## SUSAN E. CROW, PROFESSOR

Curriculum Vitae – March 2025

University of Hawai'i (UH) Mānoa, College of Tropical Agriculture and Human Resilience (CTAHR), Natural Resources and Environmental Management (NREM) Department
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## EDUCATION

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| 2024 | **Certificate of Specialization** Leadership and Management, Harvard Business School Online. |
| 2006 | **Ph.D.**, emphasis in Ecology, Department of Botany and Plant Pathology, Oregon State University, Corvallis, OR. |
| 2001 | **M.S.**, Biology, Villanova University, Villanova, PA. |
| 1999 | **B.S.**, Biology, College of William and Mary, Williamsburg, VA. |

## PROFESSIONAL APPOINTMENTS

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| 2023-present | **Professor**, NREM Department, UH Mānoa |
| 2009-present | **Graduate Faculty**, NREM Department, UH Mānoa |
| 2021-2024 | **Graduate Chair**, NREM Department, UH Mānoa |
| 2018-2023 | **Associate Professor**, NREM Department, UH Mānoa |
| 2011-2019 | **Affiliate Researcher**, Water Resources Research Center, UH Mānoa |
| 2012-2018 | **Assistant Professor**, NREM Department, UH Mānoa |
| 2009-2012 | **Assistant Researcher**, NREM Department, UH Mānoa |
| 2007-2009 | **Research Fellow**, $^{14}$CHRONO Centre for Climate, the Environment, and Chronology, Queen's University Belfast |
| 2006-2007 | **Postdoctoral Researcher**, Department of Earth and Atmospheric Sciences, Purdue University |

## MAJOR RESPONSIBILITIES AT UNIVERSITY OF HAWAI'I MĀNOA

Professor of Soil Ecology and Biogeochemistry in the NREM Department, CTAHR, UH Mānoa, Honolulu, Hawai'i; currently **50% Research** and **50% Teaching** (with research grants currently providing instructional buyout for up to the full 50%) responsibilities.

- Principal Investigator, The Hawai'i Climate-Smart Partnership; Provide overarching leadership for the $40 million USDA-NRCS funded project "Hawai'i climate-smart commodities: A portfolio approach to equitably scaling the agriculture sector" with Lynker Corp. as Program Manager and lead the $10,647,990 UH Mānoa subaward.
- Director, Soil (Health, Environment, and Ecosystem) Resilience [S(HEE)R] Lab; Lead team of faculty researchers, managers, technicians, and students associated with the multi-user research and training lab, including provision of shared governance structure for collective decision-making.
- Key **research** areas cover carbon dynamics and sequestration, greenhouse gas flux, soil health in natural and managed (forested or agriculture) ecosystems and how these relate to

global change pressures - such as land-use, climate change, and invasive species - sustainable agriculture, and climate readiness and policy.

- Responsible for **teaching** courses in soil science, climate action and natural resources and environmental management-related areas as part of undergraduate and graduate core and elective curriculum, currently being covered by Junior and Assistant Researchers on my team with resources available through the formal instructional buyout policy. I continue to offer graduate student advising and directed research and internship opportunities.
- Research and training endeavors support **outreach and extension** through provision of courses for technical assistants, research-level soil, water, and plant analysis, user-inferfaces for data-driven decision support tools, and relationship building via cross-campus, state, national, and international collaborations to identify and meet diverse community member and stakeholder needs. The Hawai‘i Climate-Smart Partnership includes a Producer Engagement Team of six community-based producer groups and supports a large team of outreach coordinators and technical assistants across the state.

## KEY PROFESSIONAL DEVELOPMENT, LEADERSHIP, AND SERVICE

1. **Certificate of Specialization in Leadership and Management** (2023-2024) Harvard Business School Online program, following the completion of three in-track courses: Power and Influence for Positive Impact (2023), Leadership Principles (2023) and Management Essentials (2024).
2. **Member, Carbon Cycle Science Interagency Working Group (CCIWG) – North American Carbon Program (NACP) Science Leadership Group (SLG)** (2019-present); Nominated by current members of the (now former) CCIWG to join the NACP SLG, which provides scientific leadership for the NACP, interacts closely with the CCIWG and NACP office to assist in implementing the NACP Science Plan.
3. **Graduate Chair, NREM Masters of Environmental Management (MEM), MS, and PhD. Programs** (2021-2024); Lead graduate committee through processes for admissions, hiring for teaching assistantships, orientation for entering student cohorts, program assessment, and day to day administration of programs with support from office staff.
4. **Chair, Departmental Promotion Committee** (2024-present); Review of departmental tenure/promotion and contract renewal applications, conversion of newly developed workload equivalency policy into a revised tenure and promotion policy for adoption by the department.
5. **US Climate Alliance** – **Natural and Working Lands Initiative, Hawai‘i State representative (**2016-present)**;** Attend national and regional learning labs and other sponsored events designed to facilitate the development of state-level climate action policy and programs. Crafted legislative documents, enacted as Session Laws of Hawaii 2022 (Act185) that established the Hawaii Carbon Smart Land Management Assistance Pilot and subsequent appropriations up to $2 million/year in 2023.
6. **Hawai‘i State Planning Office** (2017-2022); **Carbon Farming Task Force Member** – Established by Act 33, SHL 2017, the Task Force is comprised of 15 members from State agencies, nonprofit sector, private associations, and a researcher and an extension agent from CTAHR. The broad purpose is to identify Hawai‘i agricultural, aquacultural, and agroforestry activities and best practices that provide carbon sequestration benefits, which may be used to establish a carbon farming certification. August 2017-July 2018. **Greenhouse Gas Sequestration Task Force Member** – Established by Act 15, SHL 2018, the Task Force is comprised of 15 members from State agencies, nonprofit sector, private

associations, and a researcher and an extension agent from CTAHR. The broad purpose is to expand and make permanent the Carbon Farming Task Force, align the energy and sequestration efforts with climate initiatives, and make recommendations to achieve carbon neutrality by 2045. August 2018-2022.

7. **Office of Hawaiian Affairs (OHA) Kūkaniloko Master Planning Working Group Member** (2017-2018) – OHA acquisition and development of agricultural land associated with the Kūkaniloko cultural site requires a master plan. The working group is comprised of members with expertise in cultural and natural resource management, agriculture, archaeology, business and marketing, education, Hawaiian culture, and other fields of study such as environmental and property law. The working group advised OHA in the creation of the master plan.

## FELLOWSHIPS, AWARDS, RECOGNITIONS

- Selected as a **Rockefeller Foundation Bellagio Center Resident**, planned for the November 2025 cohort (2025).
- **Opening Keynote Speaker**: "Rebuilding health, resilience and equity in Hawai'i's agroecosystems", CANVAS - ASA, CSSA, & SSSA International Annual Meeting, AI Innovations for a Changing Climate, San Antonio, Texas (2024)
- Nominated for *Land* **Influential Female Researcher in Land System Science Award** (2024)
- Recipient of the CTAHR Dean's Award for **Excellence in Research** (2024)
- **Keynote Speaker**: Hawai'i Cattlemen's Convention – "Ranching-based climate-smart practices and warming benefits. Waikaloa, HI (2022)
- Nominated for American Geophysical Union **Sulzman Award** (2019)
- Nominated for University of Hawai'i Board of Regents **Excellence in Teaching Award** (2016)
- Nominated for CTAHR **Excellence in Research Award** (2015-2016)
- Springer Science and Business Media "**Excellence in Reviewing**" for *Biogeochemistry* (*2*013)
- Springer Publishing **Award for Excellence (Oral presentation),** American Geophysical Union Meeting, Session: Soil organic matter dynamics in the Anthropocene (2013)
- **NSF-CZEN International Scholars Fellowship** – Title: Decomposing Arctic Soils; Potential Effects of Warmer Climate on Soil Organic Matter Turnover and Chemistry in the Svalbard Archipelago Tundra, $9,040 funded for travel and research (2007)
- Tropical Ecosystems **Research Fellowship** - Oregon State University (2004, 2005)
- **Honorable Mention**, Student Oral Presentation, BIOGEOMON 4$^{th}$ International Symposium on Ecosystem Behaviour, University of Reading, UK, (2002)

## RESEARCH IMPACTS

- Secured over **$16.5 million** in funding for UH Mānoa from state and federal sources for research in the last 10 years (report pulled from UH Office of Research Services, 1/15/25).
- Mentored 5 postdoctoral research associates, 3 PhD students, 15 MS students, 4 MEM students and served on a total of 8 graduate committees. Mentees have gone on to start businesses, work for state and federal agencies, become faculty researchers, consult, and work for non-profits and other industry employers.

- Employ over 60 workers, across 20+ organizations including 10 technical assistant providers and outreach/field/technical coordinators, 96 producer visits, 270 workforce development hours and 4 undergraduate research assistants/interns, 2 graduate students, and 5 early career researchers (postdoctoral and assistant/junior researchers) through the USDA funded Hawai'i Climate-Smart Partnership alone (data from 2024 Q3 report).
- **Grew** an initial allocation of **$79,900** for "Team Science. Land-based solutions: Activating landscapes for climate change mitigation and soil health" acquired through competitive, internal seed funding from USDA Capacity Funds **into $44,117,376** collaborative research program and multi-user research lab funded by five competitive USDA grants **within five years** (2020-2024).
- Support **a range of research endeavors** since 2021 as a co-PI/applicant in major initiatives that total **$36,600,790** and includes an NSF-funded Mid-scale RI-1 (M1:IP): A Deep Soil Ecotron – a unique observatory to explore belowground communities and ecosystem processes ($18,950,955), and Abundant Intelligences, an indigenous-led research program that conceptualizes, designs, develops, and deploys Artificial Intelligence based on Indigenous Knowledge systems funded by New Frontiers in Research Fund ($22,830,281 CAD = $15,907,885 on 1/15/25) and Social Science and Humanities Research Council of Canada ($2,500,000 CAD = $1,741,950 USD on 1/15/25).
- **Global Contributions to Soil Carbon Science –** co-led the USGS Powell Center working group (2015–2017) that pioneered new insights into soil carbon storage and stability, resulting in two open-source global databases: SIDb (soil incubation studies) & ISRaD (soil radiocarbon), now widely used by the research community and high-impact publications, including *"Beyond clay…" (2018)*, cited 672 times (Google Scholar, 1/15/2025).
- **Advancing Carbon Sequestration as a Climate Solution –** co-developed a novel Climate Benefit of Sequestration (CBS) computational framework, now recognized by leading climate scientists, to quantify the societal value of ecosystem and circular economy in carbon sequestration and warming mitigation.
- **Soil Health and Climate Resilience in Hawai'i and the Pacific -** helped defined soil health metrics for Hawai'i and volcanic ecosystems (Crow et al. 2023, Maaz et al. 2023); mentored student-led research on a machine-learning approach to expand soil health assessments via FTIR spectrometry (Beckstrom et al. 2025); secured $3,424,371 in external funding to support collaborative soil health research across Hawai'i, Puerto Rico, and Pohnpei; PI of the $40M USDA-NRCS funded Hawaii Partnership for Climate-Smart Commodities, ensuring soil health is a cornerstone of equitable agricultural resilience and perpetuating abundance in land and communities.

