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The Quivira Coalition

Sharing Common-Sense Solutions to the Rangeland Conflict

A New Environmentalism, part 1

by Courtney White

For as long as I can remember, environmentalists have been trying to tell ranchers what to do.

When I was a young backpacker in the late 1970s, dodging cow pies in the wilderness, the message was blunt: "Stop overgrazing our public range!" Today, the scolding by environmentalists has become more sophisticated, though also more strident, with some of it focused on abolishing public lands ranching altogether.

Even those who believe that ranching can be done in an ecologically sustainable manner are calling for significant changes in the way most ranches are managed, albeit through a collaborative, problem-solving process.

Either way, environmentalists have demanded that ranchers shoulder a great deal of the economic and emotional cost of change without providing much in the way of financial, physical or moral support at the same time.

Editor's Note

This edition of the newsletter focuses on an evolution of sorts for The Quivira Coalition. We wish to move beyond just bridge-building to helping to shift the paradigm for public land management in the West. We believe the New Ranch is not just for ranchers, but for environmentalists and public land managers as well. We present only the first part of "A New Environmentalism" here. The conclusion will appear in our next newsletter.

Nor have environmentalists challenged their own core paradigms in any way approximating the scale asked of ranchers. Activists are quick to lecture ranchers about the march of progress, but slow to admit that new thinking, changing technologies, and shifting societal values are challenging public lands environmentalism at a fundamental level as well. Suing on process and procedure, for example, today produces far more conflict than it does clean water or healthy habitat.

The time has come for environmentalists to share the burden of change, and not just financially, but intellectually. This means trying a fundamentally new approach to public lands activism, one that I believe involves a focus on land health, restoration, collaboration, creating and measuring results, and sharing resources.

Rangeland Health

The potential of a fresh approach became clear to me last spring

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The New Environmentalism: It's About Results

by Dan Dagget

We need a new environmentalism because the old one isn't working.

Recently, I attended a meeting dealing with a grazing plan (Allotment Management Plan or AMP) for Forest Service lands grazed by a couple of large ranches in Arizona. To make their management process more open in hopes of resolving conflicts before they started, these ranches had formed a collaborative team open to anyone who was interested in the private, federal, and state trust lands affected by their operations. Some team members had put as many as three years of work into the plan that was finally presented to the Forest Service. Some considered all of their six years of involvement to have been invested in this plan. For that reason all were becoming increasingly frustrated as the approval process headed into its second year with little apparent progress.

In order to break this logjam, the team members kept referring to the results they hoped to achieve by means of the plan—more antelope, restored grasslands, springs flowing again, economically sustainable open space. But the more team members talked about results, the more the Forest Service staffers kept harking back to matters of process they thought needed to be redressed or dealt with in greater detail. Finally, with everyone at the end of their patience, one of the Forest Service people said, "You don't seem to get it. Our decision will be made on the basis of process and process only. Results are irrelevant to what we're doing here. Our decisions are based on process because that's what we get sued on."

"Results" irrelevant! I couldn't believe my ears. I wondered what the great majority of Americans would say if they were to hear that results are irrelevant to decisions made about the way their public lands are managed. As preposterous as this sounds, it is the absurdity to which the Old Environmentalism, based on litigation and regulation, has lead us.

What is Wrong

To shed a little more light on what is wrong with the Old Environmentalism (or on how deeply we've dug ourselves into this hole), I've got a couple more examples.

A few years ago, I talked to an officer of a regional environmental group about what kind of condition a ranch had to be in for her to

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From the Founders

Jim Winder
Courtney White
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If anyone has been wondering how we've accomplished so much recently, there is a simple answer.

We have Tamara.

In fact, it is becoming difficult for us to remember what life was like for The Quivira Coalition P.T. (Pre-Tamara). How did we get anything done? It's a mystery.

If you have called the office in the last year or attended one of our educational events, then you know that Tamara Sherburn is our Administrative Coordinator *par excellence* (that's an official title). She keeps the books, runs the office, manages events, designs brochures, handles volunteers, and rides herd on the rest of us (much to her exasperation).

And she does all these things with amazing aplomb, efficiency, and good humor.

Tamara came to us by accident, though she might consider it fate these days. She first attended a workshop we put on at the Gray Ranch way back in 1998 and liked what she heard and saw. She attended additional workshops, eventually falling in love with both The Quivira Coalition and one of our instructors.

At the time Tamara was working as a researcher in a cancer clinic at the University of New Mexico, a job she had held for a dozen years. Although she liked her work, she decided that she liked the challenge of working for a tiny, upstart nonprofit better, especially if it meant going to ranches and camping out. She started part-time with us in July 2000, and two months later she was working full-time.

And she hasn't stopped working since.

Tamara hails from Texas originally, where she earned an M.S. in biology. She has put her education to good use, applying it to various scientific and research-oriented activities that we do.

She also has a deep appreciation for family agriculture and the role ranches play in our culture and economy. So, when we told her stories about the efforts of anti-grazing activists to extinguish public lands ranching, she looked at us incredulously and asked, "What are they *thinking*?"

It was a very good question, to which we didn't have a satisfactory answer.

Unfortunately, these days it seems like we don't have much time for philosophical discussions anymore. That's because all the daily chores, that are the meat-and-potatoes of any business, have become overwhelming at times. But we're doing all right, and all we can say is, "Thank God for Tamara."

And thank you, Tamara, for all your hard work and generous spirit.

Tamara, released from the office briefly for a horseback ride on a project site in the Valle Vidal. (Photo courtesy of Courtney White.)

Just as we were going to press, we finally found an OFFICE! See page 30 for details.

It's About Results

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"In other words, she was telling me we could judge the health of a piece of land without ever looking at it. She was telling me she judged the health of a piece of land by the processes used to manage it, not by the condition it was in."

say it was well-managed (and therefore not sue the rancher or appeal his management plan). She said the rancher had to have cut livestock numbers, perhaps drastically. He or she would have to have taken out a conservation easement on their private land; have to be doing something about exotic plants; fenced their animals out of riparian areas; supported wolf reintroduction; reintroduced wildfire (by excluding grazing); and so on. She kept right on rattling off processes this rancher would had to have adopted, but she never said a single word about what the land should look like. In other words, she was telling me we could judge the health of a piece of land without ever looking at it. She was telling me she judged the health of a piece of land by the processes used to manage it, not by the condition it was in.

A couple of years ago I went to a lecture at the University of Idaho which addressed the question of whether or not wilderness designation adequately benefits endangered species. I went to the lecture looking forward to some lively dialogue, because I felt I knew of some cases in which it didn't. I was surprised and disappointed when I discovered that the presentation consisted of a comparison of maps of wilderness areas and endangered species locations. Where the two coincided it was assumed that wilderness designation was beneficial to the endangered species. Where they didn't coincide it was assumed that endangered species were in jeopardy. This scientist was making the same assumption that the environmental leader made; that if we apply the right process, the land will automatically be healthy.

This is why the Forest Service bases their decisions so much on process, because the Old Environmentalism, and virtually all environmental laws and regulations that deal with public land management, are based on the assumption that, if we apply the right process (which in this case consists of reducing human activity ideally to zero), the land will automatically become healthy or at least begin healing. In fact many of us consider lands that are "protected" to be healthy by definition.

That's why the Old Environmentalism would have us believe that we can judge the health of a piece of land by reading how it's managed in the newspaper, or in an environmental newsletter, or by asking a bureaucrat.

Assumptions Don't Always Work

There is a problem with that: There are plenty of examples that show this assumption doesn't always work. You've read many of them in this newsletter.

Using the assumption that the land can only be healthy and support a healthy diversity of native plants and animals if we get the people off, one would assume that threatened and endangered species wouldn't be doing very well on the U Bar Ranch managed by David Ogilvie in southwestern New Mexico. And we would be wrong. The U Bar supports the highest density of songbird territories known to exist in North America; the largest known populations of three threatened or endangered species; and the highest known ratio of native to exotic species of fish (99% to 1%).

Using the assumption that

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the land can only be healed by reducing the impact of people on it, one could be absolutely positive that the best way to heal any piece of damaged land would be to get people and their livestock off. Again we would be wrong. Cows are now routinely used to revegetate lands damaged by mining, off-road vehicle use, catastrophic fire, and even overgrazing.

Even more important, in each of these cases, and in plenty more like them, people managing toward environmental goals and using livestock to do it, have dramatically outperformed the Old Environmentalism's remedy of just leaving the land alone.

Alternative Needed

That tells me the Old Environmentalism doesn't work, and that we need an alternative, an alternative not blinded by an assumption that doesn't work. Fortunately, there is one. A few people have begun to call this alternative a New Environmentalism.

The New Environmentalism differs from the old one in a great many ways. It is more accountable, adaptable, effective, collaborative, and equitable than the old. It's even more natural. Most important: It judges the health of a piece of land in terms of its condition, not in terms of what processes are being used to manage it. That, however, is just the beginning.

People who practice the New Environmentalism measure the success of their management by monitoring its results on the land. They check to see if they've restored its plant community, if its habitat supports a healthy and diverse population of wildlife, and if its water, mineral, and carbon cycles are functioning. And if that's not the case, New Environmentalists can do something different. In other words the New Environmentalism works in the same way an ecosystem works, by feedback loops, and if it doesn't work it adapts.

