



Herding: How It Works in the West Elks

by Dave Bradford and Steve Allen

Like most things in life, ranching is changing. Whether we accept it or not, like it or not, changes are occurring. With some changes, the benefits are easily seen and consequently readily accepted. With other changes, the benefits are not so obvious and, as a result, may not be accepted at all, unless the change is forced upon us. On the Western Slope of Colorado over the last five to 10 years, there have been a number of changes in how ranchers manage their operations. Some of these changes have occurred because they were willingly adopted, some because there was no choice.

One change that is increasingly being adopted by Western Slope ranchers is the practice of herding cattle. Herding can be described as a management technique where livestock are kept as a more-or-less single unit as they graze. Generally this technique is part of an overall man-

agement approach that is sometimes called planned grazing or holistic management. The planning is critical, as all management techniques that are used in grazing need to be considered



Moving cattle from corrals to lake. (Photo by Dave Bradford.)

as part of an overall goal. The West Elk Livestock Association has used herding as part of their grazing plans since the early 1990s and the approach has been a resounding success. The success on the West Elk has helped planned grazing and herding to spread throughout Western Colorado.

Setting

The West Elk allotment is located in the North Fork of the Gunnison River Valley in western Colorado, southeast of the town of Paonia. The North Fork Valley is both rural and lightly populated. The economy is based on coal mining, fruit orchards, and livestock ranching.

The allotment lies in the northwest portion of the West Elk Mountains. The northern West Elk Mountains were created 10 to 50 million years ago as orogenic processes forced intrusions of igneous materials up through the surrounding sedimentary deposits of shales and sandstones.

This created a complex landscape of cone-shaped, igneous mountains interspersed with basins, ridges, and slopes of shales and sandstones. Elevations vary from 6,000 to 12,000 feet. The precipitation also varies—

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From the Founders

Jim Winder
Courtney White
Barbara Johnson

Recently, we decided that a publication is in order. Outdoor classrooms, workshops, newsletter, site tours, and demonstration projects are wonderful vehicles for sharing information and building bridges, but their impact is somewhat restricted.

The impact of a book would be much wider.

The New Ranch: An Owner's Manual will be the first of an occasional series of monographs published by the Quivira Coalition on subjects related to the western range. It will synthesize recent ecological research on rangeland health and illustrate these findings with proven examples of progressive ranch management.

The goal of the Owner's

Manual is to make the methods, techniques, and philosophy of the New Ranch available and accessible to a larger audience and to give ranchers a resource for improving their land management. Public land managers and environmentalists represent other audiences likely to take an interest in the Manual.

We envision a volume approximately 150 pages in length, with photographs, illustrations, figures, suggested further readings, and practical exercises. It will be formatted for ease of use as a textbook and field manual. The writing will be succinct and accessible to a nonscientific audience, striving to translate ecological concepts and research into plain language.

Tentative chapters include: 1) An Introduction to the New Ranch; 2) Background On The Old Ranch; 3) Ecology and the New Ranch; 4) The Spatial and Temporal Distribution of Water and Nutrients; 5) Thresholds and Trigger Sites; 6) Monitoring; and 7) Economics and the New Ranch.

Our hope is to produce a book that is useful to ranchers who are trying to make fundamental changes in the way they manage their lands, and to the public land managers, scientists, environmentalists, and others who wish to assist them.

If it sounds ambitious—it is! Fortunately, most of the information already exists—at scientific research institutions, on progressively managed ranches, and in the heads of activists and au-

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Ninety-three-year-old Herman Salazar can remember a time when herding was the dominant economic activity in the mountains of northern New Mexico. As such, his life forms a bridge between the traditions of the past and the reinvigoration of those traditions in the present.

Herman was born in Youngsville, near Abiquiu, and raised in Cañones, where, as one of eleven children, he was inducted into his father's sheep herding business as a young boy.

There was plenty of work to do. The arrival of the railroad in 1880 caused a boom in livestock production throughout the region, as new markets across the nation suddenly became available.

Of course, pastoralism was already a significant part of the Spanish heritage in the region. For centuries, herders had tended small flocks of sheep and cattle as they meandered across the mountains and meadows. It was an early form of sustainable agriculture; people raised only what they needed.

Things changed rapidly after 1880, however. Everyone became herders, remembers Herman. The mountains were filled with sheep and cattle, as well as predators. Herman remembers the work as being very hard and dangerous—if a bear or a lobo (wolf) didn't get you on your solitary rounds, a rustler might.

For a while, recalls Herman, herders were the most murdered people in the area.

It was a different time, says Herman. Herders had few fences to fight; the whole family would get involved, which lightened the

burden; and there was a community focus on animals and agriculture—a focus which Herman says has been nearly lost today.

For a variety of reasons, herding came to an end substantially in the 1920s. The market for meat and wool was depressed, prices fell, overgrazing by too many animals without enough recovery time had damaged the land, a cash economy had arrived in force, jobs shifted to the cities, and so on.

In 1926, Herman decided to take a job at the new dude ranch

The Ties That Bind Herman Salazar, Former Herder

by Courtney White

In Spanish, *pastor* means *herder*, someone who is a caretaker or steward.



Herman Salazar.
(Photo by Courtney White)

down the hill—Arthur Pack's soon-to-be-famous Ghost Ranch. It was a sign of the times.

Nevertheless, after all these years, Herman looks back on his days as a herder with pride. He is excited that herding might be making a return to his homeland, and hopeful that old customs might be saved, especially if it means getting closer to the land.

[Ties That Bind is an occasional series on ideas and projects that simultaneously maintain cultural and biological diversity.]



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Back to the Future: The Environmental Benefits of Herding

by Kirk Gadzia

Kirk is an educator, author,
and range expert.

