

GLOBAL CLIMATE ACTION SUMMIT

AFFILIATE EVENT

Managing Lands in a Changing Climate to Improve Agricultural Resilience, Food Security and Health

September 10, 2018
9:00 am – 7:00 pm
Mondavi Center
UC Davis

Co-sponsored by the California Department of Conservation and UC Davis



2018 SYMPOSIUM

SYMPOSIUM GOALS

1. **Share** models of success that emphasize integrated approaches to inspire innovation and action.
2. **Identify** innovative strategies and actions that have the greatest promise to promote agricultural resilience, food security, and health in a changing climate.
3. **Connect** with fellow symposium participants in support of deepening and expanding networks, inspiring creative thinking, and pioneering partnerships.
4. **Inspire** commitments to generate change through managing land and resource use in innovative ways, with a long-term view to sustain ecosystem and agricultural services as well as population and planetary health outcomes.

SOCIAL MEDIA

We encourage you to join in the conversation on social media throughout today's Global Climate Action Summit Affiliate Event Symposium.

Hashtags: **#GCAS2018 #StepUp2018**

Twitter: **@GCAS2018 @CalConservation @OneHealthUCD**

Facebook: **@GlobalClimateActionSummit @calconservation @onehealthinstitute**

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AGENDA

Morning Plenary Session, Jackson Hall

9:00 Welcome

David Bunn, Director, California Department of Conservation
Michael Lairmore, Dean, School of Veterinary Medicine, UC Davis
Invited: Governor Jerry Brown

9:30 Integrated Approaches: Successful Models to Tackle Complex Challenges

Integrated approaches are key to managing the numerous resource components of landscapes and to design climate actions that balance population and planetary health needs. The panel will debate new approaches and models of success to tackle complex challenges that can be shared and scaled.

Moderator:

Jonna Mazet, Executive Director, One Health Institute, School of Veterinary Medicine, UC Davis

Panelists:

Ben Houlton, Director, John Muir Institute of the Environment, UC Davis
Ana Bodipo-Mbuyamba, Foreign Service health Officer, USAID, Tanzania
Deborah Bossio, Lead Soil Scientist, The Nature Conservancy, USA

10:30 Break for Networking and Refreshments

11:00 Strategies for Success from Around the Globe - Replicating, Scaling, Iterating for Local Implementation

A discussion of the climate actions and roles of subnational, national, universities and community groups to manage lands and integration of actions from local to national. Panel will also discuss implementation of land-use planning and other strategies to ensure agricultural resilience, food security and health.

Moderator:

David Bunn, Director, California Department of Conservation

Panelists:

Buddhi Marambe, Chairman, National Experts Committee on Climate Change Adaptation, Sri Lanka
Peter Msoffe, Deputy Vice Chancellor, Academic, Research and Consultancy, Dodoma University, Tanzania
Liliana Dávila Stern, Lands Director, The Nature Conservancy, Mexico and Northern Central America

12:30 Lunch

Buffet lunch; participants encouraged to engage with NGO and Research Center tables

CONCURRENT AFTERNOON SESSIONS

JACKSON HALL & VANDERHOEF STUDIO THEATRE

Afternoon Session, Jackson Hall

1:30 California Dialogue – Actions and Strategies to Strengthen Agriculture and Forest Resilience and Food Security

Moderator:

Terry Watt, Liaison, California Governor's Office of Planning and Research

Panelists:

Karen Ross, Secretary of Agriculture, California Department of Food and Agriculture

John Laird, Secretary, Natural Resources Agency, State of California

Jim Branham, Executive Officer, Sierra Nevada Conservancy, Forest Management Actions and Strategies

2:30 Lightning Talks – Success Stories at the Ag-Food Security Nexus

Moderator: Terra Kelly, Associate Veterinarian, Karen C. Drayer Wildlife Health Center, School of Veterinary Medicine, UC Davis

Frank Mitloehner, *Addressing the 2050 Food Challenge – a Sustainable Solution Must Include Livestock*

Kate Scow, *Long-term, Large-scale Agroecological Experiments are Unique Testbeds for Investigating Climate Change Adaptation and Mitigation in Agriculture*

Carrie Monohan, *Meadow Restoration as a Strategy to Increase Resiliency for Climate Change*

Sibella Kraus, *The Bay Area Agriculture and Food Economy: Existing Conditions and Strategies for Resilience*

3:00 Break for Networking and Refreshments

3:30 Combating the Impacts of Climate Change on Food Systems and Disease Issues at Multiple Scales

Moderator:

Christine Johnson, Associate Director, One Health Institute, School of Veterinary Medicine, UC Davis

Panelists:

Ndola Prata, Director & Chair, Bixby Center for Population, Health and Sustainability, UC Berkeley

Stephen Luby, Director of Research, Center for Innovation in Global Health, Stanford University

Christine Stewart, Associate Director, Program in International and Community Nutrition, UC Davis

4:30 Lightning Talks | Success Stories at the Food-Health Nexus

Moderator: Terra Kelly, Associate Veterinarian, Karen C. Drayer Wildlife Health Center, School of Veterinary Medicine, UC Davis

Courtney Crenshaw, *Healing People, Places and the Planet*

Federico Castillo, *Analyzing health, land use and agriculture through a multidisciplinary lens*

David Wolking, *Urban river interface disease*

Afternoon Session, Vanderhoef Studio Theatre

Breakout Dialogues: Harnessing the Wisdom in the Room toward Action

Pre-registration required for the small group dialogue sessions. If space is available, additional participants will be welcomed to either session.

