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The Quivira Coalition

Working to Achieve Harmony Between Humans and Nature

Dances with Cattle: Collaborative Management on the Madison

by Todd Graham

I set my tent next to the pasture fence. Sleeping here would place me directly between the wolf den and a pasture full of steers. I reckoned that if the alpha pair went hunting in the night and traveled toward the cattle, they would encounter me first. If they attacked a steer, I could intervene. Since the den was only half a mile away, the chances of action were high. I crawled into my sleeping bag and inventoried my gear: bear spray, 12-gauge shotgun loaded with rubber bullets, two monster flashlights capable of lighting up the mountain, hunting knife, running shoes for sprinting, and a copy of Ed Morris's *The Rise of Theodore Roosevelt.*

After zipping up the bag, turning off the head lamp, and settling in, two thoughts raced through my mind. The first: I have no idea what I'm doing. The second: there's no way I can pull this off alone. The next day I asked for help and began learning the power of collaboration, not only in dealing with wolves, but in managing a landscape.

This was the scene in May 2003 on the Sun Ranch. I was a month into being a Montana resident, having moved up from Wyoming as the ranch's new manager. I, along with partners, operated a land management consulting business in central Wyoming. I've done lots of rangeland monitoring and helped write plenty of grazing plans, but I knew nothing about wolves. Sun Ranch had been a client, and I was intrigued by its efforts to coexist with wolves. This operation didn't view wolves as the enemy, but rather as another component of the ecosystem. When signing on as manager, I was given the task of successfully running cattle in the presence of wolves. How do you do that? In answering this question, I learned a great deal, but

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Editor's Note

This is the first in a series of newsletters on the benefits and challenges of collaborative management in the West, ***Reaching Across Fences***. We believe cooperation holds the greatest promise for the long-term sustainability of the West's communities and landscapes. Future newsletters will discuss conservation and collaboration, science and collaboration, and federal lands management.

From the Founders

We have news.

This fall, two significant developments are on the horizon for The Quivira Coalition. Separately, each would signal a new phase in our growth in and of itself; combined they present a tremendous opportunity, as well as a challenge, for our still-young organization.

First, we are pleased to announce that we are officially in the ranch management business. But only one ranch, and one ranch only.

Since May, we have been subcontracting to The Conservation Fund to manage the day-to-day operations of the 36,000-acre Valle Grande Grass Bank, located on U.S. Forest Service land atop Rowe Mesa, thirty miles east of Santa Fe.

This arrangement came about through the generosity of Bill deBuys, who found himself in an unanticipated managerial tight spot on the mesa last spring and turned to his friends (and literal next-door neighbors) for help—us. Fortunately, our friend Craig Conley was close at hand. On short notice, Craig jumped in with both feet (he claims he looked before he leaped) to shoulder the day-to-day responsibilities of the Grass Bank.

Bill placed great faith in The Quivira Coalition, and we placed equal faith in Craig. Fortunately, all our prayers have been answered. In fact, we'd like to publicly acknowledge the outstanding job Craig has done through the summer and fall. Lucky for us, he wishes to continue in the job, because…

By the time you read this, The Quivira Coalition will actually OWN the Valle Grande Grass Bank.

That's right. Through the incredible generosity of The Conservation Fund, and with the strong support of the Northern New Mexico Stockman's Association, we have been able to purchase the deeded property and the forest permit that comprise the Grass Bank.

Not only will we be in the grassbank business, in other words, but we will also be federal lands permittees!

We're still in a mild state

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From the Founders

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of shock ourselves. We'll explain this news in more detail later, but suffice it to say we're energized by the challenge. We think the grassbank is an important land management model, and we're thrilled to take over one that has been so well managed by the Conservation Fund.

The list of Thanks You's is long, commencing with Bill deBuys, who masterminded the deal, extending to Cullen Hallmark, who handled the legal side with great aplomb (*pro bono* too!), and to many others, to be named later.

To say this is a milestone for The Quivira Coalition would be an understatement.

Second, we are pleased to announce the creation of the New Ranch Network, which will "bookend" the Valle Grande Grass Bank.

Whereas the Grass Bank is an intensive on-the-ground Demonstration Project, the New Ranch Network seeks to link landowners with innovative resources —ranchers, consultants, mentors, scientists—in order to foster change collaboratively, outside the umbrella of The Quivira Coalition.

We realized long ago that the key to long-term success "on the back forty," as Aldo Leopold put it, was giving local communities what **they** said they needed. The Quivira Coalition was not the cavalry, riding to the rescue. We couldn't go everywhere we were asked, and we **shouldn't** either. Branch offices were never considered.

What we can do, however, is help people network with one another. We can help "eager learners" find the right teachers, mentors, and specialists they need to make progressive change happen. And then we can get out of the way.

We'll have to—we've got a ranch to run!

[Above and Left] The Valle Grande Grass Bank. [Bottom] Craig Conley on one of the roads on the Grass Bank. (Photos courtesy of Craig Conley.)

Profile in Good Stewardship

The Upper Eagle Creek Watershed Association

It is a sign of the times that a recent meeting in a one-room schoolhouse in a remote valley in the Blue Mountains of eastern Arizona featured a Power Point presentation.

Less emblematic, but more important, perhaps, was who did the presenting: members of the local grazing community. This fact didn't go unnoticed by the new forest supervisor of the Apache-Sitgreaves, who was visibly impressed not only by the presence of the technology in so remote a location, but also by the show itself.

Twig and Shirley Winkle. (All photos in this issue courtesy of Courtney White unless otherwise noted.)

She wasn't the only one impressed that day. As the show unfolded, detailing the group's ambitious goals and plans, it became clear that the eight families of the 220,000-acre upper Eagle Creek watershed have embarked on an unusual strategy to maintain livestock production on public and private lands in the area.

Their strategy? Stop fighting the future. Meet challenges with creativity. Turn adversity into opportunity. Learn, adapt, and grow.

Their method? They've incorporated as a 501(c)(3) nonprofit organization, called the Upper Eagle Creek Watershed Association (UECWA).

Up until then, they were disorganized and reacting to events they thought were beyond their control, especially on the national forest land comprising a large part of their watershed. They felt helpless as the winds of change began to blow.

Instead of getting angry, however, or giving up, the families chose to organize, organize, organize. And that's exactly what they have done, as the flow chart in their presentation demonstrated (see page 7). But it wasn't easy getting started.

"We decided early that the Board would be composed of landowners or people who live in the watershed," said rancher Twig Winkle. "But that caused a few rocky meetings in the beginning as people got used to the idea of giving up their independence."

Sandwiched between the San Carlos Apache Reservation on one side, and Forest Service land on the other, the residents of remote Eagle Creek knew they didn't have many options.

"We knew we weren't going to make it by ourselves," said Winkle. "Forming a nonprofit

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association gave us a chance."

A Future

There was another reason to get together. "We didn't know our neighbors any more," says Association Secretary Darcy Ely, a resident and third-generation rancher. "There were some new people we didn't know, and even the old ones were kinda hunkered down. Some of us thought this wasn't healthy."

Fences in the valley were down or in need of repair. Homes were dark. The schoolhouse, which had fifteen students as recently as 1990, had shut down four years previously. Livestock had been removed from all of the ranches with public land but two. Paychecks were scarce.

"A once thriving ranch economy was gone," says Chase Caldwell, a permittee on the forest and president of UECWA. "The challenges of drought, ever increasing regulatory requirements, and the introduction of the Mexican Gray Wolf had just about ended livestock grazing. It seemed that we had reached the end of an era."

In April 2003, with the encouragement of Frank Hayes, the Clifton District Ranger, residents traveled to a Quivira Coalition conference in Tucson, where the idea of forming a nonprofit took hold.

"As I looked around the room," recalled Caldwell, "I recognized, maybe for the first time, that we had a huge resource of talent and experience gathered to work on our problem. Literally hundreds of years of experience in all types of business were there. This recognition of talent was an important revelation for all of us. These were friends and neighbors that I had known, but not really 'known.' It gave me a huge lift."

Back home, banking on this experience, and knowing that nonprofits have access to government and foundation money that would otherwise be unavailable, they filed their hopes with the IRS.

They decided on a simple mission statement: UECWA is "an organization that benefits the people and the land."

They crafted four purposes for the organization:

• To work together as a community to preserve our heritage and traditions in Upper Eagle Creek.

• To work together to improve and preserve our watershed and other valuable resources.

• To work together to protect, enhance, and increase habitat for wildlife as well as domestic animals, especially in times of drought.

• To work together to find a sustainable method of economic survival for the community.

"It was an out-of-the-box approach to a variety of concerns on the District," said Frank Hayes. "It was a response to a challenge I made to them to come up with a solution that avoided confrontation. I told them the Forest Service wanted to be a partner in the community, and now we are."

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Upper Eagle Creek

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The Board of Directors

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Dutch Salmon, *Secretary,* Author and Environmentalist
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Ernest Atencio, Executive Director, Taos Land Trust
Sterling Grogan, Biologist, Middle Rio Grande Conservancy District
Kris Havstad, Supervisory Scientist, Jornada Experimental Range
Frank Hayes, U.S. Forest Service District Ranger, Clifton, Arizona
Mark McCollum, Rancher
Ed Singleton, Albuquerque Field Office Manager, U.S. Bureau of Land Management

Affiliations are listed to convey the breadth of experience that these individuals bring to the governance of The Quivira Coalition.