Paradigms, or the widely accepted viewpoint of the way things are, can be helpful or they can block our vision toward a potential yet undiscovered. Examples of this abound in business, agriculture, and human relations. Perhaps one of the most widely cited examples is of the Swiss watchmakers who discovered the quartz movement that is now the almost universal standard of timekeeping. When the Swiss watch manufacturers discovered this invention in the mid-1960s, they dominated watchmaking. Yet, because it did not fit with their view of how watches were made, they didn't even bother to protect the invention and actually displayed it at the annual watch conference. Texas Instruments and Seiko saw the potential and reaped the rewards.

In relation to rangeland health, another equally important paradigm may be blocking our vision of the future. This paradigm is that overgrazing and overtrampling by animals is caused by the number of animals present on a given piece of land, also known as the stocking rate. We have laws and regulations on most of our public land that reflect this viewpoint. Indeed much of the conflict within the ranching communities in these areas centers around stock reduction issues.

Unfortunately, the potentially negative impacts of animals on land is much more highly correlated with the amount of time land is exposed to animals and the subsequent time that is given for recovery. This is a relatively new paradigm that, despite abundant evidence to support it, still has yet

to gain total acceptance.

Exposure, Not Numbers

It is very true that overgrazing and overtrampling can damage land by compacting soils, reducing biodiversity, productivity, and soil cover. It is also true that overall carrying capacity in relation to animal numbers on a given unit of land is an important factor to consider in planning. However, what causes damage to the land is not the numbers of animals, but the amount of time the plants and soil are exposed to the grazers. A plant bitten severely by an elk or by cattle will recover if the animals go away and leave it alone long enough for the plant to regrow its leaves and root system. In fact, this severe grazing can actually benefit the plant and the environment by cycling old nutrients, clearing away dead vegetation, and stimulating new growth above and below ground.

No animal grazes a plant as severely as fire impacts it, yet burned plants do recover if given time. A piece of land that is continually trampled will quickly take on the look of a parking lot (e.g., areas around water tanks). But, the periodic disturbance of soil and compaction that gives seed-to-soil contact can produce almost the opposite if recovery periods are given for the new plants to establish and for roots to grow.

Root Growth

Root growth is one of the most powerful forces on earth to counteract the effects of compac-

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tion. Given time roots will break concrete and asphalt—there are few areas more compacted than that! Gardeners who read their seed packets will recall the instructions for successful establishment of the plants: “Press seeds firmly into soil.” For the same reason, farmers run cultipacker wheels behind their seeders, but they do not do it on a daily basis.

Most grasslands around the world developed with the influence of grazing animals. Historically, grazing animal movements, and thus disturbance and recovery periods, were governed by a complex set of interactions involving rainfall, migration patterns, home ranges, territories, predator/prey relationships, fire, drought, and a host of other factors. The net effect was that large grazers tended to herd in large groups and moved on after disturbing an area. They tended not to return until the area had recovered.

I have viewed rangeland impacted by a group of over 5,000 cattle; it can cause quite a disturbance! However, I can scarcely imagine the effect that half a million bison had on the land when they moved through an area. Yet we know that these areas were healthy in the long term. Early explorers reported seas of stirrup-high grasses even in fairly dry environments, springs flowing where they no longer do, and biodiversity much greater in most areas than it is today. The biggest evidence was the level of topsoil that had been built over many millennia.

Fencing: Positive and Negative

Most rangeland in the U.S. today is fenced to control domestic animal movements. The invention and widespread use of barbed wire coincided with the rapid decline of rangeland in many areas and is also correlated to high stocking rates at the time. While stocking rates get the bulk of the blame, the problem really has stemmed largely from the confinement of the animals to specific areas for prolonged periods of time. We have attempted in many cases to mitigate these effects by reducing stocking rates. The problem is, this isn't the problem! Rather, successful management hinges on avoiding prolonged exposure of the soil and plants to grazing animals and ensuring adequate recovery periods.

One method of simulating the positive effects that wild grazers once had on land is to use fencing and planning to concentrate animals in a given area for short periods and move them on before severely bitten plants are rebitten. The plan must also ensure that the animals do not return until these plants have had a chance to fully recover. This recovery period varies depending on the climate and growth rate from several weeks to many months or even years.

However, the negative effects of fence are legion. Fences are expensive to build and maintain. They can disrupt the movements of game animals and recreational use, and, for most of us, particularly on public land, fences are an

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Environmental Benefits of Herding

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eyesore. Unfortunately, few other options currently exist.

An Alternative: Herding

One of the most promising alternatives to fences is a return to supervised herding of livestock. Herding gives us a way of controlling animal movements, creating limited exposure time, and planning adequate recovery periods. Further, it can provide the protection of domestic stock from preda-

allocation of time in each herding area. Some areas will need to be avoided completely, while others may have time restrictions or require other management techniques to be used.

Herding allows great flexibility in accomplishing these objectives because pasture sizes and times can be changed very easily, without the need for fences. In the relatively few areas where herding is now being done, it has shown great promise as a method of keeping livestock from congregating on riparian areas while dispersing grazing and impact on areas that can potentially benefit from it. This takes on added importance when we recognize the fact that riparian areas do not exist in isolation.

Riparian zones function in concert with the watershed. It is relatively easy to reverse the damage on lands that get adequate moisture. In many cases, simply removing livestock grazing will generate quick recovery. This can also be accomplished through time control. However, restoring normally dry rangeland is a different matter. Recovery is usually neither quick nor the result of simply removing disturbance. In fact, in many cases, periodic disturbance with a recovery period is absolutely crucial to the restoration of these areas.

Benefits of Herds

Specifically, rangeland plants and soil can benefit from the effect that grazing herds can provide by: the incorporation of

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Tail end of 350 pairs being moved on the West Elk Allotment. (Photo by Dave Bradford.)

tors. For some, it even provides a return to a lifestyle that may be preferable to other options.

