Reflections from a "Do" Tank: Quivira and Conservation in the West

by Courtney White

Recently, an acquaintance asked me what I did for a living. After explaining that I ran a nonprofit that worked with ranchers and conservationists in the Southwest on land health and sustainability issues, he said summarily "Oh, you run a Think Tank." Without pausing, I replied "No, Quivira is a 'Do' Tank," which elicited a nod and smile.

Land health expert, Kirk Gadzia, leads an outdoor classroom on rangeland health for Quivira in 1998.

Afterwards, I thought about this brief exchange. What did I mean? Partly, I was being provocative—I believe the world needs another Think Tank likes it needs another TV pundit or another Beltway lobbyist. I wanted him to understand that we are an organization that implements new ideas and not merely promotes them. But he wasn't so far off either. Like a Think Tank, the Quivira Coalition has prospected for innovative ideas that solve problems, in this case "from-the-ground-up." But we don't just talk about "feeling the soil between our toes," as Aldo Leopold once described the purpose of conservation. We actually get dirty—which is the only way to understand if ideas actually work or not.

And what we are trying to do is build economic and ecological resilience. It's the best way we know to meet the rising challenges of the 21st century. The dictionary defines resilience as "the ability to recover from or adjust easily to misfortune or change." In ecology, it refers to the capacity of plant and animal populations to respond to the effects of fire, flood, drought, insect infestation or other disturbance. Socially, resilience also describes a community's ability to adjust to big changes in economic or environmental conditions.

Since our founding in 1997, at least one million acres of rangeland, 30 linear miles of riparian drainages and over 15,000 people have directly benefited from the Quivira Coalition's collaborative efforts. We've explored many strategies that try to build resilience, enduring our share of failures along with successes. Initially, we focused on land health, collaboration, and progressive livestock management. Over time, our work expanded to incorporate riparian restoration, grassfed beef production, and youth mentorship. In the near future, we will try to integrate all of these ideas into mitigation and adaptation strategies for climate change, which, along with resource depletion, are the two great conservation challenges of the 21st century.

Meeting these twin challenges means doing so in a way that creates a resilient system that can bend without breaking under the expanding stress we're beginning to feel. And the only real way to do that is by testing this system in the real world—not just in a lab, classroom or think tank.

At the same time, Quivira has worked hard to disseminate both the innovative ideas of others and the lessons learned from our experience through a vigorous outreach program. In addition to our Annual Conference, we have organized over 100 educational events on topics as diverse as drought management, riparian restoration, fixing ranch roads, reading the landscape, water harvesting, low-stress livestock handling, grassbanks and grassfed beef. We have published numerous newsletters, journals, bulletins, field guides and books, including a rangeland health monitoring protocol and a how-to manual on riparian restoration titled ***Let the Water Do the Work***.

The first ranch tour Quivira organized was held on the Carrizo Valley Ranch, hosted by rancher, Sid Goodloe.

I guess that makes us an "Information" Tank too. But everything that we "inform" people about has been vetted through on-the-ground implementation of one sort or another. In other words, we make sure that there's always "soil between our toes" even when people are sitting in chairs listening to speakers. In this way, "Doing" and "Informing" are integrated in our work, one informs the other, hopefully to the benefit of all.

What follows is a reflection from Quivira's experience to date—what has worked and what has not so far. It is important to note that most of these ideas and practices came originally from the fringe, where innovation invariably starts, and were developed primarily to break through paradigmatic logjams in the mainstream. Quivira didn't invent these ideas, but we were among the first organizations to give them a trial run.

Idea: The Radical Center

Implementation: Quivira endeavored to create a common ground where ranchers, conservationists, scientists and others could meet to explore their shared interests rather than argue their differences.

The term 'the radical center' was coined by rancher Bill McDonald in the mid-1990s to describe an emerging consensus-based approach to land management challenges in the West. At the time, the conflict between ranchers and environmentalists had reached a fever pitch, with federal agencies and others caught in the crossfire. This conflict was one of the reasons why the West had balkanized, or separated, into ideological fiefdoms, an important consequence of which was gridlock where it hurt the most, on the ground. Very little progress was being made on necessary projects, such as lighting prescribed fires, improving the chances of endangered species on private land or helping ranchers fend off the predatory interests of real estate developers. Instead, it was a war of attrition, with the only real winners being those who had no interest in the long-term environmental or social health of the region.


(© Gene Peach)

Ranchers ,Doc and Connie Hatfield, lead a "talking circle" at the Quivira Coalition's 6th Annual Conference in 2007.

The Radical Center was a deliberate push-back against this destructive process of balkanization. It was radical (whose dictionary definition means "root") because it challenged various orthodoxies at work at the time, including the conventional belief that conservation and ranching were part of a zero sum game—that one could only advance if the other retreated. There were plenty of examples to the contrary, as Bill McDonald and the group he helped co-found, the Malpai Borderlands Group, demonstrated. Success, however, also meant working in the center, which refers to the pragmatic, middle-ground between extremes. It meant partnerships, respect and trust. But most of all, the center meant action—a conservation plan signed, a prescribed fire lit, a workshop held, a hand shook. Words were nice, but working in the radical center meant walking the talk.