Upper Eagle Creek

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The unity and diversity of talents in the community were the keys, he said.

"Alone, it is doubtful that any one ranching operation can survive economically or socially by itself anymore," said Hayes. "Together, they can make a difference among themselves and as a group."

Upper Eagle Creek watershed.

Making It Work

To date, UECWA has participated in the acquisition of three grants: one for $40,000 from the Arizona Heritage Fund, through the Arizona Game and Fish Department; one from a group of wildlife associations for $50,000; and one through members Jan and Will Holder from the Sonoran Institute for $7,500.

The first two grants were developed in cooperation with the Forest Service to maintain and develop trail systems in the forest and to continue an ongoing ecosystem restoration project through prescribed burning and mechanical thinning of trees.

The third one, from the Sonoran Institute, is a planning grant. It has six objectives:

1) Create a community herding/grass banking program.

2) Develop a plan to address problems created by decades of fire suppression.

3) Develop a watershed-wide monitoring program.

4) Conduct research to develop ecologically compatible alternatives to cattle ranching.

5) Continue to share information and education of rangeland and forest issues.

6) Continue to develop an organizational structure that will enhance communications between the San Carlos Apache Grazing Association, and the U.S. Forest Service.

Not to mention the fundraising, education, and outreach programs UECWA has planned.

One intriguing idea the Association is considering is "group grazing"—where the community would group their cattle together and move them as a herd through the valley. It will be a significant challenge, they know, but one that may pay off big.

"We are targeting projects that help us reform the economic base of the Eagle Creek community," says Caldwell. "Projects like riparian surveys and protection, stream classification and monitoring, upland vegetation monitoring, landscape modification through thinning and burning, and water development. We are making

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progress on all these projects and all would be extremely difficult to accomplish as an individual rancher."

Another presenter that day in the schoolhouse was Kent Ellett, range conservationist for the Forest Service. He detailed an ambitious restoration program on forest land keyed to the reintroduction of prescribed fire. That he had the support of his boss as well as members of the local community was itself another sign of the times.

But it would be wrong to say that everything is rosy on Eagle Creek. The challenges are daunting, including the occasional "people problems" typical of any organization.

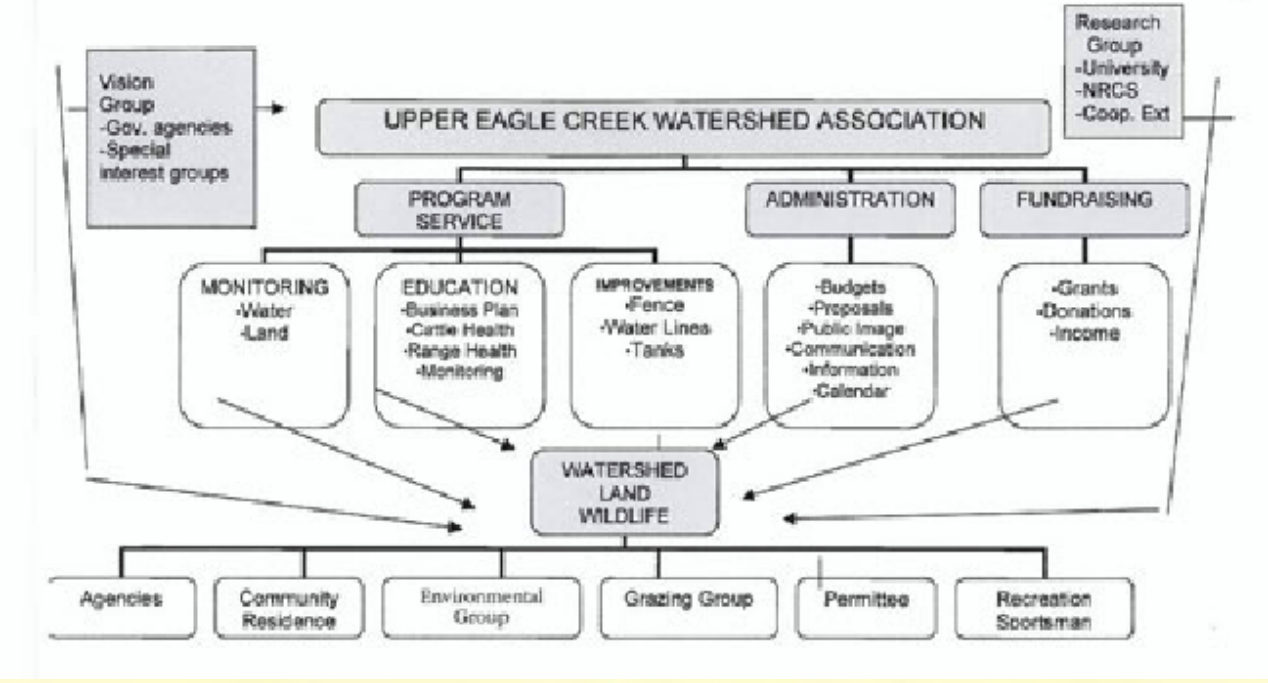
"It's easier to fix the land sometimes than it is to hold the human equation together," said Twig Winkle. "But we've done alright so far."

Another challenge will be the time it will take to see on-the-ground results. But members of UECWA are patient people. In the meantime, Frank Hayes has detected a favorable reaction from the Forest Service.

"The Association has already had a positive influence on how we, the agency, does business," he said. "It is being viewed as a potentially important entity that might result in a significant change in how livestock grazing is managed at a landscape scale to adjust and to address watershed-based issues. I'm hopeful."

So is Chase Caldwell. "We can see momentum building and we have hope for our future as a community and the future of ranching," he said.

"It's a testament to what a determined group of people can accomplish."



Gardeners of Eden: Rediscovering Our Importance to Nature

by Dan Dagget

Editor's Note: *This article is the Introduction to Dan's new book,* ***Gardeners of Eden****, production of which was supported by the Thatcher Charitable Trust. The book will be available early next year, from the University of Nevada Press and from The Quivira Coalition.*

You Can't Have Your Cake Unless You Eat it Too
On Duel-ism; Living Like Bees, Beavers, and Wolves; Using Alien Solutions to Earthly Problems; and Becoming Native Again

The argument over how we should live in relation to the rural and remote lands of the American West hasn't changed much in more than a century. John Muir, founder of the Sierra Club and father of the modern environmental movement, said in the late nineteenth century that we should reduce our impact on those lands as much as possible and preserve and protect all that we can. Most certainly, Muir and his followers insist, we should protect as much as possible of that which has remained relatively untainted by human alteration—the wilderness, the wildlands.

Others have maintained, on the other hand, that it is our right to use whatever we choose because God created it for us or merely because there is no good reason not to. Still others, the middle-of-the-roaders, say, "It would be nice to protect everything, but we've got to be realists...." They concede the high road to the preservationists but turn the dispute into a matter of idealism versus realism, the moral versus the practical, "small is beautiful" versus "more is better."

All this serves as grist aplenty for our duel-istic society. Liberals versus conservatives, Republicans versus Democrats, and tree-huggers versus wise-users reduce the situation to one in which the solution to all environmental problems is—victory for our side. Within this us-versus-them scenario, a few try to achieve compromise or find a middle ground, but no one, or almost no one, asks if these are really the only two alternatives.

It isn't. There is another alternative, one that is much less divisive and much more hopeful. There is a way to enrich the land as we use it; a way we can benefit the plants, animals, and ecosystems with which we share this planet as we benefit ourselves.

If this sounds too good to be true, or too close to violating the maxim that "You can't have your cake and eat it too," the message detailed within this book is more radical than that. The message you'll read here is, "You can't have your cake *unless* you eat it too."

This is not news. Bees, beavers, wolves, and more plants and animals than there is time or room to list have been operating under this maxim for millennia. Bees pollinate flowers as they consume nectar and, in the process, create more plants and more flowers and, therefore, more food for more bees. Beavers eat willows and use them to construct dams, which create ponds and enlarge meadows. That creates more habitat for more willows and more beavers. Wolves cull the sick and slow among the deer, keeping the herds genetically healthy so they prosper and continue to feed more wolves.

Until recently (for the first 99 percent of our existence), humans fit into Nature in this same mutually beneficial way. As hunters and gatherers, as pastoralists, and as small-scale farmers and gardeners, we benefited the ecosystems of which we were a part in much the way beavers, bees, and wolves do. Some of us still live in this naturally interdependent way.

A much larger and faster-growing percentage of us, however, get our food, fiber, and other products from nature via a system of extractive technologies more characteristic of aliens than of a mutually interdependent community of natives. We have developed this extractive technology for good reason, of course—It produces food, fiber, and other things we need

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in prodigious amounts, insulating us from the effects of drought and the other vagaries of less technological agriculture. But living as an alien has its downside, too. It threatens the breakdown of important ecological functions via global warming and the endangering of species. It erodes the connection between humans and nature as we turn our communities into a series of urban and suburban space stations surrounded by an exploitosphere from which we extract everything from food to recreation.

