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A Rancher's Fire Safe Council for the Foothills

Like many of you over the last several weeks (and indeed, over the last several years), I've read heartbreaking accounts of ranchers losing livestock in this latest round of devastating wildfires. I've talked to neighboring ranchers who helped friends evacuate livestock, and who moved their own animals to safe zones. And I've constantly watched the horizon for new smoke, and the sky for fire planes and helicopters. I've wondered what we can do as a ranching community to address our unique concerns and needs in the face of increasingly dangerous wildfires.

According to the California Fire Safe Council,

"Fire Safe Councils are grassroots, community-led organizations that mobilize residents to protect their homes, communities, and environments from catastrophic wildfire. A local Fire Safe Council is often sparked by a catalyst – perhaps a recent fire or a group of neighbors eager to spread a fire-safe message – then embraced by the community, which turns that initial interest into a committed group that finds ways to empower the residents to do their part to make the community safe."



Most of these local Fire Safe Councils are formed by geographically related communities – counties, towns, or neighborhoods. But what about communities of interest? What about the ranching community? Our needs, when it comes to preventing and responding to wildfire, can be very different than a residential homeowner's needs.

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Ranching in the Sierra foothills is unique. Many of us operate on multiple parcels, some leased, others owned. These ranches are dispersed throughout the community – they may be surrounded by residential communities or public lands. Some of us still take livestock to the high country, while others rely on irrigated pasture during the summer months. Many of us have livestock at multiple locations.

Because these ranches are grazed (or in fire terms, because the fine and ladder fuels are modified), ranches may provide areas where fire behavior changes – where firefighters can attack a fire directly. Ranches that include irrigated pasture may provide additional firebreak benefits. Some ranches have ponds or other water sources that maybe helpful to firefighting efforts.

Rancher needs during a wildfire may also differ from the surrounding communities. Unlike backyard livestock owners, commercial ranchers often have more livestock than can be evacuated by a single truck and trailer – making evacuation difficult even with enough warning. Ranchers with leased pasture may have difficulty accessing property and livestock during an emergency due to roadblocks. And ranchers typically have first-hand, on-the-ground knowledge – and oftentimes equipment – that may be helpful in the initial response to wildfire.

All of this brings me to an idea:

What if we created a Rancher's Fire Safe Council?

What if we formalized our efforts to inventory the equipment and expertise that could help protect ranchlands and the surrounding community? What if we formalized our relationships with CalFire, law enforcement, and other emergency services? What if we could train ourselves (and our neighbors) on things like safe evacuation and fire behavior? What if we formally became a resource for protecting our ranches and our communities?

I'd like to invite you to a meeting to explore this idea in more detail. And please feel free to invite other ranchers to participate. I envision this group being comprised of commercial producers – ranchers who have more livestock than could be evacuated in a single trailer, who are raising livestock as a business.

WHEN: Wednesday, October 28, 2020 – 6-7:30 p.m.

WHERE: Via Zoom – link will be provided once you register

Please RSVP at: [Rancher Fire Safe Council Registration](#)

Tentative Agenda

1. What is a Fire Safe Council?
2. Are there other ways to address the fire prevention, response, and recover needs of the ranching community?
3. What could a Rancher's Fire Safe Council do? What are our top priorities?
4. Who should be involved in this effort?
5. Next steps

More on Blue Oaks

Blue oaks (*Quercus douglasii*) are the iconic tree of our foothill rangelands. These slow-growing oaks are part of what make our annual rangelands in Placer, Nevada, Sutter, and Yuba Counties unique. And as many of you have noticed, our blue oaks seem to be under stress.

Last summer, working with the Garbelotto Forest Pathology Lab at UC Berkeley, we collected tissue samples from blue oaks that appeared to be dying in Placer, Nevada, and Yuba Counties. This spring, we reported on our preliminary findings in *California Agriculture* ([click here](#) for a link to the article). The short version is that our blue oaks continue to suffer from stress induced by the 2011-2015 1000-year drought.

Late last month, I began to receive calls and emails about blue oaks turning brown and dropping their leaves. This appears to be a separate phenomenon. Our summer temperatures have been among the warmest recorded for our part of California. As most of us will recall, we had an especially intense heat wave in mid-August, followed by more hot weather in early September. While the summers in our Mediterranean climate are typically dry, these hot days intensified the heat and water stress experienced by our native vegetation – including the blue oaks. Physiologically, some of these trees responded by turning brown and dropping their leaves.

One year of heat stress is not fatal to our blue oaks – after all, these trees evolved with prolonged periods of summer heat and dryness. Multiple years like this could be problematic, but it is premature to cut down trees that appeared to be healthy coming into this summer. Let's wait to see what the coming rainy season will bring!