In 1997, two Sierra Club activists, myself and Barbara Johnson, and rancher Jim Winder decided to put the radical center to a test in New Mexico by founding the nonprofit Quivira Coalition. Jim had an idea: step outside the continuum of brawling between ranchers and environmentalists and create a "third way" that emphasized progressive cattle and land management practices. We called it the "New Ranch" and invited any rancher, conservationist, agency person, scientist or member of the public who was interested in sharing common-sense solutions to the rangeland conflict to join us. We took a public vow of no legislation and no litigation. We promised ourselves not to waste energy trying to pry open closed minds. We focused instead on those who literally wanted to start over at the grass and the roots.

Quivira was different from other radical centrist groups at the time principally because we weren't confined to a watershed or a bounded region. We went wherever we could find eager learners willing to try new ideas. As a result, we embarked on a lengthy series of workshops, tours, outdoor classrooms, conferences, clinics and public speaking engagements around the Southwest. In the process, we helped to define what the radical center in the so-called 'grazing debate' actually meant, culminating in an "Invitation to Join the Radical Center" signed by twenty ranchers, conservationists and others in 2003 that we hoped would signal the end of conflict and the beginning of a era of peace.

Here's an excerpt and a list of its radical centrist conditions:

We therefore reject the acrimony of past decades that has dominated debate over livestock grazing on public lands, for it has yielded little but hard feelings among people who are united by their common love of land and who should be natural allies. We pledge our efforts to form the Radical Center where:

- *the ranching community accepts and aspires to a progressively higher standard of environmental performance;*
- *the environmental community resolves to work constructively with the people who occupy and use the lands it would protect;*
- *the personnel of federal and state land management agencies focus not on the defense*

of procedure but on the production of tangible results;
- *the research community strives to make their work more relevant to broader constituencies;*
- *the land grant colleges return to their original charters, conducting and disseminating information in ways that benefit local landscapes and the communities that depend on them;*
- *the consumer buys food that strengthens the bond between their own health and the health of the land;*
- *the public recognizes and rewards those who maintain and improve the health of all land; and*
- *all participants learn better how to share both authority and responsibility.*

Fast forward. Were we successful? Did the radical center hold? Yes, mostly, but with an important caveat.

First, the radical center successfully helped to end the long-running "war'" between environmentalists and ranchers, launching an important process of de-balkanization in the West that continues to this day. Although there are still some fisticuffs going on in places, indisputably, for a variety of reasons, the general attitude toward ranchers and livestock among a cross-section of the American public, including lawmakers, opinion leaders, newspaper letter-writers and many conservationists, has shifted substantially toward the positive. We've seen this shift first-hand in New Mexico, a battleground state in the grazing wars, where dialogue has largely replaced debate and cooperation is usually sought before confrontation (not on every issue, alas). It is not unusual for mainstream environmentalists to work collaboratively with ranchers today on many fronts. In fact, across the West there has been a significant and dramatic increase in formal coalitions, partnerships, and alliances between agricultural and environmental interests in recent years, both at regional and national levels. I believe these changes are here to stay.

Second, the radical center helped to get on-the-ground projects implemented across the region, which has further assisted with the de-balkanization of the West. Success has been uneven, however, revealing limitations to the radical center idea. Experience shows that certain types of activities are easier to build cooperative partnerships around than others. These include the eradication of noxious weeds, protection of open space from development, restoration of riparian areas and the creation of local food markets. Much more difficult are hot-button issues of a political nature, such as predator control, endangered species protection, climate change mitigation and nearly anything to do with the wolf.

The difference between the two is important. The radical center isn't a process of conflict resolution, which requires mediation and/or political intervention to resolve, instead, it is a process of finding common ground and moving forward proactively to implement consensus-based action. It works too, which is why there has been an explosion of watershed-based collaboratives across the West. As the saying goes, many hands make light work, especially if people are sincere in their desire to improve land and lives.

Third, the radical center's strength, its grassroots nature, has also been a handicap, however. A bottom-up, from-the-fringe-to-the-center approach like the radical center takes time to reach the political, environmental and academic Establishment, which often refuses to climb out of old trenches. This is especially true if leaders of environmental organizations, agricultural trade groups, university departments, agencies and political bodies have been in place for years (if not decades). They often can't let go of old paradigms. Fortunately, this is changing as a new generation of leaders rises through the ranks of their professions, many of whom have grown up in this emerging culture of cooperation and innovation.




Images from the Quivira Coalition's Valle Grande Ranch, circa 2006.

Idea: The New Ranch

Implementation: Quivira directed the only public lands grassbank in the American West. This was one example of innovative land and livestock models which we call The New Ranch.

The New Ranch wasn't just a meeting place, it was also a land management toolbox, much of which was filled initially with techniques pioneered by Allan Savory, a wildlife biologist from Africa. As we described it, the New Ranch "operates on the principle that the natural processes that sustain wildlife habitat, biological diversity and functioning watersheds are the same processes that make land productive for livestock." The key component is land health, which is the degree to which the integrity of the soil and ecological processes of rangeland ecosystems are sustained. In other words, before land can sustainably support a value, such as livestock grazing, hunting, recreation or wildlife protection, it must be functioning properly at a basic ecological level.