People who practice the Old Environmentalism measure success in terms of the amount of land managed according to the process they advocate. Since the way the land is managed is controlled by legislation, regulation, and litigation (in other words by the government), they wage aggressive media campaigns to help elect sympathetic politicians. They lobby bureaucrats. They use the courts. And they monitor how well they're doing by measuring the success of these campaigns, not by looking at the ground. That helps explain the examples I described above.

Practitioners of the Old Environmentalism don't monitor how well their methods are working on the land because they assume that they couldn't possibly fail. They make this assumption because those methods are designed to re-create the condition the dictionary defines as "natural"(not artificial, not made by humans) and because they apply the prescription our cultural mythos describes as the way to return Nature to rightness and Naturalness in the story of the Garden of Eden—by getting the people out.

And when someone points out that this approach that can't fail isn't working—that the grass inside those exclosures is stagnant, and erosion is accelerating—the Old Environmentalism blames the opposition. They say the Western range has been devastated by grazing for

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It's About Results

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Pursuing the Trickster: Monitoring as a Paradigm for Change in the West

by Will Barnes

Last week I found myself setting out on foot across the Valle Grande, the largest caldera in the new Valles Caldera National Preserve. Located in the Jemez Mountains of northern New Mexico, the Valle Grande is an open, bowl-shaped mountain grassland, some twelve miles in circumference. As I stood on the road above the valley floor, looking out toward the area I had already designated as a potential monitoring site, I saw in the distance a pair of coyotes zig-zagging through the grass now stopping, now in a trot, sometimes near to each other, sometimes moving apart, seemingly hunting and

The Valles Caldera National Preserve. (Photo courtesy of Courtney White.)

I thought to myself, OK, they have it right, that is just where I need to be. So I followed the coyotes into the valley, until I came to what I hope will be the perfect location, representing just the right eco-variation in the landscape. This will be one of approximately 35 permanent rangeland monitoring sites across the Valles Caldera. As I finished confirming the soil type and mapping the site on my GPS unit, something made me look up—there I was sitting shoulder-deep in Arizona fescue, mountain muhly, and the yellowing, inscrutable sedges, alone, in the middle of this wide valley, the road barely visible—my coyotes had gone and the sky was enormous. I lay back in the grass and laughed, how in the world did I get here?

Circuitous Route

Perhaps I have been following coyotes far longer than I have realized—the route has been circuitous, to say the least, and it's a story about monitoring, though it starts in a law office. In the spring of 1989, fresh out of law school, I had just begun my practice as an attorney. Thinking that water law meant walking ditches, and that environmental law meant that I could be out on the ground learning about erosion and wild animals and open spaces, I set up shop in Santa Fe, intending to advocate for the environment. One of the first calls to my new office was from my uncle who had recently bought a ranch in Arizona. As it happened, the property was about an hour's drive north of Wickenberg—70,000 acres of mixed State/BLM land along the Santa Maria—pristine, desert river country. In addition, half the BLM portion of the allotment was in a Wilderness Study Area. The grazing preference was for 240 CYLs (Cows Year-Long).

As soon as the transfer to my uncle went through, it was appealed by the Environmental Law Clinic at Arizona State University. The challenge was based on the argument that 240 CYLs would have a significant impact on the environment and that, under NEPA, an environmental impact statement was required prior to authorization of the grazing rights.

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Monitoring as a Paradigm for Change in the West

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This was not exactly what I had in mind when I had decided to practice environmental law, but my uncle was desperate, and it was my first real case.

So I made my way to Phoenix to meet with the BLM and to see the ranch. When I sat down with the supervisor, my first question was, "What evidence do you have? How do you know what the impact of 240 CYLs will be?" Immediately, though I did not know it at the time, we were talking about monitoring.

Little Hard Data

What I found was that, overall, they had very little hard data to support their decision. On the BLM land, there was a series of less than ten photo points which had not been retaken for at least ten years. There was rumor of a Parker Three-Step monitoring site, but no one was quite sure where it was, or when it had last been collected. The State lands had a series of species richness quadrats, but they also had not been collected in recent years. Finally, they had utilization analyses, but these had not been collected for three years, as the ranch had not been grazed during the sale period.

The monitoring in place on the Santa Maria ranch was not comprehensive in any way—either in terms of landscape coverage, or in terms of the kinds of data collected. In addition, the data they did have was mostly qualitative rather than quantitative; it was based on informal rancher and range-con assessment, knowledge of historic practices, and agency experience with other similarly situated ranches.

Nor was monitoring coordinated between state and federal lands, or with ranching activities, or with any of the various environmental groups. There was no over-arching monitoring policy. There was no coordinated design for the monitoring program. There were no goals. There was no one person who was in charge of monitoring. As a result, monitoring was not on anyone's schedule—ten years might pass without anyone noticing that no monitoring had been completed.

War of Conjecture

At first, as a good young attorney, I was thrilled. There were two reasons: One, there was no negative evidence against us—no proof from this particular piece of ground that grazing was harmful. And two, all the evidence they had was utterly assailable. We could challenge anything. It was subjective and there was hardly any of it. What this meant was that we could go out and find our own experts to prove whatever it was we wanted to prove. And we did that. For example, we were able to find a desert tortoise expert who was able to say, in his years of experience and research that, in fact, grazing was the best thing since toast for desert tortoise habitat.

What we learned quickly was that the lack of evidence cuts both ways. Of course, our worthy adversaries found their own desert tortoise expert, who said just the opposite—that, in fact, cattle grazing is really quite harmful to the desert tortoise. We were in a war of conjecture: We were making up what we thought must be happening on the ground to support what we hoped to achieve—that is, a viable cattle ranch. Yet, we had no idea what was actually happening in this particular place. As a result, we found all the evidence we could about ranches that were similar to our ranch that said, "Grazing is great. Grazing works, it improves the habitat, it's good for this piece of ground." Our opponents did just the opposite. They went out and found

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Monitoring as a Paradigm for Change in the West

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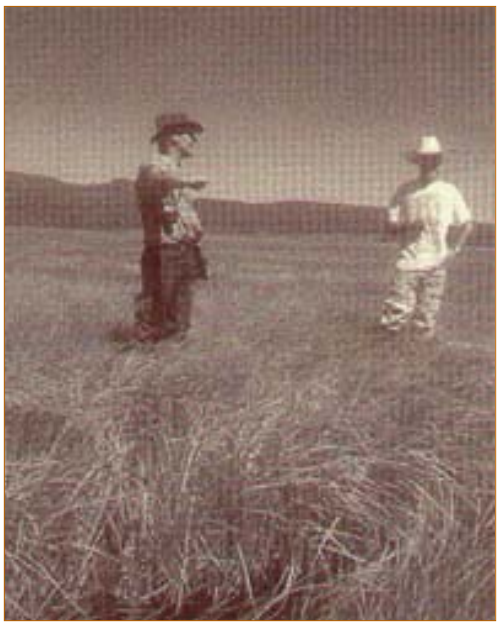

Rich Shrader (who also does monitoring) [left] and Will Barnes, at the National Riparian Team training on the East Fork of the Jemez on the Valles Caldera Preserve. (Photo courtesy of Courtney White.)

all the ranches they could, all the research they could find, that said, "Grazing is the worst thing that you could possibly do here." So they stacked up their papers. We stacked up our papers, and we hoped that in the end our stack would be bigger than theirs.

Realizing that it was going to take a long time for the BLM to sort this out, we thought in the interim that we should try to negotiate a solution. We had one of the most creative, energetic ranchers around. He was willing to try anything: herding, rotational grazing, riparian fencing. He just wanted to get out on the ground and start working. Unfortunately, however, the Environmental Law Clinic would not even come to the table so long as grazing was part of the equation. While we believed that good management could both mitigate and perhaps even eliminate environmental damage, they believed that cattle grazing, per se, was environmentally unsound. Our differences as to the root of the problem were so fundamental that we couldn't even begin to discuss solutions.

Polarized

In the end, the whole process strongly polarized both sides. The briefs became more and more acrimonious. The parties refused to meet with each other. After about a year, the BLM split the baby, authorizing 120 CYLs. All of us were angry, the environmentalists because they believed grazing in any form would be harmful to the fragile ecosystem, and my uncle because 120 CYLs was not financially feasible. Everyone appealed. After another year, we transferred the case to local Arizona counsel, and my uncle got a stay so that he could ranch pending the final outcome. The case is still in litigation—eleven years later.

So what does this have to do with monitoring? For me at least, my uncle's ranch was another coyote. I followed for a while then found myself in a strange new country, my coyote having dissolved over some far ridge. Eventually, I ended up with a degree in biology and a job monitoring grasslands for the Conservation Fund, and now for the Valles Caldera National Preserve. What I keep thinking is that, if we had had the kind of quantified data that I'm collecting now, in my new career, the dialogue between my uncle, the Environmental Law Clinic, and the BLM would have been completely different. We would have circumvented the conjecture and blame game. Right from the start we would have had real data to talk about. We would have been able to say, "OK, look, in this riparian area we know we're going to lose willow and cottonwood and we're going to have more erosion. It's not going to work. You can't graze here." Or we might have been able to say, "If you look at these uplands, you can see that when we graze we get better grass, actually, and there's more diversity."

Shared Language

Monitoring data would have given us a language, a shared, concrete set of findings to come together around and from which to begin a discussion. Rather than basing our conclusions on some guessed-at reality, our interpretations would have been based on actual measurements taken from that particular piece of ground. We would have been one whole step farther down the road, arguing about interpretations of data, rather than whether or not data even exists.