## GRANTS AND CONTRACTS

External, competitive, funded

**USDA-National Institute of Food and Agriculture** ***2023-2028***

DSFAS: Soil Health Fingerprinting: Rapidly Predicting Soil Health in a Diversity of Soils Using Machine Learning (co-Project Director) $649,570.

**USDA-Natural Resources Conservation Service** ***2023-2028***

Hawai'i climate-smart commodities: A portfolio approach to equitably scaling the agriculture sector (Principal Investigator with Lynker Corp. as Program Manager); $40 million total award; with a $10,647,990 subaward to UH Mānoa.

**National Science Foundation, Idaho State University** ***2021-2026***

Mid-scale RI-1 (M1:IP): A Deep Soil Ecotron facility to explore belowground communities and ecosystem processes (co-Principal Investigator). $18,950,955 total award; $391,386 to UH Mānoa.

**USDA-National Institute of Food and Agriculture** ***2021-2024***

An emergent soil health framework for agroecosystems in underrepresented tropical/subtropical islands or regions (Project Director). $499,323.

**USDA-Natural Resources Conservation Service** ***2021-202***

Producer-driven implementation of soil health management systems adapted to diverse cropping systems in tropical and subtropical island regions (co-Principal Investigator). $1,983,479.

**US Climate Alliance** ***2020-2022***

On the Path to Carbon Neutrality: A Hawai‘i Carbon Land Use Opportunity Assessment (Principal Investigator)**.** American Forests $81,004; Cash cost shares: Hawai‘i State Energy Office $7,500; Hawai‘i State Department of Land and Natural Resources $10,000. $98,5004 total.

**Western SARE , Montana State University** ***2019-2022***

A Hawai‘i soil health index to guide farmer adoption of sustainable management practices (Principal Investigator, student award to Ms. Elaine Vizka). $23,036.

**USDA- National Institute of Food and Agriculture** ***2018-2023***

Putting the farmer in the driver’s seat: integrative web tool for soil health and carbon assessment, monitoring, and planning (Project Director**).** $449,958.

**USDA-National Institute of Food and Agriculture** ***2018-2019***

Soil organic matter data synthesis and visualization working group (co-Project Director)**.** $40,620.

**Department of Defense - Office of Naval Research** ***2016-2017***

Finalization of soil carbon sequestration measurement and model validation in the development of perennial grass feedstocks for biofuel in Hawai‘i (Principal Investigator). $121,816.

**USDA-Agricultural Research Service** ***2013-2016***

Parameterization of two simulation models (ALMANAC and SWAT) in Hawai‘i with subsequent parallelization of the SWAT model (Principal Investigator). $1,201,728.

**USDA-Natural Resources Conservation Service** ***2012-2015***

Rapid assessment of soil carbon project assistance for the Hawaiian Islands (Principal Investigator). $75,000.

**USDA-National Institute of Food and Agriculture** ***2012-2017***

Practical benefits of biochar amendment to agricultural systems: Linking soil and microbial processes to economic feasibility and sustainability (Project Director). $480,000.

**USDA-Agricultural Research Service** ***2011-2016***

Water and carbon footprint and plant parameters of biofuel production on the HC&S sugarcane lands on Maui, Hawai‘i (Principal Investigator). $543,000.

<u>External, non-competitive</u>

**USDA-NRCS** ***2023-2027***

Investigating Short Range Order Material as a DSP and Its Capacity to Stabilize SOC, SRO/SOC Dynamics in a Warming Ecosystem (co-Principal Investigator). $499,553

**USDA-NRCS** ***2020-2023***

Science of Hawai‘i soil health - dynamic soil properties for soil health assessment (Principal Investigator). $140,499.

**Office of Hawaiian Affairs** ***2019-2022***

Memorandum of Understanding between the Office of Hawaiian Affairs and University of Hawai'i (co-Principal Investigator). $185,000.

**Hawai'i State Department of Health, Clean Water Branch** ***2019-2022***

Implementing Soil Management Strategies and Soil Testing Technologies (co-Principal Investigator). $349,922.

**State Office of Planning (Key Personnel)** ***2019-2021***

Soil Carbon Inventory and Working Lands Baseline (Key Personnel). $60,000.

Internal, competitive

**USDA McIntire-Stennis** ***2023-2028***

A holistic assessment of soil health and biodiversity in subtropical and tropical island (agro)forestry systems (Principal Investigator). $135,000

**USDA-National Institute of Food and Agriculture Hatch** ***2020-2021***

Team Science. Land-based solutions: Activating landscapes for climate change mitigation and soil health (Principal Investigator). $79,900

**USDA McIntire-Stennis** ***2020-2025***

Long-term Microbial Transformation of Recalcitrant Nutrients in Experimentally Warmed Tropical Forest Soils (co-Principal Investigator). $125,000

**USDA McIntire-Stennis** ***2016-2021***

Interactive feedbacks of climate, mineralogy and afforestation on soil carbon: A tropical deep soil warming experiment (Principal Investigator). $125,000.

**USDA-National Institute of Food and Agriculture Hatch** ***2016-2018***

Measurable soil quality (Principal Investigator). $80,000.

**USGS Powell Center for Analysis and Synthesis** ***2015-2017***

What lies below? Improving quantification and prediction of soil carbon storage, stability, and susceptibility to disturbance (co-Principal Investigator), $146,140.

**USDA-National Institute of Food and Agriculture Hatch** ***2013-2015***

Carbon cycling and storage in Hawaiian Ecosystems: Tropical forest soil carbon formation and decomposition with rising mean annual temperature (co-Principal Investigator). $49,730.

**USDA-National Institute of Food and Agriculture Hatch** ***2013-2015***

Can microbial-derived nitrogen be used as a fertilizer for organic farming? (co-Principal Investigator). $50,000.

**CTAHR Research Instrumentation** ***2012-2013***

Improving efficiency and depth of analytical capacity for process-level carbon and nutrient cycle research for environmental management and sustainability (Principal Investigator). $221,000.

**CTAHR Catalyst Funds** ***2011-2013***

Sustainable food production: Response of root crops and soil carbon resources to the atmospheric $pCO_2$ estimates of the next 300 years (co-Principal Investigator). $160,000.

**NSF Industry/University Cooperative Research Center** ***2009-2013***

Inclusion of carbon and greenhouse gas tradeoffs on life cycle analysis of biomass production systems, Center for BioEnergy Research and Development (CBERD) (Principal Investigator) $178,198.

**USDA-National Institute of Food and Agriculture Hatch** ***2009-2012***

Impact of temperature on soil carbon sequestration and quality in native tropical forest and managed pasture (co-Principal Investigator). $80,000.

Collaborative grants (non-PI status, but with dedicated budget)

**Social Sciences and Humanities Research Council** ***2022-2029***

Partnership for Abundant Intelligences. Principal Investigator Jason Lewis, Concordia University, $2.5 million CAD (total award); Crow, named co-applicant.

**New Frontiers in Research Fund (Government of Canada)** ***2022-2028***

Abundant Intelligences: Expanding Artificial Intelligence through Indigenous Knowledge Systems. Principal Investigator Jason Lewis, Concordia University, $22,830,281 CAD (total award); $90,000 USD (Crow, named co-applicant)

**Office of Naval Research** ***2017-2018***

Asia Pacific Research Initiative for Sustainable Energy Systems. Principal Investigator R. Rocheleau, $8,573,577 (total award); $131,488 (Crow).

**USDA NIFA Biomass Research and Development Initiative** ***2012-2017***

Conversion of high-yield tropical feedstocks and biomass conversion technology for renewable energy production and development. Principal Investigator A. Hashimoto, $6,000,000 (total award); $248,997 (Crow).

**SANREM/USAID CRSP** ***2010-2015***

Sustainable management of agroecological resources for tribal societies (SMARTS). Principal Investigator C. Chan-Halbrendt $1,380,000; Crow, Collaborative Researcher.

**US Department of Energy** ***2009-2012***

Development of high yield tropical feedstocks and biomass conversion technology for renewable energy production and economic development. Principal Investigator A. Hashimoto $7,919,250 (total award); $464,000 (Crow).

**National Science Foundation** ***2008-2011***

Collaborative Research: Investigating the soil-earthworm-litter system controls on the stabilization of soil organic matter in eastern deciduous forests. Principal Investigator T. Filley $408,467 (total award); $12,000 (Crow).