Some of us have become aware of the downside our alien-nation creates and have begun to try various means to counter it. Ironically, those counter measures have been, for the most part, just as alien as the situation they were created to correct. Rather than restoring our old relationships with the ecos of which we were once a part, these counter measures have removed us even farther from it. To remedy the effects of our alien technology, we have created ever larger preserves and protected areas, and removed ourselves and our impacts from them, as if we're trying to fool nature into thinking that we're not here. As aliens would, we treat this land outside our exploitosphere as if it were as a combination art exhibit, zoo, cathedral, and adventure park, and we limit ourselves to roles as sightseers, worshipers, caretakers, and joy-riders. Exacerbating the situation, we make our technological system ever more extractive, efficient, and detached in the mistaken belief that the way to heal the damage we do is to create less connection rather than more.

The problem with all of this is that we humans were once a part, in some cases a very important part, of the very ecosystems we're trying to restore by removing ourselves from them. This dooms us to trying to put back together an extremely complex puzzle with a very important piece missing—us. And, when we discover that this alien-style solution doesn't work, we don't relent, we just do it harder. We remove ourselves from ever larger pieces of Nature, or at least we try to, and we create more stringent restrictions to limit our impacts on what we can't remove ourselves from.

And as we do all of this, we neglect the obvious truth that, if removing wolves or some other predator does harm to an ecosystem, if causing a species such as the red-legged frog or the tiger salamander to become extinct threatens the security of all other species, as some of us claim, then it stands to reason that removing humans who have played a more widespread, more impactive role must cause even greater problems.

Our "duel-isitic" society: a member of the collaborative Six-Six group brings his six-gun to a meeting. (Photo courtesy of Dan Dagget.)

In spite of this, no one, to my knowledge, is expressing concern about the removal of humans from the roles within the ecosystem that we have evolved to play, and that Nature has evolved to have us play. Nor is anyone conducting studies to determine what those roles were or what changes have occurred because we no longer fulfill them. Most important, perhaps, no one is trying to reintroduce humans into the environment to have us resume our duties as hunters, herders, gatherers, and whatever else, even though we're going to great ends to restore animals that have played much less significant roles.

Sometime I wonder what Earth's ecosystems think has happened to the two-leggeds who once served them so well. Where did those beings

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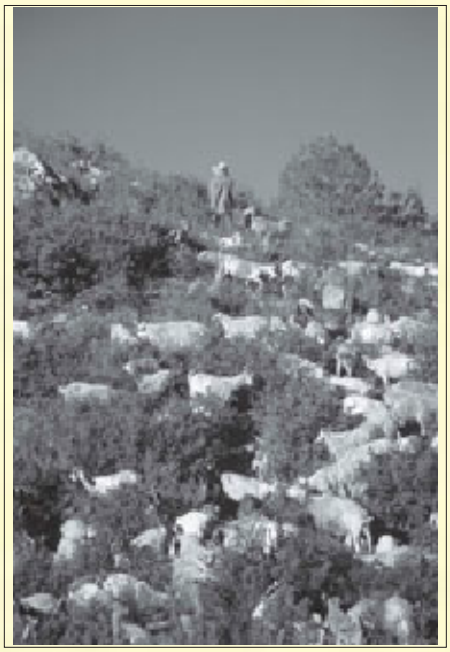

[Top] Beaver dam in Sand Creek Canyon, Grand Staircase-Escalante National Monument, Utah. [Bottom] Herder Michael Begay grazing goats on hillside to create a firebreak in Prescott National Forest, south of Prescott, Arizona. (Photos courtesy of Tom Bean.)

go who once played such an important role as predators, foragers, and cultivators? Have they vanished? Been abducted? Gone extinct? And then I wonder what those same ecosystems think of this new being which walks in their midst, which resembles the one that has disappeared in every way except that the new one keeps none of the old responsibilities, the old agreements. Is it an impostor? An alien body snatcher who has removed the old ones and taken their place? In a way, it is. Or rather, we are.

In fact, most of us know about as much about restoring a Martian ecosystem as we do an earthly one.

This book offers an alternative to living on Earth as aliens. It offers a way to become native once again, to re-assume some of the responsibilities we evolved to uphold, at least as much as is possible in the context of a modern technological world. The stories that follow are about reintroducing humans into the environment in the same way that we might reintroduce an endangered subspecies of caribou or flycatcher or cactus. They make the point that this is as important in the case of humans as it is in the case of those other living things, and for the same reason—because, as we remove ourselves from those old mutualisms by acting as aliens, we leave as big a hole, if not a bigger one, than those other life forms have left.

That may set off your alarms in a couple of ways. "Ecosystems got along just fine before there were humans!" you may say. Or you might ask, "How could it be possible that humans are abandoning the planet when there are so many of us, and it's so obvious that we're overwhelming it?"

As for the first of those questions, it's true that the earthly community got along fine before there were humans, just as it got along fine before there were bees and beavers and plenty of other things. But those pre-human communities were made up of different species than the one we evolved to be a part of. Those old communities and many of the species that comprised them are gone. The community of which humans evolved to be an important part is still here.

And, as for how I could say that humans are abandoning the planet while it seems so obvious that we are overrunning it, that brings us back to the alien/native distinction. It's the people who are living as aliens who are overrunning the planet. Those who are living as natives are few and getting fewer. Some remain as holdouts from traditional ways of being. Others are the products of their own do-it-yourself reintroduction program. Examples of both are the subject of this book.

Others have expressed concern that the idea that humans have been an essential part of nature, and can once again become so, is just a restatement of the old arrogance that humans have dominion over nature that has been used to excuse and conceal all sorts of environmental profligacies. Humans have certainly done things to harm the environment, and the claim that we have dominion over nature has certainly been used as a means to excuse such harms, but the examples that follow in this book are not examples of domination, they are examples of mutualism and synergy. And while it may be accurate to level the charge of arrogance when humans dominate and harm, that charge makes no sense when it is directed at humans

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playing roles we have evolved to play, and that nature relies on us to play. We don't call beavers arrogant when they create ponds that water meadows that grow cottonwoods that feed more beavers. Nor do we call bees greedy or exploitative when they consume nectar while they pollinate flowers to make more flowers to support more bees.

Actually, the purpose of this book is to dispel smoke rather than to create it. One way in which it achieves this purpose is by revealing an environmental smokescreen of which most of us are unaware behind which a whole herd of depredations go undetected. Another way in which this book clears the smoke that clouds our environmental view is by showing us how to restore feedback loops between humans and nature that have shriveled and atrophied as a result of our adoption of an alien agriculture and a just as alien environmentalism.

Why should you listen to what I have to say about these things? I'm not a scientist, but I have been an environmental activist for thirty-one years. I started my activist journey fighting coal strip mines in southeastern Ohio. From there I moved west to Arizona where I worked to designate remote public lands as Wilderness and fought to tighten the restrictions that governed what ranchers could do to protect their livestock from mountain lions and black bears. I helped initiate a campaign to limit uranium mining in the vicinity of the Grand Canyon in which my involvement included helping to put together some of the first demonstrations organized by Earth First!, one of the most radical of environmental groups. During this part of my environmental "career," I was designated one of the 100 top grassroots activists in the United States by the Sierra Club (in 1992). More recently, I have been involved in putting together a collaborative, conflict resolution group involving ranchers and environmentalists that has been used as a model for other groups. I wrote a Pulitzer Prize-nominated book (*Beyond the Rangeland Conflict, Toward a West That Works*) about my experiences at this and have been called on to do well over a hundred presentations about it around the West. Lately, I created an environmental organization named EcoResults! that utilizes a reward-based approach toward achieving environmental goals and secures grants to fund efforts by residents of the land to restore those lands and bring them back to environmental function. As part of my involvement in EcoResults! I've done my share of spreading seed and mulch, piling rocks in gullies, reading monitoring transects, and herding cattle, too.

Cowboy Evert Sparling moving a large herd of cattle across a green hillside on the Kelly Thompson Ranch, outside Hollister, California. (Photo courtesy of Tom Bean.)

My methods, in other words, have changed (evolved might be a better word), but my values haven't. I still value open country, wild land, wildlife including predators, and healthy ecosystems as much as I ever did, maybe more. Now, however, instead of trying to serve those things by demonstration, regulation, and litigation, I work with people who live on the land and ask it what it needs—and listen when it answers. This transformation has been brought about, for the most part, by seeing through that environmental smokescreen I mentioned a few paragraphs back. In fact, seeing through that smokescreen is what this book is about.

The Far Horizon

by Courtney White

"The difficulty lies not in new ideas, but in escaping from the old ones." – **John Maynard Keynes**

Looking back over the past century, the greatest, and most telling, shortcoming of the conservation movement in the American West is its near total failure to devise an effective strategy for privately owned land in the region.

By any yardstick—watershed acres, animal species, ecological processes—the sum total of conservation success on private land has been small.

While many environmentalists correctly note that half of the West is publicly owned, and thus held in trust for the public good, they rarely mention the other part of that equation—that half of the West is in private hands.

This is significant because, as many researchers have written, private lands contain the most productive soils, are located at lower elevations, and often include key riparian areas—all of which make them critical to conservation efforts.

Wildlife biologist Rick Knight, of Colorado State University, put it this way: "We will not be able to sustain native biodiversity in the Mountain West by relying merely on protected areas. Future conservation efforts to protect this region's natural heritage will require closer attention being paid to the role of private lands."