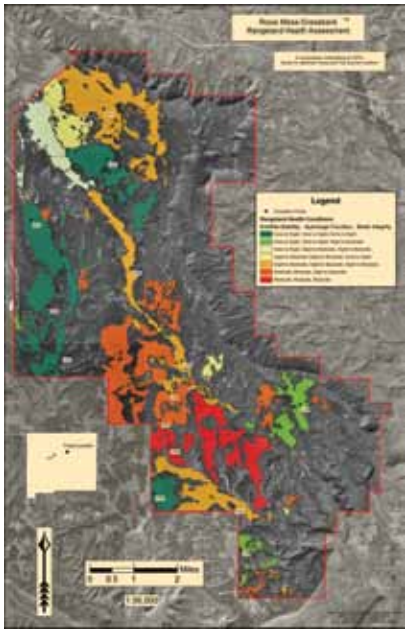
Components of the New Ranch include: herding or other rotational grazing strategies that control the timing, intensity and frequency of livestock impacts on the land (often called planned grazing); documenting the success of land management practices with scientifically credible monitoring protocols and articulating their results to diverse audiences; helping to create a common vocabulary for ranchers, scientists, agency officials and conservationists to use in addressing rangeland and other land health issues; educating various audiences about the complexity and difficulty of managing rangelands well; and engaging in collaborative conservation and restoration projects.

Initially, the number of New Ranches across the West was small and scattered. Many considered themselves outliers of a sort—bucking both the orthodox model of livestock management as well the conventional, negative attitude toward cattle held by urban-based conservationists. Over time, however, especially as stories of success began to be told, the New Ranch model, in its various permutations, began to gain traction among ranchers, agencies and the public. Especially important was a cross-fertilization of ideas and practices—ranchers doing riparian restoration work, consumers wanting grassfed beef, agencies willing to use livestock to knock back invasive weed species. This cross-fertilization broke open the rather rigid, early ideas of Allan Savory, allowing them to develop locally and then spread around the region. Today, although the numbers of New Ranchers is still comparatively small, they are indisputably no longer viewed as outliers. And as innovation and cross-fertilization continues, their numbers will continue to grow. As Quivira found out the hard way, not every innovative idea works out.

In 2004, when we took ownership of the Valle Grande Grassbank, a path-breaking project in northern New Mexico created by author and conservationist Bill deBuys, we were granted an opportunity to pull many of the New Ranch elements together and put them into action.

A grassbank is defined as a physical place as well as a voluntary collaborative process where forage is exchanged for one or more tangible conservation benefits on neighboring or associated lands.

In 1997, deBuys had a question on his mind: could cattle, curlews, prescribed fire, ranchers, environmentalists and the U.S. Forest Service all get along? To find out, he assembled the Valle Grande Grassbank, employing a 36,000-acre allotment of forest service land on Rowe Mesa, twenty-five miles east of Santa Fe. In assembling it, deBuys set out three goals:



Above: Valle Grande Grassbank land health map. Left: Craig Conley leads a discussion of a forest restoration project on Rowe Mesa.

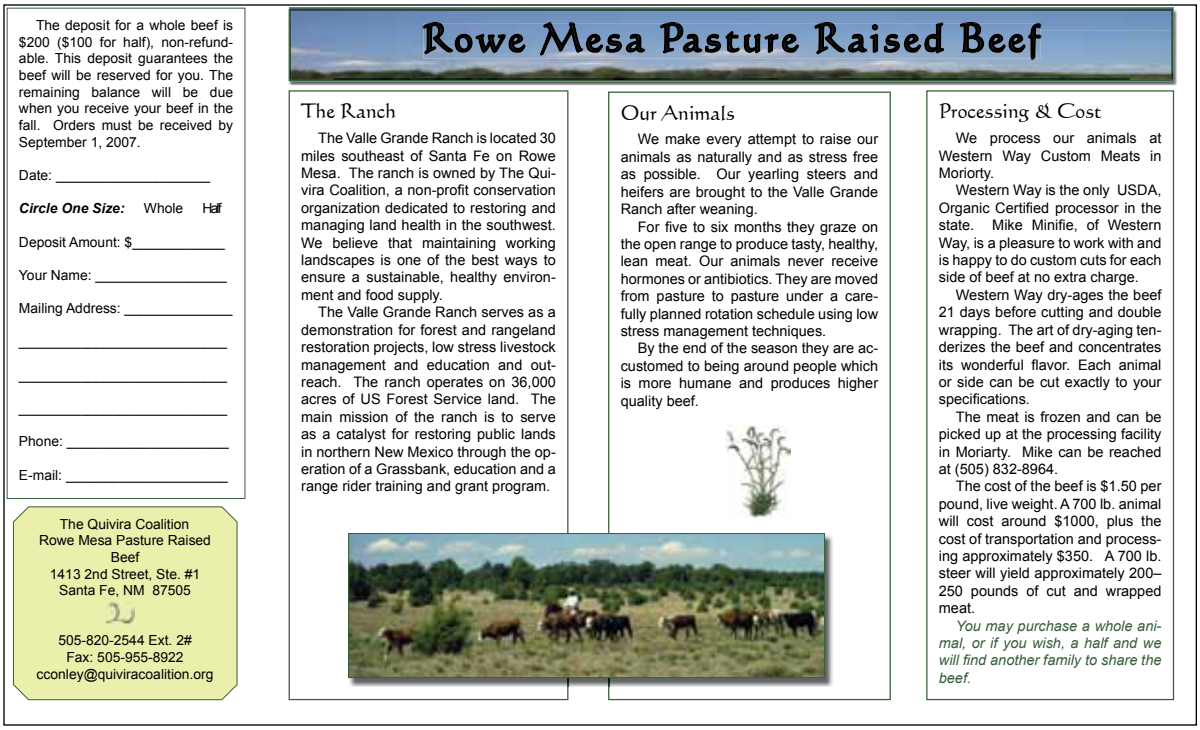
- To improve the ecological health of public grazing lands for the benefit of all creatures dependent on them.
- To strengthen the environmental and economic foundation of northern New Mexico's ranching tradition, which is arguably the oldest in the nation.
- To show that ranchers, conservationists, and agency personnel can work together for the good of the land and the people who depend on it.