In each session, participants will discuss:

- Opportunities to create or strengthen effective strategies and partnerships to accelerate action in agricultural conservation and resilience.
- Strategies to effectively share innovative practices with an emphasis on actions that are readily scalable and adaptable.

1:30-3:00 Breakout Session I – Improving Food Security and Health

Facilitators:

Woutrina Smith, Co-Director, UCGHI Planetary Health Center of Expertise, School of Veterinary Medicine, UC Davis

Martin H. Smith, Associate Cooperative Extension Specialist, School of Veterinary Medicine & Department of Human Ecology, UC Davis

3:30-5:00 Breakout Session 2 – Agricultural Conservation and Resiliency

Facilitators:

Mark Bell, Vice Provost, Strategic Initiatives & Statewide Programs, University of California, Division of Agriculture and Natural Resources

Jeff Onsted, Chief Scientific Advisor, California Department of Conservation

Wrap-Up Plenary Session, Jackson Hall

5:00 Key Ideas and Outcomes from Afternoon Sessions and Wrap Up

Facilitator:

Sarah Rubin, Outreach and Engagement Coordinator, California Department of Conservation

Networking Reception, Corin Courtyard

(Pre-registration required)

5:45 Reception

7:00 End

Pre-reserved bus leaves for Moscone Center at 7:00 pm

PRESENTERS



Mark Bell is the Vice Provost of Strategic Initiatives and Statewide Programs at University of California Division of Agriculture and Natural Resources. Bell received both his PhD in Soils and his B.Ag.Sc in Crops and Pastures from the University of Queensland, Brisbane, Australia. In between, he completed a M.S. in Soils at the University of Reading, Reading, UK.

Trained as a Soil Scientist/Agronomist in Australia, Mark quickly moved to work globally on how to help farmers get information in a form that is timely, needed and useful. As a result, his work has focused on using both newer (Information Technology) and traditional extension approaches. He developed four on-line knowledge Banks (e.g., e-Afghan Ag, the Rice Knowledge Bank) and four on-line diagnostic tools (e.g., Rice Doctor, Maize Doctor). Prior to joining UC ANR, he worked in more than 30 countries, including Mexico (9 years at International Maize and Wheat Improvement Center), the Philippines (11 years at International Rice Research Institute), and more recently, UC Davis (10 years).



Deborah Bossio is the Lead Soil Scientist for The Nature Conservancy, where she is an integral member of the Global Lands team and an active member of the Cabinet of Lead Scientists. In this role she brings soil science expertise and partnerships to support and advance climate, agriculture, and conservation priorities and to better understand how we can scale our impact through improved soil management.

Deborah came to The Nature Conservancy (TNC) after spending more than 20 years living and working in Africa, Asia, and the Americas. Most recently she was based in Kenya where as the Director of Soils Research at International Center for Tropical Agriculture, she led research on sustainable soil management, food security, and climate. As Theme Leader for Smallscale Water Management at the International Water Management Institute based in Ethiopia and Sri Lanka, she led research on smallholder water management and landscape approaches to sustaining ecosystems. Her work in the field includes practical experience working with communities facing the challenges of climate variability, water scarcity, and degraded soils. Deborah holds a M.Sc. and PhD in Soil Science from the University of California, Davis and is passionate about the pivotal role that soils play in supporting lives and ecosystems. She has published a wealth of research papers on the subject and emphasizes bringing soil science to practice.



Jim Branham has spent more than 30 years working on natural resource and rural community issues in California. He was selected as the Sierra Nevada Conservancy's first Executive Officer by the Conservancy Board in October of 2005. As Executive Officer, Jim is responsible for day-to-day management of the organization and works closely with the Governing Board in developing policy and program priorities. The organization's mission is to improve the environmental, economic, and social well-being of the Sierra Nevada region in an integrated manner.

The Conservancy serves a region comprised of all or part of 22 counties covering 25 million acres, approximately one-quarter of the state of California. The Conservancy is a State agency that awards grants and provides technical and other assistance to parties in support of activities that help to carry out the Conservancy's mission. Since 2007, the Conservancy has awarded nearly \$65 million in Proposition 84 and Proposition 1 grants throughout the Sierra Nevada region. Prior to joining the Conservancy Jim has worked in the CA State Legislature, CA Department of Forestry and Fire Protection, the CA Resources Agency, and the California Environmental Protection Agency. He also worked in the forest products industry, assisting the Pacific Lumber Company with implementation of its Habitat Conservation Plan.



David Bunn is Director of the California Department of Conservation. Prior to his appointment, David was Associate Director of the International Programs Office of the College of Agricultural and Environmental Sciences at the University of California, Davis. David served as Deputy Director of Legislation for the Department of Fish and Game (now the Department of Fish and Wildlife) and he was Principal Consultant and Legislative Director in the office of California State Assemblymember Fred Keeley. He also served as Associate Consultant for the California State Senate Natural Resources and Wildlife Committee. David was a Project Director and researcher at the One Health Institute in the School of Veterinary Medicine, where his work included directing international research projects and training programs in West and East Africa and in Nepal. Working in the private sector, David co-founded American Trash Management and served as its field manager. David was Environmental Program Director at the California Public Interest Research Group, and he worked on California agricultural issues as Executive Director at the California Agrarian Action Project. David earned a PhD in Conservation Ecology, a Masters of Science in International Agricultural Development, and a Bachelor of Science in Wildlife Biology from the University of California, Davis.



