

Mariah L Coley

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EDUCATION

University of California, Davis — Davis, CA
PhD Candidate, Geography

MARCH 2018 - PRESENT

Research Areas: East Africa smallholder agriculture and agri-food systems; international agricultural development; farm and soil systems modeling; soil health and soil management; community-based and participatory agricultural development. Advisors: Kate Scow, Robert Hijmans

University of California, Davis — Davis, CA
MSc, International Agricultural Development

SEPTEMBER 2016 - JUNE 2018

Thesis: Participatory approaches for model-based agricultural decision support system development with Ugandan smallholder farmers. Advisor: Kate Scow

Dartmouth College — Hanover, NH
AB, Studio Art and Classical Studies

SEPTEMBER 2007 - JUNE 2011

RESEARCH EXPERIENCE

Agricultural Development and Soil Health-Human Health Interactions
Graduate researcher — Davis, CA (doctoral dissertation)

JANUARY 2020 - PRESENT

Characterization of patterns and processes of agricultural intensification in West and East Africa using open and publicly-available data; spatially-explicit analysis of relationships with soil properties and indicators of soil degradation.

Investigation of effects of exposure to local soil microbial communities on human gut microbiome and diarrheal disease burden among children in Kenya; metagenomic linkages between soil microbiome and human health.

Innovations in East Africa Dry Season Horticulture
Research and Innovation in Food and Agriculture Fellow and Graduate researcher — Soroti, Uganda

JUNE 2017 - PRESENT

Synthesis of participatory agricultural modeling opportunities, community needs and constraints, and potential barriers to success with farmers from six rural communities. Configuration of a farm-scale agro-ecological simulation tool, the Agricultural Policy / Environmental eXtender (APEX) model, using farmer-provided data; summary of farmers' perceptions,

SUMMARY

Doctoral degree candidate with 7+ years of experience in research and outreach in global agri-food systems, agricultural development, and soil and water management in California and the global South

TECHNICAL SKILLS

Methods and Data Analysis:

- > geostatistics
- > quantitative spatial analysis
- > applications of machine learning in agricultural systems
- > estimation statistics
- > qualitative and social science research design and data analysis

Programming and Computing:
R, QGIS, ESRI ArcMap, Latex, Photoshop, Illustrator, InDesign, Inkscape, GIMP

Web Development:
HTML, CSS, Drupal, Wordpress

LANGUAGES

English (native fluent)
Spanish (conversational)
Kiswahili (limited)

AWARDS / FELLOWSHIPS

Global Fellowship for Agricultural Development, US AID and Univ. California, Davis (2020)

needs, and constraints in agricultural decision-making via interviews, focus groups, and consultations; sample protocol for participatory modeling processes with rural farmers utilizing principles of community-based participatory research.

Healthy Soils in California Processing Tomato Production
Graduate researcher — Davis, CA

JANUARY 2020 - JUNE 2020

Qualitative data analysis and interpretation for an investigation of farmers' perceptions, constraints, and barriers to pursuing healthy soils in the California processing tomato sector. Transcribed interviews and developed an inductive coding scheme for analysis and interpretation of findings; produced manuscript draft for submission to peer-reviewed journal (expected publication in 2021).

Sustainable Alternatives to Fish Oil in Aquaculture Feeds
Research Assistant — Hanover, NH

JUNE 2013 - JULY 2014

Conducted feeding-trial experiments addressing the use of microalgae, in aquaculture feeds for Nile tilapia. Independent research included a comparative study of nutrient profiles of synthetic algal growth medium and effluent gathered from active aquaculture operations; supervision of five undergraduate research assistants; contributions to grant proposals and media communications.

PROFESSIONAL AND ACADEMIC EMPLOYMENT

Department of Plant Sciences, University of California, Davis
Graduate student specialist — Davis, CA

SEPTEMBER 2018 - MARCH 2019

Digital communications strategy and implementation for a large interdisciplinary, multi-institution research team investigating the effects of whole orchard biomass recycling on orchard soil health, productivity, water use efficiency, and farm economics. Developed website for grower and academic audiences including site structure, written content, page design, and creation / selection of graphic content (orchardrecycling.ucdavis.edu).

CGIAR Independent Science and Partnership Council / UN Food and Agriculture Organization
Editorial consultant — Oxford, UK and remote

SEPTEMBER 2016 - SEPTEMBER 2018

Project coordination for commissioned special issue of the journal *Agricultural Systems*, "Agricultural research for rural prosperity: Rethinking the pathways," a collaboration among members and colleagues of the CGIAR Independent Science and Partnership Council to synthesize and report on rural agri-food systems innovation priorities, opportunities, and constraints.

