

Critical Operational Concerns From Climate Change

Great Plains

Some of the more critical concerns for Great Plains rangelands include:

- Increases in temperature, evaporation, and soil moisture deficits are expected in the region.
- Warmer temperatures will enhance the northward spread of some plant and animal pests.
- Climate change is expected to alter the competitive balance among plant species, leading to species shifts, including increases in non-desirable plants (Morgan et al., 2007; Blumenthal et al., 2013, 2016).
- Climate change and associated change in plant species composition and quality are expected to alter critical habitat for wildlife (for example, prairie potholes and playa lakes).
- Increases in temperature along with rising CO₂ may continue to enhance forage production in the northern Great Plains for at least the next few decades, but further south, warming-induced desiccation and lower precipitation may already be affecting net primary production.



Southwest

The following concerns impact this region:

- Water is expected to become increasingly scarce. Severe drought has occurred in the past and could be even more severe in the future.
- Increasing temperatures, drought, wildfires and weed invasions will transform the landscape and render many rangelands less able to support current ecosystem goods and services (for example, livestock and wildlife).
- A warmer, drier environment will reduce the effectiveness of restoration measures, or their probability of success, on degraded lands.
- More intense precipitation events will accelerate erosion and flooding potentials, increase risks to people and animals, and decrease water use efficiency.
- More severe weather will decrease the region's attractiveness to tourism and recreation.



Critical Operational Concerns From Climate Change (cont.)

Southeast

Some of the more important concerns about climate change and rangelands of the Southeast include:

- Decline in plant growth due to heat and drought stress.
- Decline in production of cattle and other rangeland livestock due to high temperature stress.
- Increased human illness and death related to greater summer heat stress.
- Warming, including warmer winters, plus increased incidence of heavy rainfall events. These effects may increase some disease and insect pests, while increases in drought may reduce some pathogens.
- Increased flooding of low-lying areas due to severe storms and sea-level rise, including storm-surge flooding of coastal areas.
- Saltwater incursion into freshwater aquifers is a related concern for irrigated agriculture and drinking water supplies for both livestock and humans.
- More frequent and intense wildfires.

