

ENVS@Emory

*The latest news, views, and announcements for
The Environmental Sciences Department*



I'm proud to share with you the remarkable momentum and accomplishments that continue to define our department.

This past year has been one of exceptional growth, deep collaboration, and meaningful impact. Our undergraduate program has expanded significantly, our research portfolio continues to thrive across both natural and social sciences, and our faculty are shaping environmental policy on national and global stages. From groundbreaking research on climate adaptation and planetary health to mentoring the next generation of changemakers, ENVS is at the forefront of addressing the world's most urgent environmental challenges.

We also welcomed our first cohort of PhD students in the new Environmental Sciences and Society program, marking a major milestone in the evolution of our department. These scholars join a vibrant, mission-driven community committed to sustainability and science that serves society.

None of this would be possible without the energy and dedication of our faculty, staff, students, alumni, and partners. Thank you for being part of this journey. I invite you to explore the pages that follow and celebrate the work we've done together, and the work still to come.

With gratitude and pride,

Dr. Thomas R. Gillespie, Chair, Department of Environmental Sciences

TRANSLATING SCIENCE TO POLICY: ENVS FACULTY AT THE FRONTLINES OF GLOBAL ENVIRONMENTAL DECISION-MAKING

ENVS Faculty are not only advancing environmental scholarship, they're shaping the policies and frameworks that govern sustainability, resilience, planetary health, and biodiversity around the world. In 2024–25, ENVS faculty played outsized roles in bridging the gap between research and real-world impact across multiple high-level platforms.



Drs. Jola Ajibade and Stacy-ann Robinson played critical roles in the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report and have been invited to contribute to the Seventh Assessment Report. Dr. Ajibade also co-led the Implementation Chapter of the UNEP Adaptation Gap Report, while Dr. Robinson authored the Adaptation chapter of the Sixth National Climate Assessment (NCA6)—two of the most authoritative assessments guiding global and national climate adaptation policy.



Dr. Emily Burchfield, as a core contributor to the NICHD/NIH ADVANTAGE Project, is mapping the intersections of agriculture, diet, and environmental change to help set federal funding priorities for research on the U.S. food system's health and sustainability impacts.



Dr. Eric Lonsdorf, through his leadership in the Natural Capital Project, is a primary architect of cutting-edge decision support systems used by governments and agencies to assess ecosystem services and integrate them into planning and resource management at multiple scales.



Dr. Eri Saikawa contributes to U.S. environmental governance as a member of the EPA Board of Scientific Counselors Advisory Committee and participates in shaping science policy through the National Academies' New Voices program, which focuses on increasing diversity and inclusion in national science advising.



Dr. Gonzalo Vazquez-Prokopec continues to advise international public health institutions through his service on expert advisory boards for both the World Health Organization (WHO) and the Pan-American Health Organization (PAHO), helping shape global responses to vector-borne disease risks.



Dr. Thomas Gillespie provided expert testimony to the U.S. House of Representatives Committee on Natural Resources, contributing to the Congressional record on biodiversity and health. He also served as an external expert to PREZODE and is a long-standing member of the IUCN Species Survival Commission, where he guides global strategy at the biodiversity-health interface.

Together, these contributions reflect ENVS's deep and sustained commitment to policy-relevant, actionable science. Our faculty are not only thought leaders in their disciplines—they are trusted advisors helping shape the future of environmental decision-making, from local communities to the global stage.

Grants

Our research enterprise has flourished. Since 2021, our total extramural funding has nearly tripled. In 2025, ENVS reached a record \$11.2 million in active sponsored awards, a remarkable achievement, particularly in the current climate of declining federal research investment. Our success reflects both the quality and relevance of ENVS research. Recent awards include:



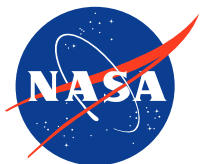
A multi-million-dollar Gates Foundation grant to **Drs. Vazquez-Prokopec, Ajibade, and Huang** to develop and test a high-tech, low-cost method to control an invasive mosquito that poses a growing threat of urban malaria in Africa.



New NIH funding awarded to both **Dr. Vazquez-Prokopec** for international global health training and capacity building and **Dr. Saikawa** to examine the effects of burning plastic waste on human health.



A grant from the Environmental Defense Fund to **Dr. Lonsdorf** to develop an integrated assessment model of agricultural responses to climate change.



A NASA subcontract led by **Dr. Huang** to develop AI-driven models that combine NASA satellite data with citizen science to predict mosquito habitat suitability and future disease risk under climate change.



