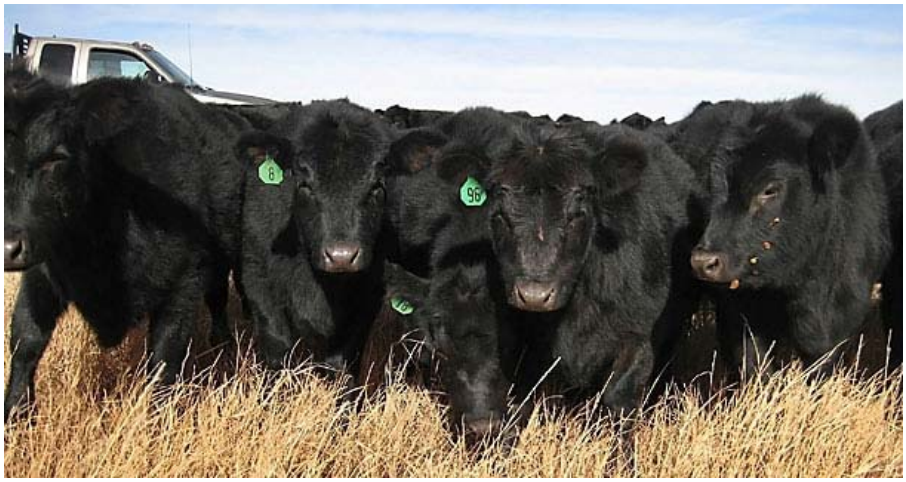

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Rancher Jim Thorpe has been applying Allan Savory's grazing principles to his New Mexico herd. Mr. Savory came to his conclusions as a national-parks manager in southern Africa. (Moises Velasquez-Manoff)

Could cows heal the West?

By grazing them in a way that mimics the pattern of wild herbivores, advocates say, rangeland improves.

By **Moises Velasquez-Manoff** | Staff Writer of The Christian Science Monitor/ January 20, 2009 edition

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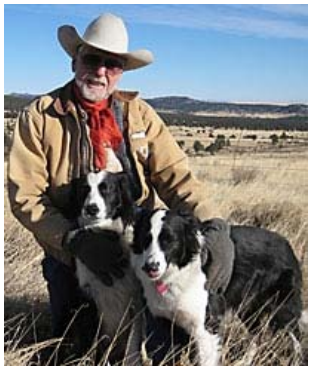
CARRIZOZO, N.M.

When Sid Goodloe bought his ranch half a century ago in south-central New Mexico, it was a dry, desertified mess. The roads leading to homesteads abandoned since the Dust Bowl days of the 1930s had eroded into gullies. Overgrazing had stripped away soil-stabilizing ground cover. Where plowing had occurred, precious topsoil had dried up and blown away in the area's fierce winds. Years of fire suppression had allowed pinyon-juniper forest to supplant grassland.

"There was little here except broom weed, cactus, and pinyon-juniper," says Mr. Goodloe. "And yet, it had tremendous potential."

The soil quality was good. Native American petroglyphs of beavers suggested that the area once supported a more productive ecosystem. With the proper care, the land could recover, Goodloe thought. But that would depend on bolstering its ability to retain water, the limiting factor in much of the semiarid Southwest.



Moises Velasquez-Manoff

Sid Goodloe has been practicing 'holistic management' on his land since the 1960s – with very positive results, he says.

Staff writer Moises Velasquez-Manoff discusses an innovative way to graze

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Eoin O'Carroll

01.23.09
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Originally from West Texas, Goodloe didn't come from a ranching family. He had no one to turn to for advice, and no preconceived notions. So when, in the 1960s, he met Rhodesian land manager Allan Savory, he was receptive to Mr. Savory's somewhat counterintuitive proposition: To heal the land, put more animals on it, not fewer – but move them after a relatively brief interval.

cattle that was inspired by observing Africa's grasslands.

If livestock mimicked the grazing behavior of wild herbivores – bunched together for safety, intensely grazing an area for a brief period, and then moving on – rangeland health would improve, Savory said.

Today, Goodloe's land is often referenced as a model of "sustainable ranching," a phrase many consider an oxymoron in the West. Wild antelopes bound across his pastures, which are thick with an array of grass and browse species. Water now runs intermittently though a willow-lined creek that once lay dry. And in 2004, Goodloe put a conservation easement on the property, preventing its development in perpetuity. But he nonetheless resists the "environmentalist" label.

"I'm what you would call an environmentally sensitive rancher," he says.

