

Position Title: Area Water Quality, Quantity and Climate Change Advisor – Mendocino & Lake Counties

Position Description: The Area Water Quality, Quantity and Climate Change position is unique and will focus on the impacts of climate change (intensifying droughts, floods, wildfire, and extreme events) on water supply and quality in the North Coast regional area. Clientele include agricultural and natural resource producers as well as local government water agencies and water districts. Targeted focus includes 1) maintain and diversify local water supplies that reduce reliance on any one water supply (springs and well systems, recycled water, or water harvesting); 2) protect and enhance natural ecosystems sustaining fish, wildlife, and crop and animal agriculture; 3) build connections with local government water agencies, water districts, indigenous tribes and integrate water management through shared use of science, data and technology; and 4) identify and develop viable options to meet the requirements of the Sustainable Groundwater Management Act, Governor's Water Resilience Portfolio and other local, state and regional policy issues. The Advisor will work with other CE Advisors with crop, animal agriculture and environmental disciplines including forestry, rangeland and fire Advisors providing water expertise to ensure watershed management is improved with direct benefits to climate resiliency. This position would become part of the UC Water Resilience team of Advisors and Specialists by specializing in North Coast water and climate change issues. It is a complementary position to the proposed Area Water Soil Resources Advisor housed in Sonoma County and would focus on issues where there is not as strong a County Water Agency as in Sonoma. The focus would be less on individual stakeholders or producers and more on broader regional issues like inter-basin transfers, the Two Basin Project, redevelopment of the Mendocino County Water Agency and advising regional water districts and tribes on drought, fire, and climate change adaptation. The position requires an MS or PhD in water resources and policy, irrigation, environmental engineering, climate change, hydrology, or other closely related field. Ideally, degrees would include several of those disciplines.

Justification: At 3,878 square miles, of which 3,506 square miles is land and **372 square miles (9.6%) is water**, Mendocino County is substantially larger than Marin, Sonoma and Napa Counties combined. It is the 15th largest land area county in California. Lake County has a total area of 1,329 square miles, of which 1,256 square miles is land and **73 square miles (5.5%) is water**. Despite the natural amount of water, policy and climate change have created severe shortages. For example, 80% of the water in Lake Mendocino is owned by Sonoma County, and during the drought agricultural use was shut down in both Redwood Valley and Potter Valley resulting in loss of crops and reduction in livestock carrying capacity. Both Counties' economy has historically been and continues to be resource-based, including vineyards, orchards, forest products, ranching, and now legal and illegal marijuana cultivation. Climate change has increased the frequency and intensity of droughts, floods, and wildfires. Temperatures are increasing. Water supply and water quality issues are worsening as a result. Infrastructure within water districts has had deferred maintenance issues and wildfires have impacted downstream water flows. In some locations, water delivery infrastructure was destroyed by wildfires. Per the recently released *Wildfire & Water Supply in California Report*, water supplier planning is needed. Research and extension identified within that report is needed at the local level for County governments' planning and policy implementation. Drought has come to Mendocino and Lake Counties before, but 2021 proved to be one of the most difficult years for water supply in decades. In addition to agricultural losses, entire towns and cities (Mendocino, Gualala, and Fort Bragg) required emergency water hauling from Ukiah. Fires suppression required low water supplies to be taxed further. Mendocino County is now trying to reinvigorate its Water Agency. Clear Lake, the largest natural lake in California has had many problems regarding quality. The need for UCCE expertise is clear and there is great potential for obtaining local grant or contract funds for this position's research and extension program.

Extension: The advisor will lead outreach efforts to help leaders and policymakers understand and create long-term water resiliency plans that include water development and storage, alternative water sources (e.g. recycled and rainwater capture), water conservation and dealing with increasing effects of climate change. Extension efforts would target supporting and strengthening agencies, be they local government, water bodies, county, non-profits; community members and landowners. Also, the advisor's outreach would report on his/her research through all forms of media that would provide credible and practical options for landowners and organizations to address water use and quality concerns.

Research: Opportunities for research are exciting and include both watershed level work, social and policy research, post-fire effects on water quality and quantity, modernization of water capture, storage infrastructure and conservation. Hydrological analysis of area surface (rivers, lakes) and groundwater (springs and wells) is also a need for planning purposes. Watershed work at the Hopland Research and Extension Center has the necessary flumes and automatic data collection provided by Russ Rustici. These could be used to research fire treatments on upstream flow and water quality. Collaboration with other advisors' disciplines could help answer more complex questions. The counties have been very successful in obtaining funding, and through contracts this position could directly do research on issues important to both the existing Lake County Water Agency and the future proposed stand-alone Mendocino Water Agency. A few examples of grants recently received by Mendocino County that could have been contracted with UCCE are: 1) Water Agency Strategic Plan, 2) DWR Urban-Multi Benefit Grant proposal focused on a countywide water resiliency strategy, and related actions and 3) UVGBSA and Lake Mendocino Water Supply -- this one is expected to roll-out the Ukiah Valley Groundwater Basin Sustainability Agency. There also are opportunities for research funding through the State and Regional Water Quality Control Boards. Having an advisor to network with the two county governments that are less developed than the more urban counties could foster larger projects with both UCCE Specialists and ANR researchers. The potential for real impacts is exciting.

ANR Network: This position will easily be working to impact 6 out of the 7 UCANR condition changes. The advisor will develop strong ties with the local advisors in Mendocino and Lake as well as adjoining counties and the North Coast Region. The Climate Change and Water Resources are the obvious program teams, but this position fits well with the Research to Policy, California Communities, and Forest and Rangeland Systems. ANR researchers and Specialists at UC Davis, UC Berkeley and UC Merced will be part of the network. The advisor would be a natural cohort of the Fire Advisor and Water Resiliency Networks and the California Institute for Water Resources.

Network External to ANR: County and City governments, specifically water agencies and planning departments, indigenous tribes, water districts, State Water Resources Control Board, Region 1 & 5 Water Quality Control Boards, Resource Conservation Districts, NRCS, CalFire, Fire Departments, Farm Bureau, and various commodity organizations.

Support: Support for this position, including office space, travel, communication (telephone, internet), clerical support, and office supplies is provided by Mendocino and Lake Counties through direct county support.

Other support: Local financial support can be supplemented by federal and statewide grant programs or through contracts with county and city government. In addition, there are several internal UC funding sources including the ANR Competitive Grant Program and the Rustici Endowment.

Location: The advisor would be housed in Mendocino County and report to the Mendocino/Lake County Director

Developed and proposed by: John Harper, Mendocino/Lake County Director. Supported by Water Resources Team, the Climate Change Team, the Hopland Research and Extension Director, Ted Grantham, Samuel Sandoval Solis, the California Institute for Water Resources, and the County Board of Supervisors in Mendocino and Lake Counties.