Alexandra Tsalickis – Curriculum Vitae

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Education

Ph.D. Earth System Sciences, Auburn University, April 2026

M.S. Crop, Soil, and Environmental Sciences, Auburn University, December 2019

B.S. Wildlife, Ecology, and Conservation, University of Florida, December 2016, *Magna cum laude*

Appointments

2026	*Postdoctoral Research Fellow*, Department of Geosciences, Auburn University
2023 – 2026	*Presidential Graduate Research Fellow*, Department of Geosciences, Auburn University
Spring 2025	*Graduate Teaching Assistant*, Department of Geosciences, Auburn University
2021 – 2023	*Research Assistant*, Department of Forestry and Environmental Conservation, Clemson University
2020 – 2021	*Research Scientist II*, Department of Plant Biology, Southern Illinois University
2018 – 2019	*Graduate Research Assistant*, Department of Crop, Soil, and Environmental Sciences, Auburn University

Other Relevant Professional Experience

2023	*Laboratory Technician*, Department of Geosciences, Auburn University, Auburn, AL
2019 – 2020	*Research Technician*, Department of Entomology and Plant Pathology, Auburn University, Auburn, AL
Fall 2017	*Biological Technician*, Florida Museum of Natural History, University of Florida, Gainesville, FL
Summer 2017	*Research Technician,* Department of Entomology and Nematology, University of Florida, Gainesville, FL
2017	*Wildlife Technician*, Crystal River National Wildlife Refuge, U.S. Fish and Wildlife Service, Crystal River, FL
Fall 2016	*Field Technician*, National Ecological Observatory Network (NEON), Gainesville, FL
Summer 2016	*Carl and Marcella Matthaei Ecological Scholar*, Whitney Laboratory for Marine Bioscience, University of Florida, St Augustine, FL

2015 – 2016 *Laboratory Technician*, Whitney Laboratory for Marine Bioscience, University of Florida, St. Augustine, FL

2014 *Sea Turtle Nesting Technician*, Clearwater Marine Aquarium, Clearwater, FL

Publications

*Undergraduate student mentee, **Graduate student mentee

[19] **Tsalickis A**, Vachula RS, Karmalkar AV, Balascio NL. 2026. Human climatic and ecological drivers of Holocene fire regimes in North America. *Communications Earth & Environment*. In press. https://doi.org/10.1038/s43247-026-03918-w

[18] **Tsalickis A**, Campbell JW, Pei CK, Vachula RS. 2026. Bison grazing in a changing prairie landscape: insights from stable isotope analysis. *Rangeland Ecology & Management*. *108: 217-225.* https://doi.org/10.1016/j.rama.2026.07.002

[17] Kroehling D**, Souza JJLL, Cordeiro JMP, Billor N, **Tsalickis A**, Souza BI, Hansen C, Goertzen L, Aleman JC, Vachula RS. 2026. Neotropical plant species produce charcoal particles distinguishable by morphometrics and morphotypes. *Evolving Earth*. 4: 100130. https://doi.org/10.1016/j.eve.2026.100130

[16] Miller I*, **Tsalickis A**, Sunderland G, Boadu M*, Ohno PE, Vachula RS. 2026. Combustion controls on sedimentary charcoal: Experimental insights for Quaternary paleofire interpretations. *Quaternary International*. 767: 110262. https://doi.org/10.1016/j.quaint.2026.110262

[15] Vachula RS, **Tsalickis A**, Cullen TM, Campbell JW, Waters MN. 2025. Holocene population baselines of an endangered bat in the southeastern US: multi-millennial resilience to climate change and humans. *Environmental Research Communications*. 7: 111008. https://doi.org/10.1088/2515-7620/ae1dcf

[14] **Tsalickis A**, Waters MN, Campbell JW, Vachula RS. 2025. Heavy metal-based bat guano chronologies: a cautionary tale. *The Holocene*. 09596836251378031. https://doi.org/10.1177/09596836251378031

[13] **Tsalickis A**, Campbell JW, Duffy, M, Vachula RS. 2025. Sampling consistency matters — Stable isotopes ($\delta^{15}N$ and $\delta^{13}C$) exhibit wide variation among individuals within native bee species (Hymenoptera: Apidae). *Journal of Insect Science.* 25(5): 83. https://doi.org/10.1093/jisesa/ieaf083

[12] **Tsalickis A**, Vachula RS, Campbell JW, Hood WR, and Waters MN. 2025. A paleoecological perspective to bat conservation: revealing diet shifts in Myotine bats through guano. *Biological Conservation*. 308: 111263. https://doi.org/10.1016/j.biocon.2025.111263