Federico Castillo is an Environmental/Agricultural Economist with a PhD and undergraduate degrees from the University of California, Berkeley. He is a Deputy Director for the UCGHI Planetary Health Center of Expertise. Federico's research is centered on technology transfer and innovation, economic valuation, the socioeconomic impacts of climate change, the economic aspects of protected areas and migration. He is a member of a multidisciplinary team that is developing a research agenda on climate change, agriculture, and population issues at the Berkeley Campus. He is currently engaged in research with scholars from The Tropical Agricultural Research Center, the National Autonomous University of Mexico, The Lawrence Berkeley National Lab, and the University of California, Davis in projects dealing with ecosystem based adaptation to climate change, the socioeconomic impact of weather extremes in California agriculture, and climate change impacts on migration from Mexico to the US. Federico has taught courses related to migration to the United States, natural resource economics, economics of climate change, and sustainable business practices.



Courtney Crenshaw is the CA Regional Coordinator for the Healthy Food in Health Care program at Health Care Without Harm. She coordinates the statewide network that includes approximately 180 health care institutions and convenes the regional hospital leadership teams. Courtney also manages the ProCureWorks cross-sector purchasing collaborative that is focused on transforming regional and national supply chains through collaboration among CA K-12 school districts and hospitals and increasing institutional procurement of healthy, regional, and sustainable foods. Courtney earned a Master's in Sociology from the University of California, Santa Cruz and went on to work in both the nonprofit and social service sectors. Prior to Health Care Without Harm, she worked as the Program Manager for Orange County Food Access Coalition facilitating several workgroups serving community food providers with a focus on food justice.



Alisha Graves is President of Venture Strategies for Health and Development and a Founder of the OASIS Initiative (Organizing to Advance Solutions in the Sahel). Alisha lectures internationally on population and food security in the African Sahel. She is a research fellow for Project Drawdown, analyzing the potential contribution of family planning for reducing greenhouse gas emissions. Previously, she worked to improve women's access to misoprostol, a generic, essential medicine. In this role, she worked on drug registration, operations research, and advocating for evidence-based maternal health policies across seven countries in Sub-Saharan Africa and Southeast Asia. She completed her MPH in International Maternal and Child Health at UC Berkeley in 2006.



Ben Houlton holds degrees in chemistry and engineering and received his doctorate in ecology and evolutionary biology from Princeton University. Currently, a Professor of Global Environmental Studies at UC Davis, Ben also holds the distinction of Chancellor's Fellow and is Director of the UC Davis John Muir Institute of the Environment.

Ben's research interests include ecosystem processes, computational modeling, climate solutions, and human modifications to the global carbon, nitrogen, phosphorus cycles for enhanced energy and food production. Most recently, Ben has been spearheading the new "OneClimate" initiative at UC Davis, which envisions a transformative approach to reduce greenhouse gas emissions through innovation and help people, industry, and ecosystems adapt to climate change. Ben's research has appeared in leading scientific journals and been covered by news media including The New York Times, Newsweek, and the Scientific American. Ben has appeared as a guest on radio and TV programs.



Christine K. Johnson is a Professor of Epidemiology and Ecosystem Health and Associate Director of the One Health Institute in the School of Veterinary Medicine at University of California, Davis where she directs the EpiCenter for Disease Dynamics. Her research activities focus on environmental change and impacts to animal and human health, with an emphasis on threatened and endangered wildlife species and drivers of disease spillover from animals to humans.

Professor Johnson leads surveillance activities for USAID's Emerging Pandemic Threats PREDICT project to implement concurrent animal and human field activities, identifies infectious disease threats at high-risk animal-human interfaces, and works with implementing partners and international organizations to meet global health priorities.



Sibella Kraus works at the intersection of sustainable agriculture, local food, economic development, and resilient metro-regions. Sibella directs Sustainable Agriculture Education (SAGE), an entrepreneurial nonprofit that develops models and frameworks for integrating regional food systems into regional resilience planning and implementation. She leads SAGE initiatives including the Bay Area Food Economy, an analysis produced for the Association of Bay Area Governments' Comprehensive Economic Development Strategy; and San Jose Food Works, an assessment and call to action that presents the City's food system as a driver for advancing the City's innovation economy. SAGE clients and partners include public agencies, farmers, economic and planning firms, advocacy organizations, and community groups in urban and rural areas. Sibella has received national recognition for her work from agricultural, food, planning, and public market organizations. Sibella holds a B.A. in History from the University of California, Berkeley.



John Laird was appointed California Secretary for Natural Resources by Governor Jerry Brown on Jan. 5, 2011. He has spent 35 years in public service, including 23 years as an elected official. In 1981, Laird was elected to the Santa Cruz City Council, serving nine years until term limits ended his council service in 1990. He was a two-term mayor from 1983 to 1984 and 1987 to 1988. During his local government service, he was a board member for local transit, transportation, water planning, and regional government agencies. In 2002, Laird was elected to represent the 27th Assembly District in the California Assembly, which includes portions of Santa Cruz, Monterey, and Santa Clara Counties. While serving the maximum three terms, Laird authored 82 bills that were signed into law. These bills established the landmark Sierra Nevada Conservancy, restored community college health services, expanded and clarified state civil rights protections, reformed the state mandates system, and significantly expanded water conservation. Most recently, he taught state environmental policy at University of California, Santa Cruz.