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Monitoring as a Paradigm for Change in the West

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This is not to say that monitoring is just about litigation avoidance—it is useful for that—but there's more to it. Monitoring is the only way to know whether or not management decisions and land treatments have actually worked. It also provides a mechanism for testing new ideas, and it provides protection against bad decisions. It allows a land manager to say, "We don't know exactly what's going to happen here. But we're confident in our monitoring system so we can try it. We're going to put cows out, and we're going to watch what happens. If we see that there's too much erosion going on, we can change our management." Monitoring gives the manager a way to see what's going on, a way to spot trends, often before changes can be detected through more casual observation. It's a mechanism for making better informed decisions and for managing before the crisis.

So what exactly does it mean to monitor something? I think of it as a "systematized watching" of the landscape. The two key components of any monitoring system are that it needs to be regular, and it needs to be recorded: The same measures or observations, using the same protocols, are taken from the same locations at the same times of year, and those measurements or observations are written down so that they can be remembered and compared.

There are a wide variety of monitoring methods and techniques, ranging from the highly quantitative to the highly qualitative. In recent years, efforts to systematize monitoring have focused on developing better quantitative methods. Data that is reduced to a set of precise numerical values or measurements is much easier to repeat, and to compare over time and between sample sets. It is also, therefore, much easier to use to pinpoint differences, trends, and changes. Qualitative data is generally less expensive and less elaborate, but also less predictive and more subject to claims of bias.

Long-Term Commitment

Monitoring takes a long-term commitment. It takes patience. Results do not happen overnight. It also requires a variety of skills, from botany to soil science to ornithology, or to whatever it is being monitored. It also requires data management skills. Where will the data go? How will it be analyzed? How will it be reported? To whom will it be reported? These are complicated issues that need to be addressed as part of the monitoring process—it is not just about collecting data.

Depending on the situation, monitoring can be quite time and labor intensive. The type of monitoring selected should be based on management and monitoring goals, as well as on desired statistical resolution, desired repeatability, and financial and time constraints. In the long run, however, monitoring should be considered as an investment in the landscape. The costs of monitoring should be compared directly with the costs of not monitoring. For example, if the money spent on eleven years of litigation by all the parties in my uncle's case had been funneled instead into a monitoring program, we would have had the most highly monitored ranch in all the West. We would have been able to say now a great deal about the true impacts of grazing in that country.

Working Together

There would have been another benefit as well. In the time actually spent making enemies, we would have been working together on the ground to set monitoring goals and to collect and to report on our

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"The two key components of any monitoring system are that it needs to be regular, and it needs to be recorded: The same measures or observations, using the same protocols, are taken from the same locations at the same times of year, and those measurements or observations are written down so that they can be remembered and compared."

Monitoring as a Paradigm for Change in the West

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"The fact is that we cannot assess the success or failure of the burning and grazing and timber cutting of the past, because we have not adequately monitored."

data. We would have been building a new community around the health of the land.

Personally, I believe that monitoring is here to stay. In my opinion, it needs to be as much a part of land management as the treatments are. There should be a monitoring department in each forest and BLM district. Monitoring should be afforded the same status as burning, or grazing, or cutting timber. The fact is that we cannot assess the success or failure of the burning and grazing and timber cutting of the past, because we have not adequately monitored. Today, we throw good money after bad, repeating projects, repeating efforts to remove encroaching pinon-juniper stands, for instance, that were begun in the thirties and again in the fifties and again in the seventies and again today because we did not adequately monitor the projects. We don't know what happened. We don't know why those past projects failed. Monitoring has been treated as the ugly stepsister. It has not been funded or even put into the budget. We say, "Okay, we're going to do this great burning project. We've got all these people who are experienced and ready to go for it. But we haven't set aside any extra money to do the monitoring." That has got to change. Monitoring needs the same infrastructure as any other management project. There have to be people that know how to collect the data, people to manage the data, people to run the monitoring program, and people to be held accountable.

Impact

One of the problems is that monitoring is not glamorous. It is not as exciting as burning down a forest. It is not as exciting as cutting down trees. It is a much more daily kind of work. But I think, for that very reason, monitoring can have a much greater impact on the way we live here in the West, and on the way that we look at our future. There is this idea first espoused by Aldo Leopold called "an ethic of place." How do we, as Westerners, acknowledge where we live, change our communities and our economies so that we become self-sufficient and self-sustaining? How do we put back what we've taken out of the ground and rehabilitate these places that we live in? Maybe part of the answer is bringing together—instead of polarizing—the people who love pristine wilderness, and the people who make a living off the ground, and the people who drink the water that comes from the ground, and the people who eat the meat that comes off the ground. Maybe we bring all these people together to watch in a systematic way, to monitor the effects of their living on that ground—so that they might make decisions as a community about how to live better and how to become self-sustaining.

Monitoring, for me, is this wonderful activity. I get paid to watch the landscape change. One of the things that I notice is that there is a relationship between the observer and the observed. I have spent months looking daily at a particular grass, uncertain as to its true identity, until one day I notice the hairs at the ligule curving just so, in a way I had never noticed before, and it is like a nametag, repeating itself over and over, literally shouting out its name to me. It is a profoundly intimate experience. And I realize that monitoring is about relationships: my relationship with this particular place and with these particular inhabitants. And I realize further that I have begun to care deeply about each of the places in which I have begun to monitor.

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Leap of Faith

If we take a leap of faith, like trusting the coyote to lead where we need to go, we might build monitoring associations, something akin to acequia associations, in which all the people with a stake in a particular landscape, come out together once a year to man the transects, to watch the birds and count the grasses. And then all that information would be funneled back to that year's majordomo, the Majordomo of Monitoring who would be responsible for writing a report and calling a meeting and saying to the people, "This is what we've learned this year. What are we going to do about it?"

I see monitoring as a kind of keystone for creating a new egalitarian community in the West, a community that is much more aware of its relationships in and of the landscape. It would be a community much more capable of regulating itself and its impacts, because it would know firsthand and it would know intimately just what those impacts might be.

Monitoring as a Paradigm for Change in the West

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On May 19-20, the Quivira Coalition hosted a riparian restoration workshop on Largo Creek at the Williams Ranch, located south of Quemado, NM.

The goal was to get functionality back into a non-functional stretch of the creek under the guidance of riparian restoration pioneer Bill Zeedyk. Another goal was to engage volunteers in a collaborative effort to lend Jim and Joy Williams a hand on their place.

We expected to learn a lot, and work hard. And we did. What we did not expect was mud. Or rain. In fact, it rained so hard at one point we had to run for cover, prompting Jim to quip that the Quivira Coalition should "start charging money" for all the moisture we bring with us to our workshops.

In the end, we built twelve baffles and weirs, which will force the

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Restoration at Work

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May 19-20

[Top left] Sharpening juniper posts for the structures.
[Bottom left] Driving posts into the ground according to Bill's calculated design.
[Top right] Weaving skunkbrush through the posts to create sediment traps.
[Bottom right] How it looked after the structures were built.

creek to reestablish its meander with each major flood event. Bill calls it "induced meandering," and all it required was a series of calculations, a chainsaw, a stack of juniper posts, some skunkbrush, a few sledgehammers, and a lot of muscle.

At one point, we dumped a load of rock across the creek, forcing it into an abandoned oxbow. As the water slowly edged its way along the old channel, Bill told us that the riparian response here should be fantastic. In fact, as the water completed its circuit, we felt like cheering.

On September 29-30, twenty-nine volunteers again joined us at the Williams Ranch to work on Largo Creek. We were able to see what had happened at the area we worked on in May. As you can see, it was dramatic!

We hope to continue to come back to work again and again on the creek, and to see the fruits of our labor multiply. Come and join us!

(All photos on these two pages are courtesy of Courtney White.)

Restoration at Work

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September 29-30

[Top left] How the area in the picture at bottom right on page 12 looks today. [Middle left] Baffle built in May, now with sedges and rushes around it. [Bottom left] Bill Zeedyk at the project site after restoration work. [Top right] Colt Pierson, age 6 (son of John Pierson of the Forest Service), reviewing restoration. [Bottom right] Largo Creek after restoration work. The water is clear and grasses are growing. This is about at the mid-point of the project area.

The Quivira Coalition would like to thank Jim and Joy Williams for allowing us to work on their private land, for their continued support of our crazy ideas, and for their good humor through it all. We'd like to thank them for becoming friends, too.

Learning from the Buenos Aires

by Nathan F. Sayre

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For one hundred years, the Buenos Aires Ranch was one of the largest livestock operations in southern Arizona. Bordered on the south by Mexico, the ranch encompassed some twenty miles of the central Altar Valley, southwest of Tucson. Like so much of the region, the Buenos Aires experienced severe overgrazing during the droughts of the 1890s, 1920s, and 1950s, resulting in substantial changes in vegetation and hydrology. Responding to these changes, owners of the Buenos Aires invested in improvements: fences, water sources, erosion control measures, and ultimately large-scale vegetation manipulations. Most of these investments represented the latest thinking in range management at the time they were made. In general, the goal was improved productivity for livestock. The results were mixed: While many achieved their short-term objectives, as often as not there were unexpected consequences, raising new issues that necessitated further investments down the road.

Bottomlands along Arivaca Wash, 1997. This area was dominated by sacaton pre-1900; an arroyo formed around that time, which was later healed by use of spreader dams. Victorio cleared the area of mesquites and seeded Johnson grass, which dominates today. (Photo courtesy of the author.)