[11] **Tsalickis A**, Vachula RS, Karmalkar AV, Balascio NL, and Waters MN. 2025. Distinct latitudinal gradients define Holocene fire trends across the southeastern USA**.** *Quaternary Science Reviews.* 350: 109161. https://doi.org/10.1016/j.quascirev.2024.109161

[10] Campbell JW and **Tsalickis A**. 2025. Temperate biomes of North America, in: Demolin-Leite GL. (Eds.), Terrestrial Biomes. Elsevier, pp. 397-407. https://doi.org/10.1016/B978-0-443-36569-0.00027-6

[9] **Tsalickis A**, Vachula RS, Welch JC*, Campbell JW, and Waters MN. 2024. Fire in feces: bats reliably record fire history in their guano. *Geophysical Research Letters*. 51(19): e2024GL112045. https://doi.org/10.1029/2024GL112045

[8] **Tsalickis A**, Waters MN, Campbell JW, and Vachula RS. 2024. Bat guano isotope systems ($\delta^{13}C$, $\delta^{15}N$, $\delta^{2}H$, and $\delta^{18}O$) integrate environmental, climatic, and ecological signals. *Quaternary Science Reviews*. 334: 108711. https://doi.org/10.1016/j.quascirev.2024.108711

[7] Kimmel CB, Oliveira IB, Campbell JW, Khazan E, Bremer J, Rossetti K, Standridge M, Epstein SW, **Tsalickis A**, and Daniels JC. 2024. Integrated vegetation management within electric power transmission rights-of-way promotes floral resource and flower-visiting insect abundance and richness. *PLoS ONE*. 19(80): e0308263. https://doi.org/10.1371/journal.pone.0308263

[6] Graham JR, Campbell JW, **Tsalickis A**, Stanley-Stahr C, and Ellis JD. 2023. Observing bees and wasps: why surveys and monitoring programs are critical and how they can improve our understanding of these beneficial hymenopterans. *Journal of Pollination Ecology*. 33(9): 139-169. https://doi.org/10.26786/1920-7603(2023)725

[5] Young K**, **Tsalickis A**, Sheehan TN, Klepzig KD, Caterino MS, and Hartshorn JA. 2023. Dung beetle community composition in the presence and absence of mesopredators in a longleaf pine forest. *Southeastern Naturalist*. 22(1): 78-90. https://doi.org/10.1656/058.022.0112

[4] Klepzig KD, Hartshorn JA, **Tsalickis A**, and Sheehan TN. 2022. Eye Gnat (*Liohippelates*, Diptera: Chloropidae) biology, ecology, and management: past, present, and future. *Journal of Integrated Pest Management*. 13(1): 19. https://doi.org/10.1093/jipm/pmac015

[3] **Tsalickis A**, Waters MN, and Campbell JW. 2022. A 12,000 kyr paleohydroclimate record in the southeastern, U.S.A based on deuterium from bat guano. *Environmental Earth Sciences*. 81: 148. https://doi.org/10.1007/s12665-022-10234-x

[2] **Tsalickis A**, Waters MN, and Campbell JW. 2021. Methods and analysis of bat guano cores from caves for paleoecology. *Journal of Cave and Karst Studies*. 83(4): 141-150. https://doi.org/10.4311/2020ES0104

[1] Campbell JW, **Tsalickis A**, Cuminale A, and Abbate A. 2021. Does allochthonous leaf litter structure terrestrial cave invertebrate assemblages? *Journal of Natural History*. 55(15-16): 1021-1032. https://doi.org/10.1080/00222933.2021.1930226

In Review

Bauer S**, **Tsalickis A**, Burt E*, Warny S, Campbell JW, Cullen TM, Karmalkar AV, Balascio NL, Waters MN, Vachula RS. 2026. A bat guano-derived perspective on Holocene anthropogenic fire impacts in the southeastern USA. *Quaternary Science Reviews*.

Tsalickis A, Namir I, Boulerice J, Vachula RS, Welti EAR, Messerly T, Campbell JW. 2026. Evaluating plague mitigation tools on prairie dog ecosystems using stable isotope analysis. *Wildlife Biology.*

Campbell JW, **Tsalickis A**, Welti EAR, Namir I. 2026. Interactions between prairie dogs and arthropods in grassland ecosystems: A review and research gaps. *Wildlife Biology*.