## PEER-REVIEWED PUBLICATIONS

*graduate student, **undergraduate student, † equal first or senior authorship, †† senior author

Journal Articles

Beckstrom, T.B., T.M. Maaz, J.L. Deenik, H. Peter-Contesse, A. Koch, C. Tallamy Glazer, J. Rivera-Zayas, **S.E. Crow**††. 2025. From Volcanic ask to abundant earth: understanding Andisol organic matter dynamics in relation to soil health on Hawai'i Island. Biogeochemistry 168:22 https://doi.org/10.1007/s10533-025-01216-9

Bremer, L.L., G. McGuire*, Z. Hastings Silao, N. Kurashima, T. Tickton, **S.E. Crow**, C.P Giardina, K.B. Winter, N. DeMaagd, and C. Trauernict. 2025. Carbon benefits through agroforestry transitions on unmanaged fallow agrocultural land in Hawai'i. Scientific Reports 15:5097 https://doi.org/10.1038/s41598-025-87891-y

Satdichanh, M., G.G.O. Dossa, K. Yan, K.W. Tomlinson, K.E. Barton, **S.E. Crow**, L. Winowiecki T-G Vågen, J. Xu, R.D. Harrison. 2023. Drivers of soil organic carbon stock during tropical forest succession. Journal of Ecology 111: 1722-1734. https://doi.org/10.1111/1365-2745.14141

McClellan Maaz, T., R.H. Heck, C.T. Glazer, M.K. Loo, J. Rivera Zayas, A.R. Krenz, T. B. Beckstrom*, **S.E. Crow**†, J.L. Deenik†. 2023. Measuring the unmeasurable: A structural equation modeling approach to assessing soil health. Science of the Total Environment 870: 161900. https://doi.org/10.1016/j.scitotenv.2023.161900

**Crow, S.E.**, H. Hubanks*, J.L. Deenik, T. McClellan Maaz, C. Tallamy Glazer, E. Vizka*, J. Rivera-Zayas. 2023. Dynamic soil health properties reveal legacy of intensive agriculture in (sub)tropical natural and working landscapes. Frontiers in Environmental Science 10. https://doi.org/10.3389/fenvs.2022.991262

Wells*, J.M., **S.E. Crow**, C.A. Sierra, J.L. Deenik, K. Carlson, M.N. Meki, J. Kiniry. 2022. Edaphic controls of soil organic carbon in tropical agricultural landscapes. Scientific Reports **12**, 21574. https://doi.org/10.1038/s41598-022-24655-y

**Crow, S.E.** and C.A. Sierra. 2022. The climate benefit of sequestration in soils for warming mitigation. Biogeochemistry. doi.org/10.1007/s10533-022-00981-1

McGrath*, C., C.E. Hicks Pries, N. Nguyen, B. Glazer, S. Lio, **S.E. Crow**††. 2022. Minerals limit the deep soil respiration response to warming in a tropical Andisol. Biogeochemistry https://doi.org/10.1007/s10533-022-00965-1

Wells*, J.M., **S.E. Crow**, S.K. Khanal, S.Q. Turn. 2022. Lignin chemical controls on bioconversion of tropically grown C4 bioenergy grasses to biofuels and biobased products. Bioresource Technology Reports 18: 101015. https://doi.org/10.1016/j.biteb.2022.101015

Heckman, K.A., Hicks Pries, C.E., Lawrence, C.R., Rasmussen, C., **Crow, S.E**., Hoyt, A.M., von Fromm*, S.F., Shi, Z., Stoner*, S., McGrath*, C., Beem-Miller*, J., Berhe, A., Blankinship, J.C., Keiluweit, M., Marin-Spiotta, E., Monroe*, G., Plante, A.F., Schimel, J.P., Sierra, C.A., Thompson, A., Wagai, R. 2021. A global synthesis of soil fractions goes beyond bulk to explain heterogeneity in soil carbon storage and persistence. Global Change Biology. https://doi.org/10.1111/gcb.16023

Wells*, J.M., **S.E. Crow**, S.K. Khanal, S. Turn, A. Hashimoto, J.R. Kiniry, M.N. Meki. 2021. Anaerobic digestion and hot water pretreatment of tropically grown C4 energy grasses: Mass, carbon, and energy conversions from field biomass to fuels. Agronomy 11, 838. https://doi.org/10.3390/agronomy11050838

Melone*, A., Bremer, L.L., **Crow, S.E**., Hastings*, Z., Winter, K.B., Ticktin, T., Rii, Y.M., Wong, M., Kukea-Shultz, K., Watson, S.J., Trauernicht, C. 2021. Assessing Baseline Carbon Stocks for Forest Transitions: A Case Study of Agroforestry Restoration from Hawai'i. *Agriculture, 11*, 189. https://doi.org/10.3390/agriculture11030189

Sierra, C.A., **S.E. Crow**, M. Heimann, H. Metzler, E.-D. Schulze. 2021. The climate benefit of carbon sequestration. Biogeosciences, 18, 1029-1048. https://doi.org/10.5194/bg-18-1029-2021

**Crow, S.E**., J.M. Wells*, C.A. Sierra, A.H. Youkhana, R.M. Ogoshi, D.T. Richardson, C. Tallamy Glazer, M.N. Meki, J.R. Kiniry. 2020. Carbon flow through energycane agroecosystems established post-intensive agriculture. Global Change Biology Bioenergy 12:806-817. https://doi.org/10.1111/gcbb.12713

Lawrence, C.R., Beem-Miller*, J., Hoyt, A.M., Monroe, G., Sierra, C.A., Stoner*, S., Heckman, K., Blankinship, J. C., **Crow, S.E**., McNicol, G., Trumbore, S., Levine, P.A., Vindušková, O., Todd-Brown, K., Rasmussen, C., Hicks Pries, C.E., Schädel, C., McFarlane, K., Doetterl, S., Hatté, C., He, Y., Treat, C., Harden, J.W., Torn, M.S., Estop-Aragonés, C., Asefaw Berhe, A., Keiluweit, M., Marin-Spiotta, E., Plante, A.F., Thomson, A., Schimel, J.P., Vaughn, L.J.S., and Wagai, R. 2020. An open source database for the synthesis of soil radiocarbon data: ISRaD version 1.0, Earth Syst. Sci. Data 12:61-76. https://doi.org/10.5194/essd-12-61-2020

Schädel, C., Beem-Miller, J., Aziz Rad, M., **Crow, S.E**., Hicks Pries, C., Ernakovich, J., Hoyt, A.M., Plante, A., Stoner, S., Treat, C.C., and Sierra, C.A. 2020. Decomposability of soil organic matter over time: The Soil Incubation Database (SIDb, version 1.0) and guidance for incubation procedures, Earth Syst. Sci. Data 12: 1511-1524. https://doi.org/10.5194/essd-12-1511-2020

Yu, J.*, L.M Deem*, **S.E. Crow**, J.L. Deenik, C.R. Penton. 2019. Comparative metagenomics reveals enhanced nutrient cycling potential after two years of biochar amendment in a tropical Oxisol. Applied and Environmental Microbiology 85:e02957-18. doi: 10.1128/AEM.02957-18

Pawlowski*, M., M.N. Meki, J. Kiniry, and **S.E. Crow**[††]**.** 2018. Carbon budgets of potential tropical perennial grass cropping scenarios for bioenergy feedstock production on Maui. Carbon Balance and Management 13:17. doi:10.1186/s13021-018-0102-8

Blankinship, J.C., A.A. Berhe, J.L., **S.E. Crow**, Druhan, K.A. Heckman, M. Keiluweit, C.R. Lawrence, E. Marín-Spiotta, A.F. Plante, C. Rasmussen, C. Schädel, J.P. Schimel, C.A. Sierra, A.A. Thompson, R.Wagai, and W.R. Wieder. 2018. Improving understanding of soil organic matter dynamics by triangulating theories, measurement, and models. Biogeochemistry 140: 1-13. doi:10.1007/s10533-018-0478-2

Lajtha, K., R.D. Bowden, **S.E. Crow**, I. Fekete, Z. Kotroczó, A. Plante, M.J. Simpson, K.J. Nadelhoffer. 2018. The detrital input and removal treatment (DIRT) network: Insights into soil carbon stabilization. Science of the Total Environment 640-641: 1112-1120. doi:10.1016/j.scitotenv.2018.05.388

**Crow, S.E.**, and C.A. Sierra. 2018. Dynamic, intermediate soil carbon pools may drive future responsiveness to environmental change. Journal of Environmental Quality 47: 607-616. doi:10.2134/jeq2017.07.0280

Davis, A.A.*, C.A. Lepczyk, K.H. Haman, C.W. Morden, **S.E. Crow**, N. Jensen, and M.T. Lohr. 2018. Toxoplamsa gondii detection in fecal samples from domestic cats (Felis catus) in Hawai'i. Pacific Science 72: 501-512. doi:10.2984/72.4.9

**Crow**, **S.E.,** L.M. Deem*, C.A. Sierra, J.M. Wells*. 2018. Belowground carbon dynamics in tropical perennial C4 grass agroecosystems. Frontiers in Environmental Science 6: 1-18. doi:10.3389/fenvs.2018.00018

Rasmussen, C., K.A. Heckman, W.R. Wieder, M. Keiluweit, C.R. Lawrence, A.A. Berhe, J. C. Blankinship, **S.E. Crow**, J.L., Druhan, E. Marín-Spiotta, A.F. Plante, C. H. Pries, C. Rasmussen, C. Schädel, J.P. Schimel, C.A. Sierra, A.Thompson, R.Wagai. 2018. Beyond clay: towards an improved set of variables for predicting soil organic matter content. Biogeochemistry 137: 297-306. https://doi.org/10.1007/s10533-018-0424-3

Yu, J.*, L.M Deem*, **S.E. Crow**, J.L. Deenik, C.R. Penton. 2018. Biochar application influences on microbial assemblage complexity and composition due to soil and bioenergy crop type interactions. Soil Biology and Biochemistry 117: 97-107.

Harden, J., G. Hugelius, A. Anders, J. Blankinship, B. Bond-Lamberty, C. Lawrence, J. Loisel, A. Malhotra, R. Jackson, S. Ogle, C. Philips, R. Ryals, K. Todd-Brown, R. Vargas, S. Vargara, F. Cotrufo, M. Keiluweit, K. Heckman, **S.E. Crow**, W. Silver, M. DeLonge, L. Nave. 2017. Networking our science to characterize the state, vulnerabilities, and management opportunities of soil organic matter. Global Change Biology:1-14. doi:10.1111/gcb.13896

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Book Sections

Hubanks*, H., J.L. Deenik, **S.E. Crow**. 2018. Getting the dirt on soil health and management. In: Reference Module in Earth Systems and Environmental Sciences. Elsevier, doi doi:10.1016/B978-0-12-409548-9.10903-0

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Extended Abstracts

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Davis, A. A.*, C.A. Lepczyk, **S.E. Crow**, C.W. Morden. 2012. *Toxoplasma gondii* detection in urban Hawai'i. Proceedings of the 25th Vertebrate Pest Conference (R. M. Timm, Ed.). University of California Davis. Pp. 251-255.

