

I. PROGRAM SUMMARY NARATIVE

Introduction:

ANR Program Area	Condition Change	% FTE
Agricultural Production Management Systems	Increased agriculture and forestry efficiency and profitability	0.10
Forest & Rangeland Systems	Improved management and use of land	0.20
	Protected and conserved soil quality	0.05
	Increased ecological sustainability of agriculture, landscapes, and forestry	0.20
	Improved water quality	0.05
Meat Production & Food Safety	Improved animal management, productivity and efficiency	0.25
Research-to-Policy	Increased ecological sustainability of agriculture, landscapes, and forestry	0.15

I am seeking a merit from Assistant Advisor II to Assistant Advisor III. In my role as the Livestock & Range advisor in Santa Barbara County (67% FTE) and Ventura County (33% FTE), I provide locally based extension, education, and applied research focused primarily on the interactions of livestock production systems with rangeland ecology, forage production, water quality, and soil conservation. My program also addresses issues related to the management of rangeland ecosystems, including wildlife habitat, invasive plants, wildland fire, and watershed health. I aim to serve the needs of agricultural producers and land managers, to increase production efficiency, and to promote ecologically and economically viable agricultural operations. In this review period, I have focused on executing my needs assessment, establishing applied research projects relevant to my clientele, and engaging in innovative extension be it through policy engagement, workshops, or publications. To most efficiently capture my work, my program summary is organized into three thematic areas: 1) Program development and needs assessment; 2) Sustainability and viability of livestock production; and 3) Sustainability and viability of natural resources.

Extending Knowledge and Information/Applied Research and Creative Activity:

Theme 1—Program development and needs assessment.

Introduction: Ventura County has not had a Livestock & Range advisor for over fifty years and Santa Barbara County has not had an advisor for close to fifteen. As a result, my early challenge was two-fold: first, to learn how to be an effective extension advisor, and second, to teach the communities I serve how to actually use extension. ANR requires new advisors to conduct a needs assessment—or some kind of systematic collection of data that will inform and give shape to an advisor’s emerging program. In my case, the needs assessment process was both a critical process for me to understand the concerns of the clientele and was a vehicle to familiarize my clientele with ANR and to educate them about my program.

Program development: I believe I have done an exceptional job establishing my program in Ventura and Santa Barbara Counties. Without having had predecessors in either county, I started from scratch. While part of my success came from conducting a thorough and broad needs assessment, much of it can be attributed to just *showing up*. Taking the time to be present at social and educational events, barbecues and calf brandings, and multi-agency stakeholder gatherings and industry association meetings has provided opportunities for me to engage with clientele, have meaningful conversation, and receive useful recommendations for program development. Visiting with clientele during the needs assessment process and following up on ranch calls has allowed me to learn the geography, landmarks, and vegetation types of my counties, which has been key to connecting with clientele.

The Thomas Fire, which had serious, negative impacts—both physically and psychologically—to the communities in which I work, also had the impact of raising awareness of my program. As the new Livestock & Range advisor I was able to involve myself in the response and recovery process in a way that positively connected me with clientele and collaborators. The newspaper article written by the president of the Ventura Co. Cattlemen’s Association (see Section V, “Extension Activities”) is a fine example of my early impact.

Needs assessment: I spent the first months in my position developing the outline for and executing my needs assessment, and I have continued to interview clientele until the present. Attending the ANR “Conducting a Needs Assessment” workshop in Parlier in mid-September 2017 was extremely useful in helping me frame my general approach. Additionally, early meetings with key stakeholders in the region (prominent cattlemen and -women, agency staff, natural resource managers, fellow CE advisors) provided initial ideas for general subjects or themes I have explored further in subsequent assessment. I found that conversations riding in the pickup truck or in the kitchen over coffee were far more effective at connecting with and eliciting people’s needs than a more formal approach. I discuss in subsequent portions of my Narrative specific ways in which my needs assessment informed my activity, but some broad themes that emerged include: responding to drought, vegetation management, maximizing livestock performance and livestock health, carbon sequestration on rangelands, land-use policy that impacts agricultural production, and ranch adaptation to climate change. I find that my diverse involvement in the community brings me into regular contact with clientele and allows me to re-connect and re-assess my early conversations.

Theme 2—Sustainability and viability of livestock production.

Introduction: For generations, ranchers in Ventura and Santa Barbara Counties have worked to sustainably manage rangeland ecosystems while providing a quality, safe agricultural product. Increasingly, however, the livestock industries here have faced new sets of ecological, economic, and regulatory challenges that complicate this work. They include: 1) recurring, unprecedented drought, which has impacted forage and feed availability and pricing; 2) declining profits from livestock sales; 3) increasing overhead costs (land, fuel, equipment, labor, etc.); 4) declining access to land for grazing; 4) expanding regulations and land-use restrictions that can place onerous burdens on production practices; and 5) increasing negative perceptions from a general public largely disconnected with agriculture. Ranching has always been a high-input, low-profit enterprise; however, producers are accustomed to adjusting and refining their production systems. The ultimate goal of my program is to assist producers with successfully adapting to these ever-present challenges in order to maintain agricultural production and decrease potential

impacts to the environment. This goal directly addresses three of ANR's seven public value statements: "3. Safeguarding abundant and healthy food for all Californians"; "4. Protecting California's natural resources"; and "5. Building climate-resilient communities and ecosystems."

Research and Extension:

Trace Mineral Status Trials of Beef Cattle Herds. Producers in Ventura and Santa Barbara Counties have long known that their cattle are chronically deficient in certain trace minerals; and trace mineral deficiency is known to have deleterious impacts to production metrics like animal body condition, calf weight gain, and conception rates. While the UC system has made some effort in previous decades to quantify and geographically identify deficiencies (see UC Davis' "Trace Minerals for California Beef Cattle Homepage" (<https://tinyurl.com/y7as3oaf>), there is no current systematic or statewide analysis available to researchers and producers alike. In early 2017, Josh Davy (UCCE Tehama) received a Rustici Rangeland and Cattle Research Endowment grant for his project "Detection of Manganese Deficiency in California Cattle Herds." Understanding that his statewide project could have real benefits to the producers in my counties, I approached Advisor Davy and asked to participate in his project. From April through June 2018, we sampled 125 cattle from 13 herds across three counties (Ventura, SB, and Los Angeles). Blood samples were analyzed by the California Animal Health and Food Safety Lab at UC Davis using my local funds (Startup Funds and SB Co. Contract Funds). In addition to providing a significant contribution to a peer-reviewed publication (see Section III, "Bibliography"), my effort has made an impact on the cattlemen/women in my two counties by encouraging them to change on-ranch practices to ensure more effective supplementation. I have presented on the results from the study in each county (total audience of 51) and authored a newsletter article (sent out to over 400). More importantly, this baseline data has been a framework for developing subsequent on-ranch trials examining the efficacy of different supplementation techniques. In Spring 2019, I made contact with Novus Int., an international livestock feed and mineral company. Through this relationship, they supported a 90-day trial on two ranches in my counties examining the effectiveness of a newly designed trace mineral supplement. Preliminary results from that study suggest that we are close to identifying a novel product that will be made available to regional producers that will substantively address chronic deficiencies in cattle.

