

# Study shows cattle grazing helpful to endangered species

by Kate Olson

Manager, Issues Communication – NCBA

## Summary

A study published in the *Conservation Biology* journal this summer found that cattle grazing plays an important role in maintaining wetland habitat necessary for some endangered species. Some environmentalists are determined to curtail or eliminate cattle grazing. However, according to this study, removing cattle grazing lands in the Central Valley of California could, inadvertently, degrade the habitat for important water life there.

## Background

According to study authors Christopher R. Pyke and Jaymee Marty, grazing cattle is a global enterprise with far-ranging economic and environmental effects. In 2001, approximately 26 percent of the world's land base was allocated to permanent pastures. Consequently, large-scale grazing is the dominant land-management activity in many ecosystems. Grazing can significantly affect the biophysical properties of land surfaces so assessments of the compatibility of grazing with conservation goals are exploring the potential for interactions between climate change and grazing regimes.

## Researching the affects of grazing

This particular study investigated interactions between climate change and grazing for vernal pool wetlands in the Central Valley region of California. Vernal pools are contained basins without a permanent, above ground outlet. They contain water for a few months in the spring and early summer but are generally dry by late summer. Grazing occurs around most vernal pools in the Central Valley region studied for this research so grazing practices are a key issue for the preservation of sensitive species in these biological reserves.

The study included 36 vernal pools on two different geologic formations in Sacramento County, Calif. Cattle are currently, and have historically (for about 150 years), grazed the area seasonally from October through June. A total of 18 pools, located in Red Bluff, Sacramento, Merced and Bakersfield were excluded from cattle grazing for three years, and 18 pools (located in same regions mentioned above) were grazed at historical levels for three years. The goal of this study was to evaluate the sensitivity of vernal pools to potential climate and grazing interactions.

## Grazing important to species survival

Eliminating grazing reduced the maximum annual duration of ponding for endangered species, which affected their survival rate. The average change after the third year without grazing was minus 50 days per year. Grazing affects the rate of evaporation, which works together with the climate to determine the depth and duration of wetland flooding, which helps to sustain the aquatic environments endangered fairy shrimps need to survive.

The Sacramento and Merced regions were most sensitive to the combination of grazing and climate change. Removing grazing in these areas drove a large percentage of these pools into unsuitable water ranges and climate change was insufficient to make up the difference. Removing grazing from the Red Bluff area shifted less than half of the suitable water levels from the vernal pools. In Bakersfield, neither grazing nor climate change improved hydrologic conditions for species. In this case, the vernal pools were limited by absolute lack of water.

## Grazing, climate interact to improve habitat

Results from the study suggest that grazing plays an important role in maintaining a suitable habitat for endangered species. In fact, the authors found that simply removing grazing from pools in the Sacramento or Merced regions is likely to reduce the amount of suitable habitat available for these species. Similar actions in Bakersfield and Red Bluff, however, seem unlikely to change existing habitat distributions. In most cases, moderate grazing regimes appear to be compatible with both wetland and terrestrial conservation objectives.

## Key Points

- A California-based study shows cattle grazing plays an important role in maintaining the wetland habitat necessary for some endangered species.
- A *Conservation Biology* article about the study showed that removing grazing reduced the maximum annual duration of ponding for endangered species, affecting their survival rate.
- Local and regional land management activities, such as grazing, may eventually be assembled into a set of biophysical tools for climate adaptation and alleviation.