In 1985, the U.S. Fish and Wildlife Service bought the ranch and turned it into the Buenos Aires National Wildlife Refuge. The foremost goal of the refuge was restoration of the masked bobwhite, an endangered subspecies that had inhabited the area before the droughts and overgrazing of the 1890s. Livestock were removed, and prescribed fires applied, in the name of restoring the Buenos Aires to its "original," pre-ranching conditions. The investments of the ranch period were viewed as unnecessary to refuge goals and were either removed or allowed to deteriorate.

Considerable Debate

The Buenos Aires Refuge has occasioned considerable debate and controversy from the moment it was first proposed. Environmental groups—who helped lobby for its creation—have applauded the refuge for its efforts to preserve the masked bobwhite and other wildlife, and for its refusal to allow livestock grazing. They believe that removing cattle is a necessary condition—and perhaps a sufficient one—for ecological restoration of semi-arid rangelands like the Buenos Aires. Ranchers in the area, on the other hand, have criticized the refuge as a case of government waste, bureaucratic "mission creep," and endangered species preservation gone haywire. They point out that the refuge's founding goal—a self-sustaining population of masked bobwhites—has yet to be achieved, despite the release of more than 25,000 birds over sixteen years, and they question the other goals that have been adduced for the refuge. Refuge supporters typically dismiss the

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ranchers' criticisms as disguised attempts to open the Buenos Aires to livestock grazing. It has become a classic of the so-called rangeland conflict: impassioned, hyperbolic, deadlocked, each side distrustful of the other.

No one disputes the value of restoring the Buenos Aires. The owners of the ranch, no less than the Fish and Wildlife Service, aspired to bring back the desert grassland that dominated the Altar Valley circa 1880. The debate is over what restoration means and how to accomplish it. Should it be measured in forage production, wildlife, endangered species? Which is more important, the functional composition of vegetation (grassland versus shrubland), or the species composition (native versus non-native)? Does restoration require the elimination of livestock grazing—and therefore ranching—or not?

Unfortunately, the Fish and Wildlife Service has produced very little hard scientific data from the Buenos Aires to help answer these questions. No comprehensive baseline information was collected in the early years of the refuge, so evaluating change is nearly impossible. Even basic vegetation monitoring has been erratic at best. Whether or not livestock exclusion and prescribed fires are working—for whatever goal—is uncertain. In consequence, rather than learning from the Buenos Aires, most partisans have simply imposed their views on it.

There is another way to approach the Buenos Aires, however: through history. The history of the landscape helps us understand what has changed between 1880 and the present. The history of the ranch provides clues to the effects of livestock grazing and various management practices in shaping these changes. And the history of masked bobwhite preservation efforts illuminates the scientific basis for the refuge and the limitations of its management. Taken together, these histories have a great deal to teach about rangeland management and restoration in the Southwest, and about the debate over livestock grazing more generally.

The Altar Valley

The most striking characteristic of the Altar Valley circa 1880 was its lack of surface water. It was for this reason that settlement—both prehistoric and historic—had been very limited; most traffic skirted the central valley; missionaries and explorers scarcely mentioned the area in their reports and accounts. A few streams issued from the surrounding mountains, but most were small and ephemeral. Their waters quickly sank into the deep, uninterrupted alluvium that composed the core of the valley. Run-off, when it occurred at all, took the form of sheet flooding: water spreading slowly over broad, flat bottomlands and infiltrating into the ground. One early settler reported that he could walk his horse ahead of the moving lobe of water.

From a handful of accounts and early surveyors' reports, we know that giant sacaton (*Sporobolus wrightii*), a tall bunchgrass adapted to moist soils and periodic inundation, dominated the bottomlands. Mesquite and other trees lined the margins of the floodplains and drainages. The rolling uplands were dominated by perennial grasses: numerous grama and three-awn species,

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bush muhly, tobosa, and many others. Fires, though not mentioned in early descriptions, presumably occurred often enough to inhibit the spread of woody species.

Ranching

The paucity of water delayed the advent of cattle ranching in the main part of the Altar Valley. While most of southeastern Arizona was fully stocked by 1880, the Altar Valley did not see large-scale ranching until five years later. Early efforts to dig wells were frustrated by the tremendous depth to the water table: 200 to 800 feet, depending on where one dug. The first successful artificial water source was a large reservoir built near the head of the watershed around 1885. The bottomlands were so nearly flat that the low dam captured water over an area of some 100 acres. It came to be known as Aguirre Lake, after Don Pedro Aguirre, Jr., the man who'd had it built. He built a headquarters house nearby, brought in cattle and sheep, and called the ranch the Buenos Aires, or good winds.

An area north of the Buenos Aires in 1903. The bones of dead cattle were gathered for use in making fertilizer. (Photo courtesy of David Griffiths, USDA-Bureau of Plant Industry.)

Aguirre's reservoir dried up in drought periods, however, so in 1886 he drilled a well, hitting an abundant supply of water 515 feet below the surface. To draw the water up from this depth, Aguirre installed a steam pump, which his workers powered with mesquite firewood harvested from the vicinity. Others followed his lead. Twenty years later there were ranches up and down the valley. Stocking rates are difficult to calculate, as there were few fences and the range was uncontrolled, but the evidence indicates as many as fifty to seventy head per section grazed in the higher end of the valley where the Buenos Aires is located. The mesquites that had lined drainageways soon disappeared, and the wells were converted to an oil-based fuel. (The earliest photos of the valley were taken in the 1890s, and have led many to the mistaken belief that mesquites did not occur prior to settlement.)

Drought

The great drought of 1891-93 does not appear to have impacted the Altar Valley as severely as most of the region, since there were still not many livestock. But the next prolonged dry period, from 1898 to 1904, resulted in severe range degradation. An early government range researcher photographed cattle carcasses piled up in the north end of the valley, the surrounding range stripped of vegetation. A photo taken near the Buenos Aires in 1903 shows very little grass: shrubs, brush, and bare ground predominate.

The drought broke early in 1905—the greatest year of rainfall ever recorded in the region. With grass cover diminished, the watershed saw unprecedented rates of runoff. It appears that flooding blew out the dam on Aguirre Lake, sending a pulse of water down the valley that initiated an arroyo. A flood in

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1917 overwhelmed the Aguirre Lake dam again, and over time the trench grew. Today, the Brawley Wash (as it has come to be known) is fifteen to twenty feet deep and up to 1400 feet wide in some places. It reaches from Aguirre Lake north to Robles Junction, a distance of forty miles. Instead of spreading out and sinking into the ground, as it once did, floodwater concentrates in the arroyo (and tributary arroyos that have headcut upstream) and moves quickly downstream, out of the valley.

By 1917, when the U.S. Geological Survey sent Kirk Bryan to study what he called "The Papago Country," the Altar Valley had changed in many ways. The Buenos Aires and several other ranches belonged to the La Osa Live Stock and Loan Company. Most of the valley's open range had been transferred to the State Land Department, allowing it to be fenced and leased to La Osa for grazing. Annual grasses and forbs were the dominant vegetation in the uplands, except in areas remote from artificial water sources where perennials remained. And water sources—mostly stock tanks—were so common, Bryan noted, "that the traveler will have no difficulty in obtaining water." Mesquites were scarce. In the bottomlands, the sacaton flats had converted to Johnson grass, which ranchers cut and stacked as hay. The arroyo was still small enough that the adjacent flats remained moist from subirrigation. During the agricultural boom of World War I, stocking rates climbed back up to about thirty-five head per section, with peaks as high as sixty. Drought coincided with a collapsing market in the early 1920s, however, and cattle again perished on the range in large numbers. Heavily indebted, La Osa began selling off its Altar Valley holdings.

Dramatic Change

From 1926 to 1959 the Buenos Aires belonged to Fred Gill and Sons, a large livestock firm based in California. It was a period of dramatic change, both intentional and unexpected. According to their former manager (who was not there at the time), the Gills rested the Buenos Aires for two years while they built more fences. A county extension agent from the time wrote that many Altar Valley ranchers adopted a particular management strategy in the late 1920s: They rested their range each summer, then brought in large herds of steers from Mexico to graze until the following spring. "How long this practice can be continued, I am unable to say but for the past two or three years it has been exceedingly profitable, and probably good for the range," he observed.

The Brawley Wash downstream of the Buenos Aires, 1998. Note the vegetation on the terrace, dominated by mesquite, and in the arroyo, dominated by shrubs. (Photo courtesy of the author.)

Judging from Soil Conservation Service reports, the Altar Valley's range had recovered from the damage of the earlier droughts by the late 1930s, at least in the higher end where rainfall was greater.

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There, perennial grasses constituted some eighty percent of vegetation cover; mesquite was only ten percent. (Old-timers report that ranchers actually brought mesquite pods from the Tucson area, in hopes of growing some shade for their cattle.) Stocking rates were considerably lower than before—from sixteen to about forty head per section on the Buenos Aires. "It is quite evident," concluded one SCS report, "that the entire area has been badly overgrazed in the past, but not particularly so at present, except in certain areas. Recovery can be established by protection and erosion control."

An area of the Buenos Aires that the Victorio Company did not revegetate. No cattle have grazed here in 16 years, yet the vegetation remains mesquite and shrub dominated.
(Photo courtesy of the author.)

Erosion Control

The Gills took advantage of SCS cost-sharing programs to install erosion control structures on the Brawley Wash and tributary arroyos. The efforts paid off on Arivaca Wash, where an eight-foot deep trench was healed by spreader dams. These structures captured sediment in the arroyo bottoms and raised floodwaters up onto the adjacent flats, artificially restoring the pre-entrenchment hydrology. Elaborate systems of dikes, headworks, spillways, and sandtraps were installed on the ranch's stock tanks, providing erosion control and reliable water at more than sixty locations.