Goodloe and Savory belong to – and in some ways have spearheaded – an ongoing reappraisal of ranching by ranchers in the American West. Savory's method, dubbed "holistic management," remains controversial. But throughout the region, the shortcomings of what some call the "Columbus method" – leaving cows to graze in one place for months at a time – are readily apparent:

Large swaths of landscape continue to suffer loss of topsoil, invasion by weedy species, and runaway erosion.

Now, spurred by growing consumer concern over meat's environmental impact and concerned about the long-term viability of their livelihood, a cohort of ranchers is trying to apply the understanding gleaned from the science of ecology to livestock management. Courtney White, cofounder of the Quivira Coalition in Santa Fe, N.M., and a former Sierra Club activist, calls the result a shift to the "radical center." After years of mutual antagonism, ranchers and environmentalists are finally working together, he says.

Others see it as ranchers finally taking stock of the Western landscape.

"We've been trying to make the West into Europe since our ancestors came here," says George Whitten, a rancher in Colorado's San Luis Valley. He has been practicing holistic management, with good results, since the mid-1980s. Now, "I think we have to become truly westerners to live within its limits and its bounty," he says.

Moisture retention is key

With concern mounting over human-induced climate change, how land is managed and whether it emits or traps carbon is an issue of growing concern. Carbon taken from the atmosphere by grasslands during photosynthesis ends up underground, in the plants' roots. There, microbes metabolize some of that carbon into humus, the fine particles that give topsoil its black coloring. Humus can hold four times its weight in water, greatly enhancing soil's ability to retain moisture, a bulwark against desertification.

Humus is also a huge carbon sink, says soil scientist Christina Jones, founder of the Australian Soil Carbon Accreditation Scheme, on her website. Grasslands can continually sequester carbon.

Worldwide, soils contain three times more carbon than the atmosphere, Dr. Jones says. That's more than four times the carbon contained in the world's vegetation. By her calculations, a mere 0.5 percent increase in soil carbon on only 2 percent of Australia's farmland would equalize all the nation's carbon emissions. Degrading grasslands, though, emit carbon. As organic material breaks down, carbon escapes back into the atmosphere. That's the case across large parts of the American West, Africa, Asia, and Australia where centuries of overgrazing and plowing have caused soils to steadily lose organic material.

"The most meaningful indicator for the health of the land and the long-term wealth of a nation," says Jones, "is whether soil is being formed or lost." Livestock can aid in that soil formation.

A lesson from Africa's nature preserves

The Intergovernmental Panel on Climate Change
Findlaw | Environment
The EnviroLink Network
OneWorld | Environment
European Environment Agency
Epaedia | Environmental Encyclopedia
Climate Change Calculator
The Earth Institute at Columbia University
Natural Environment Research Council
Nature | Earth and Environment
Smithsonian Environmental Research Center

“It just so happens that the best management practices for rangelands also promote other goals,” says Jim Thorpe, a Quivira member and owner of a ranch near Newkirk, N.M. “It’s like being a grass farmer, only, instead of [my] growing it, the cows are.”

Land manager Savory, who now lives in Albuquerque, N.M., had his “aha!” moment while managing Rhodesia’s (now Zambia and Zimbabwe’s) fledgling national parks in the 1950s. He was puzzled when wildlife preserves started degrading soon after being put off-limits. The land became bare, packed, and hard, the riverbanks trampled and defoliated. Nearby areas that hosted large numbers of herbivores, carnivores, and even people, meanwhile, remained verdant and healthy.

“I was seeing the healthiest land where there was the healthiest game population,” he says. “But where we’d created reserves, removed people, and stopped hunting, almost immediately, the land became degraded.”

Then it hit him: When protected on reserves, herbivores quickly became sedentary, leading to the same problems observed with chronic grazing by livestock. Savory’s insight: Grazing of a certain kind is integral to a savanna’s health. Migrating wildebeests and elephants recycle nutrients, he reasoned. The large quantity of urine and feces these large herds left jumpstarted the microbial activity necessary for healthy soil. Trampling broke the surface cap on the soil, permitting more water to flow into – rather than off of – the earth. The key to whether animals enhanced or destroyed rangelands was how long the animals remained in a given area. If they stayed too long, they killed grass and compacted soil. But if they moved through quickly, the plants survived and, newly fertilized, rebounded spectacularly.

“I realized we could use domestic animals to mimic animals on the move,” he says. “Use the maximum density of animals for minimum time, followed by adequate recovery periods for both soil and plants.”

