LAND STEWARDSHIP PROJECT

LSP *Myth Buster* #44

An ongoing Land Stewardship Project series on ag myths and ways of deflating them.

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➔ *Myth*: Tallgrass Prairies & Livestock Don't Mix

➔ *Fact*:

Native tallgrass prairies are some of the most threatened ecosystems in North America. In fact, thanks to plowing, overgrazing and development, over the past 100 years or so only one-tenth of 1 percent of the original tallgrass prairie remains. In Iowa and Minnesota alone, tallgrass prairies have declined by 99.9 and 99.6 percent, respectively. With the prairies have gone many of the ecological services they provide. For example, grassland bird species have shown steeper, more consistent, and geographically more widespread declines than any other group of North American birds, and one of the factors in global climate change is that all that carbon once stored under grasslands is now in the atmosphere, wreaking havoc.

So it's no wonder conservationists have been extremely protective about what remains of the once great "sea of grass." Over the past several decades, one key strategy for saving prairie remnants was to exclude cattle and other livestock. The reasoning was simple: cattle eat and stomp the grasses and forbs that make for a healthy prairie, so why inflict such damage on an already beleaguered resource?

But it's become evident in recent years that removing all disturbance from a natural grassland can actually have a detrimental effect. In pre-European settlement times, bison and wildfires controlled woody invasives and recharged the nutrient cycle, providing a key tool for maintaining the long-term viability of prairie ecosystems. When such disturbance is lacking, invasive species such as sumac, cedar, buckthorn and Siberian elm can quickly take over. That patch of ground may not be growing corn or soybeans, but for all intents and purposes, it's no longer a healthy perennial grassland.

That's why increasingly conservationists are welcoming cattle and other livestock onto native prairies as a way to keep invasives under control and to recharge the nutrient cycle. What they've found is that allowing livestock to rotationally graze for short periods (a few weeks) interspersed with long rest periods (a year or more) can greatly increase the ecological health of a grassland. Studies in numerous states show that so-called "conservation grazing" can as much as double plant diversity in an area. Habitat experts in western Minnesota have observed how grazing has increased native plant communities by knocking back not only woody species like sumac, but cool season grasses like Kentucky bluegrass and smooth brome. Such invasives tend to blanket the land with a homogeneous cover, which limits the habitat diversity wildlife require.

A study published in the July 15, 2015, edition of *Nature Communications* was based on data collected from 64 grassland sites in 13 countries. What scientists found was that when grasslands are exposed to commercial fertilizers, native grassland species decline, while invasives, which are well-adapted to utilizing excessive applications of nutrients like nitrogen and phosphorus, increase. What the multi-country study also showed was that in certain cases, exposing a grassland to grazing increased the presence of native species. It turns out grazing helps cut back on the kinds of plants with big leaves that tend to shade out native grasses and forbs, which can be quite light-hungry (take a look at how much shade sumac produces in a grassland sometime).

Such research is bolstering the argument to allow livestock to graze in a controlled manner on wildlife refuges and other kinds of nature preserves as a way to increase native plant health. As articles in the *Land Stewardship Letter* have described, conservation grazing in places like west-central Minnesota is producing healthier habitat while providing livestock producers a chance to rest their home pastures. In Iowa, the Leopold Center for Sustainable Agriculture is studying the effects of grazing native plants on farms as well as in places like the Whiterock Conservancy, a land trust that is attempting to balance working agricultural lands with conservation along the Raccoon River in the central part of the state. Preliminary results are encouraging—one thing livestock producers are finding is that hot weather-loving prairie plants help extend the grazing season through those warm months when traditional cool season pasture grasses slow their growth or go dormant altogether.

What must be kept in mind when considering the grazing of native prairie is that cattle cannot be simply turned out and allowed to graze at will. As has been proven on rangelands out West, overgrazing can be just as big a detriment to a grassland as no grazing at all. Moving livestock through grasslands in a controlled rotation is key—something that's increasingly possible thanks to innovations like lightweight portable fencing and watering systems. Some land managers are even experimenting with a tool called "patch-burn grazing," which uses a combination of fire and cattle to recharge green growth.

"The key is to hit it and rest it," says Greg Hoch, a Minnesota Department of Natural Resources prairie habitat ecologist. "That's how these prairies evolved with the bison."

➔ More Information

• The July 15, 2015, *Nature Communications* paper on fertilizing and grazing grasslands is at www.nature.com/naturecommunications. It's titled, "Plant species' origin predicts dominance and response to nutrient enrichment and herbivores in global grasslands."

• Iowa State University has developed a publication called, "Grazing Native Plants in Iowa: Processes and Experiences." It's available at www.leopold.iastate.edu/grazing-native-plants, or by calling 515-294-5247.

• The *Land Stewardship Letter*'s series on using grazing to improve natural landscapes ran in the No. 1 and No. 2, 2014, editions. See www.landstewardshipproject.org/about/landstewardshipletter, or call 612-722-6377 for a copy.

This **Myth Buster** *is brought to you by the members and staff of the Land Stewardship Project, a private, nonprofit organization devoted to fostering an ethic of stewardship for farmland and to seeing more successful farmers on the land raising crops and livestock. For more information, call 612-722-6377 or visit www.landstewardshipproject.org.*