But how? One reason the movement has failed to develop an effective conservation strategy for private land is because its toolbox is so deficient. The tactics of demonization, litigation, regulation, and pressure politics —effective on public lands (though to a diminishing degree these days) —are essentially useless on private land.

For good reason. They are tools of coercion, useful to right a wrong or quick-fix a crisis, but not very effective for chronic afflictions, such as the slow decline of threatened and endangered species. That's because at root our ecological crisis is really a social crisis, and you don't achieve long-term change in human behavior with a hammer.

Not unless you want a fight.

Bifurcation

It is the idea of a bifurcated West—half public, half private—that lies at the heart of the movement's troubles. Until conservationists can conceive of the region as One West indivisible in the things that matter such as water, wildlife, soil, community, and the common good, and develop strategies that work evenly and fairly, the ecological trend will continue downward.

A few years ago, I was part of a panel discussion in Silver City, New Mexico, focused on the question of livestock production and native plant protection. On the panel with me was a vigorous local environmentalist who drew a sharp line in the sand when it came to cows. In response to a question from the audience, I cited a statistic that I had heard recently: that over 100 million acres of private land in the West are owned by public lands ranchers, most of whom need the grazing provided by public lands to stay profitable.

I turned to the activist and asked: "If you're successful in eliminating public lands ranching, as

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you desire, what happens to all that private land? Who's going to keep it from being sold to subdividers?"

The environmentalist responded by saying his only concern was for public land. He was only interested in creating "refugia for native plants and animals."

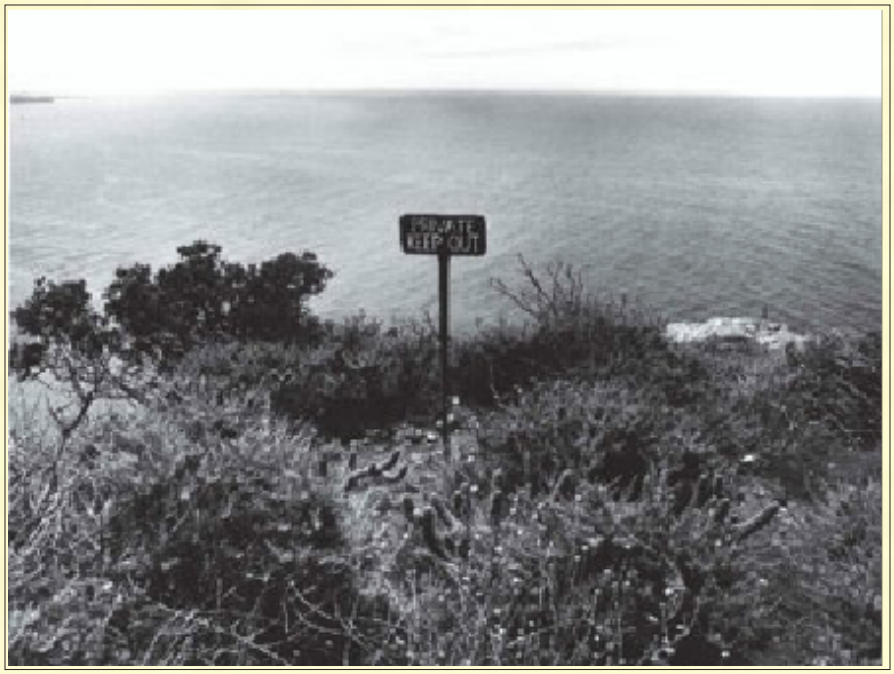
This comment upset the Forest Service biologist at the other end of the panel. "What good is a refuge if it's also a biological desert?" he asked, hotly. "Cause that's what's happening in the Gila wilderness." He went on to say that the suppression of fire and other natural agents of ecological disturbance, including, under the right conditions, animal impact, had contributed to ecological stagnation in the wilderness.

Right there, I realized, was the heart of the matter. Do we continue to divide the West into two parts based on philosophical ideals—such as whether we have a public or a private "right" to something on the land—or do we talk about processes, both social and ecological, that cross boundaries? Which is the stronger foundation for the long run?

If you believe in an ideal, such as the sanctity of non-working landscapes, then there are only two strategies for private land: buy it or ignore it. While my environmentalist colleague chose the latter, other conservation organizations, including The Nature Conservancy, have opted for the former.

The trouble with the "buy it" strategy, however, should be obvious: there isn't enough money out there, not even for the purchase of conservation easements, to do the job right. And prices keep rising, almost literally by the minute.

One response to the dilemma of limited funds has been to target for purchase those private lands considered "the last best places." It's been an effective strategy. The Conservation Fund, for example, reported last month that it had passed the four million acre mark nationwide, in terms of protected land.



Sign in Big Sur, California.

It only took them nineteen years. I laud their efforts, but four million acres is a drop in the bucket, especially given the rapid pace of development in the country.

Perhaps in acknowledgement of this dilemma, many land-buying organizations have recently turned to collaborative, community-based projects to widen the conservation impact across threatened landscapes. At the same time, other conservation organizations, such as Defenders of Wildlife and Environmental Defense, are offering incentive

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The Far Horizon

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"Right there, I realized, was the heart of the matter. Do we continue to divide the West into two parts based on philosophical ideals—such as whether we have a public or a private 'right' to something on the land—or do we talk about processes, both social and ecological, that cross boundaries?"

programs and other tools to encourage better land use among private landowners.

These are positive developments, but I wonder if they are enough to make a real difference. Do they dig deep enough at the social roots of the ecological conundrum we all face? Could there be another way?

The Land We Share

I recently read a book that approached the question of private lands and conservation from the other side of the equation. Written by Eric Freyfogle, a Professor of Law at the University of Illinois, *The Land We Share* digs into the meaning, and shifting definition, of private property in America. His thoughts are provocative, to say the least.

Given the current, urgent problems confronting American society, he asks, how should we begin to redefine the role of private property rights? "Can private development and resource-use practices continue as in the past," he writes "or have the complexities of modern life brought us to the point where a new approach is needed, some new understanding of how the private owner fits with the surrounding community?"

One emerging problem he sees, highlighted by recent advances in ecology, is the division between the law, which crisply defines boundaries, and nature, which does not. This division is at the root of so much conflict in the nation.

"Private land in the law is an abstract human construct; a bundle of legal rights and responsibilities typically defined without regard for the land's natural features," he writes. "In nature, the situation is starkly different. Nature is an interconnected whole, one parcel fully linked with the next. Even a seemingly slight action on one tract of land can trigger far-spreading ecological ripples."

In his book, Freyfogle seeks to close this gap between law and nature. His main argument focuses on the concepts of citizenship and community. While private property owners have secure rights in their land, to be sure, they also have public responsibilities to the common good. The law, Freyfogle notes, has been clear on this point for a long time: neighbors cannot "do harm" to each other by their actions. For instance, the state has a right to object if a landowner tries to build a nuclear waste dump on his or her property.

No private landowner, in other words, has an unlimited right to use of their land.

However, since the American Revolution, Freyfogle observes, the idea of "limits" on landowner rights has ebbed and flowed. Limits were strongest in Jefferson's day, when an agrarian-based economy dominated, and weakest in the late nineteenth century, when Robber Barons ruled and industrial capitalism went mostly unchecked.

Today, we find ourselves somewhere in the middle. While "free to use" and market-based philosophies remain strong among many private property owners, public concern about the health of wildlife populations, particularly endangered species, and other natural resource issues has grown

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proportionately. Definitions of "limits" and "harm" are in flux, with the main result being sustained conflict between the concepts of "public" and "private."

At heart, says Freyfogle, is a struggle to define the common good. When something works in the interest of both public and private landowners, such as securing high quality and abundant water supplies, for instance, then everyone wins. When the common good is in dispute, and conflict erupts, however, land degradation often results.

He sees evidence of this all over.

"In the view of fair-minded observers," he writes, "many occupied American lands continue to decline in quality. Natural ecological functions, particularly fertility and hydrologic cycles, are severely disrupted. Biological communities continue to unravel as many species decline. Farms, forests, grazing lands, and other working lands are typically used in ways that cannot be sustained ecologically."

The answer he suggests to this dilemma, however, is not what you might expect.

Land Health

For help, Freyfogle turns to Aldo Leopold, who, for over half his career, wrestled with the puzzle of encouraging good land use on private property. During the Dust Bowl years, Leopold saw first hand what short-sighted, unrestricted, "unnatural" land practices could do. He watched as thirteen millions acres of topsoil blew to the Atlantic Ocean.

Leopold supported private property rights, as does Freyfogle. But the main question for Leopold became: how to get landowners to think of the community of life, plants, animals, and people, as a whole? "Leopold had reached the heart of the matter," writes Freyfogle. "People saw themselves as separate from nature, when in truth they were not."

Lake Valley Ranch, southern New Mexico.

One answer, Leopold determined, was to embrace the concept of land health—which he defined as the land's "capacity for collective self-renewal and collective self-maintenance." The common good was best served by restoring the land to properly functioning health. But it couldn't stop there. It also meant restoring and maintaining societal health. To Leopold, it was futile "to improve the face of the

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The Far Horizon

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land without improving ourselves," as he put it.

It all came down to a healthy respect for human limits. "Nature was highly complex," Freyfogle says of Leopold's conclusions, "and even leading scientists could not predict its interactions or decipher the functions of all its parts. Only an attentive, caring landowner stood much chance of drawing sustenance from land without degrading it."