But with its emphasis on more animals, not fewer, many say Savory’s method sounds too good to be true. The American West is hardly an African savanna, skeptics add. While the Great Plains hosted hordes of bison, ecosystems further west did not evolve with large numbers of migrating herbivores. (Semiarid western ecosystems were greatly shaped by wildfires, another periodic disturbance that recycles nutrients, however.) The grazers here – elk, bighorn sheep, rabbits, grasshoppers – affect the landscape very differently than do domestic cows, says George Wuerthner, author of “Welfare Ranching” and a critic of Savory’s. Cows simply can’t functionally replace wild animals, he says.

Scientific study generates debate

Others question whether Savory’s approach delivers on its promise. A 2008 review in the journal Rangeland Ecology & Management concluded that many studies have failed to show that it worked better than continuous grazing. The paper generated debate at a recent meeting of the Society for Range Management in Ft. Collins, Colo. Many adherents of methods like Savory’s conclude that the science was flawed.

“I know for a fact that we can graze livestock in the West on a sustainable basis,” says Rick Knight, a professor of wildlife conservation at Colorado State University, Ft. Collins.

Keith Weber, a scientist at Idaho State University, Pocatello, has data that may help resolve the debate. In an ongoing experiment, he’s found that intensely but briefly grazed pastures have higher soil moisture than either rested pastures or those grazed for long periods and then rested. He hopes to submit the results of his experiment for publication in a year.

Critics and proponents of these grazing methods do agree on one point: planning and monitoring – how engaged a rancher is with his or her land – makes all the difference.

“Livestock grazing can be sustainable, but it’s not a sure thing,” says rancher Jim Thorpe. “You’ve got to pay attention.”

(**More stories**)

Comments

1. ***Leslie Myers*** | 01.21.09

This is certainly an idea worth looking into with some possible long term merit but I also agree with Weurthner's comment that "cows cannot functionally replace wild animals." I believe it's a bit like comparing apples and oranges but I salute the ranchers who are truly looking for solutions. Why are cattle allowed to graze on BLM lands which were originally protected for the perpetuation of the ranging wild animals?? Now our wild horses are being wiped out to placate the ranchers. Cattle are ruining public lands as well as the ranches. Why has this practice been allow to continue?

2. ***Dan*** | 01.21.09

First, horses disappeared from North America– along with every other species over a certain weight– around 12-15 thousand years ago. All "wild" horses today are descended from horses which escaped the first Europeans to come to North America, beginning around 1500.

I am confused as to why no attempt was made in this article to account for the role of Native Americans on various ecosystems prior to the arrival of the Europeans with their supply of domesticated horses, iron tools, firearms, barter-for-resources economy, and most important of all– the Old World diseases.

The Native Americans who came to make up the Sioux and Cheyenne here where I now live intensively grazed and hunted small sections of their territory on a seasonal basis. Some of the year, fish were spawning and they ate fish. But they always took their large herds of ponies along with them, and those ponies ate a lot of grass, and by the time the men had hunted the area out the ponies would have eaten the best of the meadow grasses. The Indians would then move on– and some time later the game animals would return to the area, but not until they had had some time to recover.

As someone who grew up raising cattle on buffalo grass prairie, and who has seen the alarming takeove of so much of that prairie by huge, out-of-control colonies of prairie dogs and the spread of yucca, I think these ideas merit more research and experiment. We get more rain here than the desert. We can raise dryland crops with no-till farming technigues, crop rotation, and planning. But I have always dreamed of establishing corridors up and down the Great Plains where the historical game herds could be re-established and those descendants of the Sioux, Cheyenne, Arapahoe, and Commanche who wanted to could follow along and live their traditional way of life, while helping the ranchers to live one as well.

3. ***ChrisMarks*** | 01.21.09

The idea that this practice of ranching really entails more total animals seems debatable. If you have to keep them moving, it would seem that you need a lot more land; therefore cows/acre may not increase at all and if they do, its because the land has been improved enough to allow more cows/acre. As to the assertion that "cows cannot functionally replace wild animals"- it would be helpful to see an explanation why or some evidence thereof. Otherwise it comes across as a statement of aesthetics rather than biology.

4. ***Chuck Moody*** | 01.21.09

One very obvious difference that hit me as I read the above comment was the difference between BLM land and private land. If a rancher destroys his/her land by overgrazing or some other questionable activity, bankruptcy and foreclosure follow quickly. So, the private land owner has a stake in the continued and increasing health of the land. This is not true of "public" land: Everybody owns it, so, in effect, no one owns it. If a rancher has no stake in the land

except what s/he can graze/profit off it before the lease goes to someone else, can we wonder why gov't lands might not do so well?

