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Aaron Stoler, Ph.D.

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Professional Profile

Dr. Stoler is an applied ecologist who focuses on meeting client needs in a manner that advances both business and sustainability. He employs a unique blend of foundational theory, traditional knowledge, and cutting-edge innovation. He has more than 15 years of research experience and is highly skilled at communicating science to diverse audiences. He applies his skillset to find solutions that meet stakeholder needs across sectors and regions.

Aaron has experience working across multiple job sectors, including academia, government, industry, and consulting. During his graduate, postdoc, and tenure-track academic career, Dr. Stoler has researched and published on a variety of topics, including 1) ecosystem linkages across freshwater and forest ecosystems, 2) community-focused ecotoxicological effects of pesticides and microplastics including both sublethal and lethal effects, 3) interactions between natural and anthropogenic stressors, 4) effects of road de-icing salts on wetland communities, 5) statistical relationships between biodiversity and ecosystem function, and 6) non-timber forest production. His research marries foundational questions in ecology with applied research. During his time as a research scientist with the New Jersey Department of Environmental Protection, he assisted with Total Maximum Daily Load (TMDL) reporting and mapping and helped to develop digital platform for improved surface water quality analysis.

During his time as an applied ecologist with the oil and gas industry, Dr. Stoler helped to restore landscapes, build community engagement, improve biodiversity monitoring, and assist development of corporate biodiversity and sustainability strategies. He continued research in a variety of different topics, including green space (e.g., biophilic designs) and occupational hygiene, indigenous and traditional ecological knowledge, and life cycle impact analysis. He also focused on advanced methods of biodiversity monitoring, such as environmental DNA (eDNA), bioacoustic, camera trapping, drone imagery, remote satellite sensing, and machine learning. As part of this research, Dr. Stoler also collaborated with an international team to better understand biodiversity metrics and definitions as they are applied in biomes across the world.

His driving philosophy is that environmental sustainability can go hand-in-hand with business and economic growth. He works to achieve this by helping clients realize the value of their natural assets – both to meet regulatory demands (e.g., CSRD, EIA) and develop portfolios on voluntary markets (e.g., mitigation banks, conservation banks). He considers restoration and remediation requirements as opportunities for going “above and beyond” those same requirements to generate higher revenue, greater social license to operate, and improved economic standing. To this end, he has experience in guiding industries (e.g., oil and gas) toward wildlife habitat certifications which showcase the tremendous work of dedicated staff and community members.

Because of his background in quantitative ecology and experimental design, he focuses on ensuring the long-term viability of nature-based solutions by using ecological theory in scientific approaches. He is

familiar with multiple methods of scientific experimentation, such as remote fieldwork, artificial mesocosm manipulation, and laboratory-based studies. He has worked for long periods in remote locations, including both tropical and temperate environments. He has expertise in multivariate analysis of ecological communities and has taught college courses focused on the design and analysis of complex ecological experiments. He is particularly interested in advancing methodologies for coupling multi-modal sensing networks (e.g., camera traps, bioacoustic recorders, drones, environmental DNA) with machine learning to achieve superior remediation, restoration, and conservation outcomes.

Many of his projects leverage interdisciplinary networks spanning multiple fields and include both the humanities and sciences. For example, his interest in the effects on green space, biophilic design, and human health links ecology, policy, architecture, engineering, psychology, and art. As a former university professor, Aaron also strives to incorporate an element of education, outreach, and inclusivity into his work. He is particularly interested in helping with community engagement projects that reduce environmental justice problems and empower communities to become more sustainable.

Academic Credentials & Professional Honors

Ph.D., Biology, University of Pittsburgh, 2013

B.S., Geography and Environmental Science, University of Maryland, Baltimore County, 2007

Licenses and Certifications

Certified Senior Ecologist

Academic Appointments

Assistant Professor, Environmental Sciences, Stockton University, 2017-2022

Prior Experience

Applied Ecologist, ExxonMobil Biomedical Sciences, 2023-2025

Research Scientist, New Jersey Department of Environmental Protection, 2022-2023

Assistant Professor, Stockton University, 2017-2022

Postdoctoral Researcher, Rensselear Polytechnic Institute, 2015-2017

Visiting Assistant Professor, Oakland University, 2014-2015

Postdoctoral Research, Oakland University, 2013-2015

Professional Affiliations

Senior Chair, Private and Public Sector Ecologists Section, Ecological Society of America, 2024-Present

Junior Chair, Private and Public Sector Ecologists Section, Ecological Society of America, 2023-2024

Member, Ecological Society of America, 2009-Present

Publications

Stoler AB, Coldsnow K, Relyea RA. Shedding some light on lake communities: impacts of light level and light variability. Wetlands 2025; 45:28.