Wildfire Ash on Forage and in Stock Water

In 2018, as the Camp Fire was still burning in Butte County, a number of University of California colleagues, led by Area Dairy Advisor Betsy Karle, sampled irrigated pasture forage, hay, and corn silage from locations throughout Northern California (including several pastures here in Placer and Nevada Counties). Some of these regions had been impacted by ash fall and wildfire smoke; others had not. Our intent was to learn if ash created any potential toxicity or other health problems for livestock. We were especially interested in looking at heavy metal concentrations.

As we once again find ourselves in smoky conditions, I thought it might be helpful to provide an overview of our findings. For the most part, ***we did not find any concentrations of metals, minerals, or other compounds that should cause concern for livestock producers.*** Similarly, Tracy Schohr, who is the Livestock and Natural Resources Advisor for Butte, Plumas, and Sierra Counties, looked at water quality during the immediate aftermath of the Camp Fire. Her results were also unremarkable. [Read more here.](#)

The take-home message from our forages study (which I think also applies to water quality) is this:

"While more detailed and controlled studies could provide additional information, these results indicate that forages affected by wildfire ash deposition are likely safe for livestock to consume."

"If you have forages that may be affected by ash deposition, evaluate the concentrations of minerals before formulating a ration [or grazing pastures]. If you're exceptionally concerned about toxicity from contamination and cannot dilute with unaffected feed, isolate and test feed for heavy metals and organic compounds."

If you'd like to test your forage or water quality, or have questions about testing results, please feel free to contact me at dmacon@ucanr.edu or (530) 889-7385. I can also provide you with a complete copy of our forage study results.

Round 2: More Public Safety Power Shut-offs

Over the last four weeks, we've had a stark reminder about our vulnerability to wildfire and public safety power shutoffs here in the Sierra foothills. In early September, PG&E shut off the power to a number of communities in the foothills, just as more fires exploded to our north and east (as well as in our midst).

These events remind us that we're approaching peak fire season here in the northern foothills. Late summer and early autumn heat waves are drying the fuel to critical levels. As we head towards mid-autumn, we'll likely see stronger and more erratic winds - and, according to the flyer I received from Pacific Gas & Electric last month, more public safety power shutoffs.

Last year's shutoffs were chaotic, to say the least. Here in north Auburn, we lost power three or four times (I think; so much has happened since last fall, my memory is a bit hazy). I do recall that the warning calls and texts from PG&E were frequent and rarely accurate. We had difficulty finding ice for our ice chests, and folks seemed to have forgotten how to go through intersections without working traffic lights. I grew up with lengthy power outages from winter weather, so the loss of electricity was more of an inconvenience for us - thankfully we had a small generator handy, so we could keep the meat in our freezers cold.

Heading into this fall, though, we should all be thinking about how we can manage through these power shutoffs and prepare for wildfire. Here's a start:

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Public Safety Power Shutoff Preparation

- Can we get water to our livestock if the power goes off? How much water will our livestock need per day? If I can't pump water to them, do I have enough tank capacity and water access to haul water to them until power is restored?
- Do I have back-up power for our freezers and refrigerators? What is at risk in these appliances? If you sell meat directly to customers, do you have back-up power? What about vaccines and other pharmaceuticals? We keep our animal drugs in a refrigerator in our shop - can we keep them cold if we have no electricity?
- Do we have enough gasoline to run our generator for several days?
- Do we have enough ice for our ice chests to get us through a day or two without power? We've started filling empty milk cartons with water and freezing them for future use.
- Do all of our flashlights and battery-powered lanterns have good batteries?
- Can we charge our phones and computers in our vehicles? My laptop has an adapter, and we all have car chargers for our smart phones.
- Have we signed up for alerts from PG&E and other emergency services? As unorganized as the PG&E alert system was last year, it was helpful to feel connected and to be getting updates. And since these shutoffs coincide with periods of high fire danger, access to our phones is critical.

Wildfire Preparation

Since large-scale fires often coincide with loss of power, most of the preparations listed above apply here, too. But there are additional questions we think about when it comes to fire:

- Can we get to our livestock in the event of fire? Currently we have livestock on two leased properties at some distance from our home. In the event of a fire at these locations, we would contact law enforcement and animal control if we needed to gain access.
- Do we have contact information for landlords and neighboring landowners where our livestock our grazing, just in case we can't get access?
- Who would we call if we needed to haul our livestock out of the path of an oncoming fire?
- Alternatively, are there safe zones where we could place our livestock if we didn't have time to evacuate? Irrigated pastures or dry lots devoid of flammable vegetation may give us some emergency protection in a fast moving fire.
- Do we have a texting tree or a calling tree to check in with other ranchers in our community? I have found that county and CalFire emergency notification services typically don't provide timely information about small, local fires. But my ranching friends are always on top of things - often, the first word I get about a fire in our part of Placer County is a text from a fellow rancher.
- Are our buildings and other infrastructure protected? Since we have livestock in multiple locations, I think about this beyond our home place. Are there fire breaks protecting fences and forage? Have we removed brush around buildings and corrals?
- Do we have fire tools available to us? I keep a fire rake and a 5-gallon backpack pump in my truck during the summer - I've never had to use them, but I feel better having them with me.