Herding in and of itself will prove of little benefit without a comprehensive grazing plan. A plan focusses on all elements that could affect the plan in relation to goals for the area being grazed. This could include such things as sensitive wildlife habitat, calving or fawning areas, poisonous plants, limited water, high recreational use, potential flooding, and many others. Essentially the method requires that each item be put on the plan and dealt with in the



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standing litter into the soil surface, the mixing and compression of seeds into the soil, and the fertilization of the land through animal wastes. This interaction has taken place for many millennia, but in the last few seconds of time we have disrupted it with our current livestock husbandry practices.

Improve Animal Performance

Another critical aspect that must be considered in any herding operation is animal performance. While it may be fine to use this tool to ecologically benefit the land, the people who make their living from the livestock normally must see a bottom line benefit as well, or it is not likely to be practiced. Most operations must achieve adequate weight gains during the course of the grazing season. In the case of breeding stock, calving percentages and rebreeding are also important measures of success. All of these require that animals' nutritional requirements are adequately met, and that animal stress is kept to a minimum.

Over the last few decades there has been increasing information and work done on low-stress animal handling techniques. Not only do these techniques improve animal performance, they provide for more humane treatment of the animals as well. These techniques apply directly to herding but require training in observation of animals and their behavior.

A return to stockmanship, rather than relying on brute force and technology, is the key. Benefits of the approach have been recorded in almost every species of animal to which they have been

applied. Rather than viewing humans and herding dogs as antagonists, herded animals come to rely on their herders as both protectors and those who bring them to fresh grazing and water on a daily basis. The herder must learn to understand and respect the animal's signals that it is becoming stressed. In turn, the animals become calmer and tend to herd tighter when correct procedures are used.

In summary, the potential environmental benefits of herding are enormous. The benefits not only will affect land but also people, finances, and the animals themselves. Many obstacles remain to be overcome to fully utilize this technique and much knowledge about herding has been lost with the era of fencing to control animals. We need to continue to document the success achieved by those pioneers returning to this age-old method of husbandry as well as learning new techniques that can help it achieve unique land management objectives in the new millennium.

From the Founders

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thors. It will simply be a matter of interviewing people and assembling their knowledge into a readable form.

We already have a researcher on board to write the Manual, and a couple of leads on funding sources. With a little luck we hope to introduce The New Ranch: An Owner's Manual next winter, at our First Annual Quivira Conference, to be held in Albuquerque.

Environmental Benefits of Herding

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“A return to stockmanship, rather than relying on brute force and technology, is the key.”



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Proper Forage Utilization Through Understanding Animal Behavior

by Dean M. Anderson

Dr. Anderson is a range animal scientist with the USDA Agricultural Research Service at the Jornada Experimental Range. He has been a scientist at the Jornada for 22 years and is a noted expert in range animal behavior.

The interaction between grazing animals and range plants (commonly termed the plant-animal interface) is not static. At the core of this interface lies a complex and yet to be fully understood dynamic—group animal behavior.

In 1919, Jardine and Anderson wrote that “next to proper stocking, distribution of stock on the range is the most important feature in range management.” Over the last 80 years, research has attempted to improve animal distribution in order to improve utilization. However, as recently as 1998, Holechek, Pieper and Herbel wrote that “uneven use of rangeland by livestock continues to be a major problem even though numerous factors have been studied and employed to positively impact animal distribution and subsequent rangeland use including: Distance to drinking water; Fencing; Animal: age; kind; class; physiological state; breed; Husbandry practices using: rotational grazing strategies; herding; burning; fertilization; shade, natural and artificial; placement of nutrients, salt, minerals and supplements.”

Though continually listed as “the” tools for improving distribution, these factors, when used individually or in various combinations, have been inadequate. We have not yet solved the challenge of how to consistently obtain proper distribution and optimum plant use. Therefore, other factors apparently play a prominent role if proper distribution and use is to become the norm.

Understanding Animal Behavior

I propose the reason we have yet to attain proper utilization is because we have chosen to overlook or mismanage animal behavior as a means of positively affecting animal distribution. For many resource managers, large herbivore behavior first engenders thoughts of control rather than understanding. I submit that, if understanding was approached first, we would be better equipped to improve or sustain vegetation use at the plant-animal interface.

An individual animal’s behavior is the result of its immediate integrated response to many diverse environmental cues. Animal behavior exists at two levels, the individual and the group. Historical research lists many biotic and abiotic factors including, but not limited to, hunger, thirst, physiological state, sexual drives, breed, and ambient weather (air temperature, moisture, wind, and light) as affecting both individual and group behavior.

Group Behavior

Though individual animal behaviors are important, it is the understanding of principles that underlie group behaviors that are sorely lacking at the present time. Group behaviors represent more than simply the sum of individual animal behaviors. A group possesses unique characteristics resulting not only from its size (number of animals) but also from the individual personalities among its members. What do we know about

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groups?

Herbivores are Gregarious

Herbivores are gregarious. A computer-generated group of birds (models called boids) used only three simple rules to flock: maintain a minimum distance from other objects, match velocities with immediate neighbors, and move toward the center of mass among neighbors. "Virtual animal behaviors" have limitations in articulating the principles that underlie live animal group behavior. However, three principles emerge from this and other research: **animals have a personal space, they seek out companions, and they find safety amid the flock or herd.**

Memory Plays a Role

Past experiences impact future behaviors. Animals make many more choices among what plant species to eat compared to where to eat but in both decisions perception, knowledge, and memory are important. Cattle appear to remember where they have foraged for varying lengths of time after the event. The choice of what to eat involves both simple and complex interactions among the senses. Post-ingestive feedback can affect an animal's selectivity. Animals can be trained to avoid certain palatable foods by pairing their consumption with a chemical that will induce gastrointestinal discomfort. As a result of this experience, animals subsequently avoid a food that was previously eaten. It remains to be demonstrated if this training has long-term practical application for re-

source management. In contrast to aversion, the addition of certain flavors to palatable foods may increase intakes above normal levels. This knowledge may facilitate ways in which foods of low preference but high nutritional value can be increased in an animal's diet.

