Position Title: UC Cooperative Extension Specialist in Agroecology

Position: (1) The Specialist will focus on agroecology, with an emphasis on how to address climate change impacts on ecological functioning of agricultural systems and landscapes. Research topics could include soil fertility management, soil/water conservation, on-farm carbon sequestration, soil/plant/insect microbiome research, integrated agriculture/aquaculture systems, or biological pest and disease control. The specialist will understand the biophysical, ecological, and social complexities of agroecosystem management and will conduct transdisciplinary, participatory research and extension in collaboration with faculty and staff, farmers, policy makers, indigenous groups, and community organizations. (2) The Specialist will have a Ph.D. in agroecology, agronomy, ecology, entomology, environmental sciences/studies, horticulture, plant pathology, soil science, or other related discipline; excellent communication skills; 5+ years of experience in applied agricultural research and extension; success in securing and managing extramural grants, carrying out field-based research, and publishing; and demonstrated commitment to transdisciplinary work with social and educational scientists. (3) The CE specialist is academically and administratively responsible to the Director of the UCSC Center for Agroecology and Chair of Environmental Studies Department, with input from the ANR Vice President. UC ANR will oversee the merit and promotion process. The Specialist will co-lead the UCSC Center for Agroecology research team, lead and contribute to grant proposals and research projects, and engage with 50+ Center faculty affiliates from all five academic Divisions. The Specialist will interact with undergraduate and graduate students, deliver occasional lectures, and perform similar academic functions (e.g., serve on committees, oral exams) as appropriate. The Specialist will engage with other campus entities including the AgTech Collaborative, the Coastal Science & Policy MS Program, the Cannabis & Hemp Initiative.

Justification: Climate change impacts on agriculture are already strongly affecting California and include challenges such as drought, floods, changes in rainfall patterns, shifts in suitability of locations for certain crops, salinization of farmland and groundwater supplies, increases in pest pressure and disease transmission, and crop yield losses. Agroecology is the integrative study of the entire food system, encompassing ecological, economic and social dimensions and uses a transdisciplinary approach to understanding food and farming systems, integrating science and research, technology and practices, indigenous knowledge, and social change. Many agroecological farm management practices (e.g., farm diversification, increasing genetic diversity of crop varieties, dry farming, cover cropping, use of green manures) are important tools for both mitigating climate impacts and adapting to the inevitable effects of climate change on farms within the state. Agroecological practices can be used in both organic and conventional farms to improve ecological and economic sustainability and climate adaptation, yet ANR does not currently include a Specialist entirely dedicated to advancing agroecology research and practices across the state. Thus certain agroecological practices are understudied, and are not widely adopted by farmers in California because many farmers lack information about the utility of these tools. In order to address this gap, the top two issues that the Specialist will address are (1) adapting to climate change impacts on agroecosystem fertility, water supply, pest and weed management and (2) a lack of support for small-scale, socially disadvantaged, beginning, resource-limited, and female farmers and ranchers. The position fits a strong need for California agriculture by addressing the needs and priorities of farmers and growers, state agencies, commodity boards, and community organizations.

Extension: Outreach methods will include in-person and virtual meetings, educational venues, use of contemporary electronic tools such as social media, online learning formats, blogs, and standard media outlets. Extensive collaboration with other researchers, inside and outside of UC ANR and UCSC is expected. The Specialist will serve as a resource for UCCE advisors, county agricultural commissioners, pest control associations, government scientists, and regulatory personnel.

Research: The Specialist will do research in agroecology and climate adaptation with an emphasis on ecological functioning of agricultural systems and landscapes. Research may include: development of no-till organic agricultural systems, understanding traditional, indigenous management practices and/or microbial-plant interactions that enhance on-farm carbon capture and water conservation, or examining how to integrate ecological aquaculture with agroecological farming. The Specialist will publish in leading journals for their field
Biological Control, Soil Biology and Biogeochemistry), and journals related to agriculture (e.g., *Agriculture, Ecosystems, & Environment; Basic and Applied Ecology; Frontiers in Sustainable Food Systems; Ecological Applications*). The Specialist will also publish in ANR extension and outreach publications such as *California Agriculture*.

**ANR Network:** This position will add to the UC ANR network a scholar with interests in climate change and agroecology, and will also expand the reach to socially disadvantaged, beginning, resource-limited, and female farmers and ranchers. The proposed position will contribute to the cluster areas of Food System Resilience and Water Resiliency. Working closely with the CE Organic Production Specialist at UCSC, the Specialist will develop collaborations with UC ANR Extension Specialists and Advisors, campus-based specialists and faculty to address priority issues for UC ANR. The Specialist will interact with UC ANR Program Teams, specialists and others within the research/extension network to develop, strengthen and expand program goals. The Specialist will form close ties with the new ANR Organic Agriculture Institute. In addition, the Specialist will participate in UC and UC ANR leadership, through committees, task forces and other formal and informal structures.

**Network External to ANR:** The Specialist will engage with UCSC Center for Agroecology site managers, research staff, and faculty affiliates to develop grant proposals and projects and may interact with a number of initiatives across the UCSC campus. The Specialist could, for example, collaborate with engineering faculty to develop sensors and models to measure and predict the effects of climate change on crops. The Specialist will act as a facilitator in the public policy arena to effectively bridge divergent interests around issues that impact subjects within the UC ANR purview. They will serve the California public by participating in activities of public agencies and organizations, and will also build relationships to work with diverse populations and acclimate to varying circumstances.

**Support:** The Specialist will be provided office space in the Division of Social Sciences, at the Center for Agroecology, or in the Environmental Studies Department, and a wet lab at the UCSC Farm. The Specialist will have access to the 33-acre organically certified UCSC Farm, a state-of-the art Aquaculture Greenhouse at the UCSC Farm, and the UCSC Greenhouse Facilities for conducting research trials.

**Other support:** UCSC researchers have high rates of success in securing research funds from NSF, USDA, CDFA, CDPD, WSARE, and other federal and state funding sources. The Specialist will compete for grants in these programs, with or without on- and off-colleagues as appropriate. The Specialist will also be expected to compete for research funds available from UC ANR.

**Headquarters and Coverage Area:** The UCSC Center for Agroecology and Department of Environmental Studies will serve as the headquarters and units for the position. The position will be expected to be a state-wide position, serving farmers, growers, and ranchers in moving towards agroecological practices.

**Developed and proposed by:**
The proposal was prepared by UCSC Center for Agroecology staff and faculty affiliates (representing all academic divisions on campus) with input from the Chair of the Environmental Studies Department, Dean of the Division of Social Sciences, UCSC Office of Research, and representatives from the Cannabis and Hemp Initiative and the AgTech Collaborative. We incorporated feedback and received support from several off campus partners including ANR Organic Agriculture Institute, California Climate and Agriculture Network (CalCAN), California Certified Organic Farmers, Organic Farming Research Foundation, the Agriculture and Land-Based Training Association, Second Harvest Food Bank, and the Community Alliance with Family Farmers.