

# TARGETED GRAZING

LARRY D. HOWERY, PROFESSOR AND SPECIALIST, THE SCHOOL OF NATURAL RESOURCES AND THE ENVIRONMENT, THE UNIVERSITY OF ARIZONA

## Introduction

According to Frost and Launchbaugh (2003), targeted grazing (TG), or prescription grazing as it is sometimes called, is defined as “the application of livestock grazing (or browsing) at a specified season, duration, and intensity to accomplish specific vegetation management goals, or to meet site preparation/restoration objectives.” The objectives of TG can vary and may involve reducing the risk of unwanted wildfires, improving wildlife habitat, managing invasive plants, and providing other ecosystem services. Thus, the *use of livestock grazing as a tool to manipulate vegetation* to address various management goals and objectives is the primary factor that distinguishes TG from traditional livestock management enterprises.

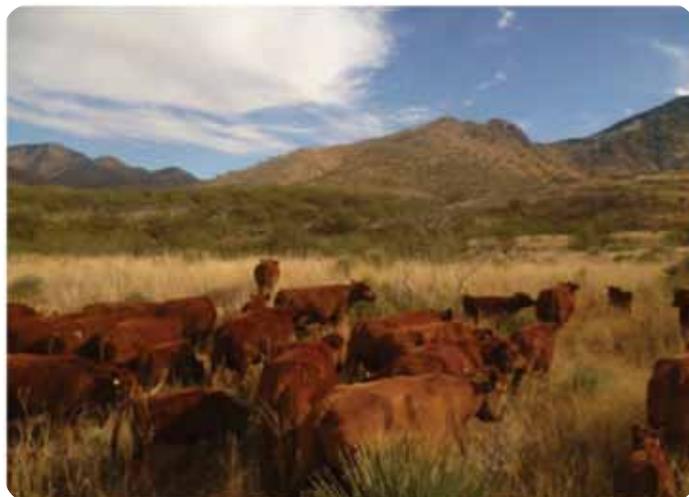
Until recently, sheep and goats were the two animal species of choice used in most TG projects. However, this is changing as cattle are increasingly being examined in TG studies and in vegetation management projects. This is because cattle require less fencing, less human attention, and tend to be less expensive to manage than their small ruminant counterparts. Also, there is a stronger market for beef which means that cattle are often more readily available for TG projects than sheep or goats. Even though cows are technically classified as grazers (they eat mostly grass), they can be trained to eat forbs (broad-leafed ‘weeds’) and even shrubs.

## Improving habitat for threatened and endangered species

During wet winters in the Mojave Desert, cool-season invasive annual herbaceous plants can form an impenetrable mat which impedes the ability of some threatened and endangered (T&E) mammals and reptiles to find food for themselves, and, to keep themselves from becoming food. Mats of herbaceous exotic annuals that invade bare ground interspaces also produce a highly flammable fire hazard as they dry out. Germano and colleagues (2001) used cattle during wet winters to decrease the amount of red brome and other exotic invasive plants to improve habitat for T&E species (both animals and plants). Moderate to heavy cattle grazing was carefully timed during early spring when red brome was still green and palatable. Cattle grazing reduced red brome biomass and cover by more than half and improved habitat conditions for several T&E species that had co-evolved in habitats consisting of considerable bare ground and sparse herbaceous vegetation. Researchers argued that, “Recent decisions to decrease or eliminate livestock grazing on conservation lands without definitive studies of grazing in these habitats may lead to further declines of native species and possible local extinction of some plants and animals.”

## Reducing fire hazards

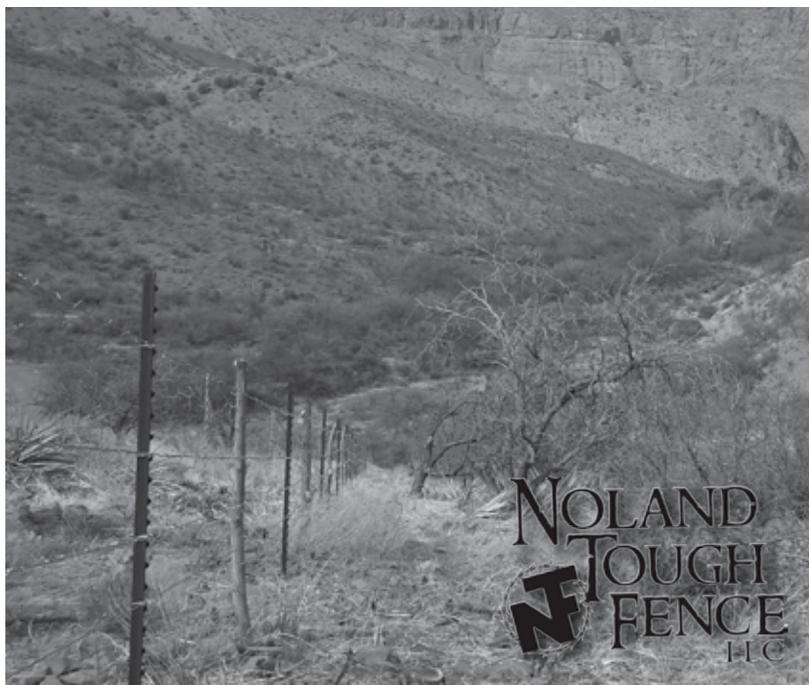
Two recent studies have used cattle to reduce fine fuel loads with the objective of decreasing the probability and severity of unwanted wildfires. In a TG study in



