Alyson East

She/Her/Hers
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Education

Doctor of Philosophy (PhD) in Quantitative Ecology 2024 - Current
University of Maine – Orono, ME
Academic Advisor: Sydne Record

Master of Science (MS) in Biological Science 2020 - 2022
Montana State University – Landscape Biodiversity Lab, Bozeman MT
Thesis Title: *Towards fire severity assessments from space: applications and pitfalls of using GEDI LiDAR in the Amazon Rainforest.*
Academic Advisor: Andrew Hansen

Bachelor of Science (BS) in Ecology and Environmental Science 2016 - 2019
University of Maine – Orono, ME

Skills

Linux, VI/VIM, R, R Markdown, Python, GRASS, Java, Google Earth Engine, QGIS, ArcGIS Pro, ArcMap, Excel, High Power Computing (HPC), Slurm Workload Manager, Big Data, LiDAR, Grant Writing, Radio Telemetry, Vegetation & Forestry Sampling, Stakeholder Relations, GPS

Professional Appointments

ORISE Research Fellow (GS 12) Jan 3 ‘23 – Aug 13 ‘25
Oak Ridge National Laboratory and USFS Southern Research Station

- Conducted rigorous quantitative analysis of satellite data and environmental characteristics utilizing advanced technologies, including Google Earth Engine, Linux servers, and multiple programming languages (Python, R, etc.).
- Contributed code and workflows used for a fundamental rewrite of existing systems to optimize processing speed while introducing more complexity and functionality to existing code production.
- Prepared publications and public outreach on research findings surrounding phenology, disturbance detection, long-term ecosystem impacts, and Experimental Forest and Range Network representation analysis.
- Collaborated with research collaborators and forest management professionals to design, construct, execute, and communicate complex programming tools and applications.

Publications (✳ signifies student mentee, *signifies equal authorship)

Given the interdisciplinary and collaborative nature of my work, this section lists both ecology journal publications and computer science conference submissions, as well as associated preprints. Ecology conference contributions are listed in the presentation section, but counter to ecology, computer science conferences typically require a full paper submission that undergoes rigorous peer review, more similar to a typical journal publication in ecology.

Peer Reviewed

In Review -

East, A., Rayeed, S. M., Stevens, S., Cotton, L.⁕**,** Domingez, J⁕**,** Cain, N.⁕, Campolongo, E., Betancourt, I., Record, S. From collection trays to AI-ready data: An operational framework for automated entomological specimen processing. (In Review). *Biodiversity Data Journal.*

2026

Rayeed, S. M.*, M. Khurana*, **A. East***, I. E. Fluck, E. G. Campolongo, S. Stevens, I. Zarubiieva, S. C. Lowe, M. W. Denslow, E. D. Donoso, J. Wu, M. Ramirez, B. Baiser, C. V. Stewart, P. Mabee, T. Berger-Wolf, A. Karpatne, H. Lapp, R. P. Guralnick, G. W. Taylor, and S. Record. (2026). A continental-scale dataset of ground beetles with high-resolution images and validated morphological trait measurements. *Nature Scientific Data.* (IF: 6.9)

Eichenwald, A., J. M. Grady, **A. East**, N. Charney, and S. Record. (2026). ForestForTrees: An R package to infer forest structure from remote sensing data. *Methods in Ecology and Evolution.* 17, 7, 2052-2060 (IF: 6.2)

East, A., J. Kumar, and W. Hargrove. (2026). Comprehensive framework for assessing and optimizing existing research networks. *Conservation Biology*:e70202. (IF: 6.3)

Pahuja, V., S. Stevens, **A. East**, R. Sydne, and Y. Su. (2026). Automatic Image-Level Morphological Trait Annotation for Organismal Images. *International Conference on Learning Representations (ICLR)*. Rio de Janeiro, Brazil. (IF: 48.8)

2025

East, A., Campolongo, E. G., Meyers, L., Rayeed, S. M., Stevens, S., Zarubiieva, I., Fluck, I. E., Girón, J. C., Jousse, M., Lowe, S., Perry, K. I., Betancourt, I., Charney, N., Donoso, E., Fox, N., Landsbergen, K. J., Nepovinnykh, E., Ramirez, M., Singh, P., … Record, S. (2025). Optimizing Image Capture for Computer Vision-Powered Taxonomic Identification and Trait Recognition of Biodiversity Specimens. *Methods in Ecology and Evolution*. 16, 10, 2260-2275 (IF: 6.2)