The grassbank idea originated among ranchers of the Malpai Borderlands Group, in southwestern New Mexico, who were granted access to forage on the vast Gray Ranch in exchange for placing conservation easements on their private land. On the Valle Grande allotment, deBuys proposed to offer grass as a *bank* to other national forest permittees around the region in exchange for restoration work on their home ground, principally forest thinning and prescribed fire.

The project worked well for a while, with a variety of restoration projects being accomplished and a total of nine different grazing associations coming onto the grassbank. When the Quivira Coalition took over in 2004, we tried to build on the successes of the project, principally by adding additional New Ranch elements, including the creation of a land health map of the entire allotment, new monitoring procedures, a low-stress approach to livestock handling and an entrepreneurial approach to the business side of the operation.

By 2007, however, the Valle Grande Grassbank had ceased to function. And it did so for four main reasons.

First, the modest conservation gains came to an end during the final three grazing seasons (2004-2006) when no restoration work was completed by the Forest Service on the home allotments of the permittees. This happened for a variety of reasons, including drought, National Environmental Policy Act (NEPA) hurdles and budgetary tensions within the agency. It exposed a weakness in the grassbank model: relying on an overworked and understaffed federal agency for the conservation half of the grassbank equation.



The deposit for a whole beef is $200 ($100 for half), non-refundable. This deposit guarantees the beef will be reserved for you. The remaining balance will be due when you receive your beef in the fall. Orders must be received by September 1, 2007.

Date: _____

Circle One Size: Whole Half

Deposit Amount: $_____

Your Name: _____

Mailing Address: _____

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_____

_____

Phone: _____

E-mail: _____

The Quivira Coalition
Rowe Mesa Pasture Raised Beef
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Santa Fe, NM 87505

505-820-2544 Ext. 2#
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Rowe Mesa Pasture Raised Beef

The Ranch

The Valle Grande Ranch is located 30 miles southeast of Santa Fe on Rowe Mesa. The ranch is owned by The Quivira Coalition, a non-profit conservation organization dedicated to restoring and managing land health in the southwest. We believe that maintaining working landscapes is one of the best ways to ensure a sustainable, healthy environment and food supply.

The Valle Grande Ranch serves as a demonstration for forest and rangeland restoration projects, low stress livestock management and education and outreach. The ranch operates on 36,000 acres of US Forest Service land. The main mission of the ranch is to serve as a catalyst for restoring public lands in northern New Mexico through the operation of a Grassbank, education and a range rider training and grant program.

Our Animals

We make every attempt to raise our animals as naturally and as stress free as possible. Our yearling steers and heifers are brought to the Valle Grande Ranch after weaning.

For five to six months they graze on the open range to produce tasty, healthy, lean meat. Our animals never receive hormones or antibiotics. They are moved from pasture to pasture under a carefully planned rotation schedule using low stress management techniques.

By the end of the season they are accustomed to being around people which is more humane and produces higher quality beef.

Processing & Cost

We process our animals at Western Way Custom Meats in Moriorty.

Western Way is the only USDA, Organic Certified processor in the state. Mike Minifie, of Western Way, is a pleasure to work with and is happy to do custom cuts for each side of beef at no extra charge.

Western Way dry-ages the beef 21 days before cutting and double wrapping. The art of dry-aging tenderizes the beef and concentrates its wonderful flavor. Each animal or side can be cut exactly to your specifications.

The meat is frozen and can be picked up at the processing facility in Moriarty. Mike can be reached at (505) 832-8964.

The cost of the beef is $1.50 per pound, live weight. A 700 lb. animal will cost around $1000, plus the cost of transportation and processing approximately $350. A 700 lb. steer will yield approximately 200–250 pounds of cut and wrapped meat.

You may purchase a whole animal, or if you wish, a half and we will find another family to share the beef.

