November 1997

# The Quivira Coalition

Sharing Common-Sense Solutions to the Rangeland Conflict

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## Riparian Areas: Sources of Conflict

Water is the lifeblood of the arid West; and the region's rivers, streams, and creeks are the arteries by which life is maintained. The areas around those arteries are called "riparian zones."

Due to their scarcity and significance, these areas have been the source of much of the conflict between ranchers, environmentalists, state and federal land managers.

But what is a riparian area exactly? Why are they so important to environmentalists? Why should ranchers care about how they manage them? Why do land agencies try to protect them? Why the lawsuits? Why the anger? What do we really want from riparian areas anyway?

This issue is dedicated to defining the nature and importance of riparian zones and the nature of the problems associated with them. Our next issue will explore management techniques which might provide solutions to these problems.

# A Primer on Riparian Zones

*by Tony Svejcar, Range Scientist, USDA, Agricultural Research Service, Oregon*

*(This article has been edited by Kris Havstad, USDA, Agricultural Research Service, with permission of the author, from its original publication in the August 1997 issue of* ***RANGELANDS.****)*

### *Part 1: What are Riparian Zones and How Do They Work?*

There are many ways of defining riparian zones (or areas), but most definitions include some mention of a transition between terrestrial and aquatic ecosystems. Thus, the riparian zone is the transition between the uplands where there is seldom standing water and the stream, river or lake where free flowing or standing water should be common. As a transition, riparian zones tend to have characteristics of both upland and aquatic ecosystems. Plants growing in these areas may be completely under water during a portion of the growing season and yet be exposed to drought stress during certain times of the year.

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# From The Founders

## Jim Winder, Courtney White, Barbara Johnson

No one involved with the Quivira Coalition anticipated the extraordinary public response which followed our first newsletter, grazing conference and two site tours. It is obvious that we have struck a nerve. The public is the judge and jury in the grazing debate and what the public is saying is that they want both healthy ranches and healthy ecosystems. Those who wish to sweep ranchers from the land and those who refuse to change their ranching practices are in for a disappointment.

We wish to thank all the newspaper reporters who gave us coverage throughout the state and their editors who helped frame the debate as a question of fairness. The support of the New Mexico State Land Office, Bureau of Land Management, Forest Service and Agricultural Service has also been heartening.

We especially want to thank all of those individuals and organizations who have made donations to Quivira--you are keeping us going.

Mostly, we would like to thank the dozens of ranchers, environmentalists and ordinary folk who attended our conference and tours. At times the conversations were heated but they were always productive in showing the human side of the conflict. It is easy to hate someone you have never met; it is much harder to hate someone you know and with whom you share much in common.

We would like to recognize those people who have agreed to serve on our Board of Directors: Mark McCollum, a rancher from Ft. Sumner, Dr. Kris Havstad, Supervisory Scientist at the USDA's Jornada Experimental Range, Bob Jenks, Assistant Commissioner at the New Mexico State Land Office, Dan Dagget, author and environmentalist from Flagstaff, and Frank Hayes, U.S. Forest Service District Ranger in Clifton, Arizona.

Our Advisory Board includes Ray Powell, Jr., New Mexico State Land Commissioner, and Bill DeBuys, author and conservationist. Both Boards will continue to grow.

The results of our initial efforts confirm that we are on the right track. What does the future hold? We will continue our monitoring project on Macho Creek (see story on page 3), and we are looking for a second riparian project in the Rio Puerco watershed. We will produce more newsletters (we will achieve our projected bimonthly schedule when we have the money), we will have more tours, and on January 17, we will have a second grazing workshop to be held in Silver City (see page 16 for details). We will continue to make ranchers nervous by talking about change and encouraging them to become full resource managers. We will continue to challenge environmentalists and agency folk to realize that the human element cannot be eliminated from the land. We will continue to listen and to include more people in our educational efforts.

We are just beginning.



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# The Macho Creek Project:
# Developing a Monitored Approach to Riparian Area Management

So how do we judge the condition of a riparian area? This is a major issue. We know these areas are important, for many reasons, yet they have been impacted for centuries by various human activities. How do we fairly determine their potential and their current condition, and check on the effectiveness of present management? In addition, how do we do this without bias, or at least as objectively as possible?