## NON-PEER REVIEWED REPORTS

UN Report

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State Report and Databases

**Crow, S.E.,** Rivera-Zayas, J. Tallamy Glazer, C., Vizka, E., and Silva, J. Hawai'i Natural and Working Lands Baseline and Benchmarks, Final Report 2021. Honolulu, HI, USA, Hawai'i State Office of Planning https://planning.hawaii.gov/wp-content/uploads/UH-CTAHR-Baselines-and-Benchmarks-Final-Report.pdf

**Hawai'i Greenhouse Gas Database http://hdl.handle.net/10125/76002**
Crow, S., & Rivera-Zayas, J. (2021, July 19). Hawai'i greenhouse gas emissions database. https://doi.org/10.17605/OSF.IO/JPR7Q

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State Policy Brief

Hawai'i Climate Change Mitigation and Adaptation Commission. 2021. Nature-based resilience and adaptation to climate change in Hawai'i: A climate ready Hawai'i working paper. (contributor) https://climate.hawaii.gov/wp-content/uploads/2021/04/CRHI-Working-Paper-V5.pdf

## INVITED PROFESSIONAL CONTRIBUTIONS

Invited Panels and Conferences

2024 Opening Keynote Speaker: "Rebuilding health, resilience and equity in Hawai'i's agroecosystems", CANVAS - ASA, CSSA, & SSSA International Annual Meeting, AI Innovations for a Changing Climate, San Antonio, Texas, November 2024

2023 Invited oral presentation: "Overcoming barriers to implementation through a holistic framework for characterizing place-based suites of practices that achieve meaningful climate benefits. American Geophysical Union Meeting, San Francisco, CA December 2023

2023 Invited panelist: CTAHR Food Systems Panel – "Assisting Hawai'i farmers with climate-smart practices" Honolulu, HI, April 2023

2022 Keynote Speaker: Hawai'i Cattlemen's Convention – "Ranching-based climate-smart practices and warming benefits. Waikaloa, HI, October 2022

2022 Guest appearance: Think Tech Hawai'i - Carbon in soil, not in atmosphere (Code Green), Honolulu, HI, October 2022

2022 Invited Panelist: ISCN Webinar series Towards a Durable Understanding of Soil Carbon as a Tool for Climate Adaptation and Mitigation – Webinar 3: How does the impermanence of soil carbon storage affect Earth's climate? April 2022

2021 Invited Panelist: Fall Meeting of the American Geophysical Union, New Orleans, LA – "Challenges and Opportunities of managing Soil Carbon as a Natural Climate Solution"

2021 Invited panelist: Illumination Hawai‘i - Summit on Energy & Climate, September 2021, Honolulu, Hawai‘i.

2021 Invited panelist: Oahu RC&D Women in Soils - Soil Health Testing as a Management Tool, June 2021

2019 Invited panelist and participant: Speaker in the Agriculture breakout session panel. US Climate Alliance Western Regional Learning Lab, November 20-21, 2019, Portland, Oregon.

2019 Invited panelist: Cultivation, carbon and collaboration: Adapting the carbon model for Hawai‘i’s farms and ranches, moderator Stephanie Mock. 2019 Hawai‘i Agriculture Conference, October 15-16, 2019, Honolulu, Hawai‘i.

2019 Invited speaker and participant: American Farmland Trust’s “Farming & Climate Change” at Tenuta di Spannocchia, A discussion with conservationists, scientists, and farmers, May 2019, Tuscany, Italy.

2019 Invited oral presentation: Timescales, a soil carbon conundrum, and actuating the benefits of accumulating carbon in landscapes. European Geophysical Union Meeting, Vienna, April 2019.

2018 Invited participant: The Nature Conservancy “Women on Climate” Summit – 10 women from each of five Pacific states convened to accelerate solutions for climate change, October 11-12, 2018 in Seattle, Washington.

2018 Invited participant: US Climate Alliance Learning Lab, intensive three-day workshop hosted by American Forests to take collaborative action to sequester carbon in forests and other land-based climate mitigation strategies. July 2018, Washington D.C.

2018 Invited participant in my role as Hawai‘i State Carbon Farming Task Force member in the Climate Action Reserve’s North American Carbon World 2018 conference in San Francisco, April 2018.

2018 Invited Panelist: Carbon Farming and Energy Crops at the Maui Energy Conference – Decarbonization: A Business Opportunity for Innovative Communities, Kahului, Maui, March 2018. Panelists discussed - Hawai‘i established a Carbon Farming Task force in 2017. What financial opportunities exist? What are the most promising energy crops for Hawai‘i?

2017 Invited Panelist: Think Globally, Act Locally Alternative Fuel initiatives, Carbon Sequestration and Biocrop Results in Hawai‘i at the Bioeconomy Hawai‘i Forum 2017, The Future of Biofuels, The State of Hawai‘i Capitol Auditorium, Honolulu, HI, January 2017. Presenters addressed issues of strategic value in reviewing the state-of-the-art advances in renewable energy and environment for Hawai‘i.

2016 Invited Speaker and Panelist: Biofuels Panel at APRISE 2016, Asia Pacific Resilience Innovation Summit & Expo, Joint Base Pearl Harbor-Hickam, HI, July 2016. A panel of academic, private sector, and military leadership to discuss ongoing efforts in the biofuels space, and discuss the opportunities and challenges specific to biofuels R&D, production, and integration.

2015 Invited Oral Presentation: Crow, S. E., *et al*. Soil organic matter stabilization/destabilization in DIRT. ASA, CSSA, and SSSA Annual Meeting, Minneapolis, MN, November 2015.

<u>Off-Campus Seminars</u>

Indigenous Soil Practice and AI. CreateX, UH West O‘ahu, Abundant Intelligences Kō Hawai‘i Pae ‘Āina Pod Workshop, opening presentation and “Abundant Soils” workshop, February 2025.

Actuating soil to mitigate climate change and improve health of productive landscapes in Hawai‘i. Center for Ecology and Hydrology, Natural Environmental Research Council, Edinburgh, Scotland, Visiting Scientist Seminar, June 2019.

The low-carbon revolution: harnessing the nature and properties of soil to mitigate climate change and improve the health of managed ecosystems in Hawai'i. University of Arizona, Soil Water and Environmental Science, Departmental Seminar Series, October 2017.

Carbon balance and market feasibility in Hawai'i. Lunch and learn for Monitoring Analytics (Eagleville, PA), the Independent Market Monitor for PJM Interconnection, which is responsible for monitoring compliance with the rules, standards, procedures and practices of energy markets, March 2017.

Carbon cycle and the soil resource: from mechanism to management. University of New Hampshire, Department of Natural Resources & the Environment, Graduate seminar series in Soil Change, February, 2014.

On-Campus Seminars

Opportunity for land-based climate action and rebuilding resilient, productive landscapes in Hawai'i. University of Hawai'i Mānoa, Institute for Sustainability and Resilience Seminar Series, November 2018.

Interactive feedbacks of temperature, mineralogy, and microbes on soil carbon. Lyon Arboretum Centennial Symposium, East-West Center, September 2018.

The low-carbon revolution: harnessing the nature and properties of soil to mitigate climate change and improve the health of managed ecosystems in Hawai'i. NREM Departmental seminar series, October 2017.

Biofuels and biomass in Hawai'i: carbon balance and feasibility. Workshop on Energy and Environmental Research, Department of Economics, weekly workshop aims to facilitate interaction among graduate students and faculty across campus, February 2017.

Biofuel production in Hawai'i: Greenhouse gas flux, carbon budget, and achieving environmental and economic sustainability. University of Hawai'i Mānoa, Molecular Biosciences and Bioengineering Department, Graduate Seminar Series: Bioenergy Topics, September 2013.

Global change and soils: Invasive earthworms, arctic shrubs, and Acrudoxic Hydrudands. University of Hawai'i Mānoa, Geology and Geophysics Departmental seminar series, October 2010.

Select Press, News, and Social Media

- ThinkTech Hawai'i appearance video https://thinktechhawaii.com/carbon-in-soil-not-in-atmosphere-code-green/
- Interview with Honolulu Civil Beat reporter Thomas Heaton and podcast: Hawai'i Grown – Hawai'i Needs Good Soil to Grow More Food. Here's How That Can Happen: https://www.civilbeat.org/2022/02/hawaii-needs-good-soil-to-grow-more-food-heres-how-that-can-happen/
- Interview for local news station KITV in response to the passage of legislation to form a Carbon Farming Task Force to help Hawai'i meet Paris Climate Accord goals: http://www.kitv.com/story/35604780/hawaii-becomes-first-state-to-enact-law-in-alignment-with-paris-accord
- Appearance on Hawai'i Public Radio, The Conversation to discuss the future of biofuels and bioenergy in Hawai'i: http://hawaiipublicradio.org/post/conversation-monday-january-23rd-2017
- Featured article by student science communication author published in the Biofuels Digest: http://www.biofuelsdigest.com/bdigest/2017/03/12/viable-biomass-for-hawaii/

## CONFERENCE PRESENTATIONS (LAST 10 YEARS)

*UH graduate student, **UH undergraduate student, † equal authorship

Slanzon, G., T.M. Maaz, **S.E. Crow**, J.L. Deenik, M. Kantar and N. Nguyen. Connecting Fungal-Bacterial Interactions and Soil Health in Tropical Soils. CANVAS - ASA, CSSA, & SSSA International Annual Meeting, San Antonio, Texas, November 2024. (oral)

Kiehl*, K.D., C. Fullmer, N. Nguyen, T.M. Maaz, **S.E. Crow** and J.L. Deenik. A Microbial Proxy for Mineralizable Nitrogen. CANVAS - ASA, CSSA, & SSSA International Annual Meeting, San Antonio, Texas, November 2024. (poster)