Looking at land health at a Quivira workshop on the Sevilleta National Wildlife Refuge near Socorro.

In the end, Leopold believed that land health should be the major indicator by which society calibrated the rights of private land owners.

"He had rethought," writes Freyfolge, "from the ground up, how humans related to nature, how they related to one another, and how their well-being was ecologically linked to the well-being of the larger natural order. The legal community was not listening at the time; indeed, even Leopold's fellow conservationists had trouble making sense of his conclusions. But Leopold's ideas would remain alive, awaiting future readers."

The future is here. Nearly sixty years after Leopold's death, the science community has developed protocols that quantitatively and qualitatively measure land health. On-the-ground practitioners have developed models of sustainable use. And the community-based collaborative movement has developed suitable models for implementing change.

What remains, says Freyfogle, is for the law to catch up with the times by promoting healthy connections between land parcels.

"If the land community of the future is to remain healthy," he concludes, "the private property approach will need to take on even more of the trappings of a successful common-property regime. Landscape everywhere will be made up not of two types of land—private and commons —but of a wide array of variants that blend the two."

Many benefits would come, he says, from looking at land ownership as a smooth continuum. "It would become easier to imagine more flexible ways of protecting the public's interest in private land," he writes. "In addition, the never-ending controversy over public lands would be easier to address if a full suite of options were open to discussion."

It is to that full suite of options, grounded in the goal of land health, that the conservation movement should now turn.

Directional Virtual Fencing

by Dean M. Anderson
Research Animal Scientist, Jornada Experimental Range

If determining how many animals to place on a given area of land (stocking rate) is the first management decision to be made in free-ranging animal husbandry then the second management challenge surely must be getting the animals to distribute themselves to utilize the vegetation more uniformly (stocking density). The question then becomes do you have immediate control over where your livestock forage? If your answer is "yes," you are probably using herding. If you answer "no," you are probably using one or more tools, techniques, or natural phenomena other than herding to manage your animals. If you would like to have near real-time control of your animals, and not pay a herder, then you might find Directional Virtual Fencing (DVF™) may one day very soon bring a new twist to your fencing toolbox. This newest method of controlling free-ranging animals is currently under research and development by the U.S. Department of Agriculture-Agricultural Research Service.

What is DVF™?

DVF™ is a methodology that uses animal behavior and electro-mechanically produced cues to locate animals and subsequently move them across the landscape. It uses a solar powered animal-mounted device that combines Global Positioning System (GPS) technology with electro-mechanically produced cues activated by proprietary algorithms in the device's Central Processing Unit (CPU) to control animals without conventional fencing systems. The GPS component of the DVF™ device gives an animal's position on the landscape while a Geographic Information System (GIS) allows pre-programmed longitude-latitude pairs to define a Virtual Center Line inside a Virtual Boundary used to create a Virtual Paddock that can be held stationary or moved across the landscape. (See Figure 1 on page 18 and Figure 2 on page 20.)

If an animal inside a Virtual Paddock penetrates a Virtual Boundary while wearing an activated DVF™ device, the angle of the animal's head with respect to the nearest Virtual Center Line determines to which side of the animal the unique independently programmable left or right side cues will be delivered. Following cuing, the animal should move in a manner that will put the greatest distance between it and Virtual Center Line in the shortest amount of travel and with the least amount of stress (cuing). Cue intensity is ramped from least severe at the virtual boundary perimeter to most severe immediately on either side of the Virtual Center Line (Figure 2). Should the animal fail to respond appropriately to cuing, the cues stop, either after a programmable period of time has elapsed or after the animal has traveled a predetermined programmed distance away from the Virtual Center Line. This latter approach is how the DVF™ has been evaluated to date.

What Allows the System to Operate?

The heart of DVF™ relies on a constellation of approximately 24 operational GPS satellites that orbit the earth about every 12 hours. GPS technology was developed during the late 1960s and early 1970s by the United States Navy and Air Force for precise timing and space-based navigation. Today GPS radio frequency signals coming from these satellites can be captured by commercially available equipment without connection charges to the user. The service is extensively used for tracking movement of people and goods, on land, in air and on water.

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Editor's Note: *For more than two decades, Dr. Anderson has been developing technology that eliminates fencing altogether. Today, this exciting technology is on the verge of becoming practical and economical. We reprint his article from* ***Grassroots****, the newsletter of the Grassland Society of South Africa (4(1): 10-13), with permission, in hopes of stimulating further discussion of "fenceless" collaborative management.*

Directional Virtual Fencing

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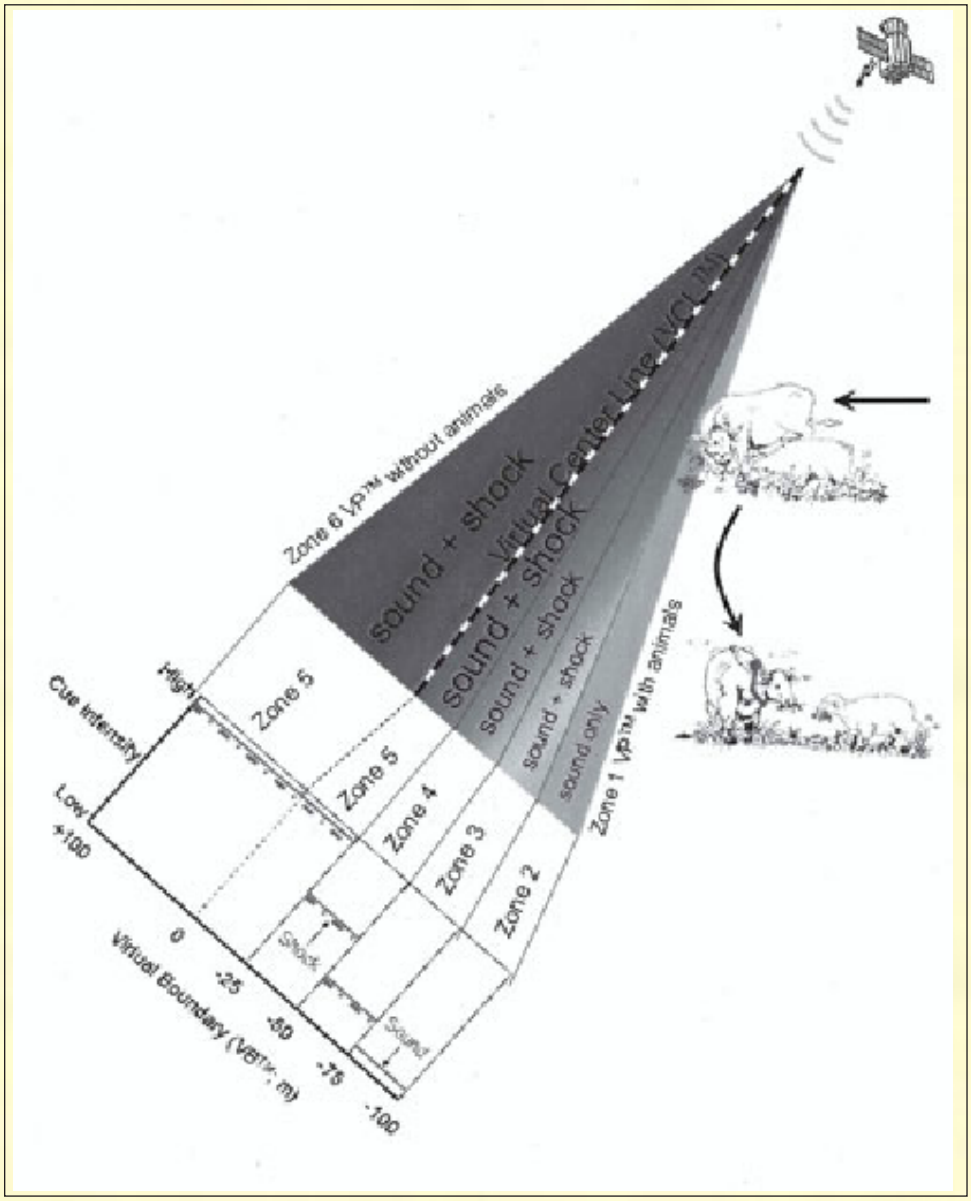
Figure 1. Hypothetical pastoral scenario for controlling free-ranging animals with DVF™ device that uses autonomously applied bilateral cues.



Beginning in the mid-1990s GPS was deployed for the first time in tracking wildlife and today GPS is even used to track domestic livestock in animal ecology research. Though the animal tracking equipment used in research is frequently expensive, the actual hardware necessary to gather GPS signals for the DVF™ device is relatively inexpensive.

What Do We Already Know About DVF™?

Since DVF™ relies entirely on altering animal behavior to control animals, it must never be used if absolute animal control is required. Fencing of boundaries or rights-of-way along routes of transportation such as roadways, railways, and airport runways will still require conventional wire, wood, or stone fences to prevent injury or death to other humans or animals.

Research has shown that animals can be controlled with DVF™ that employs audio sound and electric shock to change an animal's location and direction of movement. It appears that because the DVF™ device employs ramped cues, once animals learn that the irritation produced by the cues increases in severity as the Virtual Center Line is approached animals frequently change their direction of movement after exposure to only sound, immediately inside the Virtual Boundary.