Rayeed, S. M., **East, A.**, Stevens, S., Record, S., & Stewart, C. V. 2025. Fine-Grained Beetle Taxonomy with Vision Models: A Benchmark on Long-Tailed and Domain-Adaptive Classification. *IEEE/CVF International Conference on Computer Vision (ICCV).* Honolulu Hawaii. 5152–5158. (IF: 8.61)

2024

East, A., Hansen, A.J., Jantz, P.A., Roberts, D. & Armenteras-Pascual, D. 2024. Validation and error minimization of GEDI data in the South American Tropics. *Remote Sensing*. 16, 19 (IF: 4.1)

Hansen, A. J., **A. East**, Z. Ashford⁕, C. Crittenden⁕, O. Jakabosky⁕, D. Quinby, L⁕. Gigliotti, F. T. van Manen, M. A. Haroldson, A. Middleton, N. Robinson, and D. M. Theobald. 2024. Integrating Ecological Value and Charismatic Species Habitats to Prioritize Habitats for Conservation: A Case Study from Greater Yellowstone. *Natural Areas Journal* 44:157–171. (IF: 0.8)

2023

East, A., Hansen, A., Armenteras, D., Jantz, P. & Roberts, D. 2023. Measuring Understory Fire effects from space: Canopy change in response to tropical understory fire and what this means for applications of GEDI for tropical Fire. *Remote Sensing*, 15, 696. (IF: 4.1)

2022

Hansen, A.J., Mullan, K., Theobald, D.M., Robinson, N., **East, A**. & Powell, S. 2022. Informing

conservation decisions to target private lands of highest ecological value and risk of loss. *Ecol. Appl.*, 0–2. (IF: 4.3)

2021

Hansen, A.J., **East, A.**, Keane, R.E., Lavin, M., Legg, K., Holden, Z., Toney, C. & Alongi, F. 2021. Is whitebark pine less sensitive to climate warming when climate tolerances of juveniles are considered? *For. Ecol. Manage.*, 493, 119221. (IF: 3.7)

Hansen, A.J., Mullan, K., Theobald, D.M., Powell, S., Robinson, N.P. & **East, A.** 2021. Natural vegetation cover on private lands : locations and risk of loss in the northwestern United States. *Ecosphere*, 12. (IF: 2.9)

Hansen, A.J., Noble, B.P., Veneros, J., **East, A.**, Goetz, S.J., Supples, C., Watson, J.E.M., Jantz, P.A., Pillay, R., Jetz, W., Ferrier, S., Grantham, H.S., Evans, T.D., Ervin, J., Venter, O. & Virnig, A.L.S. 2021. Towards monitoring ecosystem integrity within the Post-2020 Global Biodiversity Framework. *Conserv. Lett.*, e12822, 1–23. (IF: 5.9)

Other Publications

Collinge, S., Alberti, M., Berhe, A. A., Brock, C. J., Chapin-Kramer, **East, A.**, Fisher, K. E., Jennings, L. L., Jones, H. P., Rodewals, A. D., Siegel, K. J., Templer, P. H., & Weber, T. 2026. Chapter 8: Status,Trends, and Future Projections of Terrestrial Ecosystems in the US. *The Nature Record*

Carroll, K. A., **East, A.,** Gao, X., McMullen II, J. G., & Emery, N. 2025. Early-Career Publishing and Reviewing: Pitfalls and Perspectives. *The Bulletin of the Ecological Society of America*, e70023.

Media Coverage

Research Programme: **“Can AI Unlock the Hidden Data in Biological Collections?”.** *National Ecological Observatory Network Blog*, August 31, 2026.

Featured presentation: “**Media tip sheet: AI in ecology at ESA’s 2026 Annual Meeting”.** *EurekAlert! (AAAS)*, June 25, 2026.

Co-organized Hackathon: “**Virtual Challenge Hackathon Brings Data Science and Ecology Together.”** *National Ecological Observatory Network Blog*, April 6, 2026.

National assessment contribution: **“Nature Report, Killed by Trump, Is Released Independently.”** *The New York Times*, March 5, 2026.

- Coverage of national-scale ecosystem assessment and environmental policy relevance.

