

# Sustaining the biodiversity of the western Great Plains

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Fire, cattle and even prairie dogs all could play a role in sustaining the biodiversity of the western Great Plains, according to a U.S. Department of Agriculture (USDA) researcher.

As large grazers, cattle now perform the historical role of buffalo on the Great Plains. Ecologist David Augustine and his colleagues-in collaboration with state, federal, and university researchers-have results from several studies over the past 13 years showing that fire, cattle and [prairie dogs](#) together maintain a mosaic of diverse vegetation, with varying vegetation heights, that supports a variety of wildlife as well as cattle.

Augustine works at USDA's Agricultural Research Service (ARS) Rangeland Resources Research Unit headquartered in Cheyenne, Wyo. ARS is USDA's principal intramural scientific research agency.

Some ground-nesting birds, such as mountain plovers, and other declining populations of grassland wildlife thrive best among short plants, possibly because this enables them to see coyotes, hawks and other predators. The black-tailed prairie dogs occur in the same places, probably because of the same survival instinct.

Prairie dogs actually modify their environment to their benefit: They make grass short by eating it. Their grazing also creates lots of bare soil, which is key to plover nesting success. The bare soil helps camouflage the brown-colored plovers. But both plovers and prairie dogs can use

some help from fire.

Prescribed burns are carefully controlled fires that remove old standing dead plant material and increase the exposure of bare soil. Augustine and Colorado State University researcher Daniel Milchunas studied prescribed burns on Colorado's Pawnee National Grassland.

They found that, except after severe drought, [prescribed burns](#) done during late winter in grazed shortgrass steppe do not reduce the amount of forage produced, but do increase forage [protein content](#), starting with the first spring after burning.

In a related study during 2007 and 2008 on the Pawnee National Grassland, Augustine, Milchunas, and Justin Derner, research leader at the Cheyenne unit, found that prescribed burning enhanced the digestibility of blue grama grass.

This research was published in the May 2010 issue of the *Journal of Rangeland Ecology & Management*, and an additional paper will be published in the *Journal of Wildlife Management* in 2011.

**More information:** Read more about the research in the March 2011 issue of Agricultural Research magazine.

[www.ars.usda.gov/is/AR/archive ... 11/livestock0311.htm](http://www.ars.usda.gov/is/AR/archive...11/livestock0311.htm)

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