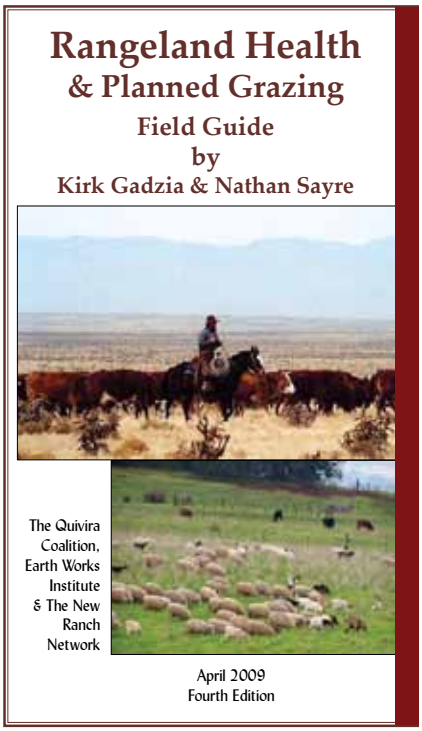
Quivira produced grassfed beef from its Valle Grande Ranch and sold locally in the Santa Fe area.

Second, the funding ran out. The Grassbank's budget was entirely grant-funded and when the grants dried up in 2006, so did the project. We were warned of this risk when we took over the Grassbank by a rancher on Quivira's Board of Directors, who said bluntly, "This place has all the costs of a ranch and no income!" Indeed, this raised a big question in general about the model: How can grassbanks pay for their operation without grants or other types of subsidies? If the model hopes to replicate itself and spread across the region as a viable conservation tool, it needs to be economical at some point. Unfortunately, the answer to this important question remains unclear.

Third, participation in the Grassbank by ranchers in the region declined over time, as did their enthusiasm and support for the project. Partly this was economic. Ranchers had to pay transportation costs to the allotment, and as diesel prices rose, more and more ranchers, already hurting in economically-depressed northern New Mexico, dropped out. Also, the slow progress of restoration work on their home allotments, especially in light of the high cost of getting to the Grassbank, discouraged participation.

Fourth, ultimately the project proved to be too much of a challenge to traditional paradigms. In the early years (circa 2000), the grassbank idea generated a great deal of interest among agencies, range professionals, conservation groups, ranchers and others across the West, only to see that interest fade over time.

This is unfortunate because we need reform and fresh ideas. Innovation is like a seed planted in the soil. Policy can help prepare the ground for planting, but nothing will grow without rain, sunlight, nutrients, education, culture and economics—which can't be mandated by a government. In the 21st century, growing the seeds of innovation will require the attention of a new type of gardener as well, one who must be able to navigate a changing climate and other challenges. The Grassbank was a seed, but the soil wasn't very fertile and the rains were sparse. It grew, but withered ultimately.



Examples of poor land health, including incised channels, eroding banks and lack of vegetative ground cover.

Hopefully, the public lands grassbank experiment left some seeds in the ground across the region, which now await the right conditions to grow again.

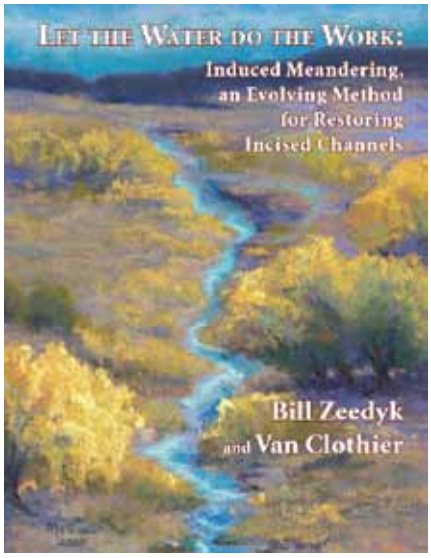
Idea: Land Health

Implementation: Quivira has directed a series of innovative riparian restoration projects in various locations around New Mexico.

The term land health was coined in the 1930s by the great conservationist Aldo Leopold. He was referring to the ecological processes that perpetuate life—the processes of biological self-renewal that ensure fertility among communities of plants and animals, including the proper cycling of water and nutrients in the soil. Metaphorically, he sometimes likened land health to a self-perpetuating engine or organism whose parts (soil, water, plants, animals and other elements of the ecosystem) when unimpaired and functioning smoothly would endlessly renew themselves. Leopold frequently employed words such as stability, integrity and order to describe this "land mechanism," drawing an image of nature that when healthy operated smoothly and ran in top shape.

By contrast, land became sick when its basic parts fell into disorder or broke down. This wasn't just a scientific theory. Leopold began to recognize signs of land illness almost from the start of his career as a U.S. Forest Service Ranger in 1909. They included abnormal rates of soil erosion, loss of plant fertility, excessive floods, the spread of plant and animal pests, the replacement of "useful" by "useless" vegetation and the endangerment of key animal species. These examples of disorder in the land mechanism, whether caused by natural catastrophe or by human interference, often led to adverse consequences for wildlife and human populations alike. That's because when nature's ability to regenerate itself over time is damaged—what Leopold called the "derangement" of nature's health—its ability to provide plants for wildlife or food for humans breaks down as well.