Memory not only impacts nutrition but also husbandry practices. Animals associate painful experiences as well as pleasurable ones with specific locations. Animals can be trained to lead other animals with repeated success through complex mazes. In this training, rewards go farther than unnecessary pain.

Animals Taught by Peers

Respected peers are important in teaching naive animals within groups. This goes beyond the obvious teaching that occurs between a dam and its offspring. Animals can be rapidly taught to accept novel foods by watching peers that have been previously habituated to the food as compared to watching naive animals unfamiliar with the novel food. This knowledge can have both positive (supplement acceptance) and negative (selecting poisonous plants) management implications. In addition to dietary training, spatial training is currently being investigated on free-ranging livestock. It is proposed that information on foraging location (cognitive maps of terrain) can be passed to subsequent generations based on the dam's use of space. If dams are selected that seek out appropriate areas in which to forage, will

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Understanding Animal Behavior

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Profile Of Good
Stewardship:
**The Valle
Vidal
Grazing
Association**

Good stewardship sometimes means looking at old ideas with fresh eyes.

Fifteen years ago, the Valle Vidal unit of the Carson National Forest, located east of Questa in far northern New Mexico, belonged to the Pennzoil Corporation. Then, in 1985, Pennzoil offered to trade the large, secluded, mountainous, and biologically complex property to the U.S. Government for a substantial tax deduction. The government readily agreed.

Although the land had been heavily grazed and logged over the years, the acquisition of the Valle Vidal gave the Forest Service and the ranchers in the area a “clean slate” to start something new. So they turned to history: **they chose herding.**

Joe Torres, the president of the Valle Vidal Grazing Association, and one its founders, said he came up with the idea of herding cattle after talking with his grandfather, who spent a lifetime herding sheep in the area.

Grouping the cattle together and moving them daily made environmental sense, not only to Joe, but to District Ranger Leonard Atencio as well. (Leonard is currently the supervisor of the Santa Fe National Forest.) Joe had observed the effect that rest had on the land and saw the need to give meadows regular rest from grazing pressure.

Economic Sense

Herding also made economic sense to Joe and his fellow ranchers. Today the Association has over 800 head of cattle on the

Vidal, double what they had 10 years ago. All 800 head are treated as one herd and moved daily by a full-time rider employed by the Association. Joe figures the rider costs an extra \$20 per head of cattle per year. “It’s worth it,” he says. “We see the return every day.”

Joe sees herding as a way of “having control” over the environmental impacts caused by cattle. “They can’t stay in the creek bottoms,” he notes, “because the rider won’t let them.” A lighter touch on the land means better forage for the cattle, which means fatter calves and healthier profits.

Healthier Ecosystem

It also means a healthier ecosystem. Environmentalist Ron Gardiner, who lives in Questa and knows the Valle Vidal intimately as a biologist, concurs with Joe’s observation that the Vidal has been substantially improved. “Herding is a beachhead,” he says, “a good way to get restoration started.”

Ron notes that the Vidal is unusually well-suited for herding. It is a very large allotment, with plenty of grassy meadows and open spaces, some of which are the result of historical logging. He has observed a dramatic improvement in plant and wildlife diversity since herding was initiated. “The riparian areas, however,” he says, “are coming along more slowly.” In his opinion, they are grazed too hard during the growing season.

Nevertheless, according to Ron, the contrast between the environmental conditions of the Valle Vidal and surrounding allotments,

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where herding is not practiced, is dramatic. One adjacent meadow in particular, says Ron, demonstrates 90% utilization of forage and is in “terrible shape.”

This point is echoed by Forest Service District Ranger Ron Thibedeau who considers the Valle Vidal grazing program “exceptionally good and balanced.” Its success has allowed him to shift valuable money and resources to other parts of his district. He credits the program’s success to the permittee’s willingness to “reinvest in the operation,” particularly by spending money on a herder.

Herding: Positive Benefits

He cites the positive benefits of herding: it spreads the effect of grazing over a wide area, forces the cattle out of sensitive areas, creates a natural form of disturbance so that seeds can be pressed into the soil by the hooves of the cows, and allows significant stretches of the Vidal to rest.

Mr. Thibedeau observes, however, that the good condition of the Vidal is not solely the result of grazing activity. “Thousands of hours of volunteer time has poured into the Vidal over the years.” This includes pole-planting new trees, fisheries work, and other forms of environmental restoration.

This work has been coordinated with the grazing program in a positive manner. “The key is communication,” he says. He credits the Grazing Association’s flexibility, cooperation, and shared goals for the continued success of the Vidal experiment (for that’s what it is really).

Everyone agrees there is

room for improvement on the Vidal. More monitoring is required, as is, perhaps, a more complete understanding by everyone of the role timing, intensity, and frequency of cattle grazing plays in ecosystem function. But as an experiment, and as a role model, the Valle Vidal idea is an encouraging one.

Joe Torres thinks what they have done could be accomplished “all over northern New Mexico.” It’s not really a matter of money, after all. It’s all about values, he says, and “you can’t put a dollar figure to that.”

Which proves that sometimes the best ideas are the simplest ones.

Meeting at Quemado Attracts Crowd

by Carol Pittman

Kirk Gadzia, range expert, came to Quemado to address the basics of land health and the related subject of grazing management before some of the most successful ranchers in Catron County.