Beckstrom*, T.B., K. Estrada*, T.M. Maaz, J.L. Deenik, N. Reyes*, S. Mix, M.K. Loo, D. Sotomayor, D. Lawrence, C.J. Tallamy Glazer, and **S.E. Crow**. Assessing (sub)Tropical Soil Health Along a Disturbance Gradient in Hawai'i, Puerto Rico, and Pohnpei. CANVAS - ASA, CSSA, & SSSA International Annual Meeting, San Antonio, Texas, November 2024. (poster)

Gonsalves*, M., **S.E. Crow**, H. Peter-Contesse and A. Sarquis. C Dynamics in Highly-Weathered (Sub)Tropical Soils: Analyzing Key Drivers to Address Soil Carbon Model Needs. CANVAS - ASA, CSSA, & SSSA International Annual Meeting, San Antonio, Texas, November 2024. (poster)

Tallamy Glazer, C.J., **S.E. Crow**, H.L. Hubanks, H. Peter-Contesse, J.L. Deenik, T.B. Beckstrom, M. Haddix and M.F. Cotrufo. Characterizing Hawai'i's Poorly and Non-Crystalline Soils: Overcoming Methodological Challenges in Density Fractionation. CANVAS - ASA, CSSA, & SSSA International Annual Meeting, San Antonio, Texas, November 2024. (poster)

K. Estrada*, T.M. Maaz, T.B. Beckstrom*, J.L. Deenik, N. Reyes*, S. Mix, M.K. Loo, C.J. Tallamy Glazer, M. Satdichanh, D.Lawrence, J. Rivera Zayas, T. Ticktin, D. Sotomayor and **S.E. Crow**. The Dirt on Disturbance: Creating an Anthropogenic Disturbance Index to Objectively Capture Overlap across and within Land Use Types for Tropical and Subtropical Agroecosystems. CANVAS - ASA, CSSA, & SSSA International Annual Meeting, San Antonio, Texas, November 2024. (poster)

Shor*, H., T.B. Beckstrom*, K.Estrada*, T.M. Maaz, J.L. Deenik, N. Reyes*, S. Mix, M.K. Loo, D. Sotomayor, D. Lawrence, C.J. Tallamy Glazer, and **S.E. Crow.** Unearthing Trends: Optimizing Tropical Soil Health Scoring Methods. CANVAS - ASA, CSSA, & SSSA International Annual Meeting, San Antonio, Texas, November 2024. (poster)

**Crow, S.E**., Deenik, J.L. K. Enos, C.P. Giardina, T.M. Maaz, L. Nuss, J. Rivera-Zayas, C.A. Sierra, K.Todd-Brown and the Hawai'i Partnership for Climate-Smart Commodities. Overcoming barriers to implementation through a holistic framework for characterizing place-based suites of practices that achieve meaningful climate benefits. American Geophysical Union Annual Meeting, San Francisco, CA December 2023. (Invited oral)

Lam*, K.I., N. Cowen*, G. Feber*, E. Komolafe*, R.S. Collins*, M. Strickland, Z.E. Kayler, S.E. Crow, D.G. Williams. Bridging the knowledge gaps of deep soils. American Geophysical Union Annual Meeting, San Francisco, CA December 2023. (poster)

Peter-Contesse, H., **S.E. Crow**, K.Todd-Brown, C.P. Giardina, S. Owen. Integrating remotely sensed data with plot-level forest metrics to identify significant drivers of soil carbon process across Hawai'i's forested landscapes. American Geophysical Union Annual Meeting, San Francisco, CA December 2023. (poster)

Luo, Y., N. Wei, X. Lu, Y. Zhou, F. Tao, L. Jiang, C. Liao, Y. Huang, S. Niu, J. Xia, Q. Quan, B. Houlton, S.E. Crow, X. Xu, C. Goodale, C. Koven, C. Field. Preserving wood debris towards net-zero carbon emission. American Geophysical Union Annual Meeting, San Francisco, CA December 2023. (oral)

Lam*, K.I., **S.E. Crow**, K. Kealiʻikanakaʻole, M. Kalua, J.L. Deenik, J.W. Creswell, M. Kantar, T.M. Maaz, K. Enos, K. Zane, J.E. Lewis, D.T. Richardson, T.B. Beckstrom*. Pedogenesis of the Puʻu ʻōhiʻa soil in Mānoa, Hawaiʻi: A mixed methods study. American Geophysical Union Annual Meeting, San Francisco, CA December 2023. (oral)

Lam*, K.I., **S.E. Crow**, K. Kealiʻikanakaʻole, M. Kalua, J.L. Deenik, J.W. Creswell, M. Kantar, T.M. Maaz, K. Enos, K. Zane, J.E. Lewis, D.T. Richardson, T.B. Beckstrom*. Pedogenesis of the Puʻu ʻōhiʻa soil in Mānoa, Hawaiʻi: A mixed methods study. 2023 ASA-CSSA-SSSA International Annual Meeting, October, 2023, St. Louis MO. (poster)

Beckstrom, T.B., M.B. Kantar, J.L. Deenik, Q. Chen, N. Nguyen, **S.E. Crow**. Insights from deep learning with MIR spectroscopy in Hawaiʻi soil health modeling and assessment. 2023 ASA-CSSA-SSSA International Annual Meeting, October, 2023, St. Louis MO. (poster)

Kiehl*, K.D., T.M. Maaz, **S.E. Crow**, J.L. Deenik. Evaluating the use of soil protein to predict nitrogen mineralization in soils with contrasting clay mineralogy and land use histories. 2023 ASA-CSSA-SSSA International Annual Meeting, October, 2023, St. Louis MO. (poster)

Maaz, T.M., **S.E. Crow**, J.L. Deenik, M.K. Loo, C. Tallamy Glazer, T.B. Beckstrom*. Measuring the immeasurable: A structural equation modeling approach to conceptualizing and scaling up soil health assessments. 2023 ASA-CSSA-SSSA International Annual Meeting, October, 2023, St. Louis MO. (oral)

M.K. Loo, J.L. Deenik, T.M. Maaz, **S.E. Crow**, D. Sotomayor, J. Rivera-Zayas, C. Tallamy Glazer, A. Krenz, S. Church*, K. Estrada*, M.L. Pagan, M. Stevensen, K. Kiehl*. Farmer-driven Implementation of Soil Health Management Systems Adapted to Diverse Cropping Systems in Tropical and Subtropical Island Environments. 78th SWCS International Annual Conference. Des Moines, IA, August 2023.

Beckstrom, T.B., **S.E. Crow**, J.L. Deenik, T.M. Maaz, J. Rivera-Zayas, C. Tallamy Glazer. A holistic understanding of Andisol soil organic matter across and environmental gradient and its role in volcanic island resilience. 2023 NCSS Conference Soil, Energy, and Agriculture for Resilient Ecosystems, July 2023, Bismarck, ND.

Tayo*, M.A.G., C.M. Litton, C.P. Giardina, and **S.E. Crow**. Controls on surface and subsurface soil organic matter composition and carbon storage along a mean annual temperature gradient in Hawaiʻi tropical montane wet forest. American Geophysical Union Annual Meeting, Chicago, IL, December 2022. (poster)

Fullmer*, C., T.M. Maaz, C. McGrath, **S.E. Crow**, N.H. Nguyen. Deep fungi: soil depth structures fungal communicates in a tropical volcanic soil. Mycological Society of America Annual Meeting, Gainesville, FL, July 2022. (poster)

**Crow, S.E**. and C.A. Sierra. Nature-based climate solutions are input and time dependent and may be quantified in terms of the climate benefit of sequestration for warming mitigation and systems-level analysis. American Geophysical Union Annual Meeting, New Orleans, LA, December 2021. (invited oral)

Ball, K., **S.E. Crow**, C. Brien, A.A. Berhe, S.Rathke, and J.Blankinship. Inorganic carbon mediates tillage effects on soil organic carbon stocks in arid agricultural soils. American Geophysical Union Annual Meeting, New Orleans, LA, December 2021. (contributed poster)

Pries, C. K. Heckman, P. Templer, S. Frey, and **S.E. Crow**. The response of deep soil carbon to climate change: From experiments to meta-analysis. EGU General Assembly 2021, online, 19–30 Apr 2021, EGU21-16152, https://doi.org/10.5194/egusphere-egu21-16152, 2021.

Vizka, E.*, J.L. Deenik, H. Hubanks*, **S.E. Crow**. Climate-wise management: Soil mineralogy's primary influence on soil health in Hawaiʻi. American Geophysical Union Annual Meeting, Online, December 2020. (contributed poster)

**Crow, S.E**., C.A. Sierra, M.F. Cotrufo, and J.W. Harden. Networking soil carbon and health: a common ground for actuating resilience and climate change mitigation. North American Carbon Program Open Science Meeting 2020, Washington D.C., March 2020. (abstract accepted, COVID-19)

Tallamy Glazer, C., **S.E. Crow**, H. Hubanks, M.F. Cotrufo, M. Haddix. Mineral associated organic matter and soil health in Hawai'i. Goldschmidt2020, Honolulu, HI, June 2020. (abstract accepted, COVID-19)

**Crow, S.E**., C. McGrath, C.E. Hicks Pries, N. Nguyen, M. Lazaro, C.P. Giardina, C.M. Litton. Complex non-crystalline mineralogy protects soil carbon from temperature-dependent decay. Goldschmidt2020, Honolulu, HI, June 2020. (abstract accepted, COVID-19)

McGrath, C., **S.E. Crow**, C.E. Hick Pries, N. Nguyen, B. Glazer, S. Lio. Interactive feedbacks of climate, mineralogy and microbiological communities on soil carbon: A deep soil warming experiment. Goldschmidt2020, Honolulu, HI, June 2020. (abstract accepted, COVID-19)

Sierra, C.A., **S.E. Crow**, M. Heimann, H. Metzler, and E.-D. Schulze. The climate benefit of carbon sequestration. European Geophysical Union Meeting, Vienna, April 2020. (contributed abstract, accepted)

**Crow, S.E.,** J.W. Harden, C.A. Sierra. Soil health and soil carbon: A common ground for actuating resilience and climate change mitigation. American Geophysical Union Annual Meeting, San Francisco, CA, December 2019. (contributed poster)