### *Assessment vs. Monitoring*

We can look at landscapes, including riparian areas, in two ways: by an assessment and by monitoring. These ways of looking at land are different. An assessment is an evaluation, and can be accomplished at one point in time. Monitoring is repeated checking, primarily in the interest of adjusting management based on these repeated observations. It is important to recognize that assessments are good at identifying the current condition, but are not good tools to identify WHY landscapes are in their present condition. It is also important to know that monitoring can require many repeated measurements to effectively deal with the climatic variability that is so common in the Southwest, but that most approaches to monitoring are difficult and time-consuming. There is no simple, single, universal approach to monitoring.

Assessments and monitoring can be quantitative or qualitative, and subjective or objective. Many people have worked on a piece of land for so many years that they can effectively monitor their management by simple, visual, qualitative methods. Yet, today there is an increasing demand for quantitative approaches, less reliant on memory, less dependent on subjective historical perspectives. This is especially true for areas of greatest concern, such as riparian zones.

### ***Coalition Initiates Quantitative Monitoring Program***

The Quivira Coalition, working with the staff of the Jornada Experimental Range, is assisting the State Land Office in developing and implementing a monitoring program for a riparian area on Macho Creek in Sierra County. This program is being conducted through a right of entry permit to this state trust land from the State Land Office, and with the full support and approval of the lessee.

An assessment was conducted using the Bureau of Land Management process for evaluating proper functioning condition. This approach evaluated hydrologic, vegetative and erosional features of the area. In October 1997, we initiated a monitoring program that has been constructed to objectively and quantitatively measure these same properties of the riparian zone. The Jornada Experimental Range has been actively researching methods for monitoring rangelands, and these scientists are using the Macho Creek area to adapt their approach to include riparian zones.

Photo by Courtney White

*Jim Winder shows off his riparian area, which is on Macho Creek, below the area of the monitoring project*

### *Methodology*

Our methodology is constructed to take repeated (annual) measurements of vegetation, channel and soil characteristics. The

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# Riparian Zones

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*"Even though the amount of land occupied by riparian zones in relatively low, they serve as the focal point for watersheds. . . . Riparian zones. . .influence water quality and the seasonal pattern of waterflow leaving a watershed."*

In the western U.S., riparian zones tend to be more productive than other ecosystems, but occupy only a small proportion of the total landscape. Even though the amount of land occupied by riparian zones in relatively low, they serve as the focal point for watersheds. Riparian areas must be viewed in the context of the entire landscape and not as separate entities.

### *Why are Riparian Areas Important?*

These narrow riparian strips of land adjoining streams and lakes provide a number of important resource values. For example, about 80% of the terrestrial wildlife species known to occur in southeastern Oregon are either directly dependent on riparian zones or use these areas proportionately more than other habitats. A high proportion of bird species found on rangeland are dependent on riparian habitats for at least part of the year. Riparian zones and associated meadows may also provide a good deal of forage for livestock and big game. Riparian zones also influence water quality and the seasonal pattern of waterflow leaving a watershed. Vegetation along streams and lakes may be important in the "filtering" of water before it reaches flowing or standing bodies of water. The "riparian ecosystem" can serve a number of important functions, and is relatively more important than the small area it occupies on the landscape.

### *Structure and Function of Riparian Zones*

Stream ecosystems are generally much more complex than they first appear. Although it is not always apparent, streams are closely linked to the riparian zones that surround them; and even more obscure is the linkage of the stream and riparian zone to the entire watershed, which may include many thousands of acres. Streams are very dynamic over the course of a year, and from year to year. We have all probably seen streams at near flood stage in the spring, and just barely a trickle by late summer. Thus, the associated riparian vegetation may have to survive a period of complete inundation, followed by drought stress. In addition, no two streams are exactly alike, and the variability increases even further when the stream and associated riparian zone are considered together. The vegetation associated with streams may be even more variable than the streams themselves. Along any given stretch of stream there may be many different plant communities.

In much of the western U.S., snowmelt supplies the majority of the moisture for riparian zones and streams. Vegetation in the uplands can influence the manner in which water reaches the riparian zone. For example, the expansion of juniper on western rangelands may have a negative impact on streamflows if juniper uses more water than the sagebrush-grass vegetation that existed prior to juniper encroachment. However, not all portions of a watershed contribute equally to runoff and streamflows.

Given the variety of conditions that can occur along streams, it is not surprising that a wide range of plant species are common to riparian zones. Sedges and rushes often dominate the herbaceous (or non-woody) species, and willows often dominate in the woody plant category.

