



**Targeted Grazing for Fuel Reduction
Program
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Grassland accounts for approximately 10% of California's total land area, and oak woodlands and coastal scrublands, in which grasses make up a key part of the understory, account for another 8% of California's land use. In this context, grazing (or other disturbances like prescribed fire) is necessary to manage these grasslands for conservation and wildfire risk reduction purposes. Climate change is contributing to increased wildfires, i.e., drought and higher temperatures. There's also increased fire risks stocked by more and more development near the wildland-urban interface (WUI). Finally, there has been decades of fire suppression and underinvestment in preventive measures, such as prescribed grazing and burning.

Greenhouse Gas Reductions

Recent research estimated that California's wildfire carbon dioxide equivalent (CO_{2e}) emissions from 2020 are approximately two times higher than California's total greenhouse gas (GHG) emission reductions since 2003. CalFire reported that approximately 420,0790 acres burned in 2020. Many of the worst fire years in California's history have occurred in the past 20 years; eighteen of the top 20 most destructive fires in terms of loss of life and property since 2000; five in 2020 alone. In addition to loss of life and property, recent estimates of the economic costs of direct health, due to persistent unhealthy air quality, is approximately 32 billion dollars. With increased fire severity and reduced health, we need to implement management tools that can diminish wildfire risks and enhance our ecosystem's resiliency.

Livestock grazing can be a practical and economical management tool for many habitats conservation and fire fuel reduction objectives in California grasslands. Cattle grazing can reduce rangeland fuels in several ways; the most important way is by removing fine fuels, reducing vegetation biomass and height. Prescribed grazing manages the height and structure of our grasslands, which can lead to a change in fire behavior. Grazing reduces the amount of standing fine fuels (grasses) that can carry the fire, i.e., the taller the grass the longer the flame length. A recent paper describes fire behavior by flame length. Flame length is the distance measured from the average flame tip to the middle of the flaming zone at the base of the fire¹. Flame length is an indicator of fire line intensity. Ratcliff et al., 2022, found flame lengths of 8 inches or lower were seen as a critical threshold that allows fire fighters to use direct measures (such as heavy equipment) on the ground to fight fires. Below four inches, fires can be fought using hand tools. However, in extreme fire weather with very low dead fuel moisture and wind speeds up to 40 miles per hour, fine fuel loads may need to be reduced even more. Prescribed grazing can reduce the amount of dried dead fuel while still achieving the resource goals for habitat conservation. Cattle, and other grazers, can play an important role in wildfire management by grazing fuels on Sonoma County rangelands.

A **Targeted Grazing for Fuel Reduction Program**, recently funded by the Western Sustainable Agriculture Research and Education (SARE), has launched to maximize the benefit of livestock grazing for fuels reduction. This program will target grazing certain areas of the landscape, to maintain fuel breaks, control shrub encroachment, and reduce vegetation near wildland-urban interface (WUI) areas. The

goal of the program will be to assess the total grazable acreage in Sonoma and Placer/Nevada Counties, focusing on high fire severity areas, working with targeted grazers and landowners and managers to achieve climate mitigation and habitat conservation goals. The project lead, Dr. Stephanie Larson, will assemble a team to educate landowners on the utilization of grazing as a vegetation management tool. The program will create grazing communities that provide community safety and better habitat conservation. It will also increase grazing opportunities for qualified grazers to work on public and private wildfire prone lands. UCCE will conduct outreach on the use and implementation of advanced grazing techniques, such as temporary fencing and GPS collars, implementing a strategic long-term grazing program for Sonoma County.

This project builds on Match.Graze, <https://matchgraze.com/>, an online platform that already has over two hundred users throughout the Bay area. Sonoma County has provided a unique opportunity to support the economic development of a full-scale grazing program – from cooperative grazing units, contract grazing, to traditional grazing for commercial livestock producers.

Potential Co-Benefits

The project addresses targeted grazing along with carbon sequestration, resulting in a more resilient, climate neutral counties. The long-term goal is to not only maintain, but increase, carbon sequestration rates to ensure long-term resiliency through grazing management.

UCCE will work with selected targeted grazers, local junior colleges, and natural resources agencies, to educate and provide mentors to train individuals interested in providing fuel management services, principally grazing. Implementation of a **Targeted Grazing for Fuel Reduction Program**, countywide grazing programs will ensure that our local communities improve community resiliency, ecosystem services and/or increased economic stability. Success will be measured by the increased grazable lands managed, carbon storage and sequestration, number and diversity of grazing businesses and a trained work force.

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¹ Felix Ratcliff, Devii Rao, Sheila Barry, Shane Dewees, Luke Macaulay, Royce Larsen, Matthew Shapero, Rowan Peterson, Max Moritz, and Larry Forero. 2022. Cattle grazing reduces fuel and leads to more manageable fire behavior. *California Agriculture*, Volume 76, Number 2-3.