McGrath, C.*, N. Nguyen, B. Glazer, S. Lio, C. Pries, K., **S.E. Crow**. Interactive feedbacks of climate, mineralogy and microbiological communities on soil carbon: A deep soil warming experiment. American Geophysical Union Annual Meeting, San Francisco, CA, December 2019. (contributed poster)

Crow, S.E.. Timescales, a soil carbon conundrum, and actuating the benefits of accumulating carbon in landscapes. European Geophysical Union Meeting, Vienna, April 2019. (invited oral)

**Crow, S.E.**, H.L. Hubanks*, J.L. Deenik, C.J. Tallamy Glazer, E. Vizka*, N. Nguyen. The legacy of intensive land use on soil health and function. European Geophysical Union Meeting, Vienna, April 2019. (contributed abstract, accepted)

Trumbore, S.E., C.R. Lawrence, J. Beem-Miller, A. Hoyt, G. Monroe, C. Sierra, S. Stoner, K.A. Heckman, J. Blankinship, **S.E. Crow**, and G. McNicol. ISRaD: the International Soil Radiocarbon Database. European Geophysical Union Meeting, Vienna, April 2019. (contributed abstract, accepted)

Hubanks*, H.L., J.L. Deenik, C.J. Tallamy Glazer, **S.E. Crow**. Towards a Soil Health Index: Identifying sensitive indicators of change across land use and soil diversity. Soil Science Society of America International Soils Meeting, San Diego, CA, January 2019. (contributed poster)

Yu, J., L.M. Deem*, **S.E. Crow**, J.L. Deenik, C.R. Penton. Soil microbial community response to two years of biochar amendment revealed by metagenomics. International Society for Microbial Ecology Symposia, Leipzig, Germany, August 2018. (contributed poster)

McGrath, C.*, N. Nguyen, B. Glazer, C. Pries, K. Sylva**, C. Evensen, **S.E. Crow**. Interactive feedbacks of climate mineralogy and microbiological communities on soil carbon: A deep soil warming experiment. Hawai'i Conservation Conference, July 2018, Honolulu, Hawai'i. (contributed poster)

Beem-Miller, J., C. Lawrence, J. Blankinship, A. Hoyt, S. Stoner, C. Sierra, G. Monroe, G. McNicol, Y. He, C. Hatté, C. Treat, **S.E. Crow**, K. Heckman, M. Keiluweit, S. Trumbore. From fractions to fluxes: The international soil radiocarbon database. Radiocarbon Conference, Trondheim, Norway, June 2018. (contributed poster)

Wells, J.M.*, **S.E. Crow**, J. Deenik, K. Carlson, A. Hashimoto. Understanding soil carbon storage across heterogeneous landscapes: carbon offsets and sustainability of tropical biomass production systems. 25th European Biomass Conference and Exhibition, Stockholm, Sweden, June 2017. (contributed oral)

Wells, J.M.*, **S.E. Crow**, S.K. Khanal, S.Q. Turn, A. Hashimoto. Effects of anaerobic digestion and hot water pretreatment on lignin. 25th European Biomass Conference and Exhibition, Stockholm, Sweden, June 2017. (contributed oral)

**Crow, S.E.**, M.K. Lazaro*, K.A. Heckman, C.R. Lawrence, C.P. Giardina and C.M. Litton. Components of complex non-crystalline mineralogy contribute differently to soil carbon storage and turnover. American Geophysical Union Annual Meeting, San Francisco, CA, December 2016. (contributed poster)

Blankinship, J.C., **S.E. Crow**, J. Schimel, C.A. Sierra, C. Schaedel, A.F. Plante, A.A. Thompson, A.A Berhe, J.L. Druhan, K.A. Heckman, M. Keiluweit, C.R. Lawrence, E. Marin-Spiotta, C. Rasmussen, R. Wagai and W.R. Wieder. The soil carbon paradigm shift: Triangulating theories, measurements, and models. American Geophysical Union Annual Meeting, San Francisco, CA, December 2016. (contributed oral)

Rasmussen, C., A.A. Berhe, J.C. Blankinship, **S.E. Crow**, J.L. Druhan, K.A. Heckman, M. Keiluweit, C.R. Lawrence, E. Marin-Spiotta, A.F. Plante, C. Schaedel, J. Schimel, C.A. Sierra, A. Thompson, R. Wagai and W.R. Wieder. Beyond clay – using selective extractions to improve predictions of soil carbon content. American Geophysical Union Annual Meeting, San Francisco, CA, December 2016. (contributed oral)

Thompson, A.A., A.A. Berhe, J.C. Blankinship, **S.E. Crow**, J.L. Druhan, K.A. Heckman, M. Keiluweit, C.R. Lawrence, E. Marin-Spiotta, A.F. Plante, C. Rasmussen, C. Schaedel, J. Schimel, C.A. Sierra, A. Thompson, R. Wagai and W.R. Wieder. Representation of diffusion controlled carbon stabilization in reactive transport models. American Geophysical Union Annual Meeting, San Francisco, CA, December 2016. (contributed poster)

**Crow, S.E.**, J. Meulemans, L. Deem, K. Biegert, J. Deenik, J.Yanagida, C.R. Penton. The practical benefits of biochar application to environmental and economic viability. Biochar 2016 The Synergy of Science and Industry: Biochar's connection to Ecology, Soil, Food, and Energy. Oregon State University, Corvallis, OR, August 2016.

Deem, L.M.*, **S.E. Crow**, J. Deenik, C. R. Penton, J. Yu Biochar increases temperature sensitivity of soil respiration and $N_2O$ flux. Biochar 2016 The Synergy of Science and Industry: Biochar's connection to Ecology, Soil, Food, and Energy. Oregon State University, Corvallis, OR, August 2016.

**Crow, S.E.**, M.N. Meki, J. Kiniry, R. Ogoshi, A. Youkhana, M. Pawlowski*, M. Nakahata. Projecting global warming potential of productions systems for tropical perennial C4 grasses cultivated for biofuel feedstock in Hawai'i. ASA, CSSA, and SSSA International Annual Meetings, Minneapolis, MN, November 2015. (contributed poster)

**Crow, S.E.**, et al. Soil organic matter stabilization/destabilization in DIRT. ASA, CSSA, and SSSA International Annual Meetings, Minneapolis, MN, November 2015. (invited talk)

Meulemans, J.*, **S.E. Crow**, L. Deem*, J. Yanagida, J. Deenik. Effects of biochar amendment on GHG emission from tropical agricultural soils in two crop managements in Hawai'i. ASA, CSSA, and SSSA International Annual Meetings, Minneapolis, MN, November 2015. (contributed poster)

Youkhana, A., **S.E. Crow**, R. Ogoshi, J.R. Kiniry, M.N. Meki, D. Richardson*, M. Nakahata. Allometric models for predicting aboveground biomass, carbon and nitrogen stocks in potential biofuel crops in Hawai'i. ASA, CSSA, and SSSA International Annual Meetings, Minneapolis, MN, November 2015. (contributed poster)

Richardson, D*. **S.E. Crow**, A. Youkhana, J. Moore-Kucera, R. Ogoshi, M.N. Meki, J.R. Kiniry, M. Nakahata. Root biomass and microbial response to deficit irrigation treatments in the rhizosphere of biofuel feedstock cultivation in Hawai'i. ASA, CSSA, and SSSA International Annual Meetings, Minneapolis, MN, November 2015. (contributed poster)

Deem, L.M.*, **S.E. Crow**, J. Deenik, R. Penton, J. Yu. The evaluation of biochar effects at both the field and laboratory scale: soil carbon, microbial community composition, and carbon dioxide efflux. 5th International Symposium on Soil Organic Matter, Göttingen, Germany, September, 2015. (contributed poster)

**Crow, S.E**., L.M. Deem*, Y. Sumiyoshi*, J. Wells*, N. Hunter**, H. Yamazaki*. Belowground carbon dynamics under zero tillage management of tropical, perennial C4 grasses cultivated for biofuel production. 5th International Symposium on Soil Organic Matter, Göttingen, Germany, September, 2015. (contributed poster)

Biegert*, K., S. Marhan, J. Meulemans*, S.E. Crow, J. Deenik. Biochar effects on greenhouse gas emissions from two Hawaiian arable soils. Meeting of the German Soil Science Society, München (Germany), September 2015. (contributed poster)

Lazaro, M.K.*, **S.E. Crow**, C.A. Stiles, C.M. Litton, C.P. Giardina, P. Selmants, M. Reeves, S. Turn, S. Taniguchi, O.S. Schubert, T. Miura, and N. Koch. Comparison of soil carbon mapping techniques across the Hawaiian Islands. National Cooperative Soil Survey Conference, Duluth, MN, June 2015. (contributed poster)

Yu, J., S.E. Crow, J. Deenik, C. R. Penton, L. Deem*. The effect of biochar amendment on microbial community composition, American Society for Microbiology, 115th General Meeting, New Orleans, LA, May 2015.

Wells, J.*, **S.E. Crow**, A. Hashimoto, R. Ogoshi, J.R. Kiniry. Transforming conventional sugarcane into sustainable biofuel feedstock production: Optimizing C4 grass feedstock selection through lignin analysis and conversion efficiency study. American Society of Agricultural and Biological Engineers 2015, 1st Climate Change Symposium, Chicago, IL, May 2015.

## CURRICULUM DEVELOPMENT

2016-2019 NREM Faculty Curriculum Committee Chair
2014-2015 NREM Faculty Curriculum Committee Member

As a member of the NREM faculty curriculum committee I participated in the review and re-definition of the graduate program's student learning outcome and annual assessment of the program. Following several years of proposals, faculty feedback, and leadership by the departmental Curriculum Committee, of which I am a member since 2014 and currently Chair, the NREM Department revamped its core graduate courses (NREM600-601-605) to be case study-based, interactive, and interdisciplinary. Professor Kirsten Oleson (Ecological Economics) and I (Soil Ecology and Biogeochemistry) volunteered to take on the initial development and delivery of the course. The 5-credit pilot course was taught in Spring 2016 and expanded into a year-long 8-credit core curriculum in AY 2016-2017. In response to the identified needs of off-island and professional natural resource managers and conservationists for access to distance learning graduate education, I acted as co-Project Director on a 2016 proposal titled "Developing a professional environmental leadership degree program" led by Dr. M'Randa Sandlin to the USDA-NIFA Higher Education Challenge Grant RFA. Adapting the revised core course to an online format appropriate for the proposed degree was a central piece of the proposal; we continue to seek support for this endeavor.