Tiegs SD et al. (> 100 authors including **Stoler AB**). Human activities shape global patterns of decomposition rates in rivers. Science 2024; 384:1191-1195.

Coldsnow KD, Mruzek JL, **Stoler AB**, Relyea RA. Sublethal impacts of different road salts on a freshwater macrophyte: altered productivity, acclimation, and lag effects. Freshwater Biology 2023; 68:1952-1962.

Stoler AB, Relyea RA. Love it or leaf it: site selection of breeding treefrogs based on leaf litter subsidies. Ichthyology and Herpetology 2021; 109:785-790.

Coldsnow KD, Hintz WD, Schuler MS, **Stoler AB**, Relyea RA. Calcium chloride pollution mitigates the negative effects of an invasive clam. Biological Invasions2021; 23:1349-1366.

Stoler AB, Relyea RA. Reviewing the role of plant litter inputs to forested wetland ecosystems: leafing through the literature. Ecological Monographs 2020; 90:e01400.

Schuler MS, Hintz WD, Jones DK, Mattes BM, **Stoler AB**, Relyea RA. The effects of nutrient enrichment and invasive mollusks on freshwater environments. Ecosphere 2020; 11:e03196.

Hintz WD, Schuler MS, Borrelli JJ, Eichler LW, **Stoler AB**, Moriarty VW, Ahrens LE, Boylen ChW, Nierzwicki-Bauer SA, Relyea RA. Concurrent improvement and deterioration of epilimnetic water quality in an oligotrophic lake over 37 years. Limnology and Oceanography 2020; 65:927-938.

Hintz WD, Schuler MS, Jones DK, Coldsnow KD, **Stoler AB**, Relyea RA. Nutrients influence the multi-trophic impacts of an invasive species unaffected by native competitors or predators. Ecology 2019; 694:133704.

Tiegs SD et al. (> 100 authors **Stoler AB**). Global patterns and drivers of ecosystem functioning in rivers and riparian zone. Science Advances 2019; 5:eaav0486.

Lind L, Schuler MS, Hintz W, **Stoler AB**, Jones D, Mattes BM, Relyea RA. Salty fertile lakes: how salinization and eutrophication alter the structure of freshwater communities. Ecosphere 2018; 9:e02383.

Stoler AB, Sudol K, Mruzek J, Relyea RA. Interactive effects of road salt and sediment disturbance on the productivity of seven common aquatic macrophytes. Freshwater Biology 2018; 63:709-720.

Relyea RA, Stephens PR, Barrow L., Bradley PW, Buck JC, Blaustein AR, Chang A, Collins, JP, Crother B, Earl J, Gervasi SS, Hoverman JT, Hyman D, Lemmon EM, Luhring TM, Michelson M, Murray C, Price S, Semlitsch RD, Sih A, **Stoler AB**, VandenBroek N, Warwick A, Wengert G, Hammond JI. Phylogenetic patterns of trait and trait plasticity evolution: insights from amphibian embryos. Evolution 2018; 72:663-678.

Stoler AB, Mattes BM, Hintz WD, Jones DK, Lind L, Schuler MS Relyea RA. Effects of a common insecticide on wetland communities with varying quality of leaf litter inputs. Environmental Pollution 2017; 226:452-462.

Schuler M, Hintz W, Jones D, Lind L, Mattes B, **Stoler AB**, Sudol K, Relyea R. In search of safe alternatives: how common road salts and organic additives alter freshwater food webs. Journal of Applied Ecology 2017; 54:1353-1361.

Stoler AB, Hintz W, Jones D, Lind L, Schuler M, Relyea R. Leaf litter mediates the impact of road salt on

forested wetland communities. Freshwater Science 2017; 36:415-426.

