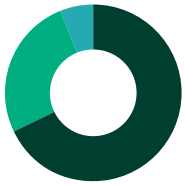
Idaho Climate-Economy Impacts Assessment

Snapshot: Rangelands

Rangelands, Climate, and Idaho's Economy

Idaho's rangelands are diverse and vast, and span grasslands, sagebrush-steppe, shrublands, woodlands, and mountain meadows with streams and rivers often flowing through them. They provide areas for grazing livestock, places to recreate, and habitat for wildlife. In Idaho, rangelands occupy 54% of the total land area—nearly 28.8 million acres—covering most of southern Idaho where the majority of Idaho's population resides. Warmer temperatures and variation in the timing and amount of precipitation contribute to changing rangeland conditions in Idaho. These changes pose risks to the many economic and ecological benefits rangelands provide.



IDAHO'S RANGELAND MANAGEMENT

69% Federal
(Bureau of Land Management, U.S. Forest Service, etc.)

25% Private landowners and tribes

6% State
(Idaho Department of Lands, Idaho Department of Fish and Game, etc.)

Changes in climate	Increasing hazards	Economic risks
Increasing temperatures	Floods	Increasing management cost
Increasing spring precipitation	Drought	Increasing number of temporary closures and access restrictions
Decreasing summer precipitation	Wildfires and smoke	Decreasing habitat quality
Increasing stream temperatures	Weeds and invasive species	Displacing of wildlife and livestock
Decreasing summer streamflow	Lower forage productivity for wildlife and livestock	Decreasing ranch viability and profitability
Decreasing summer soil moisture		

Rangelands Play an Important Role in Idaho's Economy

Livestock production

Rangelands are important for livestock production. Livestock producers manage private lands or leased state and federal lands for livestock grazing. Livestock production and ranching occurs on at least 65% of Idaho's land, and supports about 8,100 beef cattle ranching operations in mostly rural communities.

2.5 million
beef cattle and calves

230,000
sheep and lambs

$1.8 billion
annual livestock sales

Recreation and wildlife habitat

Rangelands comprise open spaces and native plants, which are important habitat for big game, birds, fish, insects, and many more species iconic to Idaho landscapes. Fishing, hunting, and wildlife viewing are longstanding traditions in Idaho.

In a 2016 survey, rangelands in Idaho managed by the Bureau of Land Management supported:

466,100
fishers

296,500
hunters

193,500
wildlife watchers

$295 million
in revenue

$33 million
in taxes

$85 million
salaries & wages

2,559
jobs

The information presented in this Snapshot is drawn from the most recent data and studies available at the time of production.

Preparing Idaho for Impacts to Rangelands

Livestock production

Increasing variation in the amount and timing of precipitation can change the quantity of forage from year to year and season to season. Livestock producers have limited flexibility to adjust grazing timing and location to adapt to changing conditions.

Warmer summer temperatures can cause heat stress in animals, and require that animals drink more water. As water sources on rangelands become increasingly unreliable, animals will need to walk further to find adequate water to drink.

Wildfire and invasive grasses can alter yearly livestock grazing rotations and forage availability, decreasing profitability. After a wildfire on public grazing allotments, livestock often are removed for several years as vegetation recovers.

Economic Impacts of Invasive Grasses on Idaho's Rangelands

Annual invasive grasses alter landscapes and endanger wildlife. Warmer winters, wetter springs, drought, and wildfires increase invasive species, such as cheatgrass and medusahead. These invasive grasses outcompete native species, leading to cyclical changes in forage and further wildfire risk. The estimated losses caused by weeds in pastured land and rangelands exceed $2 billion annually in the United States, which is a loss greater than all other pests. In 2018, it is estimated that noxious weeds and invasive plants cost Idaho more than $300 million.

Recreation

Drought and wildfire reduce access to land for outdoor recreation, including bird and wildlife viewing, fishing, hiking, hunting, and motorized recreation. Wildfires, restoration efforts, changes in habitat, and displacement of game species can lead to area closures for recreational use.

Warmer stream and river temperatures and lower summer streamflow alter recreational fisheries. Habitat suitable for bull and cutthroat trout will decrease 42% and 11%, respectively, as river temperatures increase. However, habitat for smallmouth bass is projected to increase 191%.

Wildlife habitat

Drought, wildfire, and spread of invasive plants work together to degrade habitat quality and displace wildlife.

Warmer temperatures in winter and spring have led to earlier green-up in spring. Greater early season forage production could provide important spring forage for wildlife, and affect survival rates of wildlife offspring.

Warming conditions also may result in increased prevalence of ticks and mosquitoes, leading to increased disease and mortality rates for livestock and wildlife.

Opportunities for Adaptation: Considerations for a Changing Climate

Four examples of how Idahoans can prepare for changes to rangelands:

- Identify alternative forage sources in case of drought.
- Work with local weed management cooperatives or Rangeland Fire Protection Associations to address risks from weeds and wildfires.
- Consider altering class or breed of livestock to those better adapted to future climate conditions.
- Revise restoration and management plans to account for new climate conditions.

Interested in learning more about economic impacts and Idaho's rangelands?

For further information, resources, tools, references, and additional reports, please visit **www.uidaho.edu/iceia**

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