Annual Reviews

Editorial assistant — Palo Alto, CA and remote

AUGUST 2016 - PRESENT

Support editorial committee of *Annual Review of Environment and Resources* (ARER) with commission and review

Geography Graduate Group Fellowship, Univ. California, Davis (2018-2019)

Research and Innovation in Food and Agriculture Fellowship, US AID and Univ. California, Davis (2017)

Henry A Jastro Research Award, Univ. California, Davis (2017, 2018, 2020)

Classes of 1960 and 2010 Purchase Award, Dartmouth College Studio Art (2011)

Dartmouth College Fund Scholarship, Dartmouth College (2010)

Academic Scholarship, Dartmouth College (2007-2011)

TEACHING

Teaching Assistantships, Univ. California, Davis:

- > **CRD 150** Spatial Methods for Community Research, 2021
- > **ESP 1** Environmental Policy Analysis, 2020
- > **ESM 195** Social-Ecological Systems, 2018-2021
- > **IAD 203** International Development Project Planning, 2018

of articles and with assembly of annual journal volume. Desk review unsolicited author proposals for inclusion in journal; annual analysis of ARER publication metadata to identify topical gaps and gender and geographic biases in authorship.

Agricultural Sustainability Institute
Graduate student specialist — Davis, CA

SEPTEMBER 2016 - JUNE 2017

Compilation of sustainable agriculture and food systems programs, research contributions, and social and knowledge networks within the University of California system. Produced synthesis report and catalogue of sustainable agriculture and food systems activities; implementation of internship program for six undergraduate and graduate students.

Analyst — Davis, CA

OCTOBER 2014 - SEPTEMBER 2016

Project management for the California Nitrogen Assessment, an integrated assessment of nitrogen science and policy in California. Contributing author to two chapters of the *California Nitrogen Assessment* synthesis report; management of scientific peer- and public review processes; preparation of book manuscript for publication; communications and dissemination of project findings among local and state stakeholders, including farmer associations, industry groups, and state agricultural and environmental policymakers.

PUBLICATIONS

Tomich, T., Lidder, P., Dijkman, J., Coley, M., Webb, P., and Gill, M. (2019) Agri-food systems in international research for development: Ten theses regarding impact pathways, partnerships, program design, and priority-setting for rural prosperity. *Agricultural Systems* 172: 101–109. doi:10.1016/j.agsy.2018.12.4

Tomich, T., Lidder, P., Coley, M., Gollin, D., Meinzen-Dick, R., Webb, P., and Carberry, P. (2019) Food and agricultural innovation pathways for prosperity. *Agricultural Systems* 172: 1–15. doi:10.1016/j.agsy.2018.01.002

Thomas, K., Liptzin, D., Tomich, T., Coley, M., Dahlgren, R., Houlton, B., Scow, K., White, A. (2016). “Chapter 1: Introducing the California Nitrogen Assessment.” In *The California Nitrogen Assessment: Challenges and Solutions for People, Agriculture, and the Environment*, edited by T. Tomich, S. Brodt, R. Dahlgren, and K. Scow. University of California Press, Oakland, CA, USA.

Champetier, A., Sumner, D., Tomich, T., Brodt, S., Coley, M., Kreith, M., Rosen-Molina, J.T., Thomas, K. (2016). “Chapter 2: Underlying drivers of nitrogen flows in California.” In *The California Nitrogen Assessment: Challenges and Solutions for People, Agriculture, and the Environment*, edited by T. Tomich, S. Brodt, R. Dahlgren, and K. Scow. University of California Press, Oakland, CA, USA.

Sarker, P.K., Kapuscinski, A.R., Lanois, A., Livesey, E., Bernhard, K., Coley, M. (2016). “Towards Sustainable Aquafeeds: Complete Substitution of Fish Oil with Marine Microalga *Schizochytrium* sp. Improves Growth and Fatty Acid Deposition in Juvenile Nile Tilapia (*Oreochromis niloticus*).” *PLoS ONE* 11(6): e0156684. doi:10.1371/journal.pone.0156684

(In preparation) Coley, M., Salomon, A., Ikalany, B., Acuku, H. and Scow, K. Gender-differentiated effects of small-scale irrigation technologies and social institutions.