Sponsored by the Quivira Coalition and the Catron County Farm Bureau, the first half of the day was spent at the Quemado Community Center discussing specific issues of land, labor, and livestock. The meeting moved outdoors in the afternoon—to the Hubbell ranch—to see what land looks like when the principles Gadzia espouses have been put into practice.

Discussion centered on challenges to the commonly held belief that land must be rested for extended periods if it is to recover from heavy grazing. One finds that removing all grazers for an extended time does not necessarily result in range recovery. Often, the opposite occurs: that is, the range looks pretty much the same as it did when it was retired from productive use.

Overgrazing may be defined as chewing plants to below about 50% of their growth height. Below that point, harm results to the root system and the growth potential of the plant. If, however, a grazer is restricted to the top half of the plant, the plant is stimulated—and has energy—to grow, to produce foliage, and to set seed.

“Cows can’t read,” Gadzia says, “so they will not be able to follow these instructions.” The rancher must do it for them by moving them from a pasture while most of the plants remain at the 50% point or above.

Good Stewardship: The Valle Vidal (con’t)



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The Far Horizon

by Courtney White

“Stewardship: the individual’s responsibility to manage his life and property with proper regard to the rights of others.”—
Webster’s Dictionary

So much to do, so little time.

In February, the U.S. Department of Agriculture released alarming numbers from a census of farms and ranches in New Mexico. According to a news release, between 1992 and 1997 the total acreage of farms and ranches in the state declined by more than **a million acres**, mostly lost to development. In Arizona during the same period, **eight million acres** of farm and ranch land went out of production.

A million acres in New Mexico! By my math, that’s a rate of almost 550 acres per day.

To producers, that’s a million acres no longer available to maintain an agricultural way of life; to consumers, that’s a million acres no longer available to grow food for our tables; to environmentalists, that’s a million acres no longer available for maintaining wildlife habitat and biodiversity.

There is little doubt that this rate will continue into the future, and possibly accelerate, as the long arm of urban expansion continues to consume land.

Not even public land is immune; as private land is lost, pressure will build for the disposal of public property for private use. Various attempts along this line have been tried in recent years in state legislatures and in Congress. You can bet that well-heeled development interests will try again.

The loss of private land to development will also increase pressure on wildlife populations. According to one estimate, 65% of all endangered species exist on pri-

vate land, mostly in riparian areas. The loss of this habitat raises the specter of extinction.

In other words, time has become our most precious commodity.

Our Mission

Over the past six months, there has been a steady increase in requests to the Quivira Coalition for our assistance. The variety of these requests speaks eloquently to the crisis confronting all of us.

Some requests are for help in arranging a conservation easement on a ranch. This is a legal agreement by which a nonprofit organization buys the “development” rights to a piece of land owned by a private individual. It means the landowner may never subdivide, or otherwise develop, his or her property—ever. The ranch remains a working ranch in perpetuity, and the landowner earns a substantial tax break in the process.

It’s a great idea, and one that is catching fire across the West, especially since it protects private property rights while conserving the environmental value of the land. It’s a job for land trusts, however, not the Quivira Coalition.

Some people have suggested that we become involved in the free market side of conservation ranching. This includes the promotion of organic beef, the certification of “predator-friendly” meats, and the development of niche markets for products created in tandem with progressive

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ranch management.

These are great ideas, especially since they allow the public to vote with their pocketbooks for good grazing management. It is not, however, part of our current mission statement.

A few people have asked that we use our skill at bridge-building to help them facilitate or mediate agreements between hostile camps. This is important work too, but we are not a consensus group. We don't search for "middle" ground; and we don't use the word "compromise."

There simply isn't enough time.

Stewardship

Our focus is on land, and on the people who are its stewards. Our work is aimed at restoring rangelands, protecting open space, encouraging ecologically sensitive ranch management, acting as a resource for other innovative ideas, and working as a catalyst for change.

This is important because so much of the grazing debate in the West, when you look at it closely, is not focused on stewardship.

For example, anti-grazing activists regularly deride government assistance to ranchers as subsidies for "welfare cowboys." Recently, a long litany of complaints against the "special treatment" afforded the cattle industry by "cowed" state and federal governmental agencies was published on the Internet. Not once does this document mention the issue of good stewardship.

Similarly, the agitation by

the ranching community over private property rights, custom and culture, and federal oppression has little or nothing to do with conditions on the ground. Even the struggle over the reintroduction of the Mexican Wolf has more to do with power and politics than biology.

Another good example involves grazing fees. Combatants on both sides of this debate use the price the federal government charges for grazing animals on public lands as a club on the American public. What, however, do grazing fees have to do with stewardship? The answer: almost nothing.

It is important to recognize that most of the grazing debate in the West is political, not environmental. That is why so much confrontational energy is being spent in the courts and in Congress, rather than in dialogue out on actual land.

There are many reasons why this brawl became political—lack of communication, conflicting economic concerns, ideological rigidity, even bad manners. One reason stands out, however: desperation. Both sides feel that time is running out, and they're right.

We are losing our cultures and our habitats, 550 acres a day.

Herding

The answer, of course, is to get back to the land and start a discussion about stewardship. What should land look like? How does it function properly? What sorts of human activities are sus-

(con't on page 14)

The Far Horizon

(con't)

Slide Show Chronicles Quivira's Activities

Courtney White, Executive Director of the Quivira Coalition, has assembled an hour-long slide show on our activities, including our Outdoor Classrooms, workshops, site tours, and Management Demonstration Projects.

It's a great way to learn about the Quivira Coalition and The New Ranch.

If you would like to have Courtney make a presentation to your organization or group, please contact him at (505) 820-2544.

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The Far Horizon

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Production of this newsletter and our March 20 workshop on Herding were made possible by a grant from a private New Mexico foundation.

tainable? And how do we work together to achieve common goals—before it's too late?