Michael Lairmore oversees all School of Veterinary Medicine teaching, research and service activities, personnel, facilities, and funding resources. He presides over six academic departments, the William R. Pritchard Veterinary Medical Teaching Hospital, the California Animal Health and Food Safety Laboratory System, the Veterinary Medicine Teaching and Research Center in Tulare, Veterinary Medicine Extension, and numerous centers of excellence.

Dean Lairmore is committed to finding new ways for the faculty, residents, students, and staff of the UC Davis School of Veterinary Medicine to contribute to the health of animals and people while being good stewards of the environment and the economy of California. His goals include building mission-focused programs that will continue to provide outstanding education for society-ready veterinarians and produce innovative research findings to address important problems ranging from clinical veterinary medicine to public health. Dean Lairmore is a scientist who bridges multiple disciplines to address basic questions related to viral causes of cancer. His research has provided significant breakthroughs in the biology of human retroviruses and the understanding of viral-associated carcinogenesis. He has authored or co-authored 190 scientific publications.



Stephen Luby earned his MD degree from the University of Texas-Southwestern Medical School at Dallas. His previous positions include directing the Centre for Communicable Diseases at the International Centre for Diarrhoeal Diseases Research, Bangladesh in Dhaka, Bangladesh; conducting research and teaching epidemiology at the Aga Khan University in Karachi, Pakistan; and working as an epidemiologist in the Foodborne and Diarrheal Diseases Branch of the U.S. Centers for Disease Control and Prevention. His research focuses on developing and evaluating practical interventions to prevent environmental damage that worsens human health in low income countries. Dr. Luby is best known for his work demonstrating the impact of handwashing on disease reduction in low income countries. He is particularly interested in strategies to counter perverse incentives where businesses generate income by destroying the environment and compromising public health. He works primarily in Bangladesh but also has projects in Western China and Liberia.



Buddhi Marambe is a graduate of University of Peradeniya, who obtained the B.Sc. Agriculture degree in 1985 with Second Class Upper Division Honours. He obtained the M.Agr. in 1991 and D.Agr. in 1993 from the Hiroshima University, Japan in the field of Plant Environmental Sciences. His research interests include weed science, climate change, and food security. Professor Marambe has 30 years of service as an academic attached to the Department of Crop Science of the Faculty of Agriculture, University of Peradeniya. He has partnered with UC Davis on global health immersion training field courses.

Apart from being a Professor at the Department of Crop Science, he is currently the Chairman of the Board of Study in Crop Science of the Postgraduate Institute of Agriculture and Chairman of the National Experts Committee on Climate Change Adaptation and Chairman of the National Invasive Species Specialist Group of the Ministry of Mahaweli Development and Environment. He also serves as a member of the National Steering Committee on Thematic Area of Climate Change at the National Science Foundation of Sri Lanka.

He has published more than 100 research publications and 10 popular articles in his fields of study, and is the principal investigator or project coordinator of six multi-country projects supported by international donor agencies. Professor Marambe is a member of the Government Delegation in climate negotiations at the United Nations Framework Convention on Climate Change (UNFCCC) during the past six years.



Jonna Mazet, DVM, MPVM, PhD, is a Professor of Epidemiology and Disease Ecology and Executive Director of the One Health Institute in the UC Davis School of Veterinary Medicine, where she focuses on global health problem solving, especially for emerging infectious disease and conservation challenges. Dr. Mazet is active in international One Health research programs, most notably in relation to disease transmission among wildlife, domestic animals, and people and the ecological drivers of disease emergence.

Currently, she is the Global Director of a \$175 million viral emergence early warning project, named PREDICT, that has been developed with the US Agency for International Development's (USAID) Emerging Pandemic Threats Program. She was elected to the US National Academy of Medicine in 2013 in recognition of her successful and innovative approach to emerging environmental and global health threats and serves on the National Academies' Forum on Microbial Threats, as well as chairs the Academies' One Health Work Group.



Ana Bodipo-Mbuyamba is a Foreign Service Health Officer with 21 years of domestic and global public health experience. Ms. Bodipo-Mbuyamba started her public health career as a community public health activist in Boston, Massachusetts working with the uninsured and underinsured populations, including immigrant communities. She later worked with non-profit organizations focused on building strong relationships between the U.S. and South Africa in the area of public health. In 2004, Ms. Bodipo-Mbuyamba joined USAID as a Presidential Management Fellow in the Office of HIV/AIDS as a Health Science Specialist. She later became a Foreign Service Officer for the federal government in 2009.

Ms. Bodipo-Mbuyamba has lived and/or worked in Botswana, Cuba, Kenya, Mozambique, Spain, South Africa, Swaziland, and Tanzania. She has Bachelor of Arts (B.A.) degrees in Sociology and Spanish from Tufts University and a Master of Public Health (M.P.H.) degree in Global Health from Emory University with a concentration in Community Health and Development.



Frank Mitloehner is a Professor and Air Quality Specialist in Cooperative Extension in the Department of Animal Science at the University of California, Davis. He received his MS degree in Animal Science and Agricultural Engineering from the University of Leipzig, Germany, and his PhD degree in Animal Science from Texas Technical University.

Dr. Mitloehner is an expert for agricultural air quality, livestock housing, and husbandry. Overall, he conducts research that is directly relevant to understanding and mitigating of air emissions from livestock operations, as well as the implications of these emissions for the health and safety of farm workers and neighboring communities. Dr. Mitloehner has served as chairman of a global United Nations Food and Agriculture Organization partnership project to benchmark the environmental footprint of livestock production. He served as workgroup member on the President's Council of Advisors on Science & Technology and on the Academies of Science Institute of Medicine committee on "A Framework for Assessing the Health, Environmental, & Social Effects of the Food System."