There are a number of characteristics that make these species well-adapted to riparian areas. The willows and sedges tend to have many growing points, and thus can produce numerous stems. Many of the herbaceous species have rhizomes (underground stems) and thus form a dense mat that helps hold the streambanks together during high water flows. In addition to the rhizomes, some of the wetter riparian communities have a very high density of roots.

# Riparian Zones

*(con't)*

We must recognize that riparian areas are dynamic and prone to change. Streams tend to meander back and forth across meadows with the pathway changing over time. Many streams leave oxbows (where the meander completes a loop and gets cut off from the stream) as evidence of the former pathways. We can find cases where a stream has abandoned a channel to form a new one. Gravel layers that at one time were part of the stream channel can be found at surprising distances from the present stream channel. Ecosystems are dynamic and will change over time, and riparian systems are probably more dynamic than the associated uplands.

## *Part 2: Human Impacts on Riparian Zones*

### *Beavers*

The first potential impact of European settlers on riparian zones came earlier than most might realize. The North American beaver was highly sought after for the European clothing market. Therefore, beaver populations in eastern North America were rapidly depleted. The removal or reduction of beaver populations from streams in western North America came at a surprisingly early date. In the 1820s, the Hudson Bay Company adopted a policy of deliberately over-trapping beavers in areas that bordered the Pacific Northwest. The strategy was designed to discourage trappers from other countries from attempting to claim territory over which the Hudson Bay Company wished to maintain control. By the end of the 19th century, many of the beavers in North America had been removed from riparian systems and the beaver may even have approached extinction.

Prior to European settlement, estimates indicate there were between 60 and 400 million beavers, with a density of about 10 beavers per square mile in their primary habitats. Clearly there were plenty of beavers in North America, but how might their removal have influenced the streams and lakes with which they were associated?

The influence of beavers on the structure and functioning of riparian zones may be substantial at both the local and landscape level. Specifically, beavers may alter the hydrology and nutrient cycling in a stream or even an entire river system. Prior to removal of the beaver, large amounts of carbon and nutrients (e.g., nitrogen) were retained in the upper portions of watersheds rather than being transported downstream.

Beaver dams tend to slow the velocity of water which causes sediment and debris carried by the stream to be deposited behind the dams. Because the beaver dams backed up water, the water table increased, creating wetland patches that are important to the diversity of the landscape. In fact, it has been suggested that thousands of years of beaver activity may have created many of the West's fertile valleys. Once beavers were removed, the dams were no longer maintained and eventually dam failure occurred. As dams gave way, stream energy became confined to discrete channels rather than being dissipated, which caused down-cutting and erosion. The potential of the stream systems to store water in the flood plains would also have declined as the beaver dams failed.

### *Livestock*

Another impact of human settlement on riparian systems involved the introduction of livestock into the western U.S. The impacts again probably began earlier than most people realize. By the 1590s, cattle, sheep and goats had been introduced into what is now the southwestern U.S., and by the 1700s most Indian pueblos in the southwest had sheep flocks, some num-

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# Riparian Zones

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*"Unfortunately, only in the past 10-15 years has much emphasis been placed on riparian areas. During the previous 50 years nearly all the emphasis was on improvement of upland range communities. "*

bering up to 30,000.

The western livestock industry did not develop until after the Civil War. Although the numbers may not have been entirely accurate, the Department of Commerce census indicates that in 1870 there were 4.5 million cattle in the 17 western states, 35 to 40 million in 1884, and 47 million in 1890. The sheep industry was also expanding during this period. Drought and/or severe winters in the late 1880s and early 1890s, coupled with low cattle prices, greatly reduced the number of cattle in the western U.S. However, the extremely high livestock numbers had a major impact on rangelands of the West, both uplands and riparian systems. There were numerous reports of overgrazing in newspapers and livestock association publications during the latter part of the 1800s. During this period there was no control over grazing on public lands in the West. The general rule was whoever got there first used the forage.

Unfortunately, only in the past 10-15 years has much emphasis been placed on riparian areas. During the previous 50 years nearly all the emphasis was on improvement of upland range communities. There appears to be progress towards a more balanced approach where uplands and riparian zones both receive attention in the planning process.