The sound and/or electric shock cues do not appear to produce lasting stress based on monitoring heart rate and observing the animal's response immediately preceding and following the administering of cues. When cuing occurs while an animal is moving, animals have been observed to graze a Virtual Boundary, receive cuing, and move out of the Virtual Boundary and resume grazing all within a few minutes.

Every animal in a group may not need to be instrumented if the goal is to alter the location of an animal group on the landscape. To date, only a small group containing six cattle have been successfully controlled in which half the animals wore DVF™ devices yet the

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Directional Virtual Fencing

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remaining non-instrumented animals stayed relatively close to those animals wearing the activated DVF™ devices. Evaluating the management of larger groups with DVF™ must await the manufacture of additional devices schedule for completion later in 2004.

Furthermore, simultaneously controlling single groups of animals containing more than one animal species using DVF™ appears quite realistic if bonding is used to create the mixed-species groups. Bonding involves changing the behavior of small ruminants (sheep or goats) so they consistently stay near cattle under free-ranging conditions. This cohesiveness of small ruminants to consistently stay with cattle is only characteristic of small ruminants that have had their behaviors modified, normally at a young age. The resulting single group of animals has been termed a "flerd" (flock+herd). By controlling flerd cattle using DVF™ devices the small ruminants will remain close to the cattle without the need for conventional sheep- or goat-proof fencing.

Ongoing Research Using DVF™

Tests are currently underway to evaluate the ability of DVF™ to move animals across the landscape. The Virtual Paddock is a programmable polygon that can take any shape to optimize utilization of the standing crop while promoting proper animal distribution within the polygon. Likewise the direction and rate of movement of a Virtual Paddock across the landscape are both fully programmable thus promoting what can be described as Prescription Stocking (RxS™). The goal of RxS™ using DVF™ is to optimize all the economic and ecological benefits offered by rotational stocking without the management challenges of conventional fencing. The Virtual Paddock is fully programmable, thus allowing number of animals per unit area (stocking density) to be managed in a time dependent set of incrementally finite steps. With DVF™ animal movement across the landscape can be matched to forage disappearance and plant re-growth thus optimizing both the plant's and the animal's nutritional requirements. In addition to optimizing the management of stocking density, DVF™ could be used to gather animals thus reducing the amount of time managers spend using conventional techniques in this labor-intensive aspect of animal husbandry.

Moving animals within a Virtual Paddock should minimize handling stresses if movement of the Virtual Boundaries coincide with periods when the animals are already in motion such as during periods of foraging or walking. Using this protocol, cuing stress will be kept to a minimum when altering an animal's location and direction of movement, compared to initiating movement in a stationary (lying or standing) animal. Personal observation and published research suggests free-ranging cattle, sheep, and goats move more between sunrise and sunset than during periods of darkness; therefore, it seems reasonable that Virtual Paddocks should be moved mainly during the daylight and not during the night when managing these livestock. Determining exactly when to program Virtual Boundaries to move can be determined by watching the behavior of animal groups prior to using the DVF™ device. Ultimately the success of DVF™ in promoting RxS™ will require a paradigm shift in our thinking of when to move animals to minimize stress and optimize husbandry.

In conjunction with testing

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The goal of RxS™ using DVF™ is to optimize all the economic and ecological benefits offered by rotational stocking without the management challenges of conventional fencing.

Directional Virtual Fencing

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the ability to move Virtual Boundaries in time and space, a solar-powered "node computer" having cellular communication capabilities is being developed to autonomously and electronically download data stored in the DVF™ device's memory. The "node computer" will be placed at a location instrumented animals frequent, such as at the drinking water or a mineral supplement. As instrumented animals pass the "node computer," data from the DVF™ device will be wirelessly transferred into the "node computer." Just as data can be transferred to the "node computer," the "node computer" will have the capacity to upload a "new" Virtual Paddock in the DVF™ device's CPU. Thus when the animal returns to the paddock from drinking water or taking a mineral supplement, it could be moved to an entirely different part of the landscape from where it was foraging prior to receiving the "new" Virtual Paddock.

Eventually knowing where on the landscape a "new" Virtual Paddock should be established will come from real-time satellite imagery of standing-crop quantity and/or quality relayed back to the DVF™ device through the "node computer." The Virtual Center Line of the "new" polygon, based on standing-crop parameters from satellite imagery, will be uploaded to the DVF™ device's CPU using a wireless link. However, until satellite images are available in real-time for uploading, Virtual Center Lines can be entered into the DVF™ device in one of two ways:

1. A Virtual Center Line may be established by traversing the perimeter of the area to be stocked while carrying a hand-held GPS unit. Waypoints (latitude and longitude values) are recorded at locations along the path of travel where there is a change in direction of the line. These data pairs are then uploaded into the DVF™device's CPU where the points are sequentially connected using algorithms that define the polygon termed a Virtual Paddock.

2. Alternatively, if the perimeter cannot be traversed, longitude and latitude values can be taken directly from topographic maps. Even without a "node computer" to upload the waypoints, each DVF™ device can be individually programmed with a Virtual Paddock by hardwiring the device to a lap-

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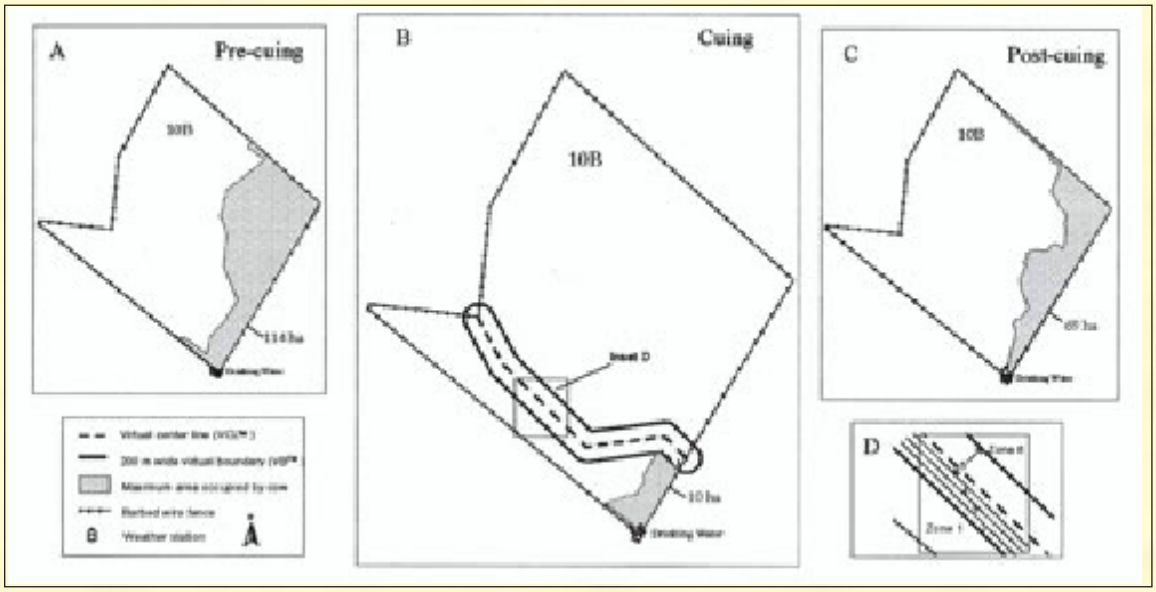

Figure 2. Evaluation of a solar-powered virtual fencing device with bilateral cuing for controlling animal movement in Jornada Experimental Range Paddock 10B (466ha) in 2002. One free-ranging cow used a maximum area of 114 ha (A) in the absence of cues, a maximum of 10 ha (B) during activation of the autonomously applied cues and a maximum of 69 ha (C) after the cues had been turned off for three days. Cues were only applied when the animal penetrated into one of four zones inside the Virtual Boundary (D). The intensity of cues increased as the cow approached the Center Line from Zone 1. Note the cow always moved out of the Virtual Boundary and back into Zone 1 before encountering the maximum cuing intensity (Zone 5) surrounding the Center Line (B).

top computer and downloading the waypoints that define the polygon.

The immediate task in bringing this methodology to market will be to miniaturize the size of the current neck belt DVF™ device to that of a right and left ear tag. Also power requirements will continue to be a challenge to this and any other electronic technology for use on free-ranging animals. However, advances in battery design and flexible solar cells together with miniaturization of electronic components suggest new platforms for delivering cues will certainly evolve and replace the current state-of-the-art components being used.

Directional Virtual Fencing

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Joan Bybee Named Outstanding Conservation Rancher

Joan Bybee, a Mountainair, New Mexico area rancher and Quivira member, was recently named the Outstanding Conservation Rancher for the Claunch-Pinto Soil and Water Conservation District for 2004.

Joan established the Mesteño Draw Ranch in 1991. The Mesteño Draw Ranch is located 7 miles north of Mountainair, along the base of the Manzano Mountains within a Piñón/Juniper Grassland ecosystem. Mesteño Draw, as Joan has named her section of the creek, is the lower extension of Ox Canyon that rises from a spring in the Manzano Mountains and continues into the closed Estancia Basin. These are historic lands with old pinto bean fields and five different homestead sites dotting the landscape.