Examining the practical on-ranch application and benefits of low-stress livestock herding and stockmanship techniques. Early in my needs assessment, I identified a strong interest from producers in practices that would improve livestock distribution on their ranches. Improved distribution has two broad benefits: 1) increased forage utilization, thus maximizing production per acre and 2) reduced negative impacts to sensitive rangeland resources (e.g. riparian areas). Working with a close producer-collaborator (Mike Williams, Diamond W Cattle Company) we applied for and received a Western SARE "Farmer/Rancher" grant that has funded a three-year research study on his 12,000-acre working ranch. Mike and I are using GPS collars to track the movement of his mother-cow herd under a control (no change to his management practices) and a treatment (low-stress herding and stockmanship, a new approach to livestock handling that allows the producer to gather and place livestock in particular locations on the ranch without the need for additional fencing). The funding from SARE requires both research *and* extension. Thus, in addition to the on-ranch trial (which will likely result in a refereed publication and multiple non-refereed popular articles, see "Bibliography"), we plan to have three workshops

during the course of the grant targeting regional ranchers to demonstrate the techniques. The first workshop was held in July 2019 and brought together academics and practitioners from multiple institutions (UC Davis, New Mexico State University, Oregon State University, Nevada Department of Agriculture, Central Queensland University Australia) as well as regional ranchers. The multi-day event featured indoor presentations and outdoor practice on horseback, which emphasized knowledge transfer and implementation. My responsibilities on the broader project include the original writing of the grant, designing data collection and analysis, and leading all outreach efforts. This project demonstrates my ability to conceive of and execute a creative research and extension project that will deliver innovative information to local and regional clientele.

US Drought Monitor, California coordination. Ventura and Santa Barbara Counties have been impacted by an unrelenting and unprecedented drought most years since 2010. Multiple producers in my counties expressed concern and frustration that drought was not being accurately depicted on the US Drought Monitor (the nationwide geospatial tool that tracks drought conditions and determines federal insurance payouts to agriculturalists). I took the initiative to approach the authors of the USDM (based out of the University of Nebraska, Lincoln), staff at the California Cattlemen’s Association, and Leslie Roche (CE Specialist in Rangeland Management) in an effort to address the concerns of my local clientele. Not only was the drought severity on the USDM changed as a direct result of my intervention, but the ensuing discussion revealed a real need to connect USDM authors with rangeland professionals on the ground. Dr. Roche and I developed a procedure whereby CE Livestock advisors statewide could provide monthly feedback regarding their local drought conditions that would then be packaged and made available to USDM authors. This regular effort should substantially improve the accuracy of drought mapping in the state. Furthermore, this effort has led to a continued partnership between UCCE, the USDA Climate Hub (Davis, CA), the National Drought Mitigation Center, NOAA, and the National Weather Service. Due to this collaboration, CE hosted a series of four workshops in 2019 across the state, “Weather, Grass, and Drought: Planning for Uncertainty,” that brought USDM authors from Nebraska and other California meteorologists together with producers on the ground, to engender understanding and relationship-building.

Prescribed Fire on Rangelands. My early needs assessment revealed that a major concern for my clientele was vegetation management. In particular, ranchers in Santa Barbara County had previously and very extensively utilized prescribed fire as a tool to increase and improve livestock forage on their ranches. Historically, these burns were privately-led on private lands. Due to a combination of personnel changes in county departments, bureaucratic and regulatory obstinacy, loss of leadership among the ranchers, and increased concerns around liability, prescribed fire as a management practice had all but ceased in my counties in the last fifteen years. After the widespread devastation of the Thomas Fire, however, the political climate in the region regarding prescribed fire shifted significantly, providing a unique opportunity to resume burning in the counties. With my leadership and coordination, we re-established the Santa Barbara County Range Improvement Association (or, RIA—the non-profit group of ranchers who had led burns in the past) and developed open channels of communication between Santa Barbara County Fire, SB Co. Air Pollution Control District, and the SB Co. Board of Supervisors. Thus far, during the last two burn seasons, the RIA has participated in burning over

seven hundred acres and have over three thousand acres scheduled to burn in the next two years. In January 2019, I organized an exceptionally successful, invitation-only Prescribed Fire Field Day, which brought together regional agency heads, Boards of Supervisors, state and local elected officials, other decision-makers, and ranchers to discuss the benefits and challenges of putting fire on the ground. My direct policy engagement has led to a significant increase in the number of prescribed burns and “black acres” in Santa Barbara County for range improvement/fuels management and, potentially, may lead to the establishment of a Range Improvement Association/Prescribed Burn Association in Ventura County.

Theme 3—Sustainability and viability of natural resources.

Introduction: Rangelands in Ventura and Santa Barbara Counties support a host of services to the broader ecosystem (water storage and filtration, wildlife habitat, carbon storage) as well as provide the primary forage base for the counties’ livestock industries. Increasingly, it is being recognized that the grazing of domestic livestock is compatible with and can be supportive of these “ecosystem services.” My research and extension activities are designed for ranchers and private landowners in order to improve and optimize their range management practices. Furthermore, I collaborate with conservation groups, public and private agencies, and the general public to provide objective, science-based information regarding typical ranching practices and the benefits of well-managed rangeland ecosystems. This work addresses two of ANR’s seven public value statements: “4. Protecting California’s natural resources” and “5. Building climate-resilient communities and ecosystems.”

Research and Extension:

Rangeland forage production monitoring. A substantial portion of my program involves data collection and monitoring on rangelands in my two counties. In collaboration with Royce Larsen, UCCE Natural Resources and Watershed advisor, we have established nine data collection sites in Santa Barbara County and six in Ventura County. The data we have collected—and continue to collect—from forage sites serves two purposes. Most immediately, the production numbers are used in my annual report to the Farm Service Agency so that they can make an official determination regarding drought severity and crop insurance payouts to producers. Longer term, however, these plots will provide a rich dataset from which to mine, in order to understand the important but nuanced interactions between air temperature, timing and quantity of precipitation, grazing, and forage composition and production. Already, Advisor Larsen and I are involved in two research projects associated with our forage production monitoring work: 1) a CDFA-funded Healthy Soils Project grant studying the carbon-sequestration effects (if any) of applying compost on rangelands on the Central Coast; and 2) a USDA-NIFA-funded multi-state effort (“Ranching, Rangelands, Resilience”). This second project will use seventeen-years’ worth of forage production data from San Luis Obispo and Santa Barbara Counties to model future forage production under different climate regimes. The project then calls for us local county-based advisors to conduct semi-structured interviews with producers to discuss future changes in production practices given the changing climate, which we initiated in Summer 2019. My work to capture within-year forage production data across the counties—in the near-term—helps ranchers and agencies understand annual forage conditions and fluctuations, and—in the long-term—will assist these same clientele groups adapt to what will surely be altered forage production realities.

Restoring critical rangeland ecosystem services following catastrophic fire AND Post-wildfire impacts to the rangeland soil resource. The Thomas Fire proved to be a significant natural resource disaster early on in the establishment of my program. Of the roughly 280,000 acres that burned in the wildfire, approximately 80,000 acres were rangelands with active grazing. In the days after the fire I was asked two kinds of questions from ranchers: 1) Can I graze immediately post-fire? Will grazing impact rangeland recovery? And 2) How did the fire impact the rangelands soil seedbank? Should I re-seed to promote rangeland recovery? There is remarkably little scientific literature available that addresses these basic concerns. Accordingly, I conceived of two research projects that would begin to answer these questions. The first was funded with an ANR-Opportunity Grant and will be a multi-year study of rangeland recovery in the presence and absence of grazing. Grazing exclosures were erected immediately post-fire and were removed at peak standing forage crop five months later. Grassland and shrubland recovery will be monitored for at least three years to measure differences between sites within and outside the exclosure. For the second project, I took over 150 soil cores across a spectrum of burn severity. I placed the soil samples in pots in a greenhouse and artificially irrigated them. I counted number of germinating seedlings by functional group. These results showed significant differences between seedling germination in different vegetation types at different burn severities. Together, these two projects promise to provide novel insights to my county clientele—and ranchers statewide—that will better inform critical management decisions immediately post-wildfire in the future.