### *Herbicides*

After World War II the phenoxy herbicides, principally 2,4-D, became available for manipulation of vegetation. During the same general time frame there was a prevailing attitude that phreatophytic vegetation (plants that use ground water) should be removed to increase streamflows and thus water yield. The combination of availability of 2,4-D and the desire to improve water yield resulted in extensive spraying of streamside vegetation from 1940 to 1970. The U.S. government provided matching funds on spraying projects that were intended to increase water yield. Unfortunately, at the time there was little appreciation for the importance of the woody vegetation in holding stream banks together during peak flows.

Many of the larger streams and rivers in the western U.S. have been subjected to mechanical manipulations of one sort or another. After World War II there was a good deal of heavy equipment available at relatively low prices. Many streams and rivers were straightened with the intention of reducing the flood hazard.

There are many other forms of mechanical alterations of river systems including dams, domestic and agricultural diversions, bank stabilization, dredging for navigation, etc. Many of these treatments are more obvious to the casual observer than the treatments listed above. But basically, any factor that influences the structure and functioning of stream and river systems will impact riparian vegetation.

### *Mining*

Historical mining activities have significantly altered riparian habitats in specific locales in the western U.S. Some of the early mining technologies are particularly noteworthy. The hydraulic mining that occurred in northern California and parts of the Pacific Northwest during the late 1800s and early 1900s was especially damaging. A pressurized stream of water was used to wash loosely consolidated gravels from stream banks so that gold ore and gravel could be separated. The effect was to destroy stream structure and produce tremendous sediment loads.

Dredging of streams was relatively common in the Rocky Mountains during the early part of this century. Dredges varied in size but the basic principal remained the same. The dredge traveled up or down a stream separating ore from streambed material and dumping

the tailings alongside the stream. Because the dredges were not particularly efficient and the price of gold fluctuated, some stream stretches were dredged several times.

A more subtle influence of mining activities on stream systems relates to changes in stream chemistry. Old tailing piles can leak various undesirable compounds into stream systems for years after a mine has been abandoned. One of the most common effects is acidification of stream stretches. Unfortunately, changes in stream chemistry can occur miles downstream depending on the nature of the mining and the stream system.

### *Recreation*

As with livestock and wildlife, humans tend to be drawn to riparian areas and spend a disproportionate amount of time in them. Some potential impacts of recreation on riparian areas relate to road and trail building, campsites, bank trampling, off-road vehicle use, mountain biking, etc. Some reservoirs were built primarily for recreation. Over the years a wide range of treatments has been tried to improve fishing. In some areas willows were sprayed to improve fishing access to streams, woody debris and beaver dams were removed with the intention of improving upstream and downstream fish migration and log dams have been built in streams. Fish populations have been manipulated both by using rotenone to kill "trash" fish and by stocking with hatchery fish. In general, the effects of recreation tend to be localized, with the majority of riparian areas receiving relatively dispersed activity. Some of the recreation-related activities such as stocking of nonnative fish may have much larger impacts on aquatic animal and insect populations than on riparian vegetation, per se.

The factors listed above probably account for the overwhelming majority of human impacts on riparian areas. However, the list is certainly not all inclusive. Changes in upland vegetation, either through logging, conversion to agriculture, fire suppression or introduction of invader plant species can have an impact on water and sediment movement to riparian zones. Water diversions for industrial, agricultural and urban uses also have the potential to alter streamflows and thus riparian vegetation. We can only guess how the increases in atmospheric CO2 will influence the landscape. There is a large body of research indicating that plant productivity will increase about 30% if CO2 doubles from preindustrial levels.

### *Conclusions*

Riparian areas are very important components of the landscape even though they may comprise only a small percentage of the land area. These areas are closely linked to the surrounding uplands which serve as the source of water and sediment that are the lifeblood for stream systems and associated riparian vegetation. A wide range of human activities have impacted riparian zones. The challenge to resource managers is to define the impacts on a particular stretch of stream and where possible work toward improving both the structure of the stream and the associated vegetation.

**We gratefully acknowledge the support of the Santa Fe Group of the Sierra Club, which enabled publication of this issue of the newsletter.**

## Riparian Zones

*(con't)*

# The Value of Riparian Areas To Ranchers

*by Jim Winder*

*"In my experience, the single greatest benefit of healthy riparian areas to ranchers is the goodwill they generate with environmentalists, government agencies and the general public."*

Before I enumerate the many benefits of healthy riparian habitat to ranch businesses, perhaps it is best to quickly review the principles of riparian management. Cows have a tendency to hang out in riparian areas which I find highly understandable given how attractive these shady cool spots are to humans. Over the years land adjacent to creeks becomes sacrifice areas just like those found around water troughs and corrals. Although the impact on grasses and forbs is great, the most serious consequence is that cows prevent trees from reproducing by eating the seedlings. Cottonwood and willow trees are short-lived. If cows eat the seedlings, the old trees die out and there are no young ones to replace them. The lack of trees and herbaceous cover which slow the water and protect the banks leads to downcutting and a simplification of the whole system. Most of all, this type of management has led to the extreme conflict between ranchers and environmentalists which we see today.

