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Natural Resources
After the Fire: Resources for Ranchers

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Introduction

Annual grasslands and oak woodlands in the Sacramento Valley and Sierra foothills are prone to fire. Ranchers and rangeland managers should consider steps that will protect soil resources, restore forage productivity, and reduce the establishment of invasive weeds after wildfire. Specific practices depend on landowner/manager goals. This publication summarizes current research regarding post-fire restoration.

Protecting Soil Resources

Preventing soil erosion is a top priority for fire-impacted rangelands. Physical changes to the soil, combined with loss of vegetation, can create a variety of problems including soil movement, increased runoff, mudflows, and debris flows. Research indicates that the amount of exposed mineral soil, regardless of slope, is correlated to erosion potential. For rangeland livestock operations, weed-free straw mulch is the best option for keeping soil in place. Soil protection measures should be in place before the first significant rain of the autumn.

Re-seeding Rangelands

Re-seeding strategies depend largely on landowner goals. For example, ranchers who wish to re-establish forage for livestock will have different objectives than landowners who wish to restore native grasslands or provide pollinator habitat. While native grass and forb species can maintain forage quality longer into the growing season, these species can take longer to become established. Conversely, non-native forage species can become established rapidly, providing both soil protection and forage for livestock in the following spring.

Re-seeding Considerations

- Try to plant seed during or just prior to the onset of fall rain.
- Consider applying mulch after seeding to prevent erosion. Weed-free rice straw bales applied at a rate of approximately 40 bales to the acre can protect soil.
- Plant multiple species to provide diversity and maximize ecosystem services (like soil protection, water infiltration and nitrogen fixation).
- If rangelands will be grazed, include at least 20% legumes in the seed mix.
- Seeding rates depend on species and on application system.
- Broadcast seeding (by hand or by aerial application) requires more seed than other approaches. Soil preparation (disking or harrowing) and post-seeding imprinting may be necessary to ensure seed-to-soil contact necessary for germination.
- No-till drill seeding can promote more ideal conditions for germination and typically requires a lower seeding rate. However, drill seeding can be cost prohibitive on a large scale.
- Hydroseeding, while more costly, helps keep soil and seeds in place.
- Grazing can typically resume in the spring once plants are reestablished. If perennial grasses and forbs have been planted, grazing may need to be deferred longer to allow for establishment.

Placer County 530.889.7385 • Nevada County 530.273.4563 • Sutter/Yuba Counties 530.822.7515
www.ucanr.edu/sites/Livestock

SEEDING RECOMMENDATIONS

The appropriate seed mix depends on site-specific goals and conditions. Similarly, seeding rates depending on planting method and conditions. For site-specific recommendations, contact your local USDA Natural Resource Conservation Service office (see below).

Placer County	Nevada County	Sutter and Yuba Counties
NRCS – Auburn Service Center 11661 Blocker Dr Ste 120 Auburn, CA 95603 (530) 885-6505	NRCS – Grass Valley Service Center 113 Presley Wy Ste 1 Grass Valley, CA 95945 (530) 272-3417	NRCS - Yuba City Service Center 1511 Butte House Rd Yuba City, CA 95993 (530) 671-0850 x2

SEED AND EROSION CONTROL SUPPLIERS

Seed Suppliers			
Hedgerow Farms 21740 County Road 88 Winters, CA 95694 (530) 662-6847	**S&S Seeds** PO Box 1275 Carpinteria, CA 93013 (805) 684-0436	**Shilling Seed** 10064 Streeter Rd #5 Auburn, CA 95602 (530) 268-3174	**Peaceful Valley Farm & Garden Supply** 125 Clydesdale Ct Grass Valley, CA 95945 (888) 784-1722
Pacific Coast Seed 533 Hawthorne Pl Livermore, CA 94551 (925) 373-4417	**Larner Seeds** PO Box 407 Bolinas, CA 94924 (415) 868-9407	**Kamprath Seed Company** 205 Stockton St Manteca, CA 95337 (209) 823-6242	**CNPS Native Plant Nurseries List** http://www.calscape.org/plant_nursery.php
Erosion Control Suppliers			
Chamberlain Farms 34530 County Road 29 Woodland, CA 95695 (530) 662-2620	**R.H. Dyck, Inc.** PO Box 665 Winters, CA 95684 (866) 928-8537	**R.S. Green Specialties** 213 County Road S Willows, CA 95988 (530) 934-7225	**Rice Straw Cooperative** PO Box 562 Biggs, CA 95917 (530) 868-1511

REFERENCES AND RESOURCES

- *Restoration Manual for Annual Grassland Systems in California*. UCANR publication – (http://anrcatalog.ucanr.edu/pdf/8575.pdf). Information on restoration techniques and plant species by region.
- *Vegetation Management After Fire: The Use of Natives in Annual Dominated Systems in Central California*. UCANR publication – (http://gornish.ucdavis.edu/wp-content/uploads/2016/03/The-Use-of-Natives-in-Annual-Dominated-Systems-in-Central-CA_updated.pdf). Information on using native plants to restore annual rangelands following fire.
- *Practitioner perspectives on using nonnative plants for revegetation*. *California Agriculture* article – (http://gornish.ucdavis.edu/wp-content/uploads/2016/09/ca2016a0013-162303.pdf).Discussion of using native and nonnative plant species for revegetation.
- *Forage seeding in rangelands increases production and prevents weed invasion*. *California Agriculture* article – (http://calag.ucanr.edu/Archive/?article=ca.2017a0025) – Research regarding annual and perennial forage options.
- *Recovering from Wildfire: A Guide for California's Forest Landowners*. UCANR publication – (http://anrcatalog.ucanr.edu/pdf/8386.pdf). Information on post-fire management in forested landscapes and oak woodlands.