Co-authored paper: **“Ground Beetle Dataset Aids US Biodiversity Research”** *Quantum Zeitgeist,* January 19, 2026.

Co-authored paper: **“Montana State University ecologists develop plans to study forest health from satellites.”** *Bozeman Daily Chronicle*, August 5, 2021.

Co-authored paper: **“MSU ecologists outline methods for reaching global biodiversity targets.”** *Montana State University News Service*, July 30, 2021.

Co-authored paper: **“Biodiversity leaders at UNDP recommend framework for monitoring ecosystem integrity.”** *United Nations Development Programme Press Release*, August 4, 2021.

Relevant Experience

Research Assistant and Lab Manager Aug 15 ‘20 – Dec 15 ‘22

Landscape Biodiversity Lab – Montana State University

- Spatial analysis, cartography, statistical analysis, and manuscript preparation, resulting in 4 publications about Global and Regional Conservation.

- Assisted in Grant applications for NASA and National Fish and Wildlife Foundation
- Managed general lab upkeep and lab web presence: montana.edu/hansenlab/ and research gate

Data Management Contractor July 1 ‘22 – Sept 1 ‘22
Environmental Analysis Lab – Montana State University

- Generated interface for automated data processing, workflow optimization, and database management for raw data outputs from a wide variety of environmental chemistry analytes.

Spatial Analyst Oct 1 ‘19 – Aug 15 ‘20
Landscape Biodiversity Lab – Montana State University

- Statistical Analysis of large remote sensing data sets in R studio, ArcGIS, and Google Earth Engine from a range of projects, including Species Distribution Models, Land Use Planning Projections and Applications, Protected Areas Connectivity Analysis, and
- Work with machine learning algorithms for the purpose of ecological modeling
- Designing maps and figures for communication and publication.
- Workflow and database management in HPC/Supercomputer
- Maintain progress, communication, and workflow among a large interdisciplinary team (including NASA development teams, UNDP, USFS, and multiple universities) while working from the office and remotely
- NASA Land Cover Land Use Change Program: Downscaling IPCC land use scenarios for global change adaptation planning in mountainous environments
- Quantifying the lower-elevation fundamental niche of Whitebark Pine in the Greater Yellowstone Ecosystem

Lead Field Technician May 1 ‘19 – Aug 30 ‘19
Montana Natural Heritage Spatial Analysis Lab

- Helped to organize and lead a pilot crew for field surveys sampling invertebrates and vegetation to calibrate a spatial model of invertebrate biomass availability as part of a larger sage grouse study.
- Facilitated a positive work environment and maintained crew morale.
- Specializing in species identification of grasses and forbs in sagebrush steppe ecosystems.

Research Assistant – Field Technician & Statistical Analyst June 15 ‘17 – May 1 ‘19
University of Maine & the Schoodic Institute

- Conducted ecosystem impact analysis in response to recreational development in Acadia National Park in order to make management recommendations. Included field survey of vegetation biodiversity, forest carbon storage, visitor perceptions and interviews with local stakeholders
- Conducted data analysis in ArcGIS and R studio while managing Microsoft Excel and Access databases.

- Communicated research to the general public, local stakeholders, academic professionals, and to the National Parks Service.
- Maintained working relationships with national parks staff, research entities, and stakeholders.
- Facilitated progress on scientific publications among a large group of collaborators and conducted meetings to ensure clear communication and organization.
- Gained experience in grant writing.

Rangeland Ecology Research Technician (GS 5) May 15 – Aug 12 ‘18
Eastern Oregon Agricultural Research Service (USDA ARS)

- Collected vegetation data using point intercept transects in the high desert sagebrush steppe ecosystem.
- Assembled lab data on dry biomass, root biomass, and seed pellet development.

Amphibian Field Technician April 5 – July 18 ‘17
University of Maine

- Tracked wood frogs using radio telemetry through the night during migration.
- Worked independently in the field, utilizing critical thinking and time management to ensure project success.
- Managed landowner relations, radio telemetry, Garmin GPS, data management, and GIS.