The original Commons of the Massachusetts Bay Colony showed what happened when nobody bore direct responsibility for the land, only for what he could profit from it. What the Protestant Lords of King William did to their lands in Ireland showed again what bearing no personal responsibility for the care of lands could do. They knew that the favor of the King might be withdrawn at any time, and with it, the title to the land, so whatever they could take right now was what they did–no long term investment of any kind.

BLM lands are no different today. If BLM land were leased on the basis that improvements in cover must result, or the lease would be given to someone who wanted to improve the land and, therefore, produce a better beef, much of the degradation problem could be addressed without the gov't having to spend a dime. Everybody would benefit, ranchers and the public.

5. ***Michael*** | 01.22.09

Excellent question and I think the answer is that ranchers have had the political clout to get what they wanted from local and national governments. Hopefully, the growing numbers of conservationists and outdoor enthusiasts will start to even the playing field. I also hope that Obama's administration will aid in the effort to preserve wilderness. And by preserve it I mean restricting snowmobiles, 4×4s, road construction, mining, wildlife control by spreadsheet, etc.

6. ***JP Powell*** | 01.22.09

I applaud the Monitor for bringing the topic of ecological agriculture production and multiple use management to their audience. Land management from an ecological perspective has been used by rangeland and grassland managers for a long time. It should be noted that that issue of grazing management is a very complex and diverse issue that varies based on an area's vegetation, climate zone, land ownership, laws, and socioeconomics. Savory's grazing system has been successfully used in many areas, but systems such as season-long continous grazing have been scientifically proven to provide the best results for wildlife, vegetation, and agriculture production in other areas. Also, many natural resource managers use Savory's holistic management decision making paradigm separate from his grazing system. This very broad issue can not even begin to be covered by this short article, but the main idea that livestock production can complement or benefit ecological sustainability is correct.

7. ***JP Powell*** | 01.22.09

Chuck Moody's comments would lead you to believe that there is free reign on public lands for livestock producers. BLM lands are overseen by natural resource professionals with specific backgrounds in grazing management and ecology. Their job is to manage the grazing to maintain ecological sustainability and multiple use of the public lands. Because everyone has an interest in public lands different values and politics are interseeded into the process. As public land, every citizen of the United States has a right to comment on actions taken on public lands through the NEPA (National Environmental Protection Act) process. The agencies are also very underfunded for the task they are given. An average BLM rangeland management specialist oversees livestock grazing on 250,000 acres for 100+ permittees.

8. ***Tom Sidwell*** | 01.22.09

I have been practicing holistic management(HM) since 1980 and I will never manage the resources on my ranch any other way. I have a degree in Range Management and spent 10 years with the BLM administering the range program on 1.2 million acres. I quit to go back into the ranching business because that is where my heart lies. I have managed ranches in Texas,

New Mexico, Nebraska, and my wife and I are currently building a ranch from the ground up in northeast NM. My educational and professional experience with “conventional” range management and my practical experience with 28+ years of HM has shown me that HM will improve and sustain the ecosystem much quicker than the grazing systems used by the federal land management agencies. On one ranch I had a herd numbering 500+ cows in 54 pastures that would graze 1 to 2 days in each pasture and then be rested for 100 to 105 days before being grazed again. Within 3 years bare ground began to decrease, plant vigor improved, and species diversity increased as well as an increase in antelope numbers. On another ranch with 350 cows in one herd and 34 pastures, bare ground decreased 8 percent, cool season species increased 8 percent and water level in 2 wells increased dramatically in five years after being monitored for 45 years(these measurements were taken by the NM State Land Office and NM State Engineers Office). In addition, weaning weights increased, pregnancy weights increased, cattle numbers increased 10-15 percent, annual operating costs per cow decreased, and the ranch began showing a profit. Why don’t more ranchers use HM? I don’t know; I’ve spent 28 years trying to figure that out. I think it’s a combination of traditionalism, fear of change, being stuck in a paradigm, lack of knowledge about HM, and, of course, everybody has heard about so and so who tried it and went broke. HM is management intensive and many people aren’t suited for that level of intensive management and that’s ok. In our free society, we have the freedom to use our own land according to our own desires. If we abuse it or degrade it, we will lose it and someone else can take their turn at managing the land. I think that over time with new blood and better education, private and public land managers will use HM to improve our natural resources. After all, the land did not get into its present condition overnight and it will not improve overnight. But I think it is very important that the improvement be made through pride of private property ownership infused with education and not forced upon us by dictating through legislation and regulation.

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