Stoler AB, Walker B, Mattes B, Hintz WD, Jones DK, Lind L, Schuler MS, Relyea RA. Combined effects of road salt and an insecticide on wetland communities. Environmental Toxicology and Chemistry 2017; 36:771-779.

Hintz W, Mattes BM, Schuler MS, Jones DK, **Stoler AB**, Lind L, Relyea RA. Salinization triggers a trophic cascade in experimental freshwater communities with varying food-chain length. Ecological Applications 2017; 27:833-844.

Lambert MR, **Stoler AB**, Smylie MS, Relyea RA, Skelly DK. Interactive effect of road salt and leaf litter on wood frog sex ratios and metamorphic sexual size dimorphism. Canadian Journal of Fisheries and Wildlife Science 2017; 74:141-146.

Jones DK, Mattes BM, Hintz WD, Schuler MS, **Stoler AB**, Lind L, Cooper RO, Relyea RA. Investigation of road salts and biotic stressors on freshwater communities. Environmental Pollution 2017; 221:159-167.

Stephens JP, **Stoler AB**, Sckrabulis J, Fetzer A, Berven K, Tiegs SD, Raffel TR. Ontogeny determines nutrient limitation in Lithobates sylvaticus tadpoles. Oecologia 2017; 183:263-273.

Stoler AB, Burke DJ, Relyea RA. Litter chemistry and chemical diversity drive ecosystem processes in forest ponds. Ecology 2016; 97:1783-1795.

Stoler AB, Berven KA, Raffel TR. Leaf litter inhibits growth of an amphibian fungal pathogen. EcoHealth 2016; 13:392-404.

Stoler AB, Golembieski M, Stephens J, Raffel TR. Differential consumption and assimilation of leaf litter by wetland "herbivores": alternative pathways for decomposition and trophic transfer. Freshwater Science 2016; 35:178-187.

Stoler AB, Relyea RA. Leaf litter species identity alters the structure of pond communities. Oikos 2016; 125:179-191.

Stoler AB, Stephens J, Relyea RA, Berven K, Tiegs SD. Leaf litter resource quality induces morphological changes in wood frog (Lithobates sylvaticus) metamorphs. Oecologia 2015; 179:667-677.

Buck JC, Hua J, Brogan WR, Dang TD, Urbina J, Bendis RJ, **Stoler AB**, Blaustein AR, Relyea RA. Effects of pesticide mixtures on host-pathogen dynamics of the amphibian chytrid fungus. PLoS ONE 2015; 10(7):e0132832. doi:1 0.1371 /journal.pone.0132832.

Cothran RD, **Stoler AB**, Relyea RA. Leaves and litterbugs: how litter quality affects the performance of freshwater amphipods. Freshwater Science 2014; 33:812-819.

Stoler AB, Relyea RA. Bottom-up meets top-down: leaf litter inputs influence predator-prey interactions in wetlands. Oecologia 2013; 173:249-257.

Stoler AB, Relyea RA. Leaf litter induces morphological and developmental changes in larval amphibians. Ecology 2013; 94:1594-1603.

Hua J, Cothran RD, **Stoler AB**, Relyea RA. Cross-tolerance in amphibians: wood frog mortality when exposed to three insecticides with a common mode of action. Environmental Toxicology and Chemistry 2013; 32:932-936.

Stoler AB, Relyea RA. Living in the litter: the influence of tree litter on wetland communities. Oikos 2011; 120:862-872.

Brogan WR, Hale AN, Heckel CD, Hua J, Montesinos A, Rohde AR, Shaffery HM, **Stoler AB**, Wolfe M, Ashman T-L, Carson WP. Review of "Positive Interactions and Interdependence in Plant Communities" by RM. Callaway, 2007. Plant Science Bulletin 2009; 55:125-126.

Presentations

Stoler AB, Lance, L. The nature tech blueprint for achieving the nature positive transition: tools for biodiversity monitoring for land certification. UNEP-WCMC Nature Action Dialogues, Cambridge, UK, 2025.

Stoler AB, Bohan D, Ellis S, Gladbach A, Grimm V, Hellstern J, Lemaire P, Maltby L, Mayer C, Nyman A-M, Riffel M, Sanders H, Thines M, Tolls J, van den Brink N, Galic N. Assessing risks to biodiversity from exposure to chemicals: finding of an ECETOC task force on biodiversity definitions, metrics, and methodologies. SETAC North America, Dallas-Fort Worth, USA, 2024.