Joan has been working with the District and the USDA-Natural Resources Conservation Service since August 2001. She has been completing conservation practices on her ranch through the Environmental Quality Incentives Program (EQIP) since 2002. With this cost-share program she has completed 286 acres of brush management, two fences, a pipeline, and trough. She has taken several workshops on grazing management and has a rotation grazing management system on her ranch.

According to Dee Tarr of the District, "Joan's total conservation management approach to her ranch is why she was named Outstanding Conservation Rancher."

Joan recently hosted one of Quivira's "Reading the Landscape" workshops with Bill Zeedyk, which drew 30 participants and gave Joan new ideas for riparian restoration on her ranch.

[Top] Joan Bybee. [Above] Brush management work on Mesteño Draw Ranch. [Left] Reading the Landscape at the Mesteño Draw Ranch with Bill Zeedyk. (Photos courtesy of Tamara Gadzia.)

Dances with Cattle

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also discovered I had something to offer.

Sharing knowledge and resources is at the heart of the term "collaboration." I now live in an atmosphere where ranchers, conservation groups, hunters, and others are attempting to manage the 928,000-acre Madison Valley in a collaborative manner. A pro-predator group is helping to defend ranchers' cattle from predators. Some ranches are promoting ecotourism. One group helps ranches become better land stewards. Another group is studying ways of moving cattle across land ownership boundaries for promoting wildlife habitat, rangeland health, and open space. Our crew at the Sun Ranch is creating a grazing plan for the entire valley that may serve as a model for more collaborative livestock grazing. Through such projects, we are working with controversy, strong differences in values, and some dislike for one another. But we're working.

A gray wolf stands in the same pasture as 800 yearling steers on the Sun Ranch in June 2003. (Photo courtesy of the author.)

Setting

The Madison Valley is a 928,000-acre expanse lying just off the northwestern corner of Yellowstone National Park. The Madison River, bisecting the valley as its centerpiece, flows out of the park, through coniferous forest under jagged mountains, along major big game migration routes, past massive, wind-swept flats filled with wintering elk, through the valley's only town of Ennis, and then settles for a spell into Ennis Lake before continuing to help form the Missouri River. The valley is known for its gorgeous scenery, incredible summers, and harsh, long winters. Famous for trout fishing, a sign outside Ennis greets visitors by saying, "Welcome to Ennis, Pop 660 people, 11,000,000 trout." The river is crowded with fishing boats in summertime, followed by hunters arriving in droves, like migrating geese. In winter folks leave. It seems that when the grass is green, finding a parking space is challenging. When snow covers the ground, you can park anywhere.

The Madison is like many other small western communities: amenity buyers purchasing land, low average household incomes, new white-collar workers, and subdivisions are all conversation topics. With amenity buyers came conservation easements, now in place on roughly 60% of the valley's private land. You don't have to take your shoes and socks off to count the valley's remaining traditional ranchers.

The Madison has also known drought. Low rainfall since the late 1990s has placed

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Dances with Cattle

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additional pressure on ranchers' lands. Too often, subdividing looks like a good option.

Drought had another interesting effect: big game remained at higher elevations due to lack of snow. With less hunting pressure, the valley's wintertime elk population swelled. Elk numbers have reached all-time highs in the Madison, numbering somewhere around 9,000 head. Increasing populations can also be seen in pronghorn, mule deer, and white-tailed deer. In a severe winter, like 2003/2004, elk drift down country and compete for forage with cattle. Some valley ranchers have experienced much financial hardship due to these swelling wildlife populations.

Drought has also combined with disease to kill trees on the high forest lands where bears make a living. As they move down country toward populated areas, increased conflict could result.

Bears keep people's attention, but the predator that makes headlines is the wolf. Wolves running in the Madison have been studied, loved, hated, shot, and hazed. Public opinion is as divided on wolves as on everything else in the valley. If you lined up wolf lovers and wolf haters for a tug-of-war, I don't know who would win.

Throw wolves, bears, hunters, fishers, traditional ranchers, "New West" ranchers, local businesses, elk, brucellosis, deer, antelope, environmentalists, federal and state agencies, tourists, and the media into the same small area simultaneously and you've thrown the equivalent of a bag of popcorn into the microwave and turned it on high. Hopefully, the bag itself won't pop.

A Fresh Look at Working Together

In 1996 a group of local ranchers recognized that their way of life, if not dying, was changing dramatically. They formed the Madison Valley Ranchlands Group (MVRG) to find ways to better tend their land and to promote the ranching way of life, open space in the valley, wildlife habitat, recreation, and watershed management. They have led seminars on improving rangeland health and wildlife habitat. They have engaged federal and state agencies, other ranchers, and conservation groups in a variety of issues designed to promote their cause. They host birding tours and economic development programs, perform water quality monitoring, invite absentee landowners to sit on their board of directors, and spend much time discussing how

The Madison Range. (Photo courtesy of Jeremy Gingerich.)

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ranchers can survive in the twenty-first century ranching atmosphere. They formed a Weed Committee with a full-time staffer who helps landowners minimize noxious weed encroachment by various means and promotes rangeland health. They have even begun direct marketing locally raised beef.

Last fall, they formed a Wildlife Working Group (WWG) that discusses the pressing issues involving the valley's wildlife. The organization is in the process of forming a comprehensive wildlife plan for the entire valley, one we hope will guide such important items as hunting regulations, predator management, and livestock/wildlife conflicts.

Elk gather in someone's pasture.
(Photo courtesy of Roger Lang.)

A subcommittee of the WWG is examining the issues of wildlife/livestock conflicts and forage availability more closely. We are considering whether we can run livestock in the valley across property boundaries in a manner that benefits both wildlife and livestock. Terrain and demographics are in our favor. Several of the absentee landowners have property at higher elevations in the valley, own no cattle, but pasture other people's cattle. Traditional ranchers tend to live at lower elevations in the valley, own cattle, and are looking for grass. We are now exploring the possibility of drifting cattle to higher elevations as spring progresses, across property boundaries. Such collaboration restores migratory grazing as an ecological process with cattle serving the largest ungulate role. Cattle owners could pay a grazing fee to landowners as cattle move up country toward Forest Service grazing allotments. In late summer, cattle could drift back down country to home pastures, crossing property boundaries as they go. The grazing would be controlled in a fashion that promotes rangeland health and wildlife habitat. This collaborative endeavor is being called the Upper Madison Wildlife/Livestock Partnership.

The map on page 25 shows livestock movements in spring 2004. In one example cattle were trucked from the northern portion of the valley to the Sun Ranch where they spent part of the spring. They were then trucked to Forest Service Allotments in the south part of the valley during summer. Finally, they were trucked back home for the winter. How can we eliminate the trucking? How can ranchers find forage in transition areas between winter and summer pastures that cattle can walk to? We are hoping to enlist more ranchers to answer

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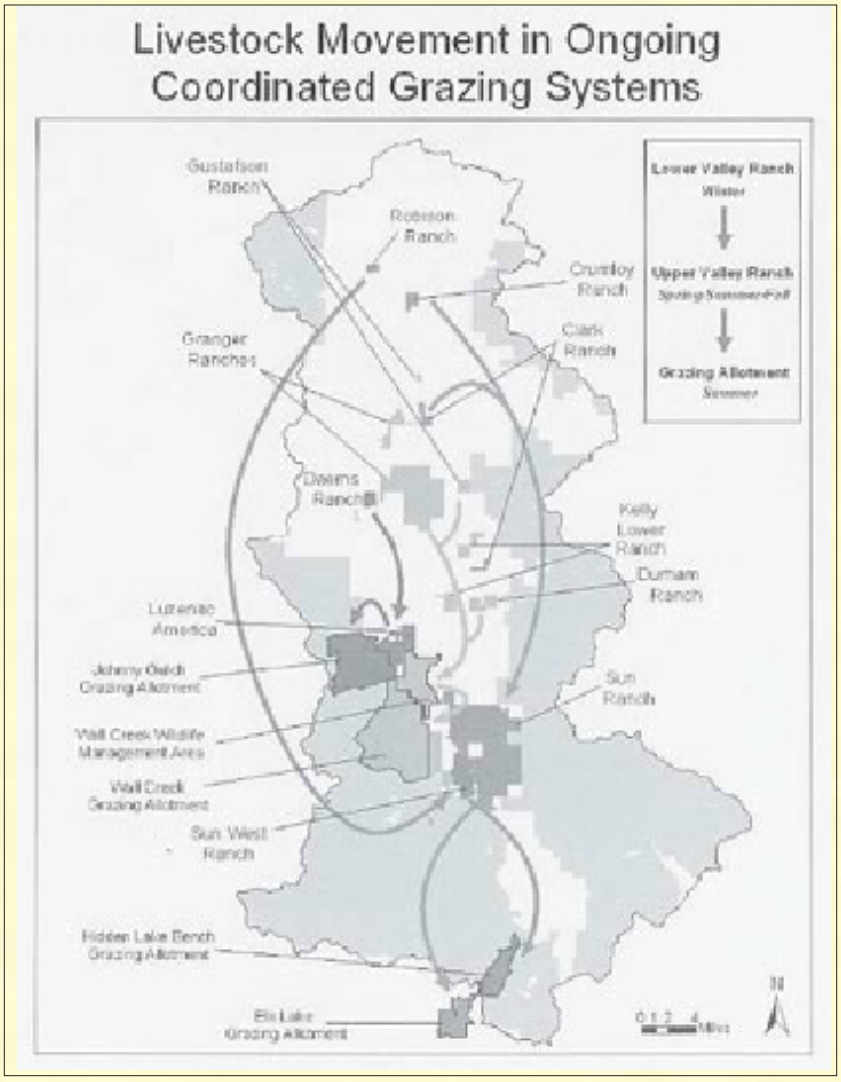
these questions.