*Cattle being ‘low-stress herded’ to low moisture block ‘rewards’ placed in areas that had previously received little or no use in southern Arizona.*

southern Arizona, Bruegger and colleagues (2012) trained cow-calf pairs to eat a low moisture block (LMB) supplement and then placed the LMB in upland areas dominated by unused Lehmann lovegrass monocultures. Cattle quickly became accustomed to low-stress herding being associated

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Fence Location: Noland Ranch - Lower Eagle Creek, Arizona

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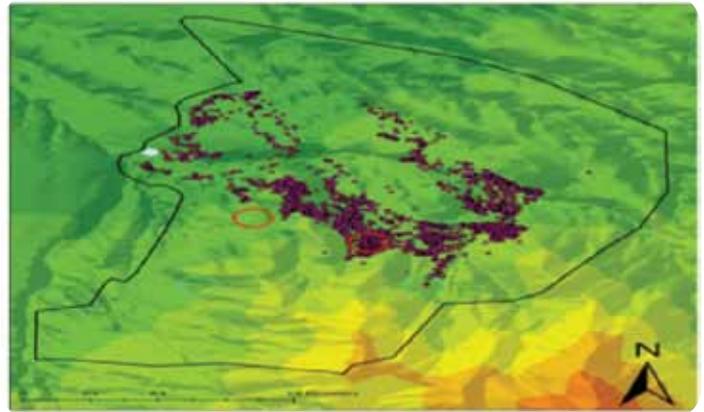
with finding LMB 'rewards' placed in areas that had previously received little or no use (Photo 1). After being herded to a TG area, cow-calf pairs created and used new trails to navigate to and from TG sites on their own, and cattle remained in or near these sites until nearly all of the LMB supplement had been consumed. The amount of Lehmann lovegrass biomass was greatly reduced in TG areas compared to control sites. Accordingly, fire models predicted slower rates of spread and shorter flame lengths in TG areas compared to control areas. Cattle concentrated their use in TG areas during herding periods but an added benefit was that animal distribution was greatly expanded into previously unused areas during non-herding periods (Photo 2). In the Great Basin, Diamond and colleagues (2011) used cattle to reduce fuel loads created by cheatgrass, a cool season annual from Eurasia and the Mediterranean region. Targeted grazing greatly reduced cheatgrass biomass and cover, and similar to the Arizona study, TG areas experienced shorter flame lengths and slower rates of spread when a controlled burn was conducted within the study area.

**Turning cows into 'weed eaters'**

In 2004, Kathy Voth invented a method for training cows to eat forbs, i.e., broad-leaved herbaceous plants. Using discoveries made by Dr. Fred Provenza from Utah State University and other animal behavior scientists, Voth presented 4 logical steps to teach cows to eat weeds in her 2010 booklet and companion DVD titled, *Cows Eat Weeds: How to Turn Your Cows Into Weed Managers*. Following these 4 steps, Kathy has trained up to "...110 cow-calf pairs" to eat a variety of weed species in an array of vegetation types and settings in "...as little as 10 hours over a 10-day period." Voth explains how she has trained cows to 'target' problematic 'noxious weeds' such as knapweeds, thistles, leafy spurge, toadflax, and bindweed. This technique is based on the premise that animals associate the flavor of foods with their post-ingestive feedback (PIF) and increase their intake of plants that provide positive PIF. Once trained to eat weeds, cows teach their calves and herd mates to do the same and through social learning more animals learn to eat weeds with little or no additional training. For more information on this training process check out Kathy's website: <http://www.livestockforlandscapes.com>.

**Summary**

Using livestock grazing in TG projects is no different than using any other vegetation management tool in that there are both benefits and costs associated with the tool being used. Livestock grazing can be more desirable than using herbicides or fire because there is no pesticide residue or smoke that may cause human health or visibility concerns. Livestock grazing is generally less expensive than techniques that require fossil fuels and has the added benefit of converting problematic weeds into a saleable product. Livestock grazing is also feasible in rougher terrain compared to other techniques. On the other hand, there are costs associated with the animals, fencing, herders, trailers, and it may be difficult to find the right kind and number of animals at the appropriate time of year to deal with a targeted plant. Animal production may take a hit when grazing animals are forced to utilize a single forage species. Without careful management, there is the potential to negatively impact non-target vegetation and to spread weed



*Cattle concentrated their use in targeted areas during herding periods but an added benefit was that animal distribution was greatly expanded into previously unused areas during non-herding periods in a TG study conducted in southern Arizona.*

seeds into uninfested areas. In some areas, TG practices may be incompatible with particular wildlife species. In conclusion, as with any vegetation management tool, thoughtful analysis prior to applying the tool is key. For more information on TG take a look at these on-line resources from the University of Idaho (<http://www.webpages.uidaho.edu/rx-grazing/handbook.htm>).

Article made possible by a grant from the Arizona Cattle Industry Foundation

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