A grant from the Heising-Simons Foundation to **Dr. Robinson** to support the development of pathways for early-career researchers from small island developing states to engage directly in international climate science and policy processes. Dr. Robinson's project positions Emory as a leader in supporting inclusive, justice-oriented climate research.



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Publications

In 2024–25, ENVS faculty produced a dynamic and influential body of scholarship that reflects the department's interdisciplinary strength, global reach, and commitment to high-impact research. Across the natural and social sciences, ENVS faculty published more than 128 peer-reviewed articles, many of which appeared in top-tier journals such as *Nature*, *Nature Communications*, *Science of the Total Environment*, *Global Change Biology*, *Emerging Infectious Diseases*, *Global Environmental Change*, *Journal of Applied Ecology*, and *PLOS Neglected Tropical Diseases*.

Notably, many of this year's publications featured graduate and undergraduate student co-authors, showcasing the department's strong culture of mentorship and engaged research training. Faculty also contributed invited chapters to major edited volumes, white papers for national and international policy bodies. Together, these publications not only expanded the boundaries of environmental knowledge but also shaped real-world policies and practices, reinforcing ENVS's reputation as a leader in actionable, integrative, and socially responsive scholarship!

Representative Publications:

Ajibade I, Shah SH. 2024. Can floating homes make coastal communities resilient to climate risks? *Nature*, 632(8026), 733–736.

Deere JR, Lonsdorf EV, Clennon JA, Gillespie TR. 2024. Bridging the gap: Integrating knowledge from the study of social network analysis and infectious disease dynamics in human and nonhuman primates. *Annual Review of Anthropology*. 53:37–53.

Huang, X., Ye, X., Stewart, K., & Das, S. (Eds.). (2025). *Urban Human Mobility: Practices, Analytics, and Strategies for Smart Cities* (1st ed.). CRC Press.

Lonsdorf EV, Rundlöf M, Nicholson CC, Williams NM. 2024. A spatially explicit model of landscape pesticide exposure to bees: Development, exploration, and evaluation. *Science of The Total Environment*, 908, 168146.

Mucioki M, Morehead-Hillman L, McCovey K, et al. 2024. Caring for culturally significant plants in the midst of record setting droughts. *Artemisia*. 50(1): 22-33.

Robinson S, Bertan E. 2024. The limits of advisory opinions in the pursuit of climate justice through international courts. *Georgetown Journal of International Affairs* 25(1), 45-52.

Saikawa E, Avramov A, Basinger N, Hood J, Gaur N, Thompson A, Moore A, Wolf D, Wu Y. 2024. Soil greenhouse gas fluxes in corn systems with varying agricultural practices and pesticide levels. *Environmental Science: Advances*, 3(12), 1760–1774.

Schnur S, Maki C, Burchfield E. 2024. Farmers need the land: Georgia's Agricultural Future in the patchy Anthropocene. *Journal of Rural Studies*, 107, 103259.

Soininen N, Ruhl JB, Cosens B, Gunderson L. 2025. Governing complexity: A comparative assessment of four governance models with applications to climate change mitigation and adaptation. *Environmental Innovation and Societal Transitions*, 57, 101020.

Vazquez-Prokopec GM, Binkley LE, Dantes HG, Berrian AM, Paz Soldan VA, Manrique-Saide PC, Gillespie TR. 2024. Urbanization, human societies, and pandemic preparedness and mitigation In: McNabb SJN, Shaikh AT, Haley CJ. (eds) *Modernizing Global Health Security to Prevent, Detect, and Respond*. Elsevier, Pp. 197-213.



An update on great ape population health, disease control and outbreak response
Supplement to the most previous guidance for health monitoring and disease control in great ape populations



SSC



Urban Human Mobility
Practices, Analytics, and Strategies
for Smart Cities

Edited by:
Xiao Huang, Xinyue Ye,
Kathleen Stewart, and Subash Das



GeoAI and Human Geography
The Dawn of a New Spatial Intelligence Era
Springer



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PUBLICATION LIST



URC Grant- Dr. Mucioki has received a University Research Committee Grant for her project: Elucidating cultural ecosystem services through relational health and wellbeing benefits with Indigenous Peoples in the United States.

Megan Mucioki



Jola Ajibade

Aretē Award- Launching in fall 2025, Aretē provides research fellowships for scholars addressing ethical questions in their field of research. The award will allow faculty member Jola Ajibade to generate new knowledge and ethical frameworks for addressing critical gaps in labor practices and policies within the renewable energy sector to the program submitted project descriptions that clearly articulated the ethical question animating their project, the central value terms involved (e.g., fairness or courage) and any rival approaches to that question, which they expect to engage.