Invited Presentations

Ecological Society of America Annual Conference, Salt Lake City, UT 2026
Panelist: Getting Into Graduate School and Finding the Right Program

Ecological Society of America Annual Conference, Salt Lake City, UT 2026
A use case of AI-enabled macroecology: How an AI pipeline is unlocking ecological insights from natural history collections for continental-scale trait-based research

FAIR in ML, AI Readiness, & Reproducibility Workshop (RCN), Washington, DC 2026
The Second HDR ML Challenge: Scientific Modeling out of Distribution
Beetles as Sentinel Taxa

Ecological Society of America Annual Conference, Baltimore MD 2025
Career Central: Thriving in Graduate School

Ecological Society of America, Long Beach, CA 2024
Panelist: Developing a Model of Ecological Professional Development Session

IALE-North America, Raleigh, NC 2024
Mapping and Tracking Multi-Year Net Ecological Impact of Growing Conditions and Disturbances to Vegetation across the Conterminous United States

College of the Atlantic, Bar Harbor, ME 2024,2025
Spatial Data Science and Frontiers in Landscape Ecology

ScienceX Seminar Series 2023

Quantitatively assessing the US Experimental Forest Research Network's current representativeness to guide decision making

Jornada Internacional de Recursos Naturales, Contaminación Atmosférica, Contaminación de Suelo y Restauración Ecológica, Chachapoyas, Peru 2022

Oportunidades y Desafíos para el Estudio de la Estructura del Sotobosque Forestal en la Amazonia (Coordinated English-Spanish live translation)

Presentations

Imageomics Conference, Columbus, OH 2026
Poster: Multimodal crown segmentation across spatial resolutions

American Geophysical Union Annual Conference, New Orleans LA 2025
Poster: *Multimodal crown segmentation across spatial resolutions*

Ecological Society of America Annual Conference, Baltimore MD 2025
Poster: Optimizing image capture for computer vision-powered taxonomic identification and trait recognition of biodiversity specimens

Ecological Society of America Annual Conference, Long Beach CA 2024
Mapping and Tracking Multi-Year Net Ecological Impact of Growing Conditions and Disturbances to Vegetation across the Conterminous United States

American Geophysical Union Annual Conference, San Francisco CA 2023
Mapping and Tracking Multi-Year Net Ecological Impact of Growing Conditions and Disturbances to Vegetation across the Conterminous United States

Ecological Society of America Annual Conference, Portland OR 2023
A Quantitative Approach to Expanding the US Experimental Forest Research Network

Ecological Society of America Annual Conference, Montreal CA 2022
GEDI LiDAR: Opportunities and challenges for studying understory forest structure in the South American Moist Tropical Forests

Center for Undergraduate Research, Bangor ME 2019
All things Considered: How recreational development impacts ecosystem services

Ecological Society of America Annual Conference, New Orleans LA 2018
Poster: Assessing the economics of Maine's coastal tourism development: the ecosystem services of Schoodic Peninsula, Acadia National Park

Funding Awards

Montana Space Grant Consortium Graduate Research Fellowship	$12,455	2022

Honors & Awards

Best NEON Presentation Award – National Ecological Observatory Network	$1000	2026
Travel Award – Maine Wildlife Fisheries and Conservation Biology	$500	2025
Leadership Award – US Carbon Storage Science Program	$1000	2022

Presidential Research Impact Award – University of Maine	$1000	2019
Margaret Chase Smith Public Policy Fellowship – University of Maine	$3,500	2018
Center for Undergraduate Research Fellowship – University of Maine	$1500	2018

Teaching Experience

Imageomics Institute and AI & Biodiversity Change Global Center

Experiential AI & Ecology (Graduate Level) - Graduate Teaching Associate 2026-27

Mentored and instructed in a year-long interdisciplinary, project-driven course that brir together biologists, computer scientists to collaborate, and answer questions in ecology/biology/biodiversity science using computational machine learning (ML) approaches bridging field ecology and emergent technologies. See the Syllabus

University of Maine

Research Learning Experience (Undergraduate Level) - Instructor 2024,'26

Organized and facilitated hands on (field and lab) introductory course material for incoming students to the Ecology and Environmental Science program

Field Problems in Environmental Science (Undergraduate Level) - 2017,'18, '26
Teaching Assistant

Instructed undergraduate students on weekend fieldwork intensive focused on data collection, analysis, and public presentation

Montana State University

Rocky Mountain Vegetation (Undergraduate Level) - Teaching Assistant Fall 2020,'21,'22

Iterative curriculum design and student engagement over the course of three years to optimize student learning and acquired skill sets in a lab and field setting. Topics ranged from vegetation identification to USFS habitat typing, and regional analysis.