Water quality in the Ventura River watershed. In 2012, the Los Angeles Regional Water Quality Control Board issued a water quality regulation for the Ventura River. Part of the regulation implicated livestock as potential sources of water quality impairments. Since then, Ventura County ranchers have been engaged with the Water Board in an attempt to establish baseline impairment levels and identify acceptable on-ranch practices that mitigate potential contributions to the impairment. When I began in September 2017, I inherited from Dr. Ken Tate (CE Specialist in Rangeland Watershed Sciences) the task of helping the ranchers within the watershed productively interface with the Water Board. With collaboration between myself, Dr. Tate, the Ventura County Cattlemen's Association, and the Ventura Co. Coalition for Labor, Agriculture, and Business, we submitted a plan for a revised study to determine the baseline contribution of water quality impairments from livestock. Without my involvement, and that of Dr. Tate, ranchers in the watershed would have been significantly challenged responding to the proposed regulation. Critically, because of UCCE's commitment to science-based information, we helped facilitate productive conversation and identified a workable path forward in what has historically been fractious negotiations. My work on this natural resource policy engagement is emblematic of other projects in which I am involved that require an informed, objective voice.

Rangeland conversion. Historic and continued loss of access to and conversion of grazing lands in Ventura and Santa Barbara Counties is an existential threat to the livestock industry. Furthermore, significant ecological, wildlife, and aesthetic values are permanently lost when rangeland acres convert to urban development or intensive agriculture (row crops, vineyards, etc.). The actual number of acres of conversion is fairly-well documented with statewide geo-spatial mapping products. Less well understood, however, are the indirect impacts that conversion has to rangeland ecology and livestock production. The paradigmatic example is when 50 acres of a 500-acre ranch converts to wine grapes; it is uncertain whether or not the

remaining 450 acres will continue to support grazing. In Summer 2019, I partnered with the Santa Barbara County Conservation Blueprint to conduct a novel geospatial analysis to capture this indirect loss of grazing associated with rangeland conversion from 1984-2019. We have combined publicly-available geospatial datasets with local expert knowledge to create a county-wide map that shows how and where grazing has been removed. Results are forthcoming but have the potential to substantially impact policy discussions within the County, specifically related to Williamson Act regulations (a 1965 CA law that prevents conversion on agricultural lands using tax incentives), land conservation, carbon accounting, and future directions for climate change action.

Professional competence and professional activity:

In an effort to increase my professional competence and effectively lead my program, I attended state, national, and ANR-hosted trainings. I lead-authored or co-authored two peer-reviewed publications for academic journals, and authored 20 other popular articles, newsletters, technical reports, and/or published abstracts. I served on the Board of Directors and now as Section-President for the California-Pacific section of the Society for Range Management (SRM), and I chaired an SRM-subcommittee that examined the future of the Certified Range Manager (CRM) program, which is the professional certification process for range professionals in California. Increasingly, I am being invited to speak to a variety of audiences (national industry trade groups, clientele in other counties in the state, the general non-agricultural public in my counties, and statewide agencies that work on rangelands), which is strong evidence of my emerging but leading voice on livestock and range issues.

University and public service:

Developing and maintaining an active leadership and public service role in the community is critical in the early stages of an advisor's career. I regularly attend a wide variety of meetings and events hosted by my clientele, including my counties' Cattlemen's and Cattlewomen's Associations, Farm Bureaus, Resource Conservation Districts, Weed Management Areas, and Fire Safe Councils. I was invited to serve as an ex-officio member of the Santa Barbara County Cattleman's Land Use Subcommittee; I am a member of the SB County Weed Management Area group; and I am a Board of Director with the SB Co. Range Improvement Association.

I am working to expand my service to the university. In December 2017, I was Board-appointed as a commissioner and serve as the UCCE representative for the SB Co. Agricultural Preserve Advisory Commission, which meets monthly for half a day to review cases where there are changes to Williamson Act properties. Additionally, I have developed relationships with many of the counties' Boards of Supervisors, which has included individual meetings with three in Santa Barbara County. In am one of the most participatory advisors in the Ventura CE office and regularly provide feedback on office business and strategic planning. I am an active member of the Livestock Program Team, the Fire Work Group, and of an informal group of (mostly early-career) Livestock & Natural Resource advisors in southern California who meet quarterly by Zoom.

Affirmative action:

I make a conscious effort to contact historically under-represented demographics, including—but not limited to—Hispanic ranchers, young or beginning ranchers, and female ranchers. All of my extension materials and workshop promotions are made available through mass media

(Facebook, Instagram, website, etc.) and other general mailing lists. My newsletter, for example, goes out to over 400 individuals in the two counties. That list was initially derived by including every individual/family who has sold a cow in the region in the last five years. This broad list includes 4H and FFA families, commercial producers, as well as small-scale hobbyists. I have held workshops and events in neutral and geographically diverse spaces to encourage participation from individuals throughout the counties.

Closing summary:

This Program Review summarizes the first two years of my career with Cooperative Extension, and during this period I have clearly demonstrated strengths as a new academic. I have established a substantial and meaningful CE program where none existed before, built local and statewide relationships with others across the ANR continuum, demonstrated my capacity to conceive of and execute innovative and creative research, organized a diverse set of extension activities that engaged with my clientele, and have showed that my voice is highly valued within the range science discipline.

II. TABLES

a. PROFESSIONAL COMPETENCE

PROFESSIONAL DEVELOPMENT AND TRAINING				
Start	End	Name	Description	Location
09/08/17	09/08/17	Mentor meeting	Katherine Soule, SB County UCCE CD	Santa Maria, CA
09/08/17	09/08/17	Mentor phone call	Devii Rao, UCCE San Benito	NA
09/08/17	09/08/17	Mentor phone call	Stephanie Larson, UCCE Sonoma	NA
09/12/17	09/12/17	Mentor phone call	Fadzayi Mashiri, UCCE Merced	NA
09/12/17	09/12/17	Mentor meeting	Royce Larson, UCCE SLO, before SBC Cattleman's meeting	Orcutt, CA
09/13/17	09/13/17	Healthy Soils Program workshop	attended Ventura County RCD workshop	Oxnard, CA
9/14/17	9/14/17	Field visits with mentor	Ben Faber, UCCE Ventura	Santa Barbara, CA
09/18/17	09/18/17	Mentor phone call	Larry Forero, UCCE Shasta	NA
09/19/17	09/19/17	Bio-security webinar	webinar for UCCE 4H	Online
9/20/17	9/20/17	Mentor meeting	Julie Finzel, UCCE Kern; and Dr. James Oltjen, UC Davis	Bakersfield, CA
09/22/17	09/22/17	Mentor meeting	Alison van Eenennaam, UCD Specialist	Davis, CA
09/23/17	09/23/17	Beef Quality Assurance workshop	Attended to learn proper cattle management and handling techniques; obtained BQA certificate	Browns Valley, CA
09/26/17	09/26/17	Conducting a Needs Assessment	ANR-sponsored workshop to train new academic employees with their needs assessment	Parlier, CA
09/29/17	09/30/17	Stockmanship and Stewardship	Beef Quality Assurance and livestock handling training at CalPoly	San Luis Obispo, CA
10/9/17	10/9/17	ANR PR Training for Merits and Promotions	ANR-sponsored online training	Online
10/17/17	10/17/17	ANR Programmatic Orientation	3-day ANR orientation	Davis, CA
11/2/17	11/2/17	ANR CASA Training	Online training	Online
11/8/17	11/8/17	ANR AggieBuy Training	Office training	Ventura, CA
11/29/17	11/29/17	Program Team meeting	Livestock Program Team	Sparks, NV
1/8/18	1/8/18	Work Group call	Fire Work Group	NA