Carrie Monohan is the Science Director at The Sierra Fund where she designs and directs research to fill critical data gaps in water quality regulation, abandon mine remediation, and prioritization of conservation efforts.

Dr. Monohan is also an Adjunct Professor and Lecturer at California State University at Chico where she teaches courses in the Geological and Environmental Sciences Department. Dr. Monohan supervises graduate student research in the projects that she directs at The Sierra Fund. These research efforts include: sediment and mercury loading; storm flows; erosion and deposition rates; shallow groundwater well redox conditions; and identification of mercury and other heavy metal contamination sources.



Peter Lawrence Makenga Msoffe is an academician, researcher, consultant and an academic leader. He has taught veterinary and related sciences to undergraduates and graduate students. He has further supervised undergraduate and graduate students research in the areas of poultry health and production, animal genetic resources, and biology in collaboration with UC Davis.

Prof. Msoffe has investigated phenotypes, including immunocompetence and natural disease resistance, in local chicken ecotypes of Tanzania. He has also researched several topics in animal health and production, focusing on poultry. He has co-authored over thirty publications in peer-reviewed journals on diverse subjects within the disease resistance-genetics related spheres. He has also co-authored training manuals on poultry health and production for school children and farmers. He has worked both locally and internationally particularly as a lead trainer in animal health, global health, preparedness and response to zoonoses and other aspects of human development. He is a firm believer in small incremental actions in tackling major human development challenges.



Jeff Onsted is the Department of Conservation's Chief Science Adviser. Since he began in 2016, he has helped the Department to develop stronger relationships with universities, national labs, and scientific NGOs with an aim toward providing the Department with the best scientific information for the formulation of policy as well as informing these partners of our work. Collaborating with scientists in other departments across the state government on important broad research areas of concern is an important part of his job. He has also helped to build the capacity of the Department's educational outreach to students and teachers. Before joining the Department, Jeff was a professor at Florida International University in Miami. His research was focused on the intersection of urban growth modeling, land use policy, and ecological impacts of land use change. Prior, he worked for environmental NGOs as well as Science Applications International Corporation. He earned his bachelor's degree in Urban Studies and Planning from the University of California, San Diego, and his Master's and PhD degrees in Geography from UC Santa Barbara.



Ndola Prata is a public health physician and medical demographer from Angola. She is a Co-Director of the UCGHI Women's Health, Gender and Empowerment Center of Expertise. She is an Associate Professor in Residence in the School of Public Health and holds the Fred H. Bixby Endowed Chair in Population and Family Planning at UC Berkeley. She is also the Director of the Bixby Center for Population, Health and Sustainability and serves as Medical Director of Venture Strategies Innovations. Though Dr. Prata's current research focuses primarily in sub-Saharan Africa, she has experience working in South Asia, and has led operations research in Latin America, Central Asia, and South America in the recent past.

Dr. Prata has published extensively in areas of family planning, financing and ability to pay for reproductive health services, the role of the private sector in health care in developing countries, adolescent sexual behavior in developing countries, priorities for maternal health, and the use of



Karen Ross was appointed Secretary of the California Department of Food and Agriculture on January 12, 2011, by Governor Edmund G. Brown Jr. Secretary Ross has deep leadership experience in agricultural issues nationally, internationally, and here in California. Prior to joining CDFA, Secretary Ross was chief of staff for U.S. Agriculture Secretary Tom Vilsack, a position she accepted in 2009. Secretary Ross is passionate about fostering the reconnection of consumers to the land and the people who produce their food, and to improving the access of all California citizens to healthy, nutritious California-grown agricultural products, celebrated for their diversity and abundance in serving local, national, and global markets. Secretary Ross has strengthened partnerships across government, academia, and the non-profit sector in the drive to maintain and improve environmental stewardship and to develop adaptation strategies for the specific impacts of climate change. She has initiated programs to provide greater opportunities for farmers and ranchers to engage in sustainable environmental stewardship practices through water conservation, energy efficiency, nutrient management, and ecosystem services.



Sarah Rubin is the Outreach and Engagement Coordinator at the California Department of Conservation. Prior to joining the Department in June 2018, she was the Public Engagement Program Director at the Institute for Local Government. Specializing in public engagement, she has extensive expertise working with local governments and stakeholder groups throughout California. She is a national leader in the public engagement field with deep understanding of cities, counties, special districts, and state departments. She is experienced in wide range of policy and regulatory issues as well as rural, urban, and suburban communities. Sarah especially enjoys engaging diverse communities and navigating controversial topics toward a positive resolution. Ms. Rubin has her M.A. in Conflict Analysis and Resolution from George Mason University in Fairfax, Virginia. Sarah is also an accomplished community mediator and has led conflict resolution centers in Sacramento, California and Crown Heights, Brooklyn.