The great drought of the early 1950s disrupted the Buenos Aires ecosystem again, but this time vegetation recovered in a different way. Mesquites colonized areas around tanks, where water was available and the soil had been disturbed. Cattle ate the pods, especially when drought diminished grass production, and spread seeds to the surrounding range in their dung. By the end of the decade mesquite trees and other shrubs dominated the Buenos Aires. Stocking rates in the 1960s hovered around ten head per section.

In the early 1970s the Buenos Aires came into the ownership of the Victorio Company, a diversified venture capital firm that invested in ranches both for cattle production and real estate speculation. Victorio launched an aggressive program of range restoration on the Buenos Aires, tackling the mesquite "invasion" with bulldozers, chemicals, aerial seeding of grasses, and prescribed fire. Some 60,000 acres were cleared and seeded, including most of the ranch's bottomlands adjacent to the Brawley Wash. Johnson grass dominated the seed mixture for these areas; uplands received a mixture of native perennials and non-native lovegrasses. One of these, Lehmann lovegrass (*Eragrostis lehmanniana*), came to dominate much of the treated area. Victorio also installed a hundred miles of additional fencing, dividing the ranch's sixteen pastures into seventy, and implemented rotational grazing. Finally, the company revived the spreader dams and erosion control measures of the Gill era. Victorio owned the ranch until

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1983, when it transferred the Buenos Aires and the huge Gray Ranch in southwestern New Mexico to a creditor in settlement of a debt. Massive flooding in the same year blew out the spreader dams on the Brawley; neither the new owner nor the Fish and Wildlife Service repaired them.

The Masked Bobwhite

The type specimen of the masked bobwhite was taken by a man named Frank Stephens in the summer of 1884. Stephens encountered masked bobwhites repeatedly as he traveled up the Altar Valley (though the one he finally killed was found across the border in Mexico). He described them calling from perches in mesquite trees and disappearing into the thick sacaton for cover. The road he traveled was located in the bottomlands for convenience: It was the flattest, straightest, easiest route available. When floodwaters first cut the Brawley Wash, they too followed the road; later, the road had to be moved and bridges built to accommodate the new feature.

By 1900, masked bobwhites were gone from the U.S. The man credited with "discovering" them, Herbert Brown, lamented that the *combined* effects of grazing and drought had "practically stripped the country bare of vegetation…and when their food and shelter had been trodden out of existence by thousands of hunger-dying stock, there was nothing left for poor Bobwhite to do but go out with them."

In 1964, the authors of *The Birds of Arizona* chose for their frontispiece a depiction of the masked bobwhite, which they dubbed "Arizona's most famous bird." Populations had been found in Mexico until 1950, but by 1960 it was feared extinct in the wild. Efforts to reintroduce masked bobwhites to the United States had been ongoing since 1937, using birds captured in Mexico and the offspring of a small captive breeding population. All had failed, and blame increasingly fell on cattle, which grazed throughout the bird's historic range. The role of drought in the masked bobwhite's earlier demise was elided: According to *The Birds of Arizona*, it had been "promptly grazed out of existence…with the coming of the great herds and their owners. Let those who really wish to conserve our wild heritage ponder well the lesson!"

Bulldozing mesquite on the Buenos Aires, 1977. (Photo courtesy of Phil Ogden.)

The fame of the masked bobwhite only grew in the decade that followed. A wild population was discovered in Mexico, reinvigorating hopes for its eventual restoration to the U.S. When federal laws for the protection of endangered species were passed, the masked bobwhite earned a place on the first official list. Fortified by federal funding, studies were mounted to determine the bird's life history, habitat needs, and potential restoration sites in the U.S. Researchers discovered that masked bobwhites

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breed in the late summer, when monsoon rains raise microclimatic humidity levels. This finding helped in perfecting methods of captive breeding, allowing the Service to produce hundreds—and later thousands—of masked bobwhite chicks every year.

Experimental releases were launched on several ranches in the Altar Valley in the early 1970s. As before, all failed. Then, in 1976-77, biologists from the U.S. Fish and Wildlife Service and the Arizona Game and Fish Department finally succeeded: Captive-bred masked bobwhites released on the Buenos Aires Ranch survived the winter and produced offspring. An official Recovery Plan was quickly drafted and approved, calling for the long-term protection of 5,000 acres of bottomlands, where the habitat was best. It was on this basis that the Buenos Aires Refuge was created.

The release experiments ceased in 1979, and the masked bobwhite populations that had been established began to decline. By 1984, none could be found on the ranch. The biologists concluded that reintroduction was feasible, but that nothing more could be learned without gaining control over livestock grazing. They had released the birds into areas that Victorio was resting following bulldozing and seeding work, but some intermingling of cattle and quail had occurred throughout. Masked bobwhites were observed to leave areas of heavy grazing, reinforcing the view that cattle were the principal limit on habitat suitability on the Buenos Aires.

The Buenos Aires Refuge

The political debate over creation of the refuge devolved into a simple opposition between masked bobwhites and cattle. The more rancorous the debate became, the less attention was paid to the complex history that had shaped the Buenos Aires landscape. Even publicly questioning the Fish and Wildlife Service's claims quickly became taboo in environmental circles, for fear of aiding the ranchers in their alleged aspiration to graze the refuge. Sixteen years later, refuge management still focuses on two tools only: rest (livestock exclusion) and prescribed fire. Officials publicly assert that these tools are working to restore native grasses, reduce Lehmann lovegrass dominance, control mesquite encroachment, and improve habitat for the masked bobwhite.

The problem with these claims is that they remain no more than assertions, even as evidence against them mounts. The only rigorous vegetation analysis to date indicates no statistically significant changes in composition or density under refuge management. Research conducted elsewhere has found that fire benefits Lehmann lovegrass relative to native species. Research done on the refuge by outside scholars contradicts two of the Fish and Wildlife Service's central claims: that improving masked bobwhite habitat requires less Lehmann lovegrass and less mesquite. A comprehensive assessment completed in 2000 using the rangeland health protocol found much of the Buenos Aires "at risk" due to low litter cover, sheet erosion, and large areas of near monotypic Lehmann lovegrass cover. As for the masked bobwhite, the margins of error on census data are

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so large as to make any conclusions shaky. All that can be said with confidence is that some 2,000 birds are released annually, and that an estimated 300 to 1,000 occupy the refuge in any given year.

Releasing masked bobwhites in the U.S. has been going on for more than sixty years. The only confirmed successes occurred from 1977 to 1979, on the Buenos Aires under Victorio's ownership. Yet no one in the Fish and Wildlife Service has examined the possibility that Victorio's management may have critically determined those successes: the spreader dams, which restored moisture levels in the bottomlands to something like their pre-entrenchment levels; the bulldozing, which produced short-term increases in forbs and annual grasses; the aerial seeding, which included hundreds of pounds of one of the bobwhite's preferred foods, Johnson grass seed; the rotational grazing, which gave herbaceous vegetation time to recover from the impacts of cattle. Discontinuation of these practices under refuge management may explain the continued frustration of release efforts today. Nor has any sustained attention been given to the possibility that poor summer rains from 1979 to 1981 might have undermined the released populations even had there been no cattle present.

In short, the debate over the Buenos Aires is misplaced: Relative to other factors, the presence or absence of cattle grazing as it is currently practiced is of little consequence to ecological restoration. It is certainly true, as environmentalists contend, that the landscape of the Buenos Aires suffered significant environmental degradation during a century of cattle ranching. On the other hand, the restoration that has occurred has not been due to livestock exclusion or refuge management. Rather, credit for improved conditions on the Buenos Aires rightfully belongs to previous owners, who invested in a variety of projects intended to restore the ranch to something like its previous productivity for livestock. For a long time, scientists believed that removing livestock would cause rangelands to revert to their "original" or "climax" conditions; today, they recognize that that model of ecological dynamics was poorly suited to arid and semiarid systems. It is a lesson that the Fish and Wildlife Service and many environmentalists have yet to understand.

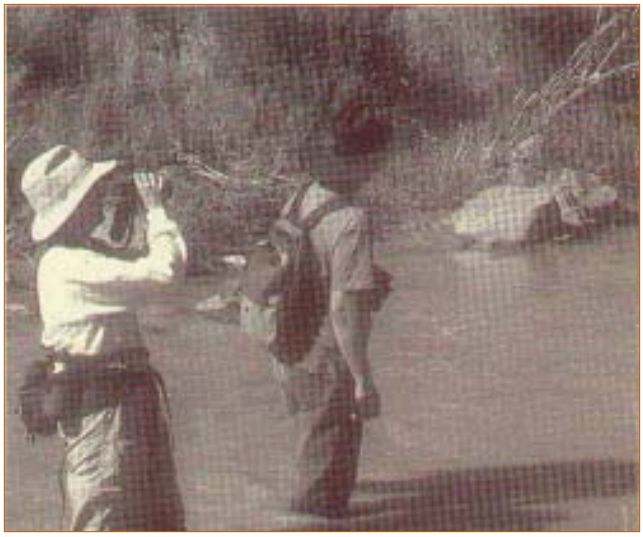
One of Victorio's prize-winning Hereford bulls grazing on the Buenos Aires, 1974. Note the absence of mesquites and the thick cover of grass, obtained by bulldozing and seeding. (Photo courtesy of Wayne Pruett.)