2/3/18	2/3/18	UC Davis Beef Cattle Improvement Symposium	Attendee at event hosted by UC Davis Farm Club	Davis, CA
2/6/18	2/6/18	Workshop on Integrating Climate Change in California Extension	ANR-workshop attendee	Parlier, CA
2/21/18	2/21/18	Mentor meeting	Rose Hayden-Smith to discuss improving social media presence in my program	Ventura, CA
4/2/18	4/6/18	SARE-ATTRA Our Farms, Our Future Conference	National conference gathering to discuss future of farming and extension activities	St. Louis, MO
4/9/18	4/12/18	UC ANR Statewide Conference	NA	Ontario, CA
4/11/18	4/11/18	Mentor meeting	Josh Davy, UCCE Tehama	Ventura, CA
4/13/18	4/13/18	Mentor visit	Luke Macaulay, UC Berkeley	Ventura, CA
4/19/18	4/19/18	Spring meeting	California Pacific Section of the Society for Range Management	Sunol, CA
4/30/18	5/2/18	Mentor visit and field work	Jeremy James, Director, Sierra Foothill Research & Extension Center	Ventura, CA
6/6/18	6/6/18	Biology and Management of Bovine Pinkeye	Training at SFREC for CE Livestock advisors with Dr. John Angelos	Browns Valley, CA
6/7/18	6/7/18	Prescribed Burn Training	Training at SFREC; burned 1-acre experimental plot	Browns Valley, CA
6/19/18	6/19/18	Mentor phone call	Theresa Becchetti, UCCE Stanislaus	NA
8/15/18	8/17/18	Multi-county learning exchange	Invited participant to discuss prescribed fire research opportunities; Other participants included Jeff Stackhouse and Lenya Quinn-Davidson, UCCE Humboldt; and Luke Macaulay, UC Berkeley	Arcata, CA
8/17/18	8/17/18	Mentor meeting	John Harper, UCCE Mendocino	Ukiah, CA
8/23/18	8/23/18	Mentor meeting	Bill Weitkamp, former livestock advisor UCCE San Luis Obispo	Arroyo Grande, CA
9/18/18	9/20/18	Livestock Program Team Bus Tour	Participant in program team meeting that explored Meat Production and Food Safety	Fresno, CA
10/11/18	10/14/18	2018 Stockmanship School	Attended 5-day school to improve livestock handling and welfare techniques; curriculum directly related to Western-SARE-funded research project	Wells, NV
11/14/18	11/14/18	ANR Administrative Orientation	1-day orientation	Davis, CA
1/21/19	1/21/19	Social media training	1-day meeting and ongoing discussion with Rose Hayden-Smith to expand my program's social media footprint	Ventura, CA
3/25/19	3/25/19	Santa Barbara County Air Pollution Control District training	Prescribed Fire Information Reporting System Training Course	Goleta, CA
7/15/19	7/15/19	"Managing Busy Schedules"	Peer mentoring call with 8 CE advisors	NA

DISCIPLINARY SOCIETY/PROFESSIONAL ASSOCIATION

Organization	Role
Society for Range Management, National	Member
Society for Range Management, California-Pacific Section	Board of Director, Member

EVIDENCE OF PROFESSIONAL COMPETENCE

Start	End	Name	Description	Role
9/5/17	Ongoing	"Certified Range Manager" sub-committee	California-Pacific section of the Society for Range Management; asked to chair sub-committee tasked with providing guidance on the future of the CRM program that Cal-Pac SRM administers	Chair
1/30/18	1/30/18	71 st Annual Society for Range Management Meeting	Judge for student Poster Session	Judge
2/1/18	2/1/18	71 st Annual Society for Range Management Meeting	Presented research findings during Oral Session	Presenter
3/30/18	3/30/18	Meeting on Carbon Farming	Asked to participate in meeting with SB Co. Ag Commissioner's Office and SB Co. Planning Department to provide information about applying compost on rangelands	Participant
4/17/18	4/17/18	Ventura College GeoTalk	Invited to give presentation on ranching in Ventura County by local city college; spoke to audience of over 100 students	Presenter
6/27/18	6/27/18	Meeting with Ventura Co. Planning Department	Discussed language in new county ordinance impacting wildlife and ranches	Participant
6/30/18	6/30/18	Reviewed article for refereed journal	Rangeland Ecology & Management	Reviewer
10/5/18	10/5/18	CalCAN Climate and Ag Discussion	One of eight individuals invited to discuss climate and ag policy with CalCAN; input received during this listening session was incorporated into legislation introduced in the State Assembly and Senate	Participant
10/27/18	10/27/18	CalNaturalist Field Day at UCSB Sedgwick Reserve	Invited to speak at and lead field portion of field day to teach CalNaturalist class about rangelands	Presenter
1/15/19	1/15/19	California Rangeland Conservation Coalition Annual Summit	Invited speaker: "Preventing Catastrophic Wildfire in California - the Role of Livestock Grazing"	Presenter
1/12/19	1/12/19	72 nd Annual Society for Range Management Meeting	Presented research findings during Oral Session	Presenter
3/6/19	3/6/19	US Roundtable for Sustainable Beef	Invited participant: ranch tour with steering committee of the US Roundtable for Sustainable Beef	Participant

3/11/19	3/11/19	Santa Barbara County Trails Council	Invited speaker: monthly Board meeting	Presenter
5/1/19	5/1/19	Merced Rangeland and Livestock Management 101	Invited speaker: "Drought Management"	Presenter
5/2/19	5/2/19	US Roundtable for Sustainable Beef	Invited speaker at annual convention	Presenter
5/15/19	5/15/19	Ranching and Range Management in a Drying Climate Workshop	Invited speaker to Sierra Foothill Research and Extension Center: "Come rain or shine: incorporating weather forecasting/prediction into on-ranch decision making"	Presenter
5/21/19	5/21/19	Los Angeles County Cattlemen's Association	Invited speaker: monthly Board meeting	Presenter
6/8/19	6/8/19	UCSB Sedgwick Reserve, Walking Ecology Lecture Series	Invited speaker: "Planning for climate-related impacts on our rangelands"	Presenter
9/12/19	9/12/19	Central Coast Rangelands Workshop	Invited speaker: "Thinking through range improvement practices: prescribed fire, Yeoman's plow, and composting"	Presenter
9/16/19	9/16/19	California Board of Forestry Range Management Advisory Committee	Invited speaker: Tools for Sustainable Management of California's Fire-prone Landscapes: Grazing for Fuel Reduction, "Certified Rangeland Manager and Targeted Grazer Programs"	Presenter

b. UNIVERSITY AND PUBLIC SERVICE

UNIVERSITY SERVICE					
Start	End	Name	Description	Role	Level
9/5/17	Ongoing	Livestock Program Team	Attend regular meetings	Participant	Division
10/13/17	Ongoing	Early-career Advisor Call	Co-organize and participate in quarterly phone conversations with group of early-career advisors to organize research ideas, generate newsletter article output, and provide mutual support	Participant	Division
1/1/18	Ongoing	Fire Work Group	Attend meetings and phone calls	Participant	Division
6/11/18	6/11/18	CE Ventura: Master Gardeners	Invited to give talk to Master Gardeners describing my research and extension activities	Presenter	Local
12/1/17	Ongoing	Santa Barbara County Agricultural Preserve Advisory	Attend monthly meetings to advise county Board of Supervisors on	Commissioner	Local