Carrie Keogh

Winship Award- Carrie Keogh has been awarded the Winship Award for the 2025-2026 academic year! This well-deserved recognition will provide Carrie with a semester leave to support the implementation of the Greater Atlanta Community Science Collaboratory. Carrie's dedication to fostering community-engaged research exemplifies the spirit of our department, and we are excited to see the meaningful contributions that will emerge from this endeavor.



Shaunna Donaher

Teaching Award- "I was incredibly honored to receive the Emory Willams Distinguished Undergraduate Teaching Award for Natural Sciences at Commencement this morning. This award recognizes faculty members who demonstrate exceptional dedication to teaching, curriculum development, pedagogy, and educational innovation. I am very appreciative of this recognition by my colleagues and the student members of the committee, and so thankful for all of the amazing students I've been lucky to interact with over the years.

Teaching is tough work (at all levels!), and while it is incredibly rewarding to connect with students, it is also hard to turn off the disappointment when you don't reach students the way you hope to. This year was especially challenging as we watched science disparaged and higher education come under attack, so I am grateful for the validation that the work we do matters, and very proud for this acknowledgement of my efforts.

11 years into my role at Emory, and this position still feels like exactly what I am meant to do. " -
Shaunna Donaher

PhD Program Kickoff: Environmental Sciences & Society

Through co-mentoring & experiential cross-training in applied natural & social sciences, the program in Environmental Science and Society (ESS) conducts interdisciplinary research that addresses urgent environmental challenges. Students will pursue actionable research to address environmental issues and their associated complex challenges through an integrated interdisciplinary applied perspective.

Meet our first cohort below:



Bryton Codd has a degree in Anthropology and a minor in Environmental Science from Galen University. As a diplomatic fellow with the Alliance of Small Island States, he supports Belize's UN mission and participates in international climate negotiations. His research interests lie in innovative climate finance for Small Island Developing States.



Qifan Wu holds a B.S. in Urban Planning (Tongji University) and an M.S. in Landscape Architecture and Information (University of Michigan). Her interdisciplinary training across multiple departments equips her with geospatial and analytical skills to tackle urban environmental challenges. Qifan's research blends emerging data and ecological perspectives to support sustainable urban development.



Talofa Fe'a earned a degree in Natural Resources & Environmental Management from the University of Hawai'i at Mānoa. As a Pacific Islander, her research focuses on food sovereignty, Indigenous ecological knowledge, and climate resilience. At PacIOOS, she studied how fishers' ecological insights can inform marine management and public health. Her work is rooted in community and place—*fanua*—rather than trends.



Yuhao Jia has a B.S. in Urban & Regional Planning (Xiamen University), and M.S. degrees in Architecture & Urban Design (UCLA) and Urban Spatial Analytics (University of Pennsylvania). Skilled in geospatial analysis, deep learning, and remote sensing, he conducted fieldwork in Kenyan informal settlements and later joined the UN to support global sustainability efforts. His research centers on Geospatial AI for urban dynamics and environmental health.



Tanya Jagdish holds degrees in Biology, Mathematics, and Environmental Science from Albion College. Her honors project on Creole environmentalism—a term she coined—explored the intersection of climate change and sociology in Louisiana's Cancer Alley. She analyzed climate hazard data and built a dashboard to visualize site-specific vulnerabilities. Tanya's research focuses on climate-induced mobility and immobility.

Undergraduate Program

Since 2021, ENVS has experienced a 43% increase in undergraduate majors and minors, reaching 138 enrolled students in Spring 2025. Our introductory courses continue to draw several hundred students annually, underscoring the increasing importance of environmental education across disciplines and affirming ENVS's central role in the College curriculum. Further, ENVS was one of only six undergraduate curricula designated as excellent this year by the Faculty Council and Provost's Office.