I presented our department's efforts and outcomes at the 2017 Assessment for Curricular Improvement poster exhibit, March 2017. "A collaborative assessment process for sustained curriculum improvement in natural resources and environmental management".

My video from the 2017 Assessment Poster Exhibit is promoted on the Office's website: http://manoa.hawaii.edu/assessment/workshops/poster2017/poster2017.htm#video

## COURSES

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|---|---|
| 2016-present | **Instructor/Co-Instructor**, "Foundations of NREM and Policy" (NREM 600) and "Social-Ecological Systems Analysis of NREM" (NREM601). Co-developed and instructed a fully integrated interdisciplinary core course curriculum required for all NREM M.S. students with co-instructor, Dr. Kirsten Oleson. Formerly, "Evaluation of Natural Resource Management" (NREM 600), "Economic Analysis of Natural Resource Management" (NREM 601), and "Research Skills" (NREM 605). |
| 2014, 2018 | **Instructor**, "Advanced Topics in NREM: Quantitative Ecosystem Carbon" (NREM691).<br>Developed and instructed graduate-level elective course in concepts and analytical methods for understanding and assessing terrestrial ecosystem carbon across broad time scales and geographic regions, University of Hawai'i Mānoa. |
| 2009-2020 | **Co-instructor**, "Fundamentals of Soil Science" (TPSS/NREM 304+Lab), further development, coordination, and delivery of undergraduate-level classroom lectures and laboratory activities, worked with teaching assistant, University of Hawai'i at Mānoa. |
| 2013, 2015 | **Instructor**, "Predicting and Controlling Degradation in Human-Dominated Terrestrial Ecosystems" (NREM 612). Graduate-level core course, continued development and delivery of lecture and current literature discussion-based course, University of Hawai'i Mānoa. |
| 2013-2014 | **Co-Instructor**, "Natural Resource Management" (NREM 301 + Lab), continued development, coordination, and delivery of undergraduate-level classroom lectures and laboratory activities, worked with teaching assistant, University of Hawai'i Mānoa. |
| 2004 | **Graduate Teaching Assistant**, "Introduction to Soil Science Laboratory", and "General Biology Laboratory: Genetics and Ecology", Oregon State University. |
| 1999-2000 | **Graduate Teaching Assistant**, "General Biology Laboratory" and "Science and Environmental Issues", Villanova University. |
| 1999 | **Undergraduate Teaching Assistant**, "Botany Laboratory", College of William and Mary |

## GUEST LECTURES

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| 2020 | **Guest Lecturer**, "Theory and Practice of Sustainable Agriculture" (SCFS 320, UH West Oahu), guest lecture provided on the potential for soil ecosystems (locally and globally) to serve as sinks for $CO_2$ in soil organic matter. |

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| 2018 | **Guest Lecturer,** "Climate Change and Policy" (NREM 302), shared research path leading to active legislative outreach and policy implementation in Hawai'i. |
| 2017 | **Guest Lecturer**, "Introduction to Environmental Science and Sustainability" (OCN 101), facilitate discussion session on issues of renewable and non-renewable resources such as soils and biomass. |
| 2009-2012, 2015-2017 | **Guest Lecturer**, "Natural Resource Management" (NREM 301L), guest co-instructor for introductory soil science laboratory session, University of Hawai'i Mānoa. (7 times) |
| 2014 | **Guest Lecturer**, "Biomass Conversion to Biofuel and Bioenergy (BE 410), delivered lecture on climate change and biofuels/bioenergy for graduate students. |
| 2010-2014 | **Guest Lecturer**, "Ecosystem Ecology" (NREM 680), lecture series on litter decay and soil carbon storage, University of Hawai'i at Mānoa. (3 times) |
| 2006 | **Guest Lecturer**, "Introduction to Soil Science", lecture to ~80 undergraduate and graduate students Oregon State University |
| 2004 | **Guest Lecturer**, "Honors Ecology", lecture and lab session to undergraduates, Oregon State University |

## POSTDOCTORAL AND STUDENT TRAINING

Postdoctoral

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| 2025-pr | Dr. Melemaikalani Moniz, Postdoctoral Researcher |
| 2024-pr | Dr. Agustin Sarquiz, Postdoctoral Researcher |
| 2023-pr | Dr. Hayley Peter-Contesse, Junior Researcher, Postdoctoral Fellow |
| 2020-2022 | Dr. Johanie Rivera-Zayas, Postdoctoral Fellow |
| 2011-2016 | Dr. Adel Youkhana, Postdoctoral Researcher |

Graduate

Ph.D.

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| 2022-pr | **Advisor, Graduate Committee Chair**, Kristy Lam, NREM Ph.D., TBD. |
| 2014-2019 | **Advisor, Graduate Committee Chair**, Jon Wells, NREM Ph.D., "Development of a new index to predict conversion efficiency of renewable fuel feedstocks", degree awarded December 2019. Recipient of the 2016 CTAHR Symposium Award of Merit. Recipient of the 2017 CTAHR Symposium Best Oral Presentation for NREM Department. |
| 2012-2015 | **Graduate Committee Member**, Bikash Paudel, NREM, Ph.D., "Evaluating conservation agriculture production systems for smallholder subsistence farmers in the hill region of Nepal", degree awarded May 2015. |

M.S.

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| 2024-pr | **Advisor, Graduate Committee Chair**, Harvey Castillo, NREM M.S. Plan A Thesis. TBD |
| 2023-pr | **Advisor, Graduate Committee Chair**, Megan Gonsalves, NREM M.S. Plan A Thesis. TBD |
| 2021-pr | **Advisor, Graduate Committee Chair**, Tanner Beckstrom, NREM M.S. Plan A, Thesis. TBD, transitioning to PhD program March 2025. |

2021-2024 **Advisor, Graduate Committee co-Chair**, Kristina Estrada, NREM M.S. Plan A, Thesis. "How disturbing: Humans are intertwined with ecosystem health", degree awarded Summer 2024.

2020-2024 **Graduate Committee Member**, Christian Fullmer, TPSS Plan A. Thesis. "Carbon's keepers: the nature and role of aggregates and microbial communities in a deep ferrihydritic Andisol", degree awarded Spring 2024.

2020-2023 **Graduate Committee Member**, Malissa Tayo, NREM M.S. Plan A, Thesis. Controls on surface and subsurface soil organic matter composition and carbon storage along a mean annual temperature gradient in Hawaiian tropical montane wet forest. Degree awarded December 2023.

2016-2023 **Graduate Committee Member**, Chad Livingston, TPSS M.S. Plan A, Thesis. "Accounting for carbon in *Artocarpus altilis*afforestation systems", degree awarded December 2023.

2017-2019 **Advisor, Graduate Committee Chair**, Casey McGrath, NREM M.S. Plan A, Thesis. "Interactive feedbacks of climate and mineralogy on soil carbon: A tropical deep soil warming experiment", degree awarded December 2019.

2017-2019 **Advisor, Graduate Committee co-Chair**, Hannah Hubanks, NREM M.S. Plan A, Thesis. "Measurable soil quality for Hawai'i", degree awarded May 2019.

2015-2019 **Advisor, Graduate Committee Chair**, Daniel Richardson, NREM M.S. Plan A, Thesis option, "Microbial community response to four years of zero-tillage harvest of perennial grasses following 100 years of intensive cultivation for sugarcane", degree expected May 2019. Recipient of the 2017 CTAHR Symposium CTAHR M.S. Student Poster Presentation Award of Merit (2nd place College-wide).

2016-2018 **Advisor, Graduate Committee Member**, Genelle Watkins, NREM M.S. Plan B, Capstone option. "Mangrove restoration and conservation in Pemba, East Africa", degree awarded August 2018.

2014-2016 **Advisor, Graduate Committee Chair**, Jabez Meulemans, NREM M.S. Plan A, Thesis option, "Systems approach to assessing the environmental and economic sustainability of food and fuel crops with biochar soil amendment", degree awarded May 2016.

2013-2016 **Advisor, Graduate Committee Chair**, Lauren Deem, NREM M.S. Plan A, Thesis option, "Mechanistic understanding of improvements in yield and sustainability of biochar-amended soil", degree awarded May 2016.

2014-2015 **Second Supervisor**, Konni Biegert, Institute of Soil Science and Land Evaluation, University of Hohenheim, Germany, M.S. "Biochar effects on greenhouse gas emission from two Hawaiian arable soils", Degree awarded December 2015.

2013-2015 **Graduate Committee Member**, Alexandra Hedgpeth, Geography M.A. "Sensitivity of Arctic permafrost carbon in the Mackenzie River Basin: an incubation experiment to observe the priming effect", degree awarded December 2015.

2013-2015 **Advisor, Graduate Committee Member**, Michelle Lazaro, NREM M.S., Plan B. Recipient of the 2013 Hau'oli Mau Loa Foundation Graduate Fellowship in NREM, Capstone Project Title "Optimization of baseline soil carbon stock assessment across the Hawaiian Islands", degree awarded May 2015.

2013-2014 **Advisor, Graduate Committee Chair**, Whitney Ray, NREM M.S. Plan A, Thesis option, "Greenhouse gas emission balance of biofuel feedstock for potential carbon trading", degree awarded December 2014.

2012-2014 **Graduate Committee Member**, Benjamin Czeck, Geology and Geophysics Department M.S., Thesis "Our food in a changing climate: growth, yield, and nutrient

changes of sweet potato across the spectrum of $CO_2$ concentrations projected in the next 150 years", degree awarded May 2014.

2012-2013 **Advisor**, **Graduate Committee Member** Hironao Yamazaki, NREM, M.S. Plan B, Capstone Project Title "Alteration in soil carbon pools following land use and management change for bioenergy feedstock production", degree awarded December 2013.