Kate Scow is Professor of Soil Science and Microbial Ecology in the Department of Land, Air and Water Resources and Director of the Russell Ranch Sustainable Agriculture Facility that hosts the Century Experiment (<http://asi.ucdavis.edu/rr>). Scow is also Chair of the International Agricultural Development Graduate Group. She received her MS and PhD degrees in Soil Science from Cornell University in 1986 and 1989, respectively. She is a Fellow of the Soil Science Society of America and Chief Editor for the journal Soil Biology and Biochemistry. Scow's research program investigates the role of soil microbial communities in providing ecosystem services in agricultural and polluted ecosystems. Specifically, she investigates linkages between microbial diversity and nitrogen cycling, responses of soil functional diversity to long-term management practices, effects of co-contaminants in organic amendments on soil communities, and works in Uganda on soil management and irrigation practices for vegetable production by smallholder farmers.



Martin Smith is a Cooperative Extension Specialist at the School of Veterinary Medicine & Department of Human Ecology, UC Davis. The overarching goal of Smith's work is to develop and publish effective, research-based educational materials and educator professional development models. Specifically, he focuses on materials and strategies that are situated in authentic contexts and emphasize constructivism and reflective practice. He accomplishes this through multiple collaborations with campus, county, state, national, and agency-based partners. His current work focused on applied research related to strategic initiatives within the University of California's Division of Agriculture and Natural Resources (e.g., safe and secure food supplies; sustainable natural resources; water quality, quantity and security). In his tenure at UC Davis he has supervised 25 graduate students from science disciplines in education work. He has also mentored over 750 undergraduate students involved in translational research, development, and extension efforts.



Woutrina Smith, DVM, MPVM, PhD, is a Professor of Infectious Disease Epidemiology in the School of Veterinary Medicine at the University of California Davis, where she also co-directs the multi-campus Planetary Health Center of Expertise within the University of California Global Health Institute. She has published over 60 peer-reviewed journals on her research projects.

Dr. Smith has One Health research projects in Africa and Asia, as well as in California. In Tanzania, Dr. Smith was a Co-PI on an NIH U01 award to build capacity and conduct collaborative research and training with a focus on tuberculosis epidemiology involving human, animal, and environmental transmission routes. She has also led US Department of Defense and USAID projects in East Africa on epidemiology investigations with both field and lab components focused on brucellosis, bovine tuberculosis, and Rift Valley fever as zoonotic diseases of critical importance. In India, Chile, and Sri Lanka, Dr. Smith has led components of research and training projects focused on zoonotic diseases of importance including cryptosporidiosis, giardiasis, and salmonellosis. For the USAID \$175M PREDICT Project within the Emerging Pandemic Threats Program, Dr. Smith leads global capacity building as well as being the country lead for Ethiopia.



Liliana Dávila Stern is the Lands Program Director for Mexico and Northern Central America (MNCA) at TNC. She has over 12 years of international experience in land use planning and management, corporate sustainability, environmental policy and economics, project management and capacity development, particularly on REDD+, climate adaptation, biodiversity and ecosystem services, energy efficiency, and sustainable consumption and production. She has worked for international NGOs, bilateral aid agencies, government institutions, development consultancies, and multilateral organizations.

She has provided technical assistance through international development projects in Argentina, Colombia, Ecuador, Honduras, India, Mexico, Paraguay, Panamá and Vanuatu. Lili is fluent in Spanish, English, French and Portuguese, and holds Master's degrees in Environmental Management and in Business Administration from Yale University and Los Andes University.



Christine Stewart is an Associate Professor of Nutrition and the Associate Director of the Program in International and Community Nutrition at the University of California, Davis. She holds a PhD in International Health and Nutrition from Johns Hopkins University, an MPH from Tulane University, and a BS in Human Biology, Health and Society from Cornell University. Her research focuses on the design and evaluation of nutrition and health interventions for women and young children in low income communities. She examines the effects of these interventions on growth, health, and development throughout the life course. She has recent or ongoing research projects in Ecuador, Kenya, Malawi, Madagascar, and Bangladesh.



Terry Watt is an expert land use planner who leads initiatives focused on climate-resilient solutions for the biggest challenges of our time: urban and rural sprawl, natural and working lands conservation, and growth of healthy, thriving communities for all. She works with state and local leadership to bring transformative approaches to pressing challenges. She has assisted California Attorney General's and Governor's Offices with efforts to bolster local general plans both to mitigate and adapt to climate change. Durable and significant results of her work include the permanent protection of over 243,000 acres (90 percent) of Tejon Ranch in Southern California through agreements between environmental organizations and the Tejon Ranch Company, combined urban growth boundaries and transfer of development credits to increase infill growth in the City of Livermore, and a sales tax measure generating hundreds of millions for advanced mitigation in Orange County. She was instrumental in forming the nonprofit Council of Infill Builder and is on the board of two major California conservancies, Santa Lucia and Tejon Ranch.



David Wolking excels in partner engagement, program development, strategic direction, and implementation of research and capacity strengthening projects around the world. Mr. Wolking has established and led collaborative international and multi-disciplinary teams at the interface of health and livelihood improvement and conducted independent research and managed projects focused on global health, water and natural resource management, and agricultural development. He has conducted independent research in East Africa and Nepal and managed the infrastructural development and operations for research programs active in over 28 countries. He is currently engaged as the senior manager for global programs at the UC Davis One Health Institute and is the lead technical manager for USAID's PREDICT project, which is building global surveillance to detect and prevent spillover of pathogens of pandemic potential that can move between wildlife and people.

POSTERS

From 3:00 – 7:00 pm these posters will be available for viewing in the lobby of the Mondavi Center. Participants are encouraged to peruse the posters. Those authors whose names are seen in bold will be available for questions during the afternoon networking break and through the evening.