After World War II, the rapidly emerging science of ecology refined Leopold's ideas. The engine and body metaphors were replaced by a dynamic, even chaotic, vision of nature as ceaselessly



Bill Zeedyk explains his concept of Induced Meandering which, in 2009, was expanded into a how-to manual for restoring incised channels.

changing, subject to bouts of disruption and stress. This revised idea of ecological health still focused on self-renewal and self-organization, but now scientists saw nature as fluid, not static; complex, not reductionistic. This view employed a new set of terms and concepts, including resilience, variability, sustainability, diversity and perturbation.

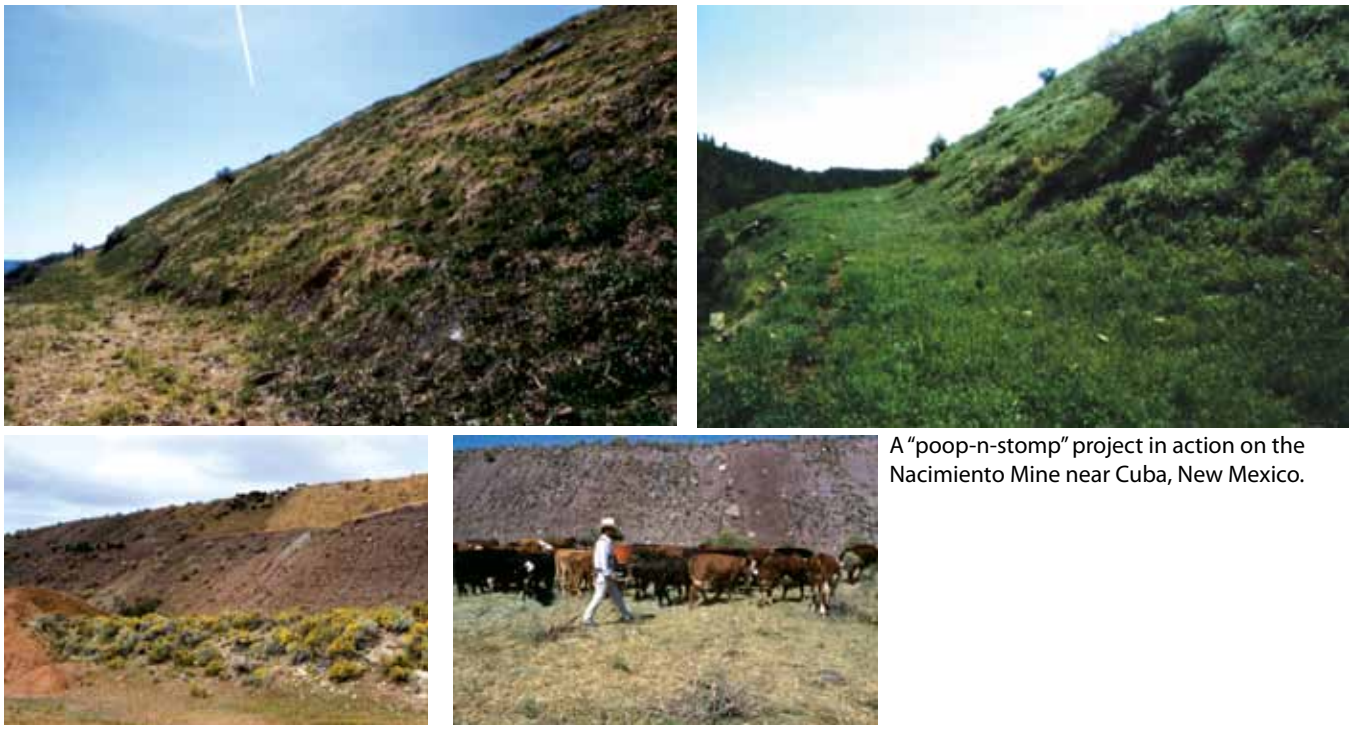
Moreover, it cast human impact on ecological processes in a new light. Rather than simply upsetting the balance of nature, our activities could now be evaluated according to their roles in the processes of stress, adaptation, restoration and recovery. Those activities that encouraged resilience, for example, could be considered to be promoting land health, while those activities that reduced an ecosystem's ability to recover from a disturbance could be considered deleterious.

A further refinement of the land health idea began in 1994 with an effort by the National Research Council to address the persistent disagreement among range scientists, environmentalists, ranchers and public agency personnel about the health of the nation's 770 million acres of rangelands. Not only was there a substantial lack of data on the condition of the land itself, but there was also an important lack of agreement among range experts on how and what to monitor. These voids contributed significantly to the acrimonious debate raging at the time about livestock grazing on the nation's public lands. Were rangelands improving or degrading? Everyone had an opinion, which was precisely the problem.

A collaborative effort was launched by an interagency team of government scientists to develop both qualitative and quantitative criteria for assessing and measuring the health of the land. This effort reached fruition in 2000 when the team settled on seventeen indicators of land health, grouped into three categories:

- Soil stability: The capacity of a site to limit redistribution and loss of soil resources(including nutrients and organic matter) by wind and water. It is a measurement of soil movement.
- Watershed function: The capacity of the site to capture, store and safely release water from rainfall and snowmelt; to resist reduction in this capacity; and to recover this capacity following degradation. It is a measurement of plant-soil water relationships.
- Biotic integrity: The capacity of a site to support characteristic functional and structural communities in the context of normal variability; to resist the loss of this function and structure due to a disturbance; and to recover from such disturbance. It is a measurement of vegetative health.