### *Dormant Season Grazing Provides 90-110% of the Benefit of Rest*

The common response to degraded riparian areas by environmentalists or agency managers is to demand the removal all livestock. I must admit that this is effective at regenerating vegetation. However, it is costly to fence miles of often rough terrain and is very damaging to the ranch business. My personal experience in managing grazing in riparian systems, plus a few bushels of research papers, indicates another approach which is highly beneficial to the rancher as well as the river. Grazing management which limits livestock use of riparian areas to the dormant season can produce 90-110% of the benefits of total rest. The trick is to control livestock to ensure that adequate vegetative structure and height remain to provide nesting habitat and to protect the soils from erosion. The critical management point is that the cattle must be CONTROLLED.

### *Money In Pocket*

Now let's look at some of the cold, hard, money-in-the-pocket benefits of healthy riparian areas to ranchers. The wonderful thing about controlled dormant season grazing is that the same riparian system which is recovering and providing excellent habitat also produces many times more forage. In my case, riparian pastures produce 10 times the forage of my best upland pastures, which happen to be in excellent range condition. Think of the rich growth of grasses, forbs and browse along the creek as being stockpiled for use during the winter months when other grazing is at its poorest. The extra volume and excellent quality of the forage are greatly appreciated by a momma cow in December. My best results have come from using the stockpiled forage to improve the cow's body condition score before calving in the spring. The cow's condition at calving is the single most important determinant of how soon the cow re-breeds after calving. And all of our bankers know that reproduction is the most important determinant of profitability on cow/calf operations.

So what we have then is stockpiled forage of high quality which improves the cow's body condition score which improves reproduction which makes the banker smile. We should also remember that the more protein we store in standing forage, the less we have to feed out of a bag. Supplemental feed is usually the single highest cash cost for ranchers. Well-planned dormant season grazing can significantly reduce your supplemental feed bill, but you may get fewer calendars and caps from the feed salesman--a tradeoff I am willing to live with.

Now let's review--we control our cows to keep them off the riparian areas during the growing

season, then stockpile huge amounts of forage for use during the critical winter months which can improve reproduction and decrease feed costs. What is the down side? We forgo growing season use of riparian areas which is the time when the grazing on the rest of the ranch is the best. Not much of a cost.

### *Other Values of Riparian Areas*

We have looked at the value of the forage which may be removed, now we should focus on that which is left standing, kept in the bank so to speak. The trees shade the ground which reduces evaporation, the grasses filter sediment from the water and protect the banks from erosion, the bushes provide habitat and the forbs are nutritious. An often quoted indicator of riparian importance, and one that I agree with, is that 95% of the animals in New Mexico depend on riparian habitat for at least a portion of their lifespans. Although many of these animals have little direct economic value (though they are integral to the health of the natural system), many like deer, elk, turkey and quail do put money directly into a rancher's pocket.

In terms of animals, the most important role of riparian habitat is as a safety net during drought. Many species, especially game species, need green forage to reproduce and raise their young. During drought, the riparian area is the only green place remaining and animals concentrate along streams. If healthy riparian habitat is not available at these key times, the effect on wildlife is truly catastrophic. One profitable approach is to use riparian habitat as a base for a licensed shooting preserve operation--where hunters pay the owner for the opportunity to hunt game birds over an extended season. The fact remains that these canyon bottoms make wonderful homes for all kinds of wildlife and wildlife is worth money.

And what about water? Healthy riparian habitat tends to produce more available water at higher qualities. Getting paid for producing clean water is not as easy as getting paid for hunting. The value of clean water to society is indisputable, but this value is usually only expressed in negative ways when the supply of clean water is reduced. Things like the Clean Water Act and non-point source pollution laws punish those who are guilty of fouling the water but offer little positive incentive to me to clean things up. I guess that not being penalized is a positive thing, but it doesn't pay the bills. What I do know is that my cost of watering my cattle is reduced when I have a nice clear stream.