Full poster abstracts are available online at globalclimateactions summit.ucdavis.edu

“The Effects of Climate Change on Poultry Production in California” **Sarai Acosta**, Junior Specialist with Population Health and Reproduction, School of Veterinary Medicine, UC Davis and Maurice Pitesky

“The Impact of Climate Change on Food Security in Northeastern Uganda” **Laura Atukunda**, School of Public Health, UC Berkeley

“San Joaquin Land and Water Strategy: Exploring the Intersection of Land and Water Resources in California’s San Joaquin Valley” **Justin Bodell**, California Conservation and Stewardship Program Manager, American Farmland Trust, and Serena Unger

“Communicating the “state of the science” of key soil health practices in California” **Tom Tomich**, Director, Agricultural Sustainability Institute at UC Davis. UC Sustainable Agriculture Research and Education Program, and Kate Scow, Sonja Brodt, and Laura Crothers

“Smart Solar Siting on Our Nation’s Agricultural Lands” **Jimmy Daukus**, Senior Program Officer, American Farmland Trust

“Conserving Agricultural Land to Protect the Climate: The Role of Agricultural Conservation Easements in California” **Matt Dunnahoe**, Environmental Planner: GIS and Conservation Easement Monitoring, California Department of Conservation, and Shanna Atherton

“A Flexible Approach to Planetary Health Education in Africa” **Marie Pelagie Elimbi Moudio**, ISA Planetary Health Ambassador, UC Berkeley

“Comparison of the effects of two-stage drying and conventional drying in walnut quality” **Lucía Félix-Palomares**, Graduate Student, Biological and Agricultural Engineering, UC Davis and California Walnut Board and Commission and Irwin R. Donis-González

“Building a sustainable future through land stewardship networks and regenerative agriculture practices on ranches in the Sacramento and San Joaquin Valleys” **Elizabeth L. Porzig**, Senior Ecologist, Point Blue Conservation Science, and Kelly Garbach, Breanna Owens, Carrie A. Wendt, Alicia Herrera, Bonnie Eyestone, Nathan Reese, Katie Guntly, Corey Shake, Bree Schnelle, Tiffany Russell, Suzie Winkvist, Alissa Fogg, Katharine Howard, Kyle Marsh, Luke Petersen, Kelly Weintraub, Wendell Gilgert, and Geoffrey R. Geupel

“Developing resilience to climatic changes in traditional Egyptian agricultural systems” **Sara Habiba**, International Student Ambassador Program-UC Global Health Institute and UC Berkeley

“American Farmland Trust’s Farmers Combat Climate Change Initiative” **Jimmy Daukus** and Kara Heckert, American Farmland Trust

“Measuring Ecological Function on California’s Rangelands to Advance Climate-Smart Conservation and Management” **Elizabeth L. Porzig**, Senior Ecologist, Point Blue Conservation Science, and Chelsea Carey, PhD, Nathaniel E. Seavy, PhD, Wendell Gilgert, Thomas Gardali

“Understanding Resource Integration in Smallholder Systems of Indian Sunderbans for Achieving Long-Term Farm Sustainability in Climate-Challenged Conditions” **Rupak Goswami**, Ramakrishna Mission Vivekananda Educational and Research Institute, Kolkata, West Bengal, India, and Sangita Patra, Purnabha Dasgupta, Somen Nandi, Assistant Professor, Integrated Rural Development and Management Faculty Centre, Ramakrishna Mission Vivekananda Educational and Research Institute, West Bengal, India

“Anchors in Resilient Communities: Market Transformation in Northern California” **Lucia Sayre**, Western Regional Director, Healthy Food in Health Care Program, Health Care Without Harm and Lauren Poor and Tara Marchant

“Sowing the seeds: Farmland conservation for a general audience” **Bruce Gwynne**, Senior Environmental Scientist, California Department of Conservation, and Julia Goolsby, Graduate Fellow

“Promoting Soil Health and Fertility Management Innovations: Barriers, Motivations, and Enabling Conditions” **Joanna Ory**, Postdoctoral Fellow, UC Berkeley Department of Environment, Society, Policy and Management (ESPM) and Alastair Iles, PhD. Associate Professor, UC Berkeley Department ESPM, Claire Kremen, PhD. Professor, UC Berkeley Department ESPM; Tim Bowles, PhD. Assistant Professor, UC Berkeley Department of ESPM

“Investigating the effects of drought-resistant Makoni tea bush leaves extracts on Staphylococcus aureus” **Ashley Jean Sango**, UC Global Health Institute Planetary Health Center International Student Ambassador

“Resilient Greens: Nutrition, Toxicology, and Availability of Edible Weeds in the East Bay” **Daphne Miller**, School of Public Health, UC Berkeley, and Philip B. Stark, Thomas J. Carlson, and Kristen Rasmussende Vasquez

“Quantifying impacts of developments in a changing climate: Case study of Botswana mines” **Mokganedi Tatlhego**, PhD Student, UC Berkeley

“Urban agriculture, food security and health - A Case Study of Dar es Salaam, Tanzania” **Kwinoja Kapiteni**, UC Berkeley and Baraka Kalangahe, Japhet Killewo, Sophia Papageorgiou, Paige Passano

“Effects of dormant drought stress on Prunus dulcis bloom; or, what if it doesn’t rain in the winter?” **Michael Rawls**, Masters student, Department of Plant Sciences, Horticulture and Agronomy graduate group, UC Davis, and Kenneth Shackel and Jiong Fei