		Commission	Williamson Act contract application, augmentations, and renewals; ~6 hrs/mo		
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PUBLIC SERVICE					
Start	End	Name	Description	Level	
09/12/17	Ongoing	Santa Barbara County Cattlemen's Association Advisor	I serve as an advisor to the Cattlemen's Association and sit in on monthly Board of Director's meetings to serve as a resource and provide feedback to the board as they discuss and vote on issues	County	
09/27/17	Ongoing	Ventura County Cattleman's Association Advisor	I serve as an advisor to the Cattlemen's Association and sit in on monthly Board of Director's meetings to serve as a resource and provide feedback to the board as they discuss and vote on issues	County	
09/28/17	Ongoing	Santa Barbara County Cattlemen's Land Use Subcommittee	I serve as an ex-officio member and attend monthly meetings	County	
10/19/17	Ongoing	Ventura County Farm Bureau	I attend Farm Bureau meetings at least twice annually to update organization on my research and extension activities	County	
10/23/17	Ongoing	Horse and Livestock Watershed Alliance Advisor	I provide technical assistance to group that meets semi-regularly regarding water quality issues on the Ventura River	County	
11/1/17	Ongoing	Santa Barbara County Agricultural Advisory Commission (AAC)	I attend AAC meetings at least twice annually to update organization on my research and extension activities and to provide advice regarding ranching issues in the county	County	
11/29/17	12/1/17	California Cattlemen's Association Annual Convention	I attended annual convention and participated in sub-committee meetings	State	
12/5/17	Ongoing	Advisor to State Senator Hannah-Beth Jackson	I receive inquiries from State Senator Hannah-Beth Jackson's office to provide feedback on variety of topics, including Thomas-Fire response and recent legislation authorizing the creation of a CA Beef Council.	State	
1/9/18	Ongoing	Santa Barbara County Farm Bureau	I attend Farm Bureau meetings at least twice annually to update organization on my research and extension activities.	County	
2/26/18	2/26/28	Santa Barbara County Post-fire Strategy meeting	I participated in post-fire strategy meeting of Santa	County	

			Barbara County departments hosted by Board of Supervisor Steve Lavignino	
3/16/18	3/16/18	Healthy Soils Workshop	I attended as a UC representative a workshop at local ranch; workshop showcased to elected officials and county department the practice of applying compost on rangelands	Region
5/15/18	5/15/18	CA Women for Agriculture Farm Day	Invited to participate as instructor at farm day; educated over 400 school children about ranching and rangelands in Ventura County	Instructor
8/10/18	8/10/18	Ventura County Fair	Worked as a ring man in county fair event that supported local horse and livestock industries	Community
9/4/18	Ongoing	Santa Barbara County Range Improvement Association	I revived and now organize regular meetings for the SB Co. RIA, a group dedicated to leading prescribed burns in the county	County

III. BIBLIOGRAPHY

The bibliography section is separated into peer reviewed and non-peer reviewed sections. Publications are in chronological order with oldest at top.

Review Period Bibliography Summary		
<i>Category</i>	<i>Category Description</i>	<i>Number</i>
A	Popular (articles, newsletters, stories, UC Delivers, social media sites, substantial blog posts)	16
B	Peer Reviewed	2
D	Technical (reports, curricula, and articles)	2
E	Published Abstracts	2
	Total	22

BIBLIOGRAPHY		
Publication Type	Published	Bibliographical Citation

PUBLICATIONS ATTRIBUTED TO THIS REVIEW PERIOD		
A	2017	Shapero, M.W.K. September/October 2017. UC recognizes needs of county livestock producers. Ventura County Farm Bureau Newsletter. Available online: http://files.constantcontact.com/46f67aab001/1a147745-440f-4941-aca6-8bba004122a2.pdf
D	2017	Soule, K.E., Battany, M., Dara, S., Faber, B., Gaskell, M., Larsen, R., Moritz, M., & Shapero, M.W.K. (October, 2017). <i>Santa Barbara County Cooperative Extension Quarterly Report for July – September 2017</i> . UCCE Santa Barbara County. [Funding Report]. <i>My role: I led the development of the reporting sheets for the Livestock & Range Program for this quarterly report, which was submitted to the Agricultural Weights & Measures Department and County of Santa Barbara Board of Supervisors.</i>
A	2017	Shapero, M.W.K. December 20, 2017. Post-Fire Resources for Ranchers. Available online: http://ceventura.ucanr.edu/files/297482.pdf
A	2017	Shapero, M.W.K. November/December 2017. Post-fire recovery advice for ranchers. Ventura County Farm Bureau Newsletter. Available online: http://files.constantcontact.com/46f67aab001/9c25fa74-626a-46d0-af95-9ecb202d7adb.pdf
A	2018	Shapero, M.W.K. January 8, 2018. New Livestock & Range advisor. Winter 2017-2018 Newsletter. Available online: http://ceventura.ucanr.edu/files/282438.pdf
A	2018	Shapero, M.W.K. January 8, 2018. Review Article: Protein Supplementation Strategies to Improve Ranch Profitability. Winter 2017-2018 Newsletter. Available online: http://ceventura.ucanr.edu/files/282438.pdf
A	2018	Shapero, M.W.K. January 8, 2018. Trace Mineral Concerns: Looking at Copper. Winter 2017-2018 Newsletter. Available online: http://ceventura.ucanr.edu/files/282438.pdf
D	2018	Soule, K.E., Battany, M., Dara, S., Faber, B., Gaskell, M., Larsen, R., Moritz, M., & Shapero, M.W.K. (January 24, 2018). <i>Santa Barbara County Cooperative Extension Quarterly Report for October – December 2017</i> . UCCE Santa Barbara County. [Funding Report]. <i>My role: I led the development of the reporting sheets for the Livestock & Range Program for this quarterly report, which was submitted to the Agricultural Weights & Measures Department and County of Santa Barbara Board of Supervisors.</i>
E	2018	Shapero, M.W.K. , J.J. James, L. Huntsinger, T.A. Becchetti, and F.E. Mashiri. 2018. Land Manager Perceptions of the opportunities and constraints when using livestock to manage invasive plants. Abstract for 2017 Society for Range Management National Meeting, Sparks, Nevada, February 1, 2018.
A	2018	Shapero, M.W.K. February 8, 2018. “When Wildfire Hits the Ranch: Lessons Learned from the Thomas Fire.” Fire Adapted Communities Learning Network Blog. Available online: https://fireadaptednetwork.org/wildfire-hits-ranch-lessons-learned-thomas-fire/
A	2018	Shapero, M.W.K. March 2, 2018. Consider Early Weaning if Drought Conditions Persist. Spring 2018 Newsletter. Available online: http://ceventura.ucanr.edu/files/280213.pdf
A	2018	Shapero, M.W.K. March 2, 2018. Medically Important Antibiotics Update. Spring 2018 Newsletter Available online: http://ceventura.ucanr.edu/files/280213.pdf
B	2018	Shapero, M.W.K. , L. Huntsinger, T.A. Becchetti, F.E. Mashiri, and J.J. James. Land Manager Perceptions of Opportunities and Constraints of Using Livestock to Manage Invasive Plants. <i>Rangeland Ecology & Management</i> , 71(5):603-611. <i>My role: For this paper, I was the lead author, performed all data analysis, and executed the on-the-</i>