Profile of Good Stewardship: Gail Garber and Hawks Aloft, Inc.

Often the real radicals are those who don't think they're radical at all.

Take Gail Garber and Hawks Aloft, for instance. Founded by Gail and others in Albuquerque in 1994, HAI is a conservation organization with an unusual *modus operandi*—they don't sue, they don't try to influence legislation, and they don't engage in the rhetorical wars that pass as debate on natural resource use in the Southwest.

Instead, they count birds. They conduct an extensive in-school educational program for school children; they participate in collaborations, such as the New Mexico Burrowing Owl Working Group, to assess populations statewide; they conduct research; they author plans, such as the New Mexico Partners in Flight Bird Conservation Plan; and they work cooperatively with a wide variety of public and private land owners to conserve indigenous wild birds and their habitats.



Gail [right], up to her knees in water, tracking a bird. (Photo courtesy of Hawks Aloft.)

Communication and Cooperation

"We're not an advocacy organization," says Gail. "That's because we believe the only way to achieve solutions is through communication and cooperation."

Radical stuff, indeed.

Gail is not your typical revolutionary. She's a grandmother who came to conservation activism late, having created a successful career as a master quilter. She has published two books on quiltmaking and has a third set to be published this year. It's given her a unique perspective on her current career.

"I'm a teacher, not a biologist," says Gail, "and when you teach you have to *listen*. And I think that's been one of the keys to the success of Hawks Aloft."

Her change of careers happened almost by accident. When her children adopted an errant parakeet that flew into their garage, Gail became fascinated by its habits. After adopting more birds, Gail soon found herself volunteering for HawkWatch, counting raptors on seasonal surveys in the foothills of Albuquerque. She even got the girls of her quilting circle to create a quilt for a HawkWatch fundraiser.

But it wasn't until she met, and fell in love with, a Red-Tailed Hawk that she realized her true calling. She threw herself farther into conservation work, trapping and banding hawks, writing manuals and grants, editing the newsletter, and running the educational program—all as a volunteer.

Eventually, she earned a paycheck, but she also decided that she needed to start her own organization. So in February of 1994, along with fourteen friends, she founded Hawks Aloft, and became its Executive Director.

Gail quickly put her business acumen to work. In 1996, HAI became the first organization in New Mexico to conduct surveys of Ferruginous Hawks, a bird species petitioned for listing as a threatened or endangered"species in 1991. That petition was denied by the U.S. Fish & Widlife Service"for lack of current information about the species. HAI worked voluntarily at first, before landing a contract with the BLM to continue the surveys. Gail had the

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Good Stewardship:
Gail Garber and Hawks Aloft, Inc.
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idea of surveying for Ferruginous Hawk nests by small plane. "They often nest in the tops of juniper," she says, "and we found a lot of them by air. More than people expected. And a lot on private ranches."

Positive Relationship

Contrary to the experience of many conservation organizations in the state, HAI has a strong, positive relationship with ranchers. "We're totally honest with them," says Gail. "We tell them our mission is to keep common birds common. We're not necessarily looking for endangered species, but if we find one, we'll tell them first. And we never sue."

Also, she says with a smile, "when a rancher says 'no,' we take him at his word, so no sneaking onto his land. We try hard to be friends."

HAI's research on Ferruginous Hawks has revealed some surprising correlations between good bird habitat and livestock production. "Ferrugs" "are secretive grassland birds uncommonly seen by the general public. One of "their most common prey items is the prairie dog, in areas where prairie dogs "occur. Elsewhere, they consume rabbits, kangaroo rats, voles, other "rodents, snakes, lizards, and birds. The population trend of this hawk, the "largest in North America, has remained stable in most areas monitored by "Hawks Aloft. "In our study areas where numbers have declined, the primary "cause has been urbanization, conversion of rangeland to subdivisions or "ranchettes. It appears that ranching is the most compatible land use for "ferrug's reproductive success," says Gail.

The real trouble she sees is with the spread of subdivisions. "In 1998, we "discovered the densest known breeding concentration of Ferruginous Hawks in "New Mexico. The Estancia Valley, just east of Albuquerque was home to thirty or "more breeding pairs of these ferrugs. However, in the most rapidly growing "areas near Edgewood and Moriarty, the number of active nests has declined by "50% in the last three years alone. Some of these nest sites have been used "for ten to twenty years, but with the advent of the human neighborhood, the hawks "have moved on. Fortunately, in the more rural areas south of Macintosh, "numbers remain stable."

Today, HAI has five full-time employees, nine part-timers, and a host of volunteers of various shapes and sizes. They are conducting research and education all over the state. Here's a sample of their work:

- Conduct twenty-mile raptor surveys on four permanent grassland routes and six permanent Rio Grande corridor routes.
- Monitor nesting Ferruginous Hawks throughout the state.
- Monitor nesting Golden Eagles in the Farmington and Socorro areas.
- Continue to monitor Macho Creek.
- Establish two new survey routes on Jim Williams' ranch to monitor riparian "restoration on Largo Creek.
- Assess the effects of the Scott Able fire on bird populations including "songbirds, Mexican Spotted Owls, and Northern Goshawk.
- Monitor Mountain Plovers in rangelands in Taos and Cibola Counties.
- Conduct numerous songbird monitoring projects in areas undergoing some type of manage-

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Bullock's Oriole. (Photo courtesy of Hawks Aloft.)

The New Environmentalism

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"The only progress that counts is that on the actual landscape of the back forty." – ***Aldo Leopold***

when my friend Nathan Sayre gave me a new map of the 500,000-acre Altar Valley, located south of Tucson, AZ. Commissioned by an alliance of ranchers concerned about the spread of Tucson's sprawl in their direction, funded by a state grant, and subcontracted to a private consulting firm, the map was important for what it measured: indicators of rangeland health.

Drawn up in seven colors, the map expressed the intersection of three variables: soil stability, biotic integrity, and watershed function (soil, grass, and water). It displayed three conditions for each variable: Stable, At Risk, and Unstable. A color was chosen to represent a particular intersection. For example, Deep Red designated an "Unstable," or unhealthy, condition for soil, grass, and water, while Deep Green represented "Stable" for all three. Other colors represented conditions between these extremes.

Much of the private property on the west side of the valley (there is very little federal land in the watershed), which is actively managed, was dark green, while land on the east side, which is generally owned **in absentia**, was a patchwork of yellows and oranges, especially along the arroyos.

Smack in the middle of the map was a large private ranch called the Palo Alto. When I visited it last fall, I was shocked by its condition. It had been overgrazed to the point of being nearly "cowburnt," to use Edward Abbey's famous phrase. As one might expect, the color of the Palo Alto on the map was blood red, and there was plenty of it. By the criteria of rangeland health—soil, grass, and water—the Palo Alto was in trouble. And it was easy it see why.

A short distance down on the map, abutting the southern boundary of the Palo Alto, was another big splotch of dark red. This was no ranch, however. This was the Buenos Aires National Wildlife Refuge—a large chunk of protected land that had been cattle-free for nearly sixteen years. I visited the refuge as well, learning that the refuge managers have an active prescribed fire program, and have tried various mitigation strategies to retard persistent soil erosion. From the perspective of rangeland health, however, these strategies were not proving effective. (See story on page 14.)

I arranged to meet Walt Meyer, the man who did the field work for the map. A rancher with a PhD in range ecology, Walt said he read 500 transects across the Altar Valley, using a rangeland health system that graded sites on the degree to which they deviated from an ideal ecological site type. He said the problem on the Buenos Aires wasn't the proliferation of exotic Lehmann's lovegrass because it was only one variable out of many. Instead, it was a combination of things, principally soil erosion, that pushed the upper portion of the refuge into the red. And he stood by his analysis.

As I learned more, I began to appreciate how the Altar Valley map, and the rangeland health paradigm it employed, exposed us to the question of ecological functionality in a way that challenged our cherished beliefs about the intrinsic sanctity of "protected areas."

I learned this the hard way one day as I began to describe the map, and its implications, to a diverse group of people sitting under

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a tree at a workshop on the Gila National Forest. As I began to talk about the wildlife refuge, a young environmentalist from Tucson took offense at the suggestion that the refuge might be unhealthy in any way and cut me off. Rudely, too. Clearly, I had strayed too close to a core belief—that "protected areas," such as parks, wilderness areas, and wildlife refuges could possibly be in poor ecological condition.

In her reaction, I saw the confirmation of the need for a new environmentalism.

Soil First!

The concept behind rangeland health is a powerful and promising paradigm for a new activism. Its underlying idea is a simple one: that before land can support a **value**, such as livestock grazing, hunting, recreation, or wildlife protection, it must be at least in proper functioning condition. In other words, before we, as a society, can talk about designating critical habitat for endangered species, or increasing forage for cows, or expanding recreational use, we need to know the answer to a simple question: Is the land healthy at the level of soil, grass, and water? If the answer is "no," then all our **values** may be at risk.

But what is "health" exactly? In 1994, the National Academy of Sciences published a book entitled *Rangeland Health: New Methods to Classify, Inventory, and Monitor Rangelands*.[1] In it, the authors define range health "as the degree to which the integrity of the soil and the ecological processes of rangelands ecosystems are sustained." They go on to say, "The capacity of rangelands to produce commodities and to satisfy values on a sustained basis depends on internal, self-sustaining ecological processes such as soil development, nutrient cycling, energy flow, and the structure and dynamics of plant and animal communities."