Vachula RS, Balascio NL, **Tsalickis A**, Karmalkar AV. 2026. A global calibration of sedimentary charcoal as a fire history indicator necessitates a new conceptual model and interpretative framework for the proxy. *Quaternary Science Reviews*.

Abbate A, Campbell JW, **Tsalickis A**, Garcia L, Chakrabarti P, Baugus L, Gaffke A, Wheeler G, Nestle R, Rinkevich F, Esquivel I, Cuminale A, Pei CK, Parys K, Lau P, Williams, GR. 2026. Insect

floral visitors and reproductive biology of Chinese Tallow (*Triadica sebifera*: Euphorbiaceae): A multi-state study in the southeastern United States. *Environmental Entomology*.

Honors and Awards

1st place student poster presentation award for the Earth System Science Symposium. 2026. Auburn University.

Auburn University Graduate Student Council Travel Fellowship. 2025. To present graduate research at AGU annual conference. $400

AGU Harry Elderfield Student Paper Award. 2025. Paper - Fire in feces: bats reliably record fire history in their guano. $500

Geosciences Advisory Board Student Travel Grant. 2025. Auburn University, Department of Geosciences. To present graduate research at AGU annual conference in New Orleans, LA. $500

COSAM PhD Student Dean's Research Award. 2025. Auburn University, College of Science and Mathematics. $250

Geosciences Advisory Board Outstanding PhD Student. 2025. Auburn University, Department of Geosciences. $250

Going Places Student Travel Grant. 2024. Auburn University, Department of Geosciences. To present graduate research at AGU annual conference in Washington, D.C. $1,000

NSF/GSA Graduate Student Travel Grant. 2024. Geological Society of America. To present graduate research at AGU annual conference in Washington, D.C. $500

Geosciences Advisory Board Student Travel Grant. 2023. Auburn University, Department of Geosciences. To present graduate research at AGU annual meeting in San Francisco, CA. $800

COSAM Graduate Student Travel Award. 2023. Auburn University, College of Science and Mathematics. To present graduate research at AGU annual meeting in San Francisco, CA. $500

George N. Huppert Scholarship. 2019. To present graduate research at National Cave and Karst Symposium in Bristol, VA

Doris Lowe and Earl and Verna Lowe Scholarship. 2012 – 2016. University of Florida.

Jennings Undergraduate Scholarship. 2014. Department of Wildlife, Ecology, and Conservation, University of Florida

Dean's List. 2012 – 2014. University of Florida

Grant Funding

PI *Principal Investigator*
SI *Student Investigator*

Recommended for Funding

Joint Fire Science Program: Graduate Research Innovation Grant: Establishing North American fire-climate baselines: a meta-analysis of Holocene charcoal records. $25,000, 2025. R. Vachula, PI; A. Tsalickis, SI. Not funded due to President Trump Administration.

Past

Auburn University Presidential Graduate Research Fellowship. $111,000, 2023 – 2026. A. Tsalickis, SI, R. Vachula, PI.

Geological Society of America Graduate Student Research Grant: Characterizing Holocene Human Fire-Vegetation Interactions in Southern Appalachia Using Bat Guano. $3,000, 2026. A. Tsalickis, SI.

Geological Society of America Graduate Student Research Grant: Trace Metals as Potential Chronostratigraphic Markers in Bat Guano. $2,500, 2024. A. Tsalickis, SI.

Auburn University NSF Research Climate Resilience Trainee. $68,000, 2023 – 2026. *Declined offer due to Auburn University Presidential Graduate Research Fellowship Award*.

Phillip M. Smith Cave Research Foundation Grant: Constructing a Paleoclimate Record in the Southeastern United States: Hydroclimate and Vegetation Implications. $1,500, 2022. A. Tsalickis, SI.

Clemson University R. C. Edwards Graduate Fellowship. $60,000, 2021 – 2023.

National Speleological Society Grant: Using $\delta^{13}C$, $\delta^{15}N$ Stable Isotopes as Proxies for Paleoclimatic Conditions in Cave Springs Cave Bat Guano Core. $1,500, 2019. A. Tsalickis, SI.

Not Funded

David H. Smith Conservation Research Fellowship: Using paleoecological methods to improve bat, insect, and habitat conservation in the southeastern United States. $186,363, 2025. *Semi-Finalist*. A. Tsalickis, PI; S. Birch, T. O'Mara, co-PI's

Morris Animal Foundation Wildlife Fellowship Training: How does plague mitigation affect prairie dog diets and habitat? $145,000, 2025. A. Tsalickis and E. Welti, PI's; J. Campbell, co-PI.