This is why herding is so attractive. By congregating cattle together and moving them every day, either under the watchful eye of a professional herder, or by some other stratagem, overgrazing is easily avoided. Under holistic principles, herding can be a tool to restore rangelands to health.

For ranchers, herding relieves the pressure from fence building, low weaning weights, hungry predators, declining forage, conflicts over riparian areas, and seasons being shortened because of a lack of spring grazing. Herds could even increase in size, if environmentally sustainable, with obvious economic benefits.

Herding is an old idea whose time has returned. Great herds of bison and other ungulates roamed the range for hundreds of thousands of years. Pastoralism, or the human-directed herding of domesticated animals, is at least ten thousand years old, and deeply embedded in cultures around the world.

The trick is to look at herding with modern eyes. For example, we need to better understand how an ecosystem functions, and what role grazing animals play in that system, before we can create a sustainable herding program. Water, soil, plants, sunlight, wildlife, fire, disturbance, and the timing, intensity, and frequency of cattle grazing are all interconnected.

Science is critical to everything. Long-term monitoring of the effects of herding on the land should be a key element to any

effective program. Ignorance is not bliss; we need to understand a resource before we begin to restore it. That means getting back to the land.

And we had better hurry. Time is running out.



Understanding Animal Behavior

(con't from page 9)

their offspring perpetuate these patterns? Preliminary results appear encouraging.

Conclusion

In conclusion, several points can be made concerning group animal behavior. First, apply a style of management to animal groups based on what you instinctively know about yourself and others. As animal species, we share some common behavioral traits. Second, the behavior of groups, though simple to observe, is difficult to explain because the behavior is a corporate effort of individuals and not all individuals react exactly the same to a given set of stimuli. Third, animals are not mindless creatures that behave randomly. They possess memory and as such use environmental cues to elicit their behaviors. Fourth, if given choices, keep management options simple. Requiring animals to accomplish complex tasks, though possible in many instances, is simply asking for less uniform performance over time.

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with the lowest elevations receiving an average of 7 inches per year and the highest elevations receiving over 40 inches. The vegetation on the allotment varies with elevation and topography. The lowest elevation areas are desert adobe hills and washes on the western side of the allotment. Lying to the east of the shale hills are mesas covered with juniper-piñon woodlands. Further east and increasing in elevation are the lower mountain slopes blanketed with oakbrush and serviceberry. Above these areas are aspen-cloaked slopes and ridges and further above them are subalpine parks. The allotment covers 90,000 acres. There are approximately 5,000 acres of Bureau of Land Management (BLM) land and 85,000 acres of Gunnison National Forest (FS)—with 60,000 acres of this in the West Elk Wilderness.

History

Six ranching families hold seven grazing permits on the West Elk allotment. They run their livestock as a cattle pool. While livestock grazing has been going on in the West Elk Mountains for over 100 years, the West Elk allotment had its beginnings in 1981 when four separate allotments were combined on a trial basis. The combination was also the beginning of grazing this area with a single herd.

The trial combination was formalized in 1986. From 1986 to 1993 the allotment followed a deferred-rotation grazing strategy, based on leaving a percentage of forage in a grazing unit by grazing each unit for a specific period of time. This approach has some benefits but can be overly rigid and generally does not consider plant growth and regrowth. It also does not consider other factors that may be important, such as poisonous plants, wildlife calving/nesting areas, recreation use, permittee

activities, rare/threatened/endangered plants or animals, etc. In 1994 the permittees, the BLM, and the Forest Service initiated an allotment plan based on holistic management. Like most allotment management plans (AMP) on public lands, the West Elk AMP has objectives, management actions, range improvements, and monitoring. But it is also based on a Three-part Goal which defines the end product that management is directed toward. The elements of such a Goal are: 1) Quality of Life; 2) Description of Forms of Production; and 3) Landscape Description. The goal of the West Elk allotment is:

West Elk Allotment Management Goal

1. Quality of Life. From now and into the future, our goal is to maintain a safe, secure, rural community with economic, social, and biological diversity. We will promote a community that respects individual freedom and values education, and that encourages cooperation. We agree to act as good stewards in maintaining a healthy ecosystem in the West Elk allotment and enjoy doing it.

2. Forms of Production. Our stewardship of the West Elk allotment and Wilderness Area will foster abundant and diverse flora and fauna, clean air and water, and stable soils. From this, the local population can derive a stable livelihood, and local residents and visitors can enjoy the aesthetic and natural values of the area.

3. Landscape. Our landscape covers adobe ground, brushy mid-ground, and mountain environments, including many different habitat types that we are committed to maintaining. Our goal is to have a good water cycle by having close plant spacing, a covered soil surface, and arable soils; have a fast mineral cycle using soil nutrients effectively; have an energy flow that maximizes the amount of sunlight converted to plant growth and values the seclusion and natural aesthetics of the area.

All management actions are evaluated against this goal to ensure

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Herding in the West Elks

(con't from page 1)

Dave Bradford is the Range and Wildlife Staff Officer on the Paonia Ranger District, Gunnison National Forest. He has worked in Paonia since 1993 and for the Forest Service since 1981. He is also the current president of the Colorado Section, Society for Range Management.

Steve Allen is one of seven permittees on the West Elk allotment. Steve and his wife Rachel have ranched on Fruitland Mesa and the West Elk allotment since 1987. Steve is on the Board of Directors of the Colorado Branch for Holistic Management.