Or, as Kirk Gadzia, one of the book's co-authors, likes to put it, "It all comes down to soil. If it's stable, there's hope for the future. But if it's moving, then all bets are off for the ecosystem." It is a sentiment echoed by Roger Bowe, an award-winning rancher from eastern New Mexico, who says, "Bare soil is the rancher's number one enemy."

I think it should also become the number one enemy of environmentalists as well.

The publication of *Rangeland Health* was the touchstone for a new approach within the scientific communities. It paved the way for the debut last year of a federal interagency publication entitled Interpreting Indicators of *Rangeland Health*[2] which provides a seventeen-point checklist for the ***qualitative*** assessment of upland health. A method for ***quantifying*** rangeland health has just been produced by scientists at the USDA's Jornada Experimental Station, located near Las Cruces, NM.[3]

Taken together, these methods are new and valuable tools for measuring the ecological condition of our uplands.

A similar approach was developed by the interagency National Riparian Team. Their own seventeen-point checklist assesses the physical functioning of riparian and wetland areas through "consideration of hydrology, vegetation, and soil/landform attributes." The goal

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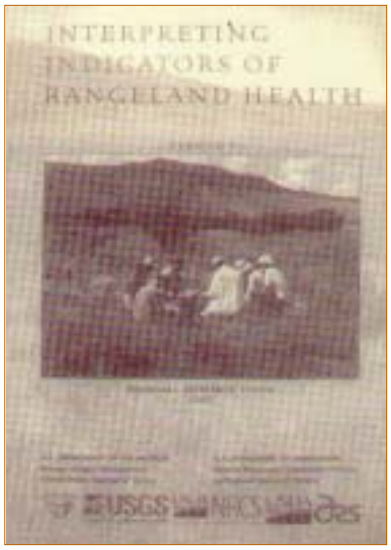

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Before: Upper Cottonwood, May 1928, West Elks national forest land near Paonia, Colorado. (Photo courtesy of the U.S.F.S.)

of this assessment, which the National Riparian Team calls Proper Functioning Condition (PFC),[4] is "to provide information on whether a riparian-wetland area is physically functioning in a manner which will allow the maintenance or recovery of **desired values**, e.g. fish habitat, neotropical birds, or forage, over time." [Emphasis added.]

Many years ago, Aldo Leopold lamented that, "The art of land doctoring is being practiced with vigor, but the science of land health is yet to be born."[5] Now that a consensus has emerged among scientists and federal land managers on functionality and how to measure land health, I think we can say it **has** been born, with important implications for environmentalists, ranchers, and federal and state land managers.

A new environmentalism, in other words, is all about measuring and monitoring the land.

Knowledge

Two summers ago I found myself sitting around a campfire at the CS Ranch thinking about ethics. I believed at the time, as I suspect many environmentalists do, that the chore of ending overgrazing in the West was a matter of getting ranchers to adopt an ecological ethic along the lines of those proposed by Mr. Leopold in his famous essay. The question was, how?

I decided to ask Julia Davis, our host, for advice. A dozen years ago, Julia and her sister Kim talked their family into switching to holistic ranch management on the 100,000-acre CS, a decision that has caused the ranch to flourish economically and ecologically. Earlier in the day I had been impressed by the sight of new beaver dams on a portion of the Cimarron River running through the CS, and also by Julia's support for their presence.

The Davis family, it seemed to me, had embraced Leopold's land ethic big time. So, I asked Julia: "How do we get other ranchers to change their ethics too."

Her answer completely rearranged my thinking.

"We didn't change our ethics," she replied. "We're the same ranchers we were fifteen years ago. What changed was our knowledge. We went back to school, and we came back to the ranch with new ideas."

This is an incredibly important point. Knowledge, not ethics, is the key to good land stewardship. Over the last four years I have had the good fortune to see many well-managed ranches (and some poor ones) in a wide variety of terrains. I've met a wide diversity of ranchers as well; and what I have learned is this: ranchers **do** have an environmental ethic, as they have claimed for so long. Often, in fact, their ethic is a powerful one. What may be missing, however, is knowledge.

The same thing is true of many environmentalists (and many federal and state land managers). It has been, after all, a long time since many of us were in school. And in my experience, when old knowledge wears out it morphs into something that sounds suspiciously like dogma.

If we could go back to school, as the Davis family had the courage to do, what would we study? Aldo Leopold had a suggestion: the fundamentals of land health, which he described as "the capacity of the

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land for self-renewal." He also described the business of conservation as "our effort to understand and preserve this capacity."

Wendell Berry also has an idea: Study the link between economics, culture, and land. He has written, "The two great ruiners of privately owned land are ignorance and economic constraint. And these tend to be related. People have ruined land mainly by overusing it—by forcing it to produce beyond its power to recover…and behind this overuse, almost always, has been economic need."[6] The same thing could be said of public land.

Environmentalists could also learn from the scientific community, as I did, that grazing is a natural process. The grazing of grass by ungulates has been going on in North America for at least sixty-six million years. The relationship between grass and grazers, while perhaps not entirely mutualistic, can be ecologically sustainable.[7]

Livestock grazing can also be a natural, and regenerative, form of ecological disturbance. That makes grazing significantly different from mining, clearcutting, or dam-building—an important point that environmentalists need to understand and acknowledge as a first step to more effective activism.

That requires, however, letting go of some bovine bigotry. A new environmentalism responds to the oft-cited charge that cattle are not "natural" by asking: Shouldn't our primary focus be on ecological processes—water cycling, nutrient cycling, energy flow—and how *all* our actions affect these processes on the ground? Using the criteria of rangeland health, I wonder which would be measured as more "unnatural"—a herd of cows or Phoenix, Arizona?

Sanctuaries

What if the "value" we seek, however, is protection from human use altogether? Recently, an alternative school of "new environmentalism" has emerged, one that advocates for "unmanaged landscapes" and a return of "nature's autonomy." As Bill Willers has written, "When a living system becomes fragmented or manipulated, its internal pattern of relationships is destroyed. When managed for some human-centered purpose, its autonomy is lost. Restoring wilderness conditions on landscapes of all sizes can allow for self-regulation in a state of ancestral wholeness."

After: Upper Cottonwood, June 1998. (Photo courtesy of Dave Bradford.)

He further states that "there is no middle ground. If that which has functioned beautifully through the eons free of human meddling is to survive, 'management' must become an erasing, a reversing, a minimizing of human impact—a science of letting things be."[8]

The goal of this approach is to expand substantially the size of protected areas—parks, refuges, and wildernesses—and to significantly decrease human activity at the same time. The aim is to "rewild" native

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landscapes, principally through the reintroduction of keystone predator species.

As attractive as this approach sounds, it has a serious flaw. What about functionality? What about soil, grass, and water? What chance do these predators have if their habitat is sick? Looking at this important issue through the prism of a "rangeland health" paradigm, a fundamental philosophical question arises: Can land be "wild" if it is not healthy?

Cows being herded in the West Elks Wilderness Area. (Photo courtesy of West Elks Grazing Association.)

This is a critical question because much of the history of the conservation movement has been focused on an effort to protect "wild" nature from destructive human use. Early on, the drive to preserve wilderness had its roots in culture—a romanticization of the nation's frontier period, an appeal to virility, and a fascination with the primitive. But with the development of the science of ecology, wilderness took on the role of ecological laboratory and wildlife sanctuary. For Aldo Leopold, a co-founder of the Wilderness Society, one of the principal assets of wild land was to serve as "a base-datum of normality, a picture of how healthy land maintains itself as an organism."

And to preserve this "normality" land needed protection. Wallace Stegner, speaking for many of his generation, wrote, "Wildlife sanctuaries, national seashores and lakeshores, wild and scenic rivers, wilderness areas created under the 1964 Wilderness Act, all represent a strengthening of the decision to hold onto land and manage large sections of the public domain rather than dispose of them or let them ***deteriorate***." [Emphasis added.][9]

The point is, this was decades ago. As the Altar Valley map implies, our "sanctuaries" may, in fact, no longer be the "reservoir of normal ecological processes," as Leopold imagined. From a rangeland health perspective they may be deteriorating right before our eyes at the level of soil, grass, and water. Historic abuse, current mismanagement, or some other factor may be undermining the integrity of these places. For example, how do we shield the "natural autonomy" of wilderness areas and national parks from the effects of global warming, acid rain, and CO_2 buildup?

A recent paper in the journal ***Wild Earth***, co-authored by Dr. Craig Allen, an ecologist with the USGS stationed at Bandelier, brings this issue into sharp relief—with significant implications for the future of the environmental movement on public lands.[10]

The paper examined the 30,000-acre federally designated wilderness area within Bandelier National Monument, located near Los Alamos, NM, and declared it to be suffering from "unnatural change."

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And the problem, he finds, is not confined to Bandelier. "Most wilderness areas in the continental United States," he writes, "are not pristine and ecosystem research has shown that conditions in many are deteriorating."

Scientific study, says Allen, "strongly supports the notion that historic Euro-American use of the area has triggered unprecedented change in most of the park's ecosystems. . . . This land-use history has resulted in degraded and unsustainable conditions. . . . Similar changes have occurred throughout much of the Southwest."

Specifically, in Bandelier the soils are apparently "eroding at net rates of about one-half inch per decade. Given soil depths averaging only one to two feet in many areas, there will soon be loss of entire soil bodies across extensive areas."

This is bad "because the loss of organic topsoils, decreased plant-available water, extreme soil surface temperatures, and freeze-thaw activity impede herbaceous vegetation establishment and productivity."