		<i>ground research and semi-structured interviews with ranchers and other land managers.</i>
D	2018	Soule, K.E., Battany, M., Dara, S., Faber, B., Gaskell, M., Larsen, R., Moritz, M., & Shapero, M.W.K. (May 1, 2018). <i>Santa Barbara County Cooperative Extension Quarterly Report for January – March 2018</i> . UCCE Santa Barbara County. [Funding Report]. <i>My role: I led the development of the reporting sheets for the Livestock & Range Program for this quarterly report, which was submitted to the Agricultural Weights & Measures Department and County of Santa Barbara Board of Supervisors.</i>
A	2018	Shapero, M.W.K. , June 25, 2018. Why Leaving RDM Makes Sense. Summer 2018 Newsletter. Available online: http://ceventura.ucanr.edu/files/285751.pdf
A	2018	Shapero, M.W.K. , June 25, 2018. Summer is Pinkeye Season. Summer 2018 Newsletter Available online: http://ceventura.ucanr.edu/files/285751.pdf
D	2018	Soule, K.E., Battany, M., Dara, S., Faber, B., Gaskell, M., Larsen, R., Moritz, M., & Shapero, M.W.K. (July 27, 2018). <i>Santa Barbara County Cooperative Extension Quarterly Report for April – June 2018</i> . UCCE Santa Barbara County. [Funding Report]. <i>My role: I led the development of the reporting sheets for the Livestock & Range Program for this quarterly report, which was submitted to the Agricultural Weights & Measures Department and County of Santa Barbara Board of Supervisors.</i>
B	2019	Davy, J.S., L.C. Forero, M.W.K. Shapero , D.R. Rao, T.A. Becchetti, C.K. Rivers, J.W. Stackhouse, K.L. DeAtley, B.R. McNabb. (2019). Mineral status of California beef cattle. <i>Translational Animal Science</i> , 3(1), 66-73. Mineral Status of California Beef Cattle. <i>Translational Animal Science</i> . <i>My role: I was involved in data collection and provided 125 of the 555 blood samples from cattle that were included in the data analysis.</i>
A	2018	Shapero, M.W.K. October 3, 2018. Results from testing the trace mineral status of beef cattle herds. Fall 2018 Newsletter. Available online: http://ceventura.ucanr.edu/files/301554.pdf
D	2018	Soule, K.E., Battany, M., Dara, S., Faber, B., Gaskell, M., Larsen, R., Moritz, M., & Shapero, M.W.K. (October 31, 2018). <i>Santa Barbara County Cooperative Extension Quarterly Report for July-September 2018</i> . UCCE Santa Barbara County. [Funding Report]. <i>My role: I led the development of the reporting sheets for the Livestock & Range Program for this quarterly report, which was submitted to the Agricultural Weights & Measures Department and County of Santa Barbara Board of Supervisors.</i>
D	2019	Soule, K.E., Battany, M., Dara, S., Faber, B., Gaskell, M., Larsen, R., Moritz, M., & Shapero, M.W.K. (January 28, 2019). <i>Santa Barbara County Cooperative Extension Quarterly Report for October-December 2018</i> . UCCE Santa Barbara County. [Funding Report]. <i>My role: I led the development of the reporting sheets for the Livestock & Range Program for this quarterly report, which was submitted to the Agricultural Weights & Measures Department and County of Santa Barbara Board of Supervisors.</i>
E	2019	Shapero, M.W.K. The impact of wildfire on the rangeland soil seedbank on the Central Coast of California. Abstract for 2019 Society for Range Management National Meeting, Minneapolis, MN, February 11, 2019.
A	2019	Shapero, M.W.K. March 29, 2019. Low-stress herding as a tool to improve livestock distribution. Spring 2019 Newsletter. Available online: http://ceventura.ucanr.edu/files/301553.pdf
D	2019	Soule, K.E., Battany, M., Dara, S., Faber, B., Gaskell, M., Larsen, R., Moritz, M., & Shapero, M.W.K. (April 31, 2019). <i>Santa Barbara County Cooperative Extension Quarterly Report for January-March 2019</i> . UCCE Santa Barbara County. [Funding Report]. <i>My role: I led the development of the reporting sheets for the Livestock & Range Program for this quarterly report, which</i>

		<i>was submitted to the Agricultural Weights & Measures Department and County of Santa Barbara Board of Supervisors.</i>
D	2019	Soule, K.E., Battany, M., Dara, S., Faber, B., Gaskell, M., Larsen, R., Moritz, M., & Shapero, M.W.K. (July 30, 2019). <i>Santa Barbara County Cooperative Extension Quarterly Report for April – June 2019</i> . UCCE Santa Barbara County. [Funding Report]. <i>My role: I led the development of the reporting sheets for the Livestock & Range Program for this quarterly report, which was submitted to the Agricultural Weights & Measures Department and County of Santa Barbara Board of Supervisors.</i>
A	2019	Shapero, M.W.K. , August 16, 2019. Grazing for Fire Fuels Management. Summer 2019 Newsletter. Available online: https://ucanr.edu/sites/ucceventura/files/308909.pdf
A	2019	Shapero, M.W.K. , August 16, 2019. Research update: expanding the tools of range improvement. . . seeding and Yeoman’s plow. Summer 2019 Newsletter. Available online: https://ucanr.edu/sites/ucceventura/files/308909.pdf
A	2019	Shapero, M.W.K. , September 2, 2019. <i>Grazing for Fire Fuels Management</i> , Santa Barbara Independent (submitted editorial). Available online: https://www.independent.com/2019/09/02/grazing-for-fire-fuels-management/

IV. PROJECT SUMMARY TABLE

PROJECT SUMMARY: PROGRAM ADMINISTRATION				
Project Title or Creative Activity / Duration	Role	Collaborators	Support Amount / Duration	Support Source
Rangeland forage production monitoring	Co-PI	Royce Larsen (UCCE SLO County)	NA	NA
Modeling the economic impact of fire events on livestock production in California	Collaborator	Beatriz Martinez Lopez (PI – School of Veterinary Medicine, UC Davis); 7 other UC ANR academics	\$20,000 / FY 17-18	Center for Animal Health (UC Davis)
Restoring critical rangeland ecosystem services following catastrophic fire	PI	James Bartolome (UC Berkeley); Jeremy James (UC ANR); Stephanie Larson (UCCE Sonoma)	\$9,986 / December 2017-2018	UC ANR Opportunity Grant
Post-wildfire impacts to the rangeland soil resource	PI	James Bartolome (UC Berkeley)	NA	NA
Ranching, Rangelands, Resilience	Collaborator	Katherine Suding (University of Colorado Boulder), Peter Adler (Utah State University), Eric Thaker (Utah State University), Justin Derner (USDA-ARS), John Bradford (USGS), Mitch McClaran (University of Arizona), Dan Fergeson (University of Arizona), Brandon Bestelmyer (USDA-ARS), and Jeremy James (UC ANR)	\$1,194,000 (Shapero funds: \$9,654)	USDA-NIFA Climate Challenge