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Herding in the West Elks

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The West Elk Livestock Association has received a number of awards in recognition of their management. They received the Colorado Section, Society for Range Management's 1996 Excellence in Rangeland Conservation Award. In 1997 they were awarded a Land Stewardship Award from the Western Slope Environmental Resource Coalition, an environmental group in the North Fork Valley. In 1997 the Forest Service awarded the group the Chief's Award for Excellence in Range Management.

that good decisions are made in the planning stage and that funds and efforts are only expended on actions that will help accomplish the goal. The grazing plans for each year are developed at an open meeting. Anyone with an interest in grazing on the West Elk allotment is invited to attend. The specific details for grazing on the allotment that year are developed at the meeting, including livestock numbers, the grazing season, pasture sequence, grazing levels, mitigation measures, range improvements, and monitoring. Livestock numbers are based on the original Term Permits of 1056 cow/calf pairs, but may vary—in 1998 the pool ran an additional 200 yearlings. The grazing season also varies but can occur within a May 10 to November 30 period. The grazing schedule generally includes 30 grazing units. Livestock moves between pastures are scheduled from three to 20 days—based on the biological plan. Actual moves are based on on-the-ground conditions. It's important to realize that livestock are moved before plants can begin to regrow. This is an important factor in ensuring that the range is not overgrazed. The planned grazing and herding provides the control needed to meet the management goal.

Herding

One of the key tools in moving towards the allotment goal has been the management of the livestock as a single herd. This single herd approach allows the permittees to concentrate their energies on all of the cattle at one time. Managing livestock as a single herd allows the permittees to more easily monitor what their livestock are doing. While there is a grazing schedule, the actual livestock moves are based on what is happening out on the ground.

How are livestock managed as a single herd on the West Elk allotment? The process resembles a

large flowing body in nearly continuous movement across the landscape. The herd can be described as a body with a head and a tail. Those cattle that are always pushing into new areas are the head. These are followed by the large mass of cattle that are the body. And the stragglers, that want to stay in the grazed pastures, are the tail. Cattle moves are almost never accomplished by moving 1056 cow/calf pairs as a single unit. The pool riders accomplish moves by guiding the head of the herd, or the leaders, into the areas that are planned for grazing. These leaders are usually followed by the body of the herd, moving on their own. The stragglers are then pushed along with the rest of the herd.

While most pasture moves involve moving into adjacent grazing units, several of the moves involve trailing the herd long distances—from five to 10 miles—and through formidable physical barriers. Originally the permittees thought that it would take one rider for each 50 pairs. Consequently they gathered up 20 or so riders to help in the moves. Over time they found that this many riders causes a great amount of confusion. Today the group uses no more than six riders for these moves.

The density of the herd varies between pastures and within each pasture. There could be 10 pairs scattered over one-half acre or 50 pairs grazing on one acre. Twenty minutes later this large group might disperse. There is continuous movement throughout the unit. Remember that, since the livestock are being managed as a single herd, they're limited to 1/30th of the allotment at any one time.

Some years the pool has used a hired rider, with supplemental riding by the permittees. Other years the pool has hired one of the permittees as the pool rider. And one year the pool split the riding duties among the vari-

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ous permittees. We continue to experiment with various options. However, there are a number of techniques that we believe help to accomplish the job:

1) Approach livestock calmly and don't push.

2) Point the livestock in the right direction and let them walk there.

3) Use good stock dogs. We use Border Collies.

4) Use salt effectively:

a) Focus on using salt as an attractant. On most western rangelands, salt is not required as a nutritional supplement. But it is highly desired by livestock.

b) Reduce the amount of salt used—we went from 5 tons per year to 1 ton.

c) Time spent putting out salt can be more effectively used herding.

d) Less salt seems to help reduce the incidence of "brisket" and other high elevation problems.

5) Some fencing may be necessary, but keep in mind that no fence will hold a hungry cow. For a variety of reasons we use some hard, four-wire fences, some fences with permanent posts and temporary electric ribbon, and some temporary electric fence with portable posts. The temporary electric fence offers flexibility and can reinforce our riding efforts where control is difficult.

Our on-the-ground management changes as we continue to learn. It will probably never be completely set, as conditions change, people change, and the land changes.

Why Are You Doing This? What's In It For Me?

For most of us this is the basic question—the bottom line. Why should I consider making this change? We believe there are a number of reasons:

1) **This approach provides flexibility on the ground.** Planned grazing provides many more opportunities for flexibility in management. One example involves range readiness. By having many grazing units, there are many adjustments that can be made for changing weather conditions. A number of years we have had cool wet springs. This has delayed plant growth in the high country. We were able to stay a day longer in seven of the early pastures. This gave us a week extra for the high country to



develop, before we moved there. And since the year was wet, there was good plant regrowth as we moved on and out of these early pastures.

2) **Cattle performance has improved.** Some of this is due to genetic improvements, but overall calf weights have increased 50 to 100 pounds. Our weaning weights vary from 550 to 650 lbs., depending on the genetics of the individual's herd. The number of open cows has also decreased, as we do a better job of keeping the bulls with the cows. Our open cows vary from 5 to 8%. Our vet bills have also declined. We attribute all of this to keeping the cattle on fresh feed and using short low-

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Herding in the West Elks

(con't)

Temporary electric fence used to hold cattle out of giant Larkspur.
(Photo by by Dave Bradford.)

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Herding in the West Elks (con't from page 17)

stress moves. We have heard of concerns that moving cattle frequently will reduce their weight gains. We haven't seen that. We have seen that, when we have inadvertently left some cattle behind, those cattle's weights were 50 lbs. less than the rest of the herd.

3) Relationships with other ranchers have improved. Working



Cattle being moved approximately 8 miles from one of the high country pastures. (Photo by Dave Bradford.)

towards a common goal helps us to stay focused on the important things.

4) Range conditions have improved. Herding has improved range distribution/utilization. There are fewer "overgrazed/undergrazed" areas. When we herd our cattle, we are doing a better job of managing grazing. By controlling when we graze and how much we graze, plants are able to get the regrowth they need to maintain themselves.