Hands-off protection is not the answer. "Herbivore exclosures established in 1975 show that protection from grazing, by itself, fails to promote vegetative recovery. . . . Without management intervention, this human-induced episode of accelerated soil erosion appears to be highly persistent and irreversible. **To a significant degree, the park's biological productivity and cultural resources are literally washing away**." [Emphasis added.]

According to Allen and the other authors, intervention is required in order to "reestablish functionality in the system." Which will require active management and restoration, the goal of which will be "to reestablish biotic dominance over rates of erosion and enable fires to move across the landscape unimpeded."

His summation is provocative: "We have a choice when we know land is 'sick.' We can 'make believe,' to quote Aldo Leopold, that everything will turn out all right if Nature is left to take its course in our unhealthy wildernesses, or we can intervene—adaptively and with humility—to facilitate the healing process."

In a new environmentalism, "protecting" land, where it is needed at all, is only half the job.

[To be continued in our December newsletter.]

"We have a choice when we know land is 'sick.' We can 'make believe,' to quote Aldo Leopold, that everything will turn out all right if Nature is left to take its course in our unhealthy wildernesses, or we can intervene—adaptively and with humility—to facilitate the healing process."

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[2] *Interpreting Indicators of Rangeland Health (Technical Reference 1734-6)*. Co-authored by Mike Pellant, BLM, Patrick Shaver, NRCS, David Pyke, USGS, and Jeff Herrick, ARS/Jornada Experimental Range. USDI, Denver, 2000.

[3] *Monitoring Manual for Gassland, Shrubland and Savanna Ecosystems*. Co-developed by the USDA-ARS Jornada Experimental Range, Las Cruces, 2001.

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[5] All Leopold quotes, unless otherwise indicated, are from *A Sand County Almanac and Sketches Here and There*. Oxford University Press, New York, 1987.

[6] All Berry quotes are from *An-*

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other Turn of the Crank: Essays. Counterpoint Press, Washington, D.C., 1995.

[7]For an in-depth analysis of the ecological underpinnings to progressive ranch management, see *The New Ranch Handbook: A Guide To Restoring Western Rangelands*, by Nathan Sayre. The Quivira Coalition, Santa Fe, 2001.

[8]In *Unmanaged Landscapes: Voices for Untamed Nature*. Edited by Bill Willers. Island Press,Washington, D.C., 1999.

Resting during a horseback tour of the West Elks. Steve Allen [right], permittee of the West Elks Grazing Association, and friend. (Photo courtesy of Courtney White.)

Good Stewardship:

Gail Garber and Hawks Aloft, Inc.

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ment change.

•Survey bat populations in Hidalgo County.

•Work with the Mexican organization, *Proyecto de Ayes*, conducting"surveys for electrocuted raptors in Chihuahua, MX.

•In collaboration with PNM, the U.S. Fish & Wildlife Service, and others,"work to reduce raptor electrocutions in Mexico and New Mexico.

•Reach over 25,000 students each year throughout the state with our"habitat education program.

"Our newest endeavor involves the largest power company in New Mexico, PNM," says Gail. "We are working together to create habitat for Burrowing Owls and American"Kestrels. The beauty of the project is that school children will take part"in constructing nest boxes and learning about the habitat requirements of"these birds." Crews from PNM will install nest boxes and artificial burrows on land"donated by PNM. If successful, and one of HAI's sites is occupied by"an owl or kestrel, they plan to install video monitoring equipment which will"transmit the images to the PNM and Hawks Aloft websites. Students will help monitor the sites.

"They have, in other words, more work than they can handle.

[9]*In The World of Wilderness: Essays on the Power and Purpose of Wild Country*. Edited by T.H. Watkins and Patricia Byrnes. Roberts Rinehart, Niwot, Co., 1995.

[10]"Would Ecological Landscape Restoration Make the Bandelier Wilderness More or Less of a Wilderness?" by Charisse Sydoriak, Craig Allen, Brian Jacobs. In ***Wild Earth***, Winter 2000/2001, pp. 83-90.

The Quivira Coalition is pleased to announce that it has finally leased an office—a real office!—in Santa Fe. Our address, for those of you who wish to visit, is 1411 Second Street. We will continue to use our Cordova Street address for mail.

" Though often exhausted, Gail is encouraged by the success of her"organization. "I never thought it would get this big. In the beginning I"wondered if we'd ever have more than two staff members! It has been a wild"and crazy seven years. I hope the next seven are even better."

But that's what makes Gail and Hawks Aloft so radical—they get results on the ground, and in the air.

so long—more than a century—that getting the cows off can't be expected to heal it in a time frame that is any shorter.

Collaboration

The New Environmentalism operates by means of collaboration. The Old by means of conflict. (This seems to me to be of ultimate importance today. I'm writing this on September 11.)

Since the New Environmentalism judges the health of a piece of land in terms of the condition of that land, it asks what everyone wants to have out there. Since most of us want the same things on the land—clean air, clean water, open space, magnificent scenery, healthy wildlife populations—setting goals in this way has a tendency to bring us together. People tend to pull together when they're faced with a mutual challenge, even if they don't agree politically. Think of the Democrats and Republicans, Independents, Libertarians, whatever pulling survivors out of the ruins of the World Trade Towers.

The Old Environmentalism, in contrast, begins with a prescription—to get the people off the land, to reduce their impact. And then it proceeds to try to apply that process. What's the best way to ensure that people apply a process? By passing laws and creating regulations that require them to, and suing them and prosecuting them when they don't. But that doesn't bring us together, it sets us against one another. What is your reaction when someone tells you what to do? Mine is to resist.

This divides us into opposing camps. God knows we don't need more of that. When we manage the land according to laws and regulations, you're either in compliance or you're not. You're innocent or you're guilty. You do it our way or their way. You're a rancher or you're an environmentalist.

Because I work with ranchers I've been accused of selling out, of changing my values from what they were when I was a "hard-core environmentalist." The truth is I haven't changed my values at all. I value open space, biodiversity, green meadows, clear streams, and other such things as much as I ever did. What I did change is the way I'm working to achieve those goals, and I changed that because I value results.

The New Environmentalism incorporates at least two of the main ingredients of every formula for effectiveness that I know of. The first is identifying a concrete goal (the condition of the land), and working toward it. The second is identifying which of these goals we all want and combining our energy, creativity, passion, commitment, and resources to achieve them. Imagine how much more effective this would be than expending so many of our resources fighting one another the way we do now.

That's the reason to adopt a New Environmentalism; not just because the old one doesn't work, but because the new one has what it takes to work so much better.

It's about Results

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The Quivira Coalition Website

Our website contains information on current events as well as old issues of the newsletter. You can visit us online at **www.quiviracoalition.org**

UPCOMING EVENTS

Southwestern Ranchers Look at Conservation Easements and the Protection of Family Ranching
Saturday, November 17, 2001 9:30 am to 4:30 pm
TVI—Work Force Training Center (Room 101), Albuquerque, NM

This workshop, sponsored by the **Southern Rockies Agricultural Land Trust (SRALT)**, will explore an important question for ranchers and land managers: How conservation easements can help keep the ranch in the family. The West is filling up, but passing down the family ranch **is** possible!

Learn from the experts! The workshop speakers have had lengthy "real world" experience in conservation easements. *Moderator*: Albert Mitchell, lawyer and rancher, Tucumcari, NM. *Two panels* include: Four ranchers from Colorado who have easements on their property; New Mexico and Arizona ranchers who either have conservation easements or are investigating them. *Other Speakers* include: Lynne Sherrod, Executive Director of CO Cattlemen's Agricultural Land Trust (CCALT); Larry Kueter, legal expert on conservation easements; Sid Goodloe, President of SRALT and rancher;"Bill Miller, rancher, Rodeo, NM;"Jack Wright, conservation advisor;"Bob Sivinski, State Forestry, Forest Legacy Program,"New Mexico Cattlegrowers Representative

Directions: From I-25, take Exit 233 (Alameda Boulevard). Go west on Alameda to San Mateo, north on San Mateo to Eagle Rock Road. Turn east on Eagle Rock Road. The Work Force Training Center is located on the south side of Eagle Rock"Road at 5600. Room #101 is immediately to your left as you enter the"front of the building. There is plenty of parking! This conference is"FREE, but please let us know you will be"attending so we can get a head count for lunch, which will be provided.

The Quivira Coalition First Annual Conference

The New Ranch at Work

Friday, January 18 and Saturday, January 19, 2002

La Posada de Albuquerque

We will bring together ranchers, scientists, environmentalists, and public land managers to discuss: **Grazing as a Natural Tool; Principles of New Ranch Management; Endangered Species and Predators; Building the Radical Center**. Scheduled speakers include: *Scientists and consultants:* Kris Havstad of the Jornada Experimental Range; Kirk Gadzia; Jim Brown, UNM; Nathan Sayre, Jornada; Rick Knight, Colorado State University; Scott Stoleson, Rocky Mountain Research Station; Ben Brown; *Ranchers:* Julia Davis, Bob Budd, Roger Bowe, David James,Tony Malmberg; *Environmentalists:* Dan Dagget, Merle Lefkoff, Gail Garber, Tommie Martin *Cost:* Conference, $55 (non-members); $40 (members). On Saturday evening, we will initiate the **Clarence Burch Awards** at a banquet. Banquet, $40. To register, call the Quivira Coalition at (505) 820-2544.

The Quivira Coalition
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