Trace Mineral Status Trials of Beef Cattle Herds	Collaborator	Josh Davy (PI – UCCE Tehama); 5 other UC ANR academics; Kasey DeAtley, CSU Chico Assistant Professor; Bret McNabb (School of Veterinary Medicine, UC Davis)	\$5,208	Santa Barbara County Contract Account; Startup Funds
Rancher Sustainability Self-Assessment	Collaborator	Royce Larsen (UCCE SLO County)	NA	NA
Examining the practical on-ranch application and benefits of low-stress livestock herding and stockmanship techniques	PI	Mike Williams (Diamond W Cattle Company)	\$19,980 / Spring 2018 – Fall 2021	Western SARE (Sustainable Agriculture Research and Education)
Scaling up Carbon Farming on Central Coast Rangelands	Collaborator	Ted Chamberlain Ranch; Cachuma Resource Conservation District; Community Environmental Council; UCSB	\$201,386 (Shapero funds: \$1500) / April 2018-January 2020	California Department of Food and Agriculture, Healthy Soils Program
Forage kochia seedings on Central Coast, CA	Collaborator	Royce Larsen (UCCE SLO); Kevin Jensen (USDA ARS, Logan UT); Blair Waldron (USDA ARS, Logan UT)	NA	NA
GIS spatial analysis: "The true costs of rangeland conversion: mapping the primary and secondary impacts to rangeland ecology and ranching operations from vineyard conversion in Santa Barbara County (1984-2019)"	PI	Santa Barbara County Conservation Blueprint, Conservation Biology Institute	\$14,000 / 9/1/2019 – 1/31/20	Santa Barbara County Conservation Blueprint
Using Unmanned Aerial Vehicles ("drones") to monitor rangeland recovery post-fire	Co-PI	California State Polytechnic Institute	NA	NA
Increased Grazing Opportunities to Reduce Fire Frequency & Severity in California	Collaborator	Theresa Becchetti, Stephanie Larson, Van Butsic, Luke Macaulay, Fadzayi Mashiri	\$66,142 / January 1, 2019-June 30, 2020	Russell L. Rustici Rangeland and Cattle Research Endowment

V. EXTENSION ACTIVITIES

MEETINGS ORGANIZED / EDUCATIONAL PRESENTATIONS

Start	End	Name	Description	Role	Location	Total
SUSTAINABILITY AND VIABILITY OF LIVESTOCK PRODUCTION						
5/23/18	5/23/18	Beef Quality Assurance: Transportation module; Santa Barbara County	BQA certification for ranchers; introduction to new national module on transportation safety and best practices for animal handling	Meeting organizer	Los Alamos, CA	9
5/23/18	5/23/18	Beef Quality Assurance: Transportation module; Ventura County	BQA certification for ranchers; introduction to new national module on transportation safety and best practices for animal handling	Meeting organizer	Santa Paula, CA	32
7/18/18	7/18/18	Ventura Co. Cattlemen's Association July Board of Directors meeting	Presented on results from testing the trace mineral status of beef cattle herds in Ventura County	Presenter	Santa Paula, CA	28
9/11/18	9/11/18	SB Co. Cattlemen's Association September Board of Directors meeting	Presented on results from testing the trace mineral status of beef cattle herds in Santa Barbara County	Presenter	Orcutt, CA	23
10/23/18	10/23/18	Healthy Soil Field Day & Compost Demonstration	Presented on research design and preliminary results from application of compost on rangelands	Meeting Organizer and Presenter	Los Olivos, CA	40
11/8/18	11/8/18	Livestock & Range Symposium: Santa Barbara County	4 UC Davis Specialists spoke at symposium targeting commercial livestock producers	Meeting organizer	Orcutt, CA	43
11/9/18	11/9/18	Livestock & Range Symposium: Ventura County	4 UC Davis Specialists spoke at symposium targeting commercial livestock producers	Meeting organizer	Santa Paula, CA	19
1/11/19	1/11/19	Prescribed Fire Field Day	Field day targeting elected officials and decision makers in SB Co. to introduce the logistics of conducting prescribed fire in the county	Meeting organizer	Orcutt, CA	56
2/6/19	2/6/19	"Weather, Grass, and Drought: Planning for Uncertainty"	One of four statewide workshops gathering national and regional meteorologists and local producers to discuss US Drought Monitor	Meeting organizer	Solvang, CA	25
6/3/19	6/3/19	Healthy Soils Project Field Day: Compost on rangelands	Presented on research design and updated results from application of compost on rangelands	Meeting organizer and Presenter	Los Olivos, CA	28
7/18/19	7/21/19	Workshop: Stockmanship for Pasture Management	Classroom and field training related to Western SARE grant award	Meeting organizer and Presenter	Palmdale, CA	13
SUSTAINABILITY AND VIABILITY OF NATURAL RESOURCES						
12/20/17	12/21/17	"One-stop shop" for Thomas Fire victims	Helped organize 2-day event to provide institutional support (Natural Resource Conservation Service and Farm Service Agency) support to land owner and victims of the Thomas	Organizer	CE Ventura	49

			Fire			
1/4/18	1/4/18	Ventura River Watershed Council	Fire recovery and erosion control	Participant	Meiner's Oaks, CA	20
1/5/18	1/5/18	Thomas Fire Ag Stakeholders Meeting	Provided technical assistance to producers and landowners impacted by the Thomas Fire	Participant	Carpinteria, CA	9
2/20/18	2/2018	Knocking Out Noxious Weeds Workshop	Workshop targeting ranchers and land managers in order to provide latest information and research on invasive plants and control techniques	Co-organizer and speaker	Santa Maria, CA	
5/30/18	5/30/18	Montecito Post-Fire Recovery Symposium	Meeting hosted by the County of Santa Barbara with talks on post-fire recover and erosion control	Invited speaker	Montecito, CA	10 + TV
1/14/19	1/14/19	Fire-informed Land Use Planning Workshop	Targeted invitations to regional planners to discuss issues related to responsible land use planning	Meeting organizer	Ventura, CA	23
3/28/19	3/28/19	Spring Meeting: California-Pacific Section of the Society for Range Management	Gathered rangeland professional and academics from around the state to showcase wild- and prescribed fire in Santa Barbara County	Meeting organizer	Santa Maria, CA	55
6/7/19	6/7/19	Workshop: Water Measurement and Reporting Course	Organized workshop to assist clientele who diverts surface water	Meeting organizer	Santa Ynez, CA	27

OTHER (POLICY ENGAGEMENT)

Start	End	Name	Description	Role	Location	No. of instances
SUSTAINABILITY AND VIABILITY OF LIVESTOCK PRODUCTION						
2/20/18	Ongoing	US Drought Monitor, California coordination	After receiving feedback from local producers frustrated with the accuracy of the US Drought Monitor, I have taken the lead statewide to open up communication between USDM authors and UCCE livestock advisors, in addition to interfacing with California Cattlemen's Association, meteorologists who participate in the CA-NV Drought Monitor Monthly Call, and Farm Service Agency.	Co-coordinator	CA	26
3/14/18	Ongoing	Prescribed Fire on Rangelands	I have worked extensively to coordinate the re-introduction of prescribed fire in Ventura and Santa Barbara Counties (interfacing with ranchers, county departments, elected officials, etc.); and I helped re-institute the SB Co. Range Improvement Association (a non-profit group of ranchers who burn their ranches to improve forage).	Coordinator	Santa Barbara Co.	35
7/5/18	Ongoing	Ventura County	I have taken the lead on helping refine existing Ag Pass	Coordinator	Ventura Co.	14

		Agricultural Employee ID Card (Ag Pass) Program	program in Ventura Co. Ag Pass exists to allow farmers and ranchers access to their farms and ranches during disaster. Such access is critical in ensuring that producers are able to take care of livestock and crops once the primary threat from the disaster has passed but when roads and other access is still limited to the general public.			
4/25/19	Ongoing	Santa Barbara County Range Improvement Association	Coordinate with organization to facilitate prescribed burning on ranches in the county; serve as Board of Director; spearhead meetings and communication between members and agencies	Co-coordinator	SB Co.	48
6/20/19	Ongoing	Agricultural land-use and zoning planning	Working in county to facilitate and improve conversation around planning for future agricultural resilience (e.g. agritourism, re-agriculturalization of WUI, etc.)	Coordinator	SB Co.	27