5) This is a quality of life issue. A major reason we do this is that we perceive ourselves to be horseback ranchers.

Costs

There are major costs associated with running our cattle on the West Elk allotment. Our pool fees for 1998 were \$2.50 per cow per month, \$3.85 with grazing fee. This

figures to \$11.00 per cow for the season, \$16.94 with grazing fees. Our pool fees are "out-of-pocket" expenses, such as salt, grain for the horses, food for the riders. This is the lowest cost we've had. We did all our own riding in 1998. If we had hired a pool rider, you could include another \$2.00 per head per month, or \$5,000 for the season.

If these reasons appeal to you and you think you might be interested in giving this approach a try, we have some suggestions.

Tips For Making It Work:

1) Base grazing plans on a biological approach—there are known seasons, opportunities, limitations, needs and difficulties that can be planned for in advance.

2) Collaborate rather than fight—it is more productive.

3) Start the process quickly—don't get bogged down on details.

4) Assume you can be wrong and monitor to see if you are.

5) Plan on having at least one wreck—things can and do go wrong. Nothing always works perfectly, so it ain't a mistake if you don't repeat it.

6) Schedule meetings every year. Deal with issues/problems before they become major roadblocks.

7) Don't fixate on the little problems. It is critical to have a goal so you know where you are going and to help you determine what is a little or big problem.

8) Remember that all plans are temporary and can be changed.

Will planned grazing using herding work for you? We can't say with absolute certainty that it will. However, it has worked successfully for us, and we believe it will work for others. This approach is being used successfully on over a dozen grazing allotments in Western Colorado. We believe it is an excellent approach to grazing livestock, that has worked wherever we have seen it tried. Do we recommend it? Absolutely.

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MARK YOUR CALENDAR!!

The following Quivira Coalition-sponsored events are scheduled:

April 10-11

Outdoor Classroom at the Empire Ranch, near Sonoita, in southern Arizona. (For more information, see page 20.)

May 22

Free Workshop on "Surviving Drought: How Healthy Economics Flow From Healthy Land" At Ghost Ranch, near Abiquiu, New Mexico. (For more information, see page 20.)

June 5-6

Outdoor Classroom at the U Bar Ranch, near Silver City, in southwestern New Mexico. (For more information, see page 20.)

June 26-27

Outdoor Classroom at the CS Ranch, near Cimarron, in northeastern New Mexico. (For more information, see page 20.)

July 10

Free Tour of the Rowe Mesa Grass Bank, near Santa Fe, led by Bill deBuys.

TBA in July

Free Tour of the Hubbell Ranch, near Quemado, in northern Catron County, New Mexico.

August 7

Free Workshop on "The New Ranch: Ecologically and Economically Sustainable Ranching," featuring Dan Dagget, Jim Winder, and Dr. Kris Havstad, in Albuquerque, New Mexico.

August 28-29

Outdoor Classroom at Sid Goodloe's Carrizo Ranch, near Capitan, in central New Mexico.

September 17-19

Outdoor Conference on ecology and herding, at Ghost Ranch, northern New Mexico.

September 25-26

The Quivira Coalition hosts the National Riparian Team for a two-day workshop on "Riparian Health and Grazing Management," in Peñasco, northern New Mexico.

October 2-3

Outdoor Classroom at the York Ranch, near Grants, in western New Mexico.

(Please Note: Some dates and places are tentatively scheduled and subject to change.)



JOIN US!

Would you like to join the Quivira Coalition? While we have finally received our non-profit status from the IRS and are beginning to receive grant money, we still rely on donations. If you would like to help us continue our educational mission, please send your contribution with this form to our Santa Fe address.

Yes! I would like to join the Quivira Coalition. I can contribute:

- ___\$15
- ___\$30
- ___\$50
- ___\$100
- ___Other

Contributions entitle you to receive this newsletter and notices of upcoming events and publications.

Thank You!



Congratulations to Executive Director Courtney White and his wife Genevieve Head on the birth of their twins (yes, twins!), Olivia James White and Sterling Armitage White.



UPCOMING EVENTS

Outdoor Classrooms on Rangeland Health

Under the overall instruction of Kirk Gadzia, educator, author, and range expert, we will spend two days studying the details of range health in a grazing context. Topics covered will include water and mineral cycling, energy flow, erosion, the impact of cattle on the land, fire, riparian health, botany, and monitoring. This is a chance to learn how environmentally healthy rangeland and economically robust ranches can be compatible. Each Classroom costs \$35 per person. Class size will be limited to 25. Preference will be given to members of the Quivira Coalition. For reservation call (505) 820-2544.

April 10-11 (Sat-Sun) at the Empire Ranch, near Sonoita, Arizona

Participants will have an opportunity to interact with the interdisciplinary science team which has helped guide the management of this extraordinary public lands ranch.

June 5-6 (Sat-Sun) at the U Bar Ranch, near Silver City

This ranch shields the largest population of endangered Southwestern Willow Flycatchers in the Southwest. We will meet the federal biologists who are researching the birds and learn how cattle grazing and endangered species protection can be compatible.

June 27-28 (Sat-Sun) at the CS Ranch, near Cimarron

This beautiful and progressively managed ranch sits on the edge of the Great Plains.

Surviving Drought: How Healthy Economics Flow From Healthy Land A FREE One-day Workshop at Ghost Ranch, Saturday, May 22, 1999

Instructor Kirk Gadzia will teach a day-long workshop on holistic ranch management, ecology and the effects of drought on rangeland. This workshop is designed to be an introduction to conservation ranching and will stress management techniques in drought situations. Anyone interested in the issue of grazing in the arid Southwest, including ranchers, environmentalists, public land managers, and other members of the public, is invited to attend. For more information, call (505) 820-2544.



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