All of this important work set the foundation for a variety of land management practices that aimed at both maintaining land health and



A "poop-n-stomp" project in action on the Nacimiento Mine near Cuba, New Mexico.

restoring it. We now had clear goals to shoot for, methods by which we could measure success, and a vocabulary to use collaboratively.

For Quivira, the opportunity to implement an on-the-ground land health restoration program began in 2000 when we met riparian specialist, Bill Zeedyk. Soon, we were working together on a creek project at the Williams Ranch, in western Catron County, New Mexico. We employed Zeedyk's innovative restoration methodology, which he calls Induced Meandering (for details, see *Let the Water Do the Work: Induced Meandering, an Evolvoing Method for Restoring Incised Channels* by Bill Zeedyk and Van Clothier, published by the Quivira Coalition in 2009).

Within a few years, we had been awarded two substantial grants from the EPA's 319 program (Clean Water Act) to conduct riparian restoration work on the Dry Cimarron River, in the northeastern New Mexico, and on Comanche Creek, within the Valle Vidal Unit of the Carson National Forest. Both grants contained funding for a series of educational workshops, publications and conference symposia on diverse land health and restoration topics. Eventually, we expanded our restoration work to a variety of public and private landscapes across the Southwest.

Getting into the riparian restoration business was not an unprecedented step for the Quivira Coalition. Our "poop-n-stomp" project on the Nacimiento copper mine near Cuba, New Mexico, in 1999-2000, which was directed by rancher Terry Wheeler and employed his cattle (which he called FLOSBies – Four-Legged Organic Soil Builders) was an novel approach to land restoration on highly degraded land. We also created a land health map of the Valle Grande Grassbank, employing the seventeen indicators of health mentioned earlier, in order to prioritize potential restoration treatments on the allotment. The scale at which we entered into the restoration work with Bill Zeedyk was much more widespread.

We learned two big lessons from all this work. First, land health can be improved and maintained relatively easily and at a low cost if you "think like a creek and let nature do the work," as Bill Zeedyk likes to put it. Second, almost anyone can do it. The key is understanding

Examples of how incised channels and headcuts can damage riparian and upland health by lowering the water table and creating erosion.

natural processes, such how water flows across the land, the role of riparian vegetation in soil stability and how grazing animals use the land. One doesn't need a Ph.D. to understand these processes. What is required is a working knowledge of land function, which anyone can pick up with the right amount of training, study and in-field experience.

Many farmers and ranchers intuitively understand how land works. What they often lack (if they are open-minded) is the technical knowledge of restoration. Many conservationists have picked up this knowledge quickly as well. In fact, most of the volunteers, as well as the contractors, on our restoration projects have an urban/conservationist background.

This knowledge works. Our restoration projects have been highly successful, particularly in their goal of improving and maintaining land health. In case after case, we have documented the recovery of riparian health as a result of Induced Meandering and other methodologies, including the repair of low-standard ranch roads. This, in turn, helped break logjams.

Initially, Zeedyk's ideas were met with resistance from some agency personnel and some academics, but over time his high success rate on-the-ground convinced most critics to change their tune. Quivira helped, not only by organizing the restoration work itself, but also by providing workshops, symposia, training seminars and other educational opportunities for the curious and the eager. This helped to change the culture of restoration work in the region. Once considered an outlier activity in itself, restoration has now become quite mainstream, and innovators like Bill Zeedyk and his trainees, once marginalized, are now in wide demand.

In sum, the details of land health and the restoration toolbox to improve and maintain it are now well-developed, thanks to many people and a lot of hard work. What remains to be accomplished, however, is making this work economically, i.e., figuring out a way to compensate landowners and others for improving land health. This will be critical to efforts to manage land for climate change and resource depletion, which will, frankly, require paychecks and entrepreneurial energy to be effective. We can now confront the West's legacy of degraded riparian areas and rangelands proactively. Hopefully, soon we'll be able to do so profitably.

Idea: Collaborative Conservation on Public Lands

Implementation: We have directed a multi-year, multi-party restoration project on National Forest land in northern New Mexico.

The idea of collaborative conservation, once controversial, has now become widely accepted among many landowners, agencies, researchers, ranchers, and conservationists. What remains a challenge, however, is implementing collaborative conservation on public lands, which comprise one-half of the West's 425,000 square miles.