Thesis Projects

Yaneth Vazquez-Jacinto- Master's Thesis- Decadal changes in tree community composition, structure, and diversity in an Andean Cloud Forest (Gunderson, advisor)

Dana Kahn- Master's Thesis- Quantifying Gross Rates of Methane Production and Consumption in a Northern Forest (Page, Saikawa: advisors)

Anisha Johnson- Honor's Thesis- The Future of Agriculture in Georgia Under Climate Change: A Comprehensive Analysis using Temperature and Precipitation Data (Burchfield advisor)

Julia Marquis- Honor's Thesis- Digital Lifelines: Understanding Social Media's Role in Communicating Hurricane Impacts on the Georgia Coast (Martin, advisor)

Benjamin (Benji) Jackson- Honor's Thesis- Exploration of physical stream characteristics as phenological drivers in *Corydalus cornutus* (eastern dobsonfly) (Keogh, advisor)

Greta Franke- Honor's Thesis- Revising restoration: Tracking plant and soil succession and recovery following brush pile burning in Midwestern woodlands (Saikawa, advisor)

Alison Thieberg- Honor's Thesis- Estimating the Direct Radiative Effect of Aerosols Using Different Mixing States (Avramov, advisor)

Aiden Conley- Honor's Thesis- Trajectories of economic development, land cover change, and ecosystem services in Latin America (Lonsdorf, advisor)

Kylie Hanson- Honor's Thesis- Estimating the Greenhouse Gas Emission Reduction Potentials of Anaerobic Digestion at Emory University and Beyond (Saikawa, advisor)

Lydia King- Honor's Thesis (Anthro with Gillespie as Chair)- Community Perspectives on Water, Sanitation, and Hygiene in Northwestern Tanzania (Gillespie, advisor)



Undergraduate Program

Student Research

At ENVS, undergraduate research isn't just encouraged, it's a defining feature of the student experience. Through our structured research course sequence (ENVS 299R → 399R → 499R or Honors), students can begin hands-on research as early as their first year, gaining progressive, mentored training alongside our faculty. For those joining research later in their academic journey, flexible options like ENVS 494 and 498 provide tailored pathways to explore new topics and independent projects. In 2024–25 alone, 84 ENVS students engaged in faculty-mentored research, a testament to our deep commitment to experiential learning and developing future environmental leaders.



ENVS–Jane Goodall Institute Partnership Shines on Global Stage

This year marked an exciting and impactful chapter in the growing partnership between ENVS and the Jane Goodall Institute (JGI), a collaboration rooted in shared commitments to planetary health, One Health, and the next generation of environmental leaders.

In one of the most anticipated events of the year, Dr. Goodall delivered a sold-out lecture at Atlanta's historic Fox Theatre, drawing thousands to hear her powerful message of hope and action. The event highlighted the One Health research led by Emory at Gombe National Park, where ENVS faculty and students are helping pioneer integrative approaches to ecosystem, wildlife, and human health. Dr. Goodall met with the ENVS team and ECAS Dean Barbara Krauthamer to get updates on efforts at Gombe and to plan for future efforts.

Our student engagement efforts with JGI have expanded through a formal internship partnership with Roots & Shoots, the youth-led program founded by Dr. Goodall to foster environmental awareness and community action. ENVS undergraduates Mia Hurts and Abby Blum were funded by the Green Internship Fund. Their internships were completed as a part of the Roots & Shoots Fernbank Museum initiative.

This initiative included working with middle schoolers in DeKalb County, GA about Community-based Interventions which includes Community Mapping, Understanding Needs, Feasibility. The group of students that they worked with decided to replace the non-native plants in the rain garden in front of the museum with native plants which led them to learn skills such as planning, plant identification, and implementation. From Gombe to Atlanta and beyond, this partnership reflects the heart of ENVS: science with purpose, education with impact, and collaboration with global reach!



ABBY BLUM



MIA HURTS

HIGH-LEVEL BRAZILIAN DELEGATION HONORS ENVS INNOVATION

A delegation from the state of Rio Grande do Sul, Brazil, to ENVS! The delegation of 15, led by Vice-Governor Gabriel Souza and key leaders from Civil Defense and the State Health Department, is visiting the United States to engage with FEMA, CDC, and GEMA to explore effective models for emergency management and prevention. One of their primary concerns is addressing recurring outbreaks of Dengue Fever, a challenge for which they have implemented TIRS, a dengue control program developed by our very own Dr. Vazquez- Prokopec! They made this special trip to Emory to thank Dr. Vazquez- Prokopec for his role in controlling dengue and cited the many lives saved in their state due to his innovative work.

During their visit, they also expressed interest in collaborative opportunities with ENVS and establishing a broad MOU to cover areas of departmental expertise including managed retreat (Ajibade), disaster preparedness and predictive modeling (Huang), One Health (Gillespie), and waterborne disease and flooding (Clennon and Gillespie).

“I’m so proud of this example of the global impact of our department’s work and the potential for future collaborations to address critical environmental challenges!”

- Dr. Thomas Gillespie, chair



