 1), *American Journal of Botany* (1), *The American Midland Naturalist* (1), *Animal Conservation* (1), *Aquatic Invasions* (3), *Biodiversitas Journal of Biological Diversity* (1), *Biological Conservation* (3), *Biological Invasions* (9), *BioInvasions Records* (1), *BioScience* (2), *BMC Research Notes* (1), *California Agriculture* (1), *Canadian Journal of Fisheries and Aquatic Sciences* (1), *Conservation Genetics* (3), *Conservation Genetics Resources* (2), *Current Biology* (1), *Ecological Applications* (1), *Ecology and Evolution* (4), *Endangered Species Research* (2), *Environmental DNA* (12), *Environmental Pollution* (1), *Environmental Science & Technology* (13), *Freshwater Biology* (4), *Freshwater Science* (1), *Frontiers in Marine Science* (1), *Genome* (2), *Geology* (1), *Hydrobiologia* (3), *The Journal of Fish and Wildlife Management* (1), *Journal of Wildlife Diseases* (1), *Limnology* (1), *Limnology and Oceanography* (2), *Limnology and Oceanography: Methods* (1), *Malacologia* (1), *Management of Biological Invasions* (7), *Marine Environmental Research* (3), *Marine Pollution Bulletin* (1), *Methods in Ecology and Evolution* (1), *microPublication Biology* (1), *Molecular Ecology Resources* (4), *North American Journal of Fisheries Management* (1), *PeerJ* (1), *PLoS ONE* (4), *Proceedings of the Royal Society B* (1), *Royal Society Open Science* (1), *Science of the Total Environment* (1), *Scientific Reports* (1), *Society & Natural Resources* (1), *The Texas Journal of Science* (1), *Transactions of the American Fisheries Society* (2), *Urban Ecosystems* (1), *US Forest Service* (1).

**Proposal Reviews for:** Army Research Office (1), Hawaii Sea Grant (1), Hudson River Foundation (5), The Icelandic Research Fund (1), Knowledge Foundation – Sweden (1), L'Agence Nationale de al Recherche (1), Mitacs Accelerate (1), National Science Foundation (3), Natural Sciences and Engineering Research Council of Canada (1); Natural

Environmental Research Council (UK) Strategic Highlight Topics (1), New Zealand Sustainable Seas *Ko ngā moana whakauka* National Science Challenge (1), North Pacific Research Board (1), Ontario Research Fund (1), Swiss National Science Foundation (1), Texas Tech University Graduate School (1), Washington Sea Grant (1)

**National Science Foundation Panel Member** (2022)

### Texas Tech University Service

2024: Chair, Professor of Practice search committee

2022 – present: Faculty Advisor, TrUE Scholars Student Organization
2021 – 2023: CASNR Diversity, Equity, & Inclusion Committee member (committee disbanded via state legislation)
2020 – present: Faculty Advisor, Epsilon-Phi Chapter of Kappa Sigma Fraternity
Dec 2020: CASNR Faculty Fellows Meeting Faculty Panel member, "Managing the Work/Life Balance"
Dec 2019: CASNR Faculty Fellows Meeting Faculty Panel member, "Managing the Work/Life Balance"
Nov 2019: TLPDC Tenure Academy, Discussion Panel member, "Successfully Navigating Your Third Year Review and More"
2019: Chair, Fisheries and Aquatic Sciences faculty search committee
2019 – present: Faculty Advisor, Association of Natural Resources Scientists
2019 – present: CASNR/Davis College Curriculum Committee
2017, 2018: TLPDC TEACH (Teaching Effectiveness and Career enHancement) Program exit interviewer

### Other Service

2019 – present: member, Education and Outreach Committee, Lubbock Aquarium
2011 – 2012: Lodge Lab (University of Notre Dame) Undergraduate Research Coordinator
2011: Member, University of Notre Dame Biology/Civil Engineering faculty search committee
2008 – 2012: Coordinator, Notre Dame Biology Graduate Student annual fundraiser for Big Brothers Big Sisters of St. Joseph County (cumulative > $7,000 raised)
2007 – 2009: Coordinator, Notre Dame Biology Friday Afternoon Student Seminar
2004 – 2006: Southwestern University Student Foundation

## Additional Information

### Other Honors & Awards

2024: Texas Tech University President's STEM Mentoring Academy member
2019: Inaugural Southwestern University "18 under 40" honoree https://www.southwestern.edu/alumni/alumni-achievement/18-under-40/

**January 2011 – December 2023: Editor, http://invasivore.org**

*At its surface, invasivore.org was a culinary blog featuring recipes that use invasive species. However, the reality is more complicated than the popular refrain, "if you can't beat 'em, eat 'em!" and the blog explores the many dimensions of this issue and serves as an educational and outreach tool to increase awareness on the topic of biological invasions. In addition to recipes, the site also provides exposition and commentary on related topics such as invasive species profiles, histories and cultural significance, harvesting tips, interviews with scientist who study invasive species, summaries of relevant scientific research, and roundups of the latest invasive species news and notes.*

**Media Appearances regarding invasivore.org and invasive species harvest**

October 2022: Planet Forward [video] https://www.planetforward.org/cooking-invasive-species
July 2019: Marinalife Magazine [print] https://marinalife.com/magazine-article/to-beat-em-eat-em-invasive-species-recipes/
February 2016: Smithsonian Magazine [print] http://www.smithsonianmag.com/travel/indulge-invasive-species-restaurants-across-country-180957899/?no-ist (also adapted by Christian Science Monitor: http://www.csmonitor.com/Business/The-Bite/2016/0511/Putting-invasive-species-on-the-menu-and-helping-the-planet-too)
February 2016: Danish not-for-profit publication MAD (taken from Danish word for "food") [print] http://www.madfeed.co/2016/eating-invaders/
November 2015: CNN.com [print] http://www.cnn.com/2015/11/18/world/conservation-hunters/index.html
October 2015: Quartz digital news outlet [print] http://qz.com/556415/eating-invasive-species-is-tasty-but-not-as-easy-as-youd-think/
March 2015: Top of Mind with Julie Rose on BYUradio [live radio] http://www.byuradio.org/episode/3fc58c60-31a9-4972-8fb4-b005fa6e4217/top-of-mind-with-julie-rose-invasive-species-wealth-of-nations-stepdads-hostile-bosses
March 2015: Recipes appeared in Discover Magazine [print] http://discovermagazine.com/2015/march/5-if-you-cant-beat-em-eat-em
February 2015: The Guardian Environment Blog [print] http://www.theguardian.com/environment/world-on-a-plate/2015/feb/06/cooking-cant-solve-the-invasive-threat
February 2015: Discover Magazine [print] http://discovermagazine.com/2015/march/5-if-you-cant-beat-em-eat-em
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