NSF-EAR Postdoctoral Fellowship: Revealing the onset of human influence on natural fire regimes in southern Appalachia. $184,000, 2025. A. Tsalickis, PI; R. Vachula and A. Karmalkar, co-PI's.

NOAA Climate and Global Change Postdoctoral Fellowship: Using bat guano and climate model data to improve understanding of Holocene human fire use in southern Appalachia. $160,920, 2025. A. Tsalickis, PI; R. Vachula, co-PI.

NSF Graduate Research Fellowship Program (GRFP): Using bat guano as paleoclimate records in the southeastern U.S. $92,000, 2017. A. Tsalickis, SI; M. Waters, PI.

Media Coverage

Falligant S. 2025. Auburn PhD student uncovers ancient environmental clues from bats. COSAM Today, Auburn University. Published on 5 November 2025. https://wire.auburn.edu/content/cosam/2025/10/28900-bat-guano-research.php

Muenstermann L. 2025. This Auburn PhD found 10,000-year-old bat guano near Huntsville—how it reveals environmental changes + more. Huntsville Blast. Published on 21 April 2025. https://hvilleblast.com/AlexandraTsalickis

Dzombak R. 2024. Bat poop records fire history, Eos, 105. Published on 31 October 2024. https://doi.org/10.1029/2024EO240480

Blakemore E. Bat guano yields 'unconventional' historical fire data, scientists say. The Washington Post. Published on 27 October 2024. https://www.washingtonpost.com/science/2024/10/27/bat-guano-fire-correlation/.

Reinsel M. This Week from AGU. Bat Feces Record Fire History. AGU Newsroom. Published on 16 October 2024. https://news.agu.org/category/twfagu/.

Wilcox C. Science Adviser: AI wins again: Chemistry Nobel awarded for protein design, structure prediction. Published on 9 October 2024. https://doi.org/10.1126/science.adt7454.

Brokaw A. The Scoop on Bat Poop. Bat Conservation International. Published on 24 April 2024. https://www.batcon.org/the-scoop-on-bat-poop/.

Hester JL. What Secrets Lurk Within a Human-Sized Dome of Bat Guano. *Atlas Obscura*. Published on 18 May 2021. https://www.atlasobscura.com/articles/bat-poop.

Invited Presentations

Fire in feces: bats reliably record fire history in their guano. 2025. Working Group on Wildfire Research in the Pacific Northwest. Online Webinar. The University of British Columbia.

A 14,000 YBP Record of Paleoenvironmental Change in the Southeastern USA Inferred from Bat Guano. 2019. Tennessee Bat Working Group Meeting, Chapel Hill, TN.

Professional Presentations

Oral

Tsalickis A, Vachula R, Welch JC, Campbell JW, and Waters MN. 2024. Fire in feces: bats reliably record fire history in their guano. COSAM Graduate Student Research Forum. Auburn University, AL.

Tsalickis A, Waters MN, Campbell JW, and Medina ME. 2019. Reconstructing paleoenvironmental conditions of northern Alabama utilizing guano cores. National Cave and Karst Management Symposium, Bristol, VA.

Tsalickis A, Waters MN, Campbell JW, and Medina ME 2019. Potential use of guano core records in reconstructing precipitation patterns in northern Alabama. Auburn University Student Research Symposium, Auburn, AL.

Poster

Tsalickis A, Vachula RS, Karmalkar AV, and Balascio NL. 2026. Human, climatic, and ecological drivers of Holocene fire regimes in North America. Earth System Science Symposium, Auburn University, AL.

Vachula RS, Balascio NL, **Tsalickis A**, Karmalkar AV. 2026. A global calibration of sedimentary charcoal as a fire history indicator necessitates a new conceptual model and interpretative framework for the proxy. Annual Meeting of the GSA Northeastern Section, Hartford, CT.

Whitelam L, Balascio NL, Cook T, **Tsalickis A**, Vachula RS, Karmalkar AV. 2026. A 13,000-year record of wildfire dynamics from Ossipee Lake, New Hampshire. Annual Meeting of the GSA Northeastern Section, Hartford, CT.

Sander I, Balascio NL, Cook T, Feng Y, Vullo C, **Tsalickis A**, Vachula RS, Karmalkar AV. 2026. Application of charcoal and polycyclic aromatic hydrocarbons to reconstruct the Holocene fire history of north-central Maine. Annual Meeting of the GSA Northeastern Section, Hartford, CT.