Stoler AB, Bohan D, Ellis S, Gladbach A, Grimm V, Hellstern J, Lemaire P, Maltby L, Mayer C, Nyman A-M, Riffel M, Sanders H, Thines M, Tolls J, van den Brink N, Galic N. Assessing risks to biodiversity from exposure to chemicals: finding of an ECETOC Task force on biodiversity definitions, metrics, and methodologies. SETAC Europe, Sevilla, Spain, 2024.

Mayer C, Bohan D, Ellis S, Gladbach A, Grimm V, Hellstern J, Hodges G, Hughes S, Lemaire P, Maltby L, Nyman A-M, Riffel M, Sanderson H, **Stoler AB**, Thines M, Tolls J, van den Brink N, Galic N. Assessing risks to biodiversity from exposure to chemicals: findings of an ECETOC task force on the regulatory context. SETAC Europe, Sevilla, Spain, 2024.

Gladbach A, Bohan D, Ellis S, Grimm V, Hellstern J, Hodges G, Hughes S, Lemaire P, Maltby L, Mayer C, Nyman A-M, Riffel M, Sanderson H, **Stoler AB**, Thines M, Tolls J, van den Brink N, Galic N. Assessing risks to biodiversity from exposure to chemicals: findings of an ECETOC task force on current and future research directions. SETAC Europe, Sevilla, Spain, 2024.

Stoler AB. Ecotoxicological effects of microplastic in freshwater environments. Northeast Partners in Amphibian and Reptile Conservation, Stockton University, Galloway, NJ, 2019.

Stoler AB. Ecotoxicological effects of microplastic in freshwater environments. Society for Freshwater Science, Salt Lake City, UT, 2019.

Belskis A, **Stoler AB**. Steep stakes: effects of microplastic leachate on the reproduction and growth of zooplankton. New Jersey Water Environmental Association Conference, Atlantic City, NJ, 2019.

Ghimirey A, Beidler R, **Stoler AB**, Urban RA. Does road salt facilitate the invasion of a carnivorous aquatic plant? University of Maryland Baltimore County Undergraduate Research Symposium, Baltimore, MD, 2018.

Hintz WD, Coldsnow KD, Schuler MS, **Stoler AB**, Jones DK, Lind L, Mattes BM, Relyea RA. The impacts of road salt salinization on lake food webs. Global Lakes Ecological Observatory Network, Lake Mohonk, NY, 2017.

Stoler AB, Lambert MK, Smylie M, Skelly DK, Relyea RA. Subsidies, salt, and sex ratios. Society for Freshwater Science, NC, 2017.

Tiegs SD, Costello D, Szlag D, Isken M, Ethaiya D, the CELLDEX Consortium (including **Aaron AB**). Global-scale patterns and drivers of organic matter decomposition in streams and riparian zones. Society for Freshwater Science, Raleigh, NC, 2017.

Stoler AB, Raffel TR. Litter leachates inhibit growth of a common amphibian pathogen, Batrachochytrium dendrobatidis. Ecological Society of America, Baltimore, MD, 2015.

Stoler AB, Golembieski MN, Stephens JP, Raffel TR. Differential assimilation of leaf litter resources by common wetland consumers. Joint Aquatic Society Meeting (JASM), Portland, OR, 2014.

Stoler AB, Relyea RA. The influence of leaf litter chemistry and diversity on larval anurans. World Congress of Herpetology (WCH), Vancouver, BC, 2012.

Stoler AB, Burke D, Relyea RA. Functional trait diversity of leaf litter and its influence on biological processes of forest ponds. Ecological Society of America (ESA) Annual Meeting, Austin, TX, 2011.

Stoler AB, Relyea RA. Love in the litter: the effect of leaf litter on amphibian oviposition site selection. Ecological Society of America (ESA) Annual Meeting, Pittsburgh PA, 2010.

Stoler AB, Relyea RA. How the presence of leaves from different species of trees in the water affect the survival of tadpoles and the gastropods Physa acuta and Helisoma trivolvis. Ohio River Valley Unified Malacologists (OVUM) Annual Meeting, Pittsburgh, PA, 2009.