LiDAR Remote Sensing (Under/Graduate Level) - Contributing Instructor Fall 2022

Lecture and corresponding lab activated to introduce the basics of LiDAR. In-depth discussion of different data sources and spatial-temporal scale mismatch. Lab assignme utilized Anaconda prompt and python batch scripts to download and process GEDI data that we then pulled into R for visualization and comparison to fine-scale ALS data.

Alpine Ecology (Undergraduate Level) - Teaching Assistant Summer 2022

Co-lead a weekend field course into the Beartooth Wilderness Alpine zone, where we facilitated individual student-run research projects and contributed to a longitudinal plant height dataset. Explored topics of alpine geology, plant phenology, wildlife, and pollinato with a group of 15 motivated undergraduates.

Landscape Ecology (Graduate Level) - Teaching Assistant Fall 2021

Technical instruction at the graduate level of applications in Landscape ecology using GI Independent revamping of lab material and curriculum to transition from ArcMap to ArcG Pro.

Biological Diversity of Life (Undergraduate Level) - Teaching Assistant Spring 2021
Designed lectures for hybrid format class, grading rubrics, and assignments. Independer taught 6 lab sections (~70 students), and introduced non-majors to the scientific method from research proposal to final presentation of scientific findings in a lab and blended setting

Mentorship

Undergraduate Research Mentor – Forest Remote Sensing & Carabid Traits
University of Maine | 2024–2026

- Mentor undergraduate researchers (Nicole Mcadam, Sarah McCullough, Aaron Loud) in dissertation-related project; provide training in data analysis, scientific writing, and publication development.

Cross-Institutional Research Mentor – NEON Beetle Imaging Project
2024–Present

- Mentor two ASU Biology Master's students (Leah Cotton and Jacqueline Dominguez) and one OSU computer science undergraduate (Nathan Cain) in biodiversity imaging, AI workflow development, and ecological data integration.
- Support interdisciplinary skill development at the interface of ecology and computer vision.

SEEDS Mentor – ESA

- Caryn Iwanaga (2022, Montreal CA), Ian Crews (2023, Portland OR), Grace Elleen (2024, Long Beach CA), Max Tchang (2026, Salt Lake City UT)

Leadership, Governance & Service

Early Career Ecologists Section – Ecological Society of America (ESA)
2023–Current

- Past Chair 2025-2026, Chair 2024-2025, Vice Chair 2023-2024, Member-at-Large 2022-2023
- Lead national section supporting thousands of early-career ecologists; oversee programming, mentoring, and policy reform.
- Hosted ESA mentoring programs, networking events, and Professional Development Framework workshops (2024–2026)
- Assisted in the assessment of Early-Career Publishing and Reviewing perspective (See ESA Bulletin Publication)
- Contributed to the ESA Professional Development Framework (2025).
- Reviewer: ESA ECE Outstanding Paper Award; Coordinator: ECE Travel Grant; Volunteer: Career Central Mock Interviews & CV reviews.
- Oral Sessions: Thriving in graduate school

Graduate Student Government Representative – WFCB University of Maine
2026

- Serve as liaison between graduate students and departmental leadership to support policy, governance, and student advocacy.

Governing Board Early Career Representative – ESA
2024–2025
- Liaison to ESA Governing Board for Early Career Ecologists (Appointed, non-voting seat)

Council Representative – ESA
2023–2025
- Liaison to ESA Council; contributed to working group on equitable section governance.
- Authored and implemented updated section bylaws.

Symposia Organizer – International Association of Landscape Ecologists (IALE-NA)
2024
- Organized Remote Sensing of Landscape Change and Disturbance Symposia at annual conference, including 30 invited presentations

Workshops

Participant – FloraPalooza Workshop (Imageomics Institute) 2026

Invited Speaker – FAIR in ML, AI Readiness, & Reproducibility Workshop (FARR RCN) 2026

Organizer – Scientific Modeling out of Distribution ML Challenge (NSF HDR) 2025

Organizer – FuncaPalooza Workshop (Imageomics Institute) 2025

Participant – Integrating Organismal Biology into NEON (NEON RCN) 2024

Participant – BeetlePalooza Workshop (Imageomics Institute) 2024