SUSTAINABILITY AND VIABILITY OF NATURAL RESOURCES

3/22/18	Ongoing	Linkage Implementation Alliance	I attend semi-regular inter-agency meetings to provide technical assistance regarding wildlife corridors in Los Angeles and Ventura Counties and the potential impacts to ranching operations in the region	Participant	Ventura Co.	4
10/25/17	Ongoing	Ventura County Wildlife Corridors Ordinance	As UCCE representative, interface with various stakeholders regarding the development of a wildlife corridor ordinance that has the potential to impact typical ranching practices on private lands in Ventura County; connected county staff with research at the UC level relevant to the subject	Coordinator	Ventura Co.	14
9/27/17	Ongoing	Water quality in the Ventura River watershed	I inherited being project lead on policy issue on the Ventura River; I am working with ranchers and Los Angeles Regional Water Quality Control Board to resolve the issue of measuring the impact of cattle and ranch operations on water quality in the watershed.	Coordinator	Ventura Co.	15

OTHER (TV AND/OR RADIO INTERVIEWS/PROGRAMS, NEWSPAPER/TRADE MAGAZINE INTERVIEWS)

Start	End	Topic	Name of Media or Publication
12/5/17	12/5/17	The California Report: I am interviewed about the Thomas Fire's impacts to ranches in Ventura County	National Public Radio: KQED
1/16/18	1/16/18	"Ranchers Give Thanks": Ventura County ranchers express their gratitude to me for organizing emergency hay program immediately after the Thomas Fire. Available online: https://www.vcstar.com/story/opinion/readers/2018/01/16/ranchers-	Ventura County Star

		give-thanks/1038625001/	
4/16/18	4/16/18	UCCE Livestock and Range Advisor	Santa Barbara County Agriculture and Weights & Measures Newsletter
11/27/18	11/27/18	“Recovering from Wildfire Damage,” Melissa Hemken; available online: https://www.farmprogress.com/land-management/recovering-wildfire-damage	Western Stockman-Farmer
2/6/19	2/6/19	“Drought concerns loom for California farmers, ranchers despite recent rain,” Dustin Klemann; available online: https://www.ksby.com/news/local-news/2019/02/06/drought-concerns-loom-for-california-farmers-ranchers-despite-recent-rain	KSBY News, California’s Central Coast

BIBLIOGRAPHY

Peer Reviewed	
B - Peer-reviewed scholarly journal publications	2
Non-Peer Reviewed	
A - Popular press articles	15
D - Technical reports and other non-reviewed articles	7
E - Published abstracts	2
TOTAL	
TOTAL	26

PEER REVIEWED

B - Peer-reviewed scholarly journal publications

- Shapero, M.W.K. (2018). Land Manager Perceptions of Opportunities and Constraints of Using Livestock to Manage Invasive Plants. *Rangeland Ecology & Management*. 71:5, 603-611.
- Davy, J.S.; Forero, L.C.; Shapero, M.W.K.; Rao, D.R.; Becchetti, T.A.; Rivers, C.K.; Stackhouse, J.W.; DeAtley, K.L.; McNabb, B.R. (2019). Mineral Status of California Beef Cattle. *Translational Animal Science*. 3:1, 66-73.

NON-PEER REVIEWED

A - Popular press articles

- Shapero, M.W.K. (2017). Post-fire recovery advice for ranchers. *Ventura County Farm Bureau Newsletter*. <http://files.constantcontact.com/46f67aab001/9c25fa74-626a-46d0-af95-9ecb202d7adb.pdf>.
- Shapero, M.W.K. (2017). Post-Fire Resources for Ranchers. <http://ceventura.ucanr.edu/files/297482.pdf>.
- Shapero, M.W.K. (2017). UC recognizes needs of county livestock producers. *Ventura County Farm Bureau Newsletter*. <http://files.constantcontact.com/46f67aab001/1a147745-440f-4941-aca6-8bba004122a2.pdf>.
- Shapero, M.W.K. (2018). Consider Early Weaning if Drought Conditions Persist. *Spring 2018 Newsletter*. <http://ceventura.ucanr.edu/files/280213.pdf>.
- Shapero, M.W.K. (2018). Medically Important Antibiotics Update. *Spring 2018 Newsletter*. <http://ceventura.ucanr.edu/files/280213.pdf>.
- Shapero, M.W.K. (2018). New Livestock & Range advisor. *Winter 2017-2018 Newsletter*. <http://ceventura.ucanr.edu/files/282438.pdf>.

- Shapero, M.W.K. (2018). Review Article: Protein Supplementation Strategies to Improve Ranch Profitability. *Winter 2017-2018 Newsletter*. <http://ceventura.ucanr.edu/files/282438.pdf>.
- Shapero, M.W.K. (2018). Summer is Pinkeye Season. *Summer 2018*.
- Shapero, M.W.K. (2018). Trace Mineral Concerns: Looking at Copper. *Winter 2017-2018 Newsletter*. <http://ceventura.ucanr.edu/files/282438.pdf>.
- Shapero, M.W.K. (2018). When Wildfire Hits the Ranch: Lessons Learned from the Thomas Fire. *Fire Adapted Communities Learning Network Blog*. <https://fireadaptednetwork.org/wildfire-hits-ranch-lessons-learned-thomas-fire/>.
- Shapero, M.W.K. (2018). Why Leavig RDM Makes Sense. *Summer 2018*.
- Shapero, M.W.K. (2019). Grazing for Fire Fuels Management. *Summer 2019 Newsletter*. August 16. <https://ucanr.edu/sites/ucceventura/files/308909.pdf>
- Shapero, M.W.K. (2019). Grazing for Fire Fuels Management. *Santa Barbara Independent (submitted editorial)*. September 2. <https://www.independent.com/2019/09/02/grazing-for-fire-fuels-management/>
- Shapero, M.W.K. (2019). Low-stress herding as a tool to improve livestock distribution. *Spring 2019 Newsletter*. March 29. <http://ceventura.ucanr.edu/files/301553.pdf>
- Shapero, M.W.K. (2019). Research update: expanding the tools of range improvementâ seeding and Yeomanâ s plow. *Summer 2019 Newsletter*. August 16. <https://ucanr.edu/sites/ucceventura/files/308909.pdf>

D - Technical reports and other non-reviewed articles

- Soule, K.E. (2017). Santa Barbara County Cooperative Extension Quarterly Report for July â September 2017. *Santa Barbara County Funding Report*.
- Soule, K.E. (2018). Santa Barbara County Cooperative Extension Quarterly Report for April â June 2018. *Santa Barbara County Funding Report*.
- Soule, K.E. (2018). Santa Barbara County Cooperative Extension Quarterly Report for January â March 2018. *Santa Barbara County Funding Report*.
- Soule, K.E. (2018). Santa Barbara County Cooperative Extension Quarterly Report for October â December 2017. *Santa Barbara County Funding Report*.
- Soule, K.E. (2019). Santa Barbara County Cooperative Extension Quarterly Report for April â June 2019. *UCCE Santa Barbara County Funding Report*. July 30.
- Soule, K.E. (2019). Santa Barbara County Cooperative Extension Quarterly Report for January-March 2019. *UCCE Santa Barbara County Funding Report*. April 31.
- Soule, K.E. (2019). Santa Barbara County Cooperative Extension Quarterly Report for October-December 2018. *UCCE Santa Barbara County Funding Report*. January 28.

E - Published abstracts

- Shapero, M.W.K. (2018). Land Manager Perceptions of the opportunities and constraints when using livestock to manage invasive plants. *Abstract for 2017 Society for Range Management National Meeting, Sparks, NV*.
- Shapero, M.W.K. (2019). The impact of wildfire on the rangeland soil seedbank on the Central Coast of California. *Abstract for 2019 Society for Range Management National Meeting*. Minneapolis, MN. February 11.