Grazing Management

Southern California Adaptation Implementation Plan

Overview

During a two-day workshop in January 2016, southern California resource managers and regional stakeholders discussed grazing management goals and core activities, highlighted priority climate change vulnerabilities that could affect the ability to achieve goals, and identified adaptation strategies and actions that reduced highlighted vulnerabilities. Adaptation strategies and actions identified included those currently being implemented as well as new actions prioritized for future implementation. Managers and stakeholders then developed implementation action plans for some adaptation strategies identified as future priorities.

Grazing Management Goals and Core Activities[1]

1. Retain residual forage
2. Provide forage for ranching community to allow ranchers to stay in business and to preserve historic ranching way of life
3. Reduce thatch and invasive species
4. Revise grazing plans
5. Manage grazing to protect/prevent damage to rare and endangered species, encourage regeneration of other species (e.g., oaks, willows), and provide co-benefits for ecosystem services and ecological resources
6. Practice prescribed grazing for ecological benefits
7. Install water trough escape ramps for wildlife
8. Protect riparian habitats using fencing and enclosures
9. Manage vernal pools, enhance springs, and restore meadow gullies
10. Control erosion associated with headcuts and bare soil

Managers and stakeholders identified how these grazing management goals and core activities may be vulnerable to climate change or other factors, and then identified potential adaptation responses. Climate and non-climate vulnerabilities and corresponding adaptation strategies and actions for these management goals are described below in Table 1.

[1] The management goals and core activities listed are not comprehensive.

Table 1. Priority vulnerabilities and associated priority adaptation responses for grazing management goals.

Management Goals	Priority Vulnerabilities	Priority Adaptation Strategies & Actions

1. Retain residual forage
 	
2. Provide forage for ranching community
 	
3. Reduce thatch and invasive species
	• Intensification of monsoonal patterns and shifts in precipitation timing from fall to spring/summer. Precipitation variability may lead to:
	  ○ Reduced grass productivity, which may affect the ability to maintain residual forage and provide forage for ranching community
	  ○ Altered plant species composition, including increased potential for invasive species, which may alter grazing strategies
	• Shifts in water availability and water sources due to precipitation variability, drought, and land use conversion/development. Altered water availability may lead to:
	  ○ Spring/seep dry up and altered water availability on the landscape, which may decrease the economic viability of ranching (e.g., ranchers may prefer to sell cows/pursue another livelihood rather than pay to supply water troughs)
	  ○ Increased costs and potential for ranchers to go out of business and sell parcels, resulting in loss of this historic way of life
	
	Other Vulnerabilities:
	• Drought and variable precipitation may lead to:
	  ○ Altered stocking rates and impaired ability to meet grazing objectives (e.g., stocking rates may be too low during drought years, and too high during high precipitation years)
	• Loss of Mediterranean climate may lead to:
	  ○ Increased costs of alfalfa, hay, feed lots, and water supply, further reducing the economic viability of ranching
	• Increased wildfire may lead to:
	  ○ Fencing damage or destruction and reduced grazing opportunities, which can increase maintenance costs and reduce available forage
		Strategy #1: *Maintain or increase grass/forage productivity.*
		
		Current Actions:
		• Keep non-palatable invasive species out of rangelands
		• Enhance water infiltration
		Possible Future Actions:
		• Pay attention to/manage new C4 plants establishing in rangelands – prioritize which non-native species to manage
		• Increase cattle rancher/grazing access to federal lands to offset potential decreases in forage productivity on existing grazing areas
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		Strategy #2: *Manage plant species composition and prevent invasive species.*
		
		Current Actions:
		• Apply herbicides
		• Increase implementation of flexible grazing (e.g., flash grazing, season/timing of use)
		• Increase monitoring of habitat condition (e.g., invasive, perennial, bare ground cover)
		Possible Future Actions:
		• Create a regional strategy that helps prioritize invasive species for management, steers naturalized/native grassland components, and helps identify new invasive species of concern (e.g., C4 plants)
		• Plant drought-adapted ecotypes or ecotypes adapted to moisture variability

	○ Increased grazing opportunities in some areas if fire promotes conversion to grassland habitat, although the quality of converted habitat is uncertain • Human responses to climate-driven water declines; need to capture more water and reduce erosion/sedimentation	---------- ***Strategy #3:*** *Maintain water production and water sources.* ***Current Actions:*** • Practice better spring management (e.g., horizontal spring that feeds overflowing trough, install one rock dams or use other methods to slow water down) • Ensure stock water sources are wildlife-friendly and prioritize water location on landscape to enhance wildlife corridors/movement ***Possible Future Actions:*** • Continue promoting wildlife-friendly stock water sources and landscape placement of water sources to support wildlife corridors/movement • Examine ways of capturing rainfall (e.g., stock ponds, rain barrels, public/private partnerships, private lands education) • Study and monitor extractive well uses (e.g., springs for water use)

Adaptation Implementation Action Plan

Managers and stakeholders developed implementation action plans for some of the identified priority adaptation strategies in Table 1. These plans include a list of sequential steps needed to successfully implement the adaptation strategy, and identification of potential implementation barriers and potential solutions.

Adaptation Strategy #1

Create regional strategy to help steer naturalized/native forage species.

Implementation Plan (actions listed in order of occurrence)

1. Generate maps of current invasive species distribution.
2. Model climate and habitat suitability for unfamiliar invasive species; create map of where new invasive species may appear.
3. In order to best maintain native forage species, prioritize which non-forage plants to manage using knowledge of current, known invasive species that lack any economic/ecological/social benefit as well as mapping and modeling information for where new invasive species may occur.

Challenges/Barriers to Implementation and Possible Solutions

No challenges/barriers identified.

Adaptation Strategy #2

Ensure stock water sources are wildlife-friendly and prioritize water location on landscape to enhance wildlife corridors/movement.

Implementation Plan (actions listed in order of occurrence)

1. Conduct an inventory and spatial analysis of existing stock water sources.
2. Assess which springs and troughs will dry up if water availability declines due to projected climate changes.
3. In areas projected to lose water supply in the future, make sure water sources are available for grazing and wildlife; some areas may still be able to be grazed if there is no water available.

Challenges/Barriers to Implementation and Possible Solutions

No challenges/barriers identified.