Stoler AB, Relyea RA. The effect of American chestnut leaf litter on forested pond ecosystems. The American Chestnut Foundation Annual Meeting, Pittsburgh, PA, 2009.

Stoler AB, Relyea RA. Turning over a new leaf: the effect of tree litter on forested ponds and wetland communities. Ecology Society of American (ESA) Annual Meeting, Albuquerque, NM, 2009.

Stoler AB, Relyea RA. Turning over a new leaf: the influence of tree litter on forest pond communities. North American Benthological Society (NABS) Annual Meeting, Grand Rapids, MI, 2009.

Project Experience

Specific project areas include, but are not limited to:

1. Advanced biodiversity monitoring and measurement, including machine learning, bioacoustics, camera trapping, drone surveys, environmental DNA (eDNA), and satellite remote sensing
2. Ecosystem service valuation
3. Restoration ecology, including efforts towards Natural Resource Damages compensation
4. Wetland and forest ecosystem and community ecology, including work on spatial subsidies, biodiversity change, and restoration following major disturbances (e.g., wildfires, logging, overgrazing).
5. Non-timber forest production (e.g., maple syrup production, mushroom harvesting)
6. Life cycle analysis, specifically for biodiversity impact analysis
7. Community ecotoxicology using large-scale artificial mesocosms
8. Indigenous and traditional ecological knowledge, and relationship building with industry
9. STEM outreach, education, and community engagement
10. Text mining for stakeholder analysis
11. Spatial and temporal multivariate analysis of ecological communities
12. Wetland mitigation banking and conservation banking

Additional Education & Training

(*asterisk indicates self-led workshops/trainings)

2025: Certified Senior Ecologist (CSE), Ecological Society of America

2025: *Stakeholder Analysis Using Data and Text Mining Tools, ExxonMobil Biomedical Science; Virtual and In-person

2025: Ecological Evaluation – Continuing Education course through Rutgers

2024: Indigenous Engagement Institute (IEI) workshop for leaders in government, industry, and philanthropy for building relationships with Indigenous Peoples (see https://indigengage.com/), Spearfish, SD

2024: *Mentoring Your Undergraduate and Graduate Students for Success in Private Sector Ecology (Led by myself, Lis Nelis, and Kenneth Klemow), Ecological Society of America, Long Beach, CA

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2024: HAZWOPER 40-hour (through the American Safety Council)

2024: Wilderness First Aid (through National Outdoor Leadership School)

2024: Bioacoustic data collection & analysis (through Ecological Society of America)

2024: Green & Sustainable Remediation (through the Commerce and Industry Association of New Jersey)

2024: Life Cycle Assessment: Quantifying Environmental Impacts (through MIT)

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2024: Green & Sustainable Remediation (through the Commerce and Industry Association of New Jersey)

2024: Working across cultures (sponsored by ExxonMobil)

2023: Water Quality Modeling Workshop, with emphasis on Qual2K (sponsored by EPA’s Water Modeling Workgroup)

2022: Basics of ArcGIS Pro (sponsored by NJ Department of Environmental Protection)

2020: Attendance at The Connected Faculty Summit, Arizona State University (virtual)

2017: Writing workshop, Stockton University

2014: NAPIRE (Native American and Pacific Islander Research Experience for Undergraduates) undergraduate mentor with OTS (Organization for Tropical Studies)

2014: The Society for Advancement of Hispanics / Chicano and Native Americans in Science (SACNAS) annual meeting, Held in Los Angeles, October 2014

2014: Participated in the Symposium on Urbanization and Stream Ecology, Portland OR

2014: Workshop: Mentoring Native Americans and Pacific Islanders, The Organization for Tropical Studies. Held in Costa Rica, April 2014

2011: Species traits: a functional approach to biodiversity, from organisms to ecosystems, McGill University; Description: 4-day intensive workshop on the role and use of plant functional traits in determining ecological function

2010: Fundamentals of Ecosystem Ecology, The Cary Institute of Ecosystem Studies; Description: 2-week intensive introduction to modern ecosystem ecology.

2008: Tropical Biology, *Organization for Tropical Studies*; Description: two-month field course in Costa Rica and Panama to learn the fundamentals and current state of tropical biology