"One Hell of a Grazing Plan"

Further, we must coordinate our efforts to manage for potential increases in wildlife numbers, wildlife disease issues, and the increased threat of subdivision. We must also run livestock in a fashion that promotes wildlife habitat. This means we must keep grazing durations short so that plants bitten by grazing animals are not bitten again before they have grown back from that first bite. In spring we must ensure that plants having been bitten by elk are allowed enough growth time before cattle bite the same plants. We must ensure that cattle don't take so much forage where elk have none, and we must ensure that cattle can be used as a tool to freshen up forage for wintering wildlife. That is, we need one hell of a grazing plan.

The Wildlife Working Group's facilitator asked the Sun Ranch crew to perform just that. He said, "If the entire Madison Valley were a single ranch and you were its managers, how would you run livestock in the valley to make the rangelands healthier, promote wildlife habitat, and derive revenue from livestock?" Our crew is trying to answer that question. So far, we have broken the valley into winter, summer, and spring/fall transition areas that already fit the topography and climate of the valley. We are examining forage availability in these different areas, considering sizes of livestock herds, and allocating forage for a potentially increased elk herd. We are considering how much labor the program will require and how much money could be generated through livestock grazing alone.



Map of the Madison Valley. Light grey areas are Forest Service lands. The lines show movements of livestock across property boundaries as cattle move to higher elevations in spring and then summer on Forest Service grazing allotments. (Map courtesy of Abigail Breuer, Madison Valley Ranchlands Group, Wildlife Conservation Society, and Craighead Environmental Research Institute.)

We will place the completed grazing plan on a series of charts that will allow valley residents to consider what may be possible with livestock and wildlife if we could work together better.

When creating the grazing plan, we will utilize practices currently in operation on the Sun Ranch. Working with volunteers from the Rocky Mountain Elk Foundation, we have removed around 35 miles of old barbed

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Dances with Cattle

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wire fence that inhibited wildlife movement. With the price of steel for wire and posts currently soaring, we have utilized temporary electric fencing technology to reduce costs. We string up a single strand of electrified poly-wire fencing (about the size of kite string) in an area where we want cattle grazing. With development of our "wire buggy," two people can construct roughly 1.5 miles of poly-wire fence per hour. We place cattle in an area (no longer a pasture, for some of the permanent fences don't exist), carefully monitor utilization rates, and then move the herd somewhere else. The crew of two then removes the fence to be built elsewhere. We constructed roughly 19 miles of poly-wire fence on the ranch in 2004 with about eight miles of supplies. Massive migrating elk herds encountered none of this fence, for they were not on the ranch while it was in use.

Todd Graham at the Sun Ranch.

In one livestock grazing project, we constructed a series of pastures using poly-wire in an effort to freshen up forage for wintering elk. This is an area that had been rested for years and set aside for elk use only. However, elk hadn't utilized the forage in two winters. Grass on that part of the ranch had grown so old and fibrous from lack of disturbance that elk wouldn't eat it. We brought in some of our neighbors' cattle in springtime when demand for forage is high, grazed these grass plants, and then moved the cattle off. At this writing, elk are grazing the forage we reserved for them.

We believe such approaches can be used in a coordinated grazing program. Migrating wildlife damage much fencing in the valley. If we can work together and run valley livestock more collaboratively, then much of this fence may not be needed. If we can develop portable fences, maybe we can also develop portable watering systems that would greatly increase flexibility of livestock operations and minimize blocks to wildlife migration. We may also be able to minimize water removal from streams and promote in-stream flow for fish.

During discussions on grazing and wildlife, someone asked "What about predators?"

A conservation group from Bozeman, MT had an idea. The Predator Conservation Alliance (PCA) approached MVRG about creating a program using riders to haze predators away from livestock on summer pastures. PCA offered to raise money for the program if MVRG coordinated the folks who served as riders. The program was initiated in spring 2004

(con't on page 27)

Dances with Cattle

(con't from page 26)

with two Range Riders spending much time with the cattle. They hazed wolves away from cattle in summer, and the program will be implemented again in 2005. In a truly collaborative move, PCA is seeking a means of marketing MVRG beef to its members as "predator-friendly beef." Further collaboration would involve ranchers hosting a fundraiser for PCA.

Given all this warm and fuzzy collaborative stuff, let's be frank: not everyone wants it to work. Extremists from different fronts want these efforts to fail and not everyone is at the table. Participants have been criticized for their actions and beliefs. Some critics don't like livestock on public lands. Some hate wolves. Some love wolves. Some chastise ranchers who speak to "those environmentalists." Some don't like absentee landowners. Some don't like hunters. But enough people are at the table to keep working.

Moving Forward

MVRG's Wildlife Working Group's Purpose Statement reads, "With utmost respect for one another, and the various interests represented, we will address wildlife/private land issues by crafting solutions that protect the natural integrity of the Madison Valley and the livelihood of the people who call this place home. We will be sensitive to other wildlife issues, such as wolves, antelope, and buffalo, as we consider the well-being and balance of the valley. Decisions must be collaborative and help secure the future of ranching and the hunting tradition in the valley."

Only through working together can we care for this precious piece of country. No single entity currently working in the valley is large enough or strong enough to bring the above statement to fruition. Work on these projects requires us to slog through too many meetings, phone calls, and emails. But we realize it's all worth it, for only through collaboration can we keep the Madison the special place that it is.

Under the Stars

That first night in the tent was a lonely one. I slept with wolves and 800 steers as company. Through asking questions about wolves and working on collaborative projects, we have generated considerable enthusiasm about area projects. Folks from different universities, conservation groups, interested people, and even my computer guy came to sleep and spend time with our cattle. More folks seem to be interested in being nighttime livestock guards. We spread people over the ranch with different cattle herds. Several people have helped me learn about the wolf and how to coexist with it. Our total death loss in the last two seasons was half a percent, with cattle run in the presence of wolves, bears, and other things that go bump in the night. That's not bad. Hopefully, with continued collaboration, ranchers can keep ranching, wildlife can thrive, and the community can grow stronger.

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4th Annual Conference: Half Public, Half Private, One West: Innovation and Opportunity Across Boundaries

January 13, 14, 15, 2005 Albuquerque Hilton

January 13, 2005 (Thursday)

Pre-Conference Symposium #1: Like Water In The Bank: The Promise of Alluvial Storage, with Bill Zeedyk
What if we stored water where it most naturally can be "protected"—in the banks of creeks and rivers?

Pre-Conference Symposium #2: New Mexico Range School: Looking at Land From the Ground Up.
Co-hosted by the Society for Range Management, New Mexico Section. Speakers: Robbie LeValley, Colorado State University Extension; Dave Bradford, U.S. Forest Service; Floyd Reed, U.S. Forest Service

Opening Event: Minor Breeds, Major Possibilities, a Celebration of Animals
"Minor" breeds of livestock have it all: taste, profit, performance, habitat enhancement. Co-Hosts, Deborah Madison, author, chef, and Slow Food advocate; Gary Nabhan, Director, Center for Sustainable Environments at NAU

January 14, 2005 (Friday)

Opening Comments by Senator Pete Domenici
- Eric Freyfogle, University of Illinois – *A History of Public and Private Land in America*
- Dave Bradford, USFS, Paonia, CO – *The Link Between Public and Private Land*
- Sumner Erdman, rancher, Maui, Hawaii – *Managing for Endangered Species*

Keynote Speaker: Allan Nation, publisher of the *Stockman Grass Farmer*
- *Keeping the Family in Family Ranching* – Doc & Connie Hatfield, Oregon Country Beef
- *Managing Landscapes Collaboratively* – Todd Graham, Sun Ranch, Madison Valley, MT
- *Goats*–Sandy Tartowski, Jornada Experimental Range; Sarah Harris, Western Weed Eaters; etc.
- *Working with Predators* – Nina Fascione, Defenders of Wildife

January 15, 2005 (Saturday)

- Lynn Huntsinger, University of California, Berkeley – *The Shape of the West to Come*
- Fred Provenza, Utah State University
- Dick Richardson, South African rancher (co-sponsored by The Savory Center)
- Dan Kemmis, Director, Center for the Rocky Mountian West
- *Safe Harbor Agreements and Conservation Easements*– Tim Sullivan, Environmental Defense; Jim Crain, SFCT
- *Ranching from Scratch* – Jim Thorpe and Jack Hagelstein, ranchers, New Mexico
- *How to Obtain Grants* – Jim Crosswhite, rancher; Matthew McQueen, attorney; Maureen Murphy, USF&WS
- *"Virtual Fencing"* – Dean Anderson, Jornada Experimental Range
- *How to Start a Watershed Group* – Maryann McGraw, NMED; Rosemary Romero, facilitator
- *Recognizing Birds* – Andrew Rominger, Valley High School

Clarence Burch Awards Banquet—Speaker: Author Michael McGarrity

For information on **all Upcoming Events and to register for the Conference,** see our website, **www.quiviracoalition.org**

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