2012-2013 **Graduate Committee Member,** James Harmon, Tropical Plant and Soil Sciences Department, M.S. Plan B,, capstone Project Title "Composting to improve sustainable food production systems and water quality in Pohnpei, Federated States of Micronesia", degree awarded May 2013.

2011-2013 **Advisor, Graduate Committee Chair,** Meghan Pawlowski, NREM, M.S. Plan A, Thesis option, "Greenhouse gas flux and fine root dynamics of sugarcane and Napier grass under deficit irrigation", degree awarded May 2013.

2011-2013 **Graduate Committee Member,** Alisa Davis, NREM, M.S. Plan A, Thesis Option, "*Toxoplasma gondii* detection in the environment from naturally infected cats in Hawai'i", degree awarded May 2013.

2010-2012 **Advisor, Graduate Committee Chair**, Mataia Reeves, M.S. Plan A, Thesis option, "The potential carbon sequestration of *Eucalyptus grandis* in conjunction with its use as a biofuel feedstock", degree awarded December 2012.

2010-2012 **Advisor, Graduate Committee Chair,** Yudai Sumiyoshi, M.S. Plan A, Thesis option, "Belowground carbon cycle of Napier and Guinea grasses grown for sustainable biofuel feedstock production", degree awarded December 2012. Awarded "Best NREM Master's Student Presentation" at the 2011 CTAHR Student Research Symposium. Awarded "2011 Outstanding Student Paper Award" from the Biogeosciences Section of the American Geophysical Union.

M.E.M.

2023-pr **NREM Advisor, Committee member**, Lydia Barron

2022-pr **NREM Advisor, Committee member**, Destiny Apilado

2019-2021 **NREM Advisor, Committee member**, Alexis Kerver

2019-2021 **NREM Advisor, Committee member**, Ryan Uenton.

<u>Undergraduate</u>

2017 **Mentor**, Directed Research (Writing Intensive), Annika Little

2017 **Internship Advisor,** Kaelin Sylva, NREM Department

2017 **Internship Advisor,** Annika Little, NREM Department

2015 **Honors Thesis Committee Member**, William Thompson, TPSS Department, "The role of ash in the efficacy of biochar amendment for promoting plant growth".

2014 **Honors Thesis Committee Member**, Josiah M. K. Marquez, TPSS Department, "Biochar increasing internal tolerance to manganese toxicity in a manganese-rich acid soil".

2013 **Internship Advisor,** Daniel Richardson and Nathan Hunter, NREM Department

2013 **Honors Thesis Committee Member**, Karl Hsu, Geography Department, "Study of long-term climate change and plant ecosystem processes in Hawai'i using copper oxide chemistry of organic sediments".

2012 **Mentor**, Erika Mizokuchi, Water, Energy, Soil & Sustainability (WESS) Student Intern. Senior Thesis "Cation exchange capacity and carbon quality of biochar amended soils".

2012 **Mentor**, Michelle Lazaro, Center for Microbial Oceanography: Research and Education (C-MORE) Scholars Intern, Undergraduate "Directed Research" student, awarded University of Hawai'i at Mānoa Undergraduate Research Opportunities Program Fellowship ($5000 research funds). "Best NREM Undergraduate Presentation" at 2013 CTAHR Student Research Symposium.

2012 **Internship Advisor,** Mark Miller, NREM Department

2012 **Internship Advisor**, Mariko Panzella, TPSS Department

2011-2012 **Mentor,** Mariko Panzella, Undergraduate "Directed Research" student, awarded University of Hawai'i at Mānoa Undergraduate Research Opportunities Program Fellowship ($3000 stipend).

2010 **Internship Advisor**, Heather Kikkawa, NREM Department

2009-2010 **Mentor,** Mataia Reeves, Undergraduate "Directed Research" student, awarded "Best Undergraduate Presentation" at 2010 CTAHR Student Research Symposium.

<u>High School</u>

2024 **Science Fair Project Mentor,** Alisa Senaga, St. Andrew's Priory

2014 **Science Fair Project Mentor**, Matthew Dufale, Farrington High School, "Soil amendments in ambient $CO_2$ concentrations impact the balance of greenhouse gases". 4$^{th}$ Place Overall and Best in Category (Environmental Management) at the Kapioloani District Science Fair; interviewed on Hawai'i News Now (Friday, March 28, 2014); Finalist at the Hawai'i State Science Fair: Best of Category Environmental Management; Hawai'i Conservation Alliance 1$^{st}$ Place ($500); DuPont Pioneer 1$^{st}$ Place ($150); Pepperman Alpert Memorial Gift Certificate winner.

2011 **Science Fair Project Mentor**, Steven Okada, Maui High School, "Phytolith sequestration in *Saccharum officinarum* and *Pennisetum purpureum*.

## DEPARTMENT, COLLEGE, UNIVERSITY SERVICE

Graduate Committee Member, NREM, Member 2019-2021; Chair 2021-2024; Member 2024-pr.
NREM Departmental Promotion Committee (DPC), Member 2019-2021; Chair 2024-pr
CTAHR Research Advisory Committee to Associate Dean of Research, Walter Bowen, 2020-2023.
Search Committee Member, NREM, "Applied Environmental Economics", Spring 2020
Faculty Curriculum Committee Member, NREM, 2014-2018. Chair 2015-2018.
Search Committee Member, NREM, "Extension Agent, Agricultural Finance", Spring 2018
Search Committee Member, NREM, "Applied Ecology and Sustainable Management", Spring 2017.
Search Committee Member, Tropical Plant and Soil Sciences, "Soil Microbiology", Spring-summer 2015.
Selected participant in the 2015 Innovation Showcase: highlighting cutting-edge innovations and technologies from the faculty of UH Mānoa's College of Tropical Agriculture and Human Resources and the Tokyo University of Agriculture and Technology, May 2015.
Search Committee Member, NREM, "Assistant Professor in NREM", Winter 2014.
Search Committee Member, NREM, "Tropical Soils and Watershed Hydrology", Spring-Summer 2014.
CTAHR Faculty Senate – elected NREM representative, served Spring 2015-Fall 2017.
CTAHR Strategic Planning Action Team #5 – Land Development Opportunities, Fall 2013-present.

Exhibitor – The World Congress on Zero Emissions: Launching the "Blue Economy", September 2010.
Faculty judge, CTAHR Student Research Symposium, April 2010, 2014, 2016, 2017.

## PROFESSIONAL SERVICE

Science Leadership Group member for the North American Carbon Program, 2019-present.
European Joint Programme (EJP) SOIL reviewer and rapporteur 2021, 2022.
Reviewer, UKRI Future Leaders Fellows, 2021.
Associate Editor, Biogeochemistry, a Springer Journal, 2015-2020.
Peer reviewer, Journals and Book Chapters: Pacific Science, Ambio, Journal of Plant Nutrition and Soil Science, Global Change Biology, Nature, Geoderma
Proposal review panel member, USDA NIFA AFRI, Foundational and Applied Science Program, BNRE Soil health. October 2019.
Conference session organizer: American Geophysical Union, New Orleans, LA, 2021. Soils in the Anthropocene: Advancing characterizations and monitoring of soil health, with Martha Farella Indiana University Bloomington) and Daniel Liptzin (Soil Health Institute)
Conference session organizer: American Geophysical Union, Online, 2020. Soils in the Anthropocene: Linking soil health indicators to function, with Claire Phillips (USDA-ARS) and Daniel Liptzin (Soil Health Institute)
Conference session organizer: American Geophysical Union, San Francisco, 2019. Aligning soil organic matter mechanisms, measurements, and models across scales, with Kate Heckman (USFS)
Conference session organizer: Soil Science Society of America International Soils Meeting, San Diego, 2019. Soil carbon is dead, long live soil carbon! Assessing and predicting transformations, protection, and turnover.
Editorial Review Board Member, Biogeochemistry, a Springer Journal, 2012-2015.
Proposal review panel member, U.S. Department of Energy, Environmental System Science Funding Opportunity Announcement (DE-FOA-0001386), Early Career Research Program, Biological and Environmental Research – Improved understanding of tropical forest ecosystems to climate change. Gaithersburg, MD, February 2016
Proposal review panel member, U.S. Department of Energy, Environmental System Science Funding Opportunity Announcement (DE-FOA-0001172), Terrestrial Ecosystem Sciences, Belowground Ecology, Rockville, MD, March 2015.
Peer reviewer, Journals and Book Chapters: Ecosphere (1), Science (1), Journal of Agronomy (1), BioEnergy (1), Journal of Plant Nutrition and Soil Science (1), Quaternary Geochronology (1), Rapid Communications in Mass Spectrometry (1), Radiocarbon (1), Geoderma (1), Organic Geochemistry (1), Ecosystems (2), Soil Biology & Biochemistry (2), Science of the Total Environment (2), Forest Science (2), Soil Science Society of America Journal (2), Global Change Biology (2), Biogeochemistry (9), Wiley-Blackwell Publishers (1).
Peer reviewer, Proposals: National Science Foundation (NSF)-DEB, Ecosystems; NSF EAR Instrumentation & Facilities; Bergen Research Foundation & University of Bergen, Norway, provided international external review of early-career proposal, May 2015; European Commission ERC-2015-AdG Call, provided international external review of one research project.
Conference session Convener: American Geophysical Union Annual Meeting, 2016. B22B – Soil carbon dynamics: Diving into our conceptual and operational view of soil carbon pools.

Conference session Chair: American Geophysical Union Annual Meeting, 2014. B22C – Soil organic matter dynamics: Processes of stabilization and decomposition.

Conference organizing committee, Chief Editor of conference abstracts publication, BIOGEOMON 5th International Symposium on Ecosystem Behavior, University of Santa Cruz, CA, June 2006.

Assistant to the organizing committee, 2nd International Conference on Mechanisms of Organic Matter Stabilization and Destabilization in Soils, Asilomar, CA, 2005.

Conference organizing committee, Co-Editor of conference abstracts publication, BIOGEOMON 4th International Symposium on Ecosystem Behaviour, University of Reading, UK, 2002.

## PROFESSIONAL AND NETWORK MEMBERSHIPS

American Geophysical Union, Soil Science Society of America, International Soil Carbon Network