

Post-fire recovery for ranchers

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Introduction:

While wildland fire is a regular feature of grassland and chaparral vegetation types here on the Central Coast of California, it poses serious challenges to livestock operators when it occurs. Your response after fire will depend upon your goals and objectives and the resources available to you. What follows is a brief summary of the ecological impacts of wildland fire to rangelands and available response options.

Impact to soil and soil seedbank:

The pattern and severity of burning during fire is highly variable across landscapes and depends on slope, soil texture, humidity, wind direction, and temperature. Likely, your ranches burned unevenly, and you may have areas where there was hot and severe fire and other areas where combustion was incomplete and aboveground biomass is still largely present. Generally speaking, wildland fire poses two immediate threats to the rangeland resource: 1) physical changes to the soil and removal of vegetation make soils vulnerable to erosion and can lead to excess runoff; and 2) elevated temperature and smoke during fire can affect the soil seedbank and compromise the following season's regrowth. The extent of these impacts across your property, however, will be uneven due to the fire's patchy behavior.



In addition to the dry forage that was consumed during the fire, you can expect reductions in forage production for the following two green seasons. Forage production will always be highly dependent upon the timing and amount of rainfall, but you can generally expect production to be 50-70% of normal and the species composition to shift primarily to forbs (i.e. legumes, filaree, etc.) for the growing season immediately following fire (2017-2018). The second growing season after fire (2018-2019) you can expect production to be about 80% of normal. Production should return to normal by the third growing season.

Management responses:

Livestock management

Perhaps your most immediate concern is what to do with your livestock. The options available to you are to 1) ship out of the area to other feed resources, 2) sell livestock, or 3) provide supplementary feed and hold them until range forage returns. Ultimately, your decision will depend upon the individual circumstances of your operation. Option 1 allows you to rest burned pastures and maintain herd numbers but requires access to pasture elsewhere and will cost money to transport. Option 2 also allows you to rest burned pastures but selling animals means losing herd genetics and can also create undesirable tax implications. If you go this route, check with your accountant as you may qualify for certain deferrals on income tax from the sales of livestock during disaster. Option 3 allows you to keep your animals but may potentially slow range recovery.

The scientific literature is somewhat limited on the subject of grazing after wildfire. To be sure, the most conservative option would be to defer grazing on your pastures until spring (Options 1 and 2). If total rest is not an option, consider reducing your stocking rate in pastures and run lighter than you normally would to avoid excess use. Alternatively, you might select one "sacrifice" pasture on which to feed for the

winter, which will allow you to rest other portions of your ranch until spring.

Re-seeding

Seeding rangelands after fire has long been thought to protect against soil erosion and to supplement the soil seedbank with desirable forage species. Seeding for erosion control, however, is no longer a preferred method used by agencies (e.g. US Forest Service) as its effectiveness depends so much on the timing and amount of subsequent precipitation and introducing exotic, non-native seed can compromise the recovery of native plant species after fire. Additionally, while seeding to promote forage production and to introduce desirable forage species may have temporary benefits, it is unclear whether re-seeding will increase forage production in the first and second growing seasons beyond what would otherwise be available and it is uncertain whether shifts in species composition achieved by seeding will continue beyond the first couple of years. Accordingly, seeding forage species should be measured against its cost-effectiveness in your operation. Even without seeding, rangeland soil seedbanks should recover by the third growing season to their pre-fire species composition and production levels.

Seeding *has* been shown to promote grass production post-fire in areas that were previously brush. If substantial brushy areas of your pasture burned and you'd like to maintain them as grassland, you might consider seeding those areas; a good option is Italian ryegrass, as it's cheap, germinates quickly, and is a good competitor.

With or without seeding, erosion on burned hillslopes will remain a concern post-fire, especially if early precipitation is concentrated and/or intense, and should be something that you continue to monitor.

Mulching

Mulching is another practice used to protect soils from erosion after fire, although the scale of fire on rangelands frequently makes mulching cost-prohibitive. If sensitive areas on your ranch suffered severe burns, however, you might consider spot mulch treatments. This may include mulching riparian areas, springs, or stock ponds where you are concerned about sedimentation. Consider applying weed-free rice straw to a depth of two to three inches (or, approximately 40 bales/acre).

Further Resources

UC Cooperative Extension is available to visit your ranch and/or discuss rangeland soil health, range seeding rates and species composition, grazing practices, and erosion control measures. For more information, call **805-645-1475** or email **mwkshapero@ucanr.edu**.

The **Natural Resource Conservation Service** (NRCS) is offering cost-share programs to help you rebuild infrastructure you may have lost during the fire. Contact their Oxnard office at 805-984-2358.

And finally, the **Farm Service Agency** (FSA) may have insurance programs available to you to compensate you for lost livestock or forage resources. Contact their Santa Maria office at 805-928-9269.

For Further Reading

- [Restoration Manual for Annual Grassland Systems in California](http://anrcatalog.ucanr.edu/pdf/8575.pdf). UC ANR publication. (http://anrcatalog.ucanr.edu/pdf/8575.pdf).
- [Vegetation Management After Fire: The Use of Natives in Annual Dominated Systems in Central California](http://gornish.ucdavis.edu/wp-content/uploads/2016/09/ca2016a0013-162303.pdf). UC ANR publication. (http://gornish.ucdavis.edu/wp-content/uploads/2016/09/ca2016a0013-162303.pdf).
- [Practitioner perspectives on using nonnative plants for revegetation](http://gornish.ucdavis.edu/wp-content/uploads/2016/09/ca2016a0013-162303.pdf). California Agriculture article. (http://gornish.ucdavis.edu/wp-content/uploads/2016/09/ca2016a0013-162303.pdf).
- [Forage seeding in rangelands increases production and prevents weed invasion](http://calag.ucanr.edu/Archive/?article=ca.2017a0025). California Agriculture article. (http://calag.ucanr.edu/Archive/?article=ca.2017a0025).

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