You can sign up for PG&E alerts at <https://www.pge.com/mywildfirealerts> (if you're a PG&E customer) or <https://pge.com/pspszipcodealerts> (if you're not a PG&E customer). You can also access PG&E's weather forecasting center at <https://pge.com/weather>.

Livestock Protection Tools – Operation Size Matters!

I was recently asked to review a research paper regarding mountain lion depredation and the types of nonlethal livestock protection tools used by California ranchers. The authors assumed that commercial scale producers would be more likely to use these tools, since they had economic incentives to protect their livelihoods. As I thought through my experience – both in my own sheep operation, and in talking with other producers – I realized that the question wasn't quite so simple. And so I turned to the data – what DO sheep and goat producers use to protect their animals? And do these tools vary based on the size of operation?



USDA regularly surveys sheep and goat producers about a variety of topics, including predator and nonpredator deathloss – most recently in 2014 for sheep and 2015 for goats. Matthew Branan, a USDA statistician, graciously provided California specific information broken down by size of operation. As you'll note, 97% of all goat producers use at least one nonlethal livestock protection tool, compared with 52% of all sheep producers. Be aware of the effect of standard errors in the estimates below when making comparisons between size categories or between nonlethal control methods – contact me if you'd like the complete data!

California Goat Producers (2015 data)

| Nonlethal method | Operation Size | | | | |
|--|----------------|----------|----------|---------|----------------|
| | 1-9 hd | 10-19 hd | 20-99 hd | 100+ hd | All Operations |
| Livestock guardian dogs | 40% | 28% | 36% | 70% | 39% |
| Llamas | 6% | 7% | 11% | 11% | 7% |
| Donkeys | 2% | 4% | 12% | 5% | 4% |
| Predator exclusion fencing | 24% | 52% | 53% | 47% | 33% |
| Shed kidding | 28% | 27% | 26% | 40% | 28% |
| Herding (human presence) | 4% | 3% | 10% | 21% | 5% |
| Night penning | 19% | 27% | 36% | 49% | 24% |
| Fright tactics/devices | 2% | 2% | 5% | 2% | 2% |
| Removing dead animals | 2% | 2% | 13% | 40% | 5% |
| Culling older goats | 1% | 2% | 18% | 39% | 5% |
| Changing bedding grounds | 6% | 8% | 10% | 15% | 7% |
| More frequent checks in high predation areas/seasons | 3% | 12% | 12% | 29% | 7% |
| Altered breeding season | 1% | 0% | 4% | 13% | 1% |
| Other nonlethal methods | 74% | 57% | 54% | 48% | 68% |
| Any method | 98% | 94% | 92% | 95% | 97% |

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*(Continued from page 6)***California Sheep Producers (2014 data)**

| Nonlethal method | Operation Size | | | | |
|--|----------------|----------|------------|--------|----------------|
| | 1-24 hd | 25-99 hd | 100-999 hd | 1,000+ | All Operations |
| Livestock guardian dogs | 13% | 56% | 47% | 70% | 21% |
| Llamas | 4% | 10% | 17% | 0% | 5.3% |
| Donkeys | 3% | 11% | 3% | 7% | 4% |
| Predator exclusion fencing | 34% | 75% | 53% | 49% | 41% |
| Shed lambing | 11% | 47% | 35% | 7% | 17% |
| Herding (human presence) | 3% | 9% | 14% | 38% | 5% |
| Night penning | 13% | 57% | 43% | 44% | 20% |
| Fright tactics/devices | 3% | 4% | 17% | 15% | 4% |
| Removing dead animals | 4% | 15% | 30% | 18% | 7% |
| Culling older sheep | 2% | 18% | 34% | 33% | 8% |
| Changing bedding grounds | 4% | 8% | 27% | 18% | 6^ |
| More frequent checks in high predation areas/seasons | 7% | 23% | 38% | 29% | 10% |
| Altered breeding season | 2% | 2% | 9% | 9% | 2% |
| Other nonlethal methods | 2% | 8% | 6% | 5% | 3% |
| Any method | 43% | 94% | 88% | 89% | 52% |

A couple of things stand out to me. Livestock guardian dogs are the guardian animal of choice for both sheep and goat producers – donkeys and llamas are less commonly used. My own experience – and research about the effectiveness of dogs versus llamas versus donkeys – validates this data. Second, larger operations are more likely to use human presence (in the form of herders) as a predator deterrent – smaller operations typically cannot justify the added overhead expense. Moderate sized operations (10-99 head of goats, or 25-999 head of sheep) are more likely to use predator exclusion fences than very small or very large operations.