“Resource Conservation District Carbon Farming as part of the solution” **Kristen Murphy**, Project Coordinator, CA Association of Resource Conservation Districts

“The Policy Enabling Environment for Climate Smart Agriculture: A Case Study of California” **Jessica Rudnick**, PhD Candidate, UC Davis, Dept. of Environmental Science and Policy, and Josette Lewis

“County-Level Economic Risk Assessment of California Wildfires on Livestock Production” **Kathleen O’Hara**, DVM, MPVM, Graduate Student, Center for Animal Disease Modeling and Surveillance, School of Veterinary Medicine, UC Davis, and Matthew Shapero, Rebecca Ozeran, Stephanie Larson, Sheila Barry, Josh Davy, Max Moritz, Luke Macaulay, Beatriz Martínez-López

“Modeling of air temperature to elucidate future plant phenology via the deterministic fractal geometric approach” **Mahesh L. Maskey**, Department of Land, Air and Water Resources, UC Davis and Tapan B. Pathak, Daniele Zaccaria, Carlos E. Puente, Laura Foglia

WRAP-UP

As we move toward the end of today's symposium, we would like you to take the time to think about what might happen when you get back to your workplaces. Today we talked about models of success that emphasize integrated approaches; explore innovative strategies and actions that promote agricultural resilience, food security, and health. We hope you are inspired to think creatively about change and partnerships.

Please consider:

- What currently strikes you as most promising?
- What actions do you see as most realistic?
- Who have you met and/or had the opportunity to network with that you should follow-up with?

RESOURCE: CA Department of Conservation

FARMERS NEED LAND TO GROW FOOD



43%

OF OUR LAND IS USED FOR AGRICULTURE

THAT LAND SUPPLIES

67%

OF U.S. FRUITS

AND MORE THAN

90%

OF U.S. EXPORTED

CALIFORNIA HAS SOME OF THE BEST FARMLAND IN THE WORLD

34%

OF U.S. VEGETABLES



BUT, LAND IS LIMITED



ONLY ONE THIRD OF CALIFORNIA'S IRRIGATED CROPLAND IS HIGH QUALITY* (9 MILLION ACRES)

MUCH OF THAT LAND HAS WATER SUPPLY PROBLEMS, AND FACES IMPACTS FROM CLIMATE CHANGE

OUR HIGH QUALITY LANDS ARE ALSO THE MOST THREATENED BY DEVELOPMENT

CALIFORNIA'S BEST FARMLAND IS RIGHT ON THE URBAN EDGE.



WHEN DEVELOPMENT LOOMS, LAND PRICES SKYROCKET.

RURAL RESIDENTIAL DEVELOPMENT (HURTS FARMING).

AT THE DIVISION OF LAND RESOURCE PROTECTION, WE PROTECT FARMLAND

HOW?

1 WE MAP HOW FARMLAND CHANGES OVER TIME

FMMP



2 WE PROTECT FARMS FROM DEVELOPMENT

(A) CFPCP* and SALCP pay farmers to keep their land in ag, permanently.



(B) ALMP offsets farmland developed for the California High-Speed Rail Authority by conserving farmland elsewhere.

(C) Williamson Act reduces the amount of property taxes that farmers pay if they agree not to develop. These are ten- or twenty-year contracts.

3 WE SUPPORT LOCAL PLANNING AND PROTECTION



RCDs and Watershed Coordinators provide services for local conservation projects.

What does the Division of Land Resource Protection do?



1 Farmland Mapping & Monitoring Program (FMMP)



Surveys almost all of public and private land in California, using aerial photography



Identifies how land is used (urban, rural, grazing, irrigated farmland, etc.)



Provides maps, statistics, and GIS data to the public and planners

2 Agricultural Conservation Easement (ACE) programs



We support long-term, voluntary protection of agricultural lands by working with local partners to eliminate development rights on farmland



California Farmland Conservancy Program (CFPCP) protects California's best farmland for the future



Sustainable Agricultural Lands Conservation Program (SALCP) preserves farmland to reduce greenhouse gas emissions associated with development



Agricultural Land Mitigation Program (ALMP) offsets the loss of farmland from the construction of California High-Speed Rail

3 Williamson Act program



Farmers and local governments enter into contracts. The farmers agree not to develop, and receive lower tax rates in return



Helps interpret government code and tracks contract changes

4 Resource Conservation District (RCD) assistance



RCDs are locally governed districts that carry out a variety of conservation projects, and educate the public about conservation



Provides grant funding, information, and technical support to RCDs

5 Watershed Coordinator Program



Helps us understand water supply, crop options, soil issues, the fate of nutrients and pollutants, wildlife habitat, forest health, and urban development



Provides grants for watershed coordinators to promote healthy watersheds

For additional information, visit:
conservation.ca.gov/dlrp

Department of Conservation • Division of Land Resource Protection

RESOURCE: UC Davis One Health Institute



Addressing the global effects of climate change, population growth and changing land use

Training future health professionals in collaborative, holistic problem solving


Conducting research aimed at informing policy and providing comprehensive solutions


The **ONE HEALTH INSTITUTE** works at the interface of animals, people and the environment to solve complex health and conservation challenges in California and around the world.


The Institute unites the diverse strengths and skills of scientists across disciplines, and partners with stakeholders — from communities to government officials — to improve the health of all living things. We are home to innovative centers, programs and initiatives, including the USAID PREDICT project, the Karen C. Drayer Wildlife Health Center and the UC Global Health Institute's Center of Expertise in Planetary Health.


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