Tsalickis A, Vachula RS, Karmalkar AV, and Balascio NL. 2025. Spatiotemporal Patterns of Holocene Fire Activity in the Contiguous USA: Disentangling Ecological, Climatic, and Anthropogenic Drivers. American Geophysical Union Annual Meeting, New Orleans, LA.

Kroehling D, Souza J, Cordeiro J, Billor N, **Tsalickis A**, Souza B, Hansen C, Goertzen L, Vachula RS. 2025. Neotropical species produce charcoal particles distinguishable by morphometrics and morphotypes. American Geophysical Union Annual Meeting, New Orleans, LA.

Tsalickis A, Waters MN, Campbell JW, and Vachula RS. 2024. Bat guano isotope systems ($\delta^{13}C$, $\delta^{15}N$, $\delta^{2}H$, and $\delta^{18}O$) integrate environmental, climatic, and ecological signals. American Geophysical Union Annual Meeting, Washington, D.C.

Foliano S, Vachula RS, Waters MN, Paradeisis-Stathis S, **Tsalickis A**, and Cullen TM. 2024. Providing Paleoenvironmental Baselines to Inform Prescribe Fire Application in Central Florida. The American Quaternary Association, Salt Lake City, UT.

Tsalickis A, Vachula RS, Karmalkar AV, and Balascio NL. 2023. A Data-Model Approach to Establishing Natural Holocene Fire-Climate Relationships in the Southeastern United States. American Geophysical Union Annual Meeting, San Francisco, CA.

Graham JR, Campbell JW, **Tsalickis A**, Stanley-Stahr C, and Ellis JD. 2023. Observing Bees and Wasps: Why Surveys and Monitoring Programs are Critical and How They can Improve Our Understanding of These Beneficial Hymenopterans. International Conference on Pollinator Biology, Health, and Policy, Pennsylvania State University, State College, PA.

Tsalickis A, Waters MN, Campbell JW, Medina ME. 2018. Using bat guano core records to reconstruct historic moisture patterns for northern Alabama. Alabama Water Resources Conferences, Perdido Beach, FL.

Tsalickis A, Waters MN, Campbell JW, and Medina M. 2018. The potential use of guano core records in reconstructing historic precipitation patterns for northern Alabama. Graduate Student Poster Showcase, Auburn University, Auburn, AL.

Raines, E, Lin, F, and **Tsalickis, A**. 2016. Using biogeochemistry methods to understand the formation of "fairy circles" in a marsh wetland. The Whitney Laboratory for Marine Bioscience's Biology at the Beach, St. Augustine, FL.

Tsalickis, A and Nuñez, J. 2016. Documenting the Biodiversity of Oyster Reefs. Matanzas Biodiversity Initiative, St. Augustine, FL.

Sovie, A, Grudens, J, and **Tsalickis, A**. 2015. Giving up density of the invasive Burmese python in Florida. Florida Chapter of the Wildlife Society Spring Meeting, Gainesville, FL.

Teaching Experience

Dynamic Earth, Teaching Assistant, Auburn University, Spring 2025

Mentoring

Summer Semester Length Minimum

Undergraduate Student Research Mentees

Etta Putman – Louisiana State University BS ('26) – CAST REU
India Miller – Hampton University BS ('27) – CASE REU
Bailey Robinson – Auburn University BS ('24)
J. Conner Welch – Auburn University BS ('26)
Elizabeth Burt – Auburn University BS ('28)

Master's Student Research Mentees

Kelsea Young – Clemson University (MS'21)
Sophia Foliano – Auburn University (MS'25)
Sarah Barney – Auburn University (MS'26)
Sara Bauer – Auburn University (MS'27)
Dakota Sievers – Auburn University (MS'27)

Doctoral Student Research Mentees

Joshua Avong Solomon – Auburn University (PhD'29)
Yufan Feng – Auburn University (PhD'29)
Daniel Cardoso Kroehling – Universidade Federal de Viçosa (PhD'27)

Service

Destination STEM Summit, "Discover Geosciences". 2025. Auburn University

Graduate Student Research Forum Committee Member. 2025. College of Sciences and Mathematics, Auburn University

Reviewer for Undergraduate Research Fellowship Program. 2025. College of Sciences and Mathematics, Auburn University

Selection Committee for G-SEAC Graduate Assistant position. 2025. Department of Geosciences, Auburn University.

Student Government Association, Graduate Student Senator. 2024 – 2025. Department of Geosciences, Auburn University

Destination STEM. 2024. Department of Geosciences, Auburn University

Peer Reviews

People & Nature, 2026
Dendrochonologia, 2026
Catena, 2026
Journal of Biogeography, 2025

The Holocene, 2023