On the other hand, I was also surprised by some of this data. For example, I was surprised that 44% of the largest sheep producers and 49% of the largest goat producers use night penning – my assumption was that night penning was really only a viable option for smaller-scale producers. I'd like to dig into this technique in greater detail! Are these producers night-penning year round, or just when predator pressure is high? Are they using portable electric fencing or permanent fencing?

Ultimately, the choice of which suite of tools a producer uses reflects the economic realities of their business, the predator pressure they face, and the environment they operate in. Some tools (like livestock guardian dogs) might be a nuisance in a small-scale suburban production setting. Others, like changing the breeding season to avoid lambing or kidding when predators are in search of food, might be difficult to implement due to forage conditions or marketing windows. I think an interesting next step would be to analyze the economics of these decisions. Some tools (like livestock guardian dogs) require a capital investment and an ongoing expense. Other tools (like fencing) are mostly a capital investment. Some (like night penning) require capital outlay and extra labor costs. These considerations get complex in a hurry!

For more information on livestock predator tools, check out our publication, [Livestock Protection Tools for California Ranchers!](#)



Getting Started in Targeted Grazing 2020 Webinar Series

Introduction to Targeted Grazing (Tuesday, October 6, 2020 – 6-7:30 p.m.): UCCE Livestock and Natural Resources Advisor Dan Macon will provide an overview of targeted grazing, including grazing management, picking the right grazer for the job, livestock management, and customer relations. **Cost: \$10 - Click here to register: [Part1 – Intro to Targeted Grazing](#)**

The Business of Targeted Grazing (Tuesday, October 27, 2020 – 6-7:30 p.m.): Join Dan Macon and a panel of targeted grazing contractors to learn about the ins and outs of building a targeted grazing business. **Cost: \$10 - Click here to register: [Part2 – The Business of Targeted Grazing](#)**

Autumn 2020 Beef Production Webinar Series

Join the Tahoe Cattlemen’s Association and UC Cooperative Extension for four evening webinars on beef cattle production. The webinars are free of charge!

| Date/Time | Topic and Speakers |
|--|--|
| Thursday, October 15 6:00 – 7:15 p.m. | <i>Cattle Health – From Parasite Management to Vaccination Programs</i> Dr. Gaby Maier, Dr. Becky Childers, Large Animal Veterinarian <i>Learn about controlling external and internal parasites, developing a vaccination program for your herd, and the importance of establishing a working relationship with your veterinarian.</i> |
| Tuesday, October 20 6:00 – 7:15 p.m. | <i>Beef Business Basics</i> Dan Macon, UC Cooperative Extension Judd Tripp, Placer County Rancher JC Baser, Placer County Rancher <i>This webinar will focus on basic economic analysis for new and existing ranching businesses. Our rancher panel will share their experiences operating successful foothill ranching enterprises.</i> |
| Thursday, October 22 6:00 – 7:15 p.m. | <i>The Basics of Grazing Management</i> Dan Macon, UC Cooperative Extension Greg Lawley, Placer County Rancher Joe Fischer, Placer/Nevada County Rancher <i>Well-managed grazing can improve pasture productivity and cattle health. Learn the basics of grazing management and hear from ranchers who use these practices every day.</i> |
| Thursday, October 29 6:00 – 7:15 p.m. | <i>Beef Cattle Nutrition</i> Dr. Pedro Carvalho, Feedlot Management Extension Specialist UC Davis <i>Dr. Carvalho will provide basic information about beef cattle nutrition, from grazing to ration formulation.</i> |



The Sheep Stuff Ewe Should Know Podcast – Not Just For Shepherders!

Be sure to check out my weekly podcast! Sheep Stuff Ewe Should Know is available on Spotify and Apple Podcasts! Co-host Ryan Mahoney of R. Emigh Livestock and I explore a variety of livestock production and business topics – everything from genetic selection to analyzing a new business opportunity. And we have some fun along the way – interviewing legendary ranchers and comparing our favorite lamb recipes! If you have a topic idea, email me at dmacon@ucanr.edu!

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(be sure to check out my production-focused IGTV channel!)



[FoothillSustainableRanching](#)



And don't forget to subscribe to my [Ranching in the Sierra Foothills](#) blog

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<http://ucanr.edu/livestockinfosurvey>

For a hard copy of the survey,
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Thank you!

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