



Benefits of rangeland burning

Carol Baldwin¹, John Weir², Morgan Treadwell³, Pete Bauman⁴, Derek Scasta⁵, Doug Cram⁶, Lori Bammerlin¹, Dirac Twidwell⁷

¹Kansas State University, ²Oklahoma State University, ³Texas A&M, ⁴South Dakota State University, ⁵University of Wyoming, ⁶New Mexico State University, ⁷University of Nebraska- Lincoln

INTRODUCTION

Why burn? Prescribed fire is a safe, effective, and economical way to enhance native rangelands. Prescribed fire reduces fuel loads and ultimately reduces wildfire risk in many areas. Prescribed fire is also one of the most versatile and cost-effective management practices available for good land stewardship. This land management practice is also an ecological process that is historically proven, having been applied for thousands of years to benefit both humans and nature.



Figure 1. Prescribed burns remove dead plant material, allowing sunlight to reach new grass growth.

BENEFITS TO NATURE



Figure 2. Prairie plant growth is stimulated by fire.

Maintains open grasslands and healthier native plant communities

- Stimulates great plant growth and vigor
- Increases seed production and viability
- Increases development of plant bud banks that increase grass density
- Increases plant diversity, especially in conjunction with grazing
- Increases nutrients available for plant growth
- Reduces the amount of dead plant material that inhibits new plant growth

Controls the spread of undesirable and invasive species in grasslands

- Curtails undesirable woody plant expansion into grasslands
- Provides control of some noxious weeds
- Can reduce the need for broad-scale chemical applications that can unintentionally hurt native plants

Improves soil health

- Reduces soil erosion by stimulating better grass growth
- Enhances the growth of beneficial soil microbes
- Enhances ecosystem nutrient cycling



Figure 3. Both wildlife and livestock benefit from prescribed burning.

Improves wildlife habitat

- Increases the number and types of wildflowers (forbs) preferred by wildlife
- Increases pollen and nectar sources for pollinators
- Increases resprouting of nutritious browse for wildlife grazing
- Creates snags that wildlife use for nesting
- Reduces wildlife parasites such as ticks
- Creates better grassland wildlife habitat
- Provides higher nutrition forage
- May increase wildlife carrying capacity by removal of undesirable plants and increased forage production

BENEFITS TO LIVESTOCK

Increases forage quantity, quality, height, and density

- Improves nutritional value and consumption of rangeland plants
- Enhances protein content
- Enhances digestibility

Improves animal performance

- Increases stocker cattle weight gains
- Increases cow body condition scores
- Increases calf weaning weights
- Reduces tick and horn flies

Other livestock benefits

- Provides additional grazing distribution and season of use options for managers
- Changes the physical properties of plants, such as thorns, that are deterrents to grazing
- May increase stocking rates by removal of undesirable plants and increased forage production

BENEFITS IN REDUCING WILDFIRE RISK

Reduces wildfire intensity

- Can reduce fuel loads around homes and communities
- Can be used to create blackened zones that protect homes and communities
- Removes fuels that are highly volatile
- Reduces the fuels that produce many air-borne embers that spread fire
- Reduces fuels that increase the chance of a crown fire (ladder fuels)

Provides training opportunities for volunteers and professionals to improve development of local community skills in responding to wildfire events



Figure 4. Prescribed burns remove highly volatile fuels such as redcedar trees that intensify wildfire behavior.



Figure 5. Prescribed burning provides many rangeland benefits for wildlife, livestock, and soil while increasing wildfire safety for homes and communities.

Photo credits:
Figure 1: Ray Hinnant
Figures 2, 5: Carol Baldwin

Figure 3: John Weir
Figure 4: Eva Horne