This challenge is becoming more difficult, not easier, as the idea of collaborative conservation grows, in our experience, with important implications for any effort to manage the federal estate for the effects climate change and resource depletion. Since 2001, the Quivira Coalition has led a habitat restoration project on Comanche Creek, located in the Valle Vidal Unit of the Carson National Forest, in partnership with a wide range of organizations and agencies. The goal of this project is to restore degraded portions of the 27,000-acre watershed to health with the aim of improving the survival chances of the Rio Grande cutthroat trout (RGCT), New Mexico's state fish. Over 200 in-stream structures and 50 elk/livestock grazing exclosures have been constructed along Comanche Creek with the aim of reducing erosion, improving water quality and restoring riparian vigor to the creek. Our experience has taught us that successful solutions include:

- in-stream structures that stabilize stream-bank erosion, increase stream-bank water storage capacity and improve riparian zone vegetative cover and diversity;
- side-stream restoration activities that reduce erosion, stabilize headcuts, re-wet meadows and improve hydrological cycles;
- mitigation or elimination of "bad" roads and road-related features (such as poorly placed culverts) that increase sediment erosion;
- encouragement of the growth of bank-side native plants (to shade the water for the fish);
- management of the impacts of herbivory;
- annual maintenance and modification of structures as needed; and
- annual monitoring of progress.

This project is still ongoing, but we can speak to some lessons learned about collaborative conservation:

- The technical challenges of creek and habitat restoration pale in comparison to the "people issues," especially in a remote location such as Comanche Creek. The key to success is the personality of the Project Manager. This person must be equal parts diplomat, agitator, ringmaster, delegator and must have persistence, patience and a good sense of humor.
- Diversity is critical. The power of collaborative conservation comes from the ability to look at one problem, or one landscape, from multiple perspectives. That means having a variety of perspectives represented, and not just specialists. Volunteers have great ideas too. The key is to respect each perspective and learn from other people's ideas, which is hard to so sometimes, especially if they prick your paradigms.
- Keep innovating. New ideas are always coming down the pike. Keep your eyes and ears open. Don't get stuck in a restoration rut.
- Monitor, monitor, monitor. Collect qualitative as well as quantitative data at every opportunity. It helps in so many ways.
- Have fun.

Comanche Creek bank stabilization using post vane structures to move the main flow away from an eroding bank while building a new bankfull bench. Left, July 2006, right, September 2010. Photo view looking upstream.

These are the easy lessons. The harder ones involve the knowledge that it is becoming increasingly difficult to do collaborative conservation on public lands. The level of complexity involved in dealing with federal agencies has steadily increased over the eight years of our work on Comanche Creek to the point where it has verged on becoming a disincentive to collaborative work.

For example, the Forest Service recently imposed a requirement that we pay for all NEPA costs associated with new work on Comanche Creek. Previously, this critical work was done by the agency. The rationales for passing these substantial costs onto their partner include reduced staffing, increased workloads, internal priorities and a trend toward outsourcing certain governmental functions in order to reduce costs. Its practical effect, however, is devastating. Where will this money come from? Foundations are very reluctant to pay for work they consider the government's responsibility. Nonprofits can't pay for it with their "profits" because we don't have any! But come up with the money we must, or else the project will languish because compliance with NEPA regulations is legally required. So, it's a worst-case scenario: we get to partner with the Forest Service if we are willing to absorb rising financial, procedural and institutional costs.

At the same time, federal agencies are saying publicly that they recognize the need for more partnerships, more flexibility and more innovation in order to meet rising challenges on public land, including climate change. However, the view from the trenches in this regard is not encouraging. Partly it is in the nature of bureaucracies to pile on the layers of paperwork as they become more complex over time. Add in a diverse constituency, many of whom have conflicting expectations of federal agencies (and are not shy), plus a bewildering array of congressionally-mandated laws and regulations and you have a recipe for a great deal of gridlock on public land.

Some of this could be addressed by policy changes, but a lot of the problem is institutional, cultural and often linked to the personalities of agency individuals (who have a lot of on-the-ground power). In my mind, unless there is wholesale reform, which is highly unlikely today, it won't change the fundamental problem: innovation and entrepreneurial energy are essentially impossible on public lands today. The government can't or won't provide the incentives and the private sector is discouraged or largely prohibited from trying to implement innovation. This will become increasingly troublesome in the near future as serious challenges grow, such as drought.

In sum, Quivira's experience to date demonstrates that building resilience on private and public lands is possible, practical and potentially scalable. Much of the toolbox necessary to manage the West for multiple pressing challenges has been developed and field-tested by many individuals and organizations across the region. But two important elements are lacking in order to get things moving faster: an economic model that values regeneration and restoration over exploitation and waste; and strong leadership at the county, state and federal levels to break through "business-as-usual" paradigms and policies. Both have proven to be frustratingly elusive, but I am hopeful that as more and more organizations take the lead by "doing" and "informing" others will follow and contribute their own innovation and entrepreneurial energy.

Most importantly, I see hope in the next generation. I believe that young people today are much more open to collaboration, innovation and the implementation of back-to-the-future ideas, such as herding or grassfed food production, than the current generation of environmental, agricultural and scientific leaders. They have also come of age during a time when a crisis such as climate change is part of their everyday zeitgeist, which, combined with their technological savvy, means they are prepared for modern challenges in a way their parents probably are not. Their interests are also more agrarian than their predecessors, especially their interest in food systems, which means they have a lot of "soil between their toes" already. This may be one reason why they are more interested in pragmatic solutions to problems rather than finger-pointing or ideological posturing. In any case, we should do everything we can to teach, encourage and mentor this new generation of leaders.

If anyone can build resilience in the West for the long run, they can.