### *Goodwill*

In my experience, the single greatest benefit of healthy riparian areas to ranchers is the goodwill they generate with environmentalists, government agencies and the general public. Instead of being a source of conflict, my riparian areas have become a source of understanding and agreement. While grasslands may take decades to noticeably respond to improved management, riparian areas can respond seemingly over night. There is nothing more gratifying to a resource manager than to see the land respond to changes in management.

If you want a fence or a well to improve livestock operations on some part of your ranch, cooperate on a riparian project with the BLM or USFS. If you want to end or avoid conflict with environmentalists, get your riparian house in order. In my case, a positive relationship with the BLM and the environmental community translates into greater operational flexibility which has yielded significant profits. Ranchers face a huge economic challenge--we don't need to add to our problems by being forced from riparian areas.

## The Value of Riparian Areas to Ranchers

*(con't)*

### Quivira Joins Rio Puerco Watershed Management Committee

The Quivira Coalition has been asked to serve on the Rio Puerco Watershed Management Committee established by Congress last year to identify reasonable goals for land managers in the Watershed, to recommend voluntary management practices to maintain and improve the ecological, cultural, and economic conditions on public and private lands in the Watershed, and to develop voluntary and cooperative programs to implement these management practices. The Committee must submit its report to Congress next year.

At the first meeting we attended, the membership (which is comprised of various government, tribal and pueblo representatives as well as representatives from environmental groups like the Sierra Club) asked to be put on the Quivira mailing list, so they could receive copies of our newsletter.

# The Thin Green Line

*by David Henderson, Executive Director, National Audubon Society/ New Mexico*

*"Examples abound that show that changes can happen and that riparian recovery can occur, in some cases with little effort or cost to the land manager."*

From overhead, the ribbon of green identified as riparian habitat looks like sutures holding together the arid uplands of the Southwest. This analogy is not too far from the truth since throughout the southwest riparian habitats have been severely wounded but like a sutured cut, most of these lands, if managed in a responsible way, can heal.

Riparian is a term used to describe the lands adjacent to creeks, streams and rivers where vegetation is strongly influenced by the presence of water. Because of the presence of water diversity of flora and fauna is a dominant feature of this critical habitat. It is the water and diversity that has worked like a magnet drawing us humans to settle along these wet, green areas and draw from them in an effort to carve out a living. The result has been that in the last 150 to 200 years we have witnessed the loss of over 90% of the riparian communities of the Southwest. Some of what has been lost can and must be restored if we care about our health and the health of this planet.

### *Most Valuable Land in West*

Though riparian areas make up less that 1% of the area in the western United States, they are among the most productive and valuable of all lands. In Arizona and New Mexico, 80% of all vertebrates depend on riparian areas for at least half of their life cycles and more that half of these are totally dependent on riparian areas. More than half of all the 482 species of birds that occur in New Mexico rely on this habitat. Riparian areas are the nurseries for our birds. Two New Mexico river valleys (the Gila and the San Juan) alone support 16 to 17% of the entire breeding avifauna of temperate North America .

Many other values of riparian areas exist as well. Riparian areas can have a strong influence on how watersheds function. A healthy riparian zone will raise the water table and saturation zone, thus increasing the sub-surface water storage. The riparian vegetation cools the water reducing evaporation and enhancing the aquatic environment while slowing the release of water into the ecosystem. Healthy riparian communities help check erosion and can assist in the rebuilding of riversides and streambanks. Riparian communities are important wherever they are found, but in the dry regions they are critical in providing water to plants and wildlife and are the main source of clean water to downstream communities.

### *"Sacrifice" Areas*

With such apparent high value offered by riparian ecosystems, why are they in such poor condition today? In large part it seems to be that, up until the late 1960s, riparian habitats were viewed as "sacrifice" areas dedicated primarily to providing food and water for domestic and livestock uses. In a joint report written in 1994 by the Bureau of Land Management and the U.S. Forest Service, it was concluded that "riparian areas have continued to decline (since 1934, the year the Taylor Grazing Act was enacted) and are considered to be in their worst condition in history. Estimates show that 46% of the riparian areas managed by BLM are 'functioning at risk' and another 20% are designated as 'non-functioning.'" This trend must be reversed, but can only be accomplished by land managers increasing their sense of awareness for the value of these areas and by applying the tools of sound management on the ground where it will make a difference.

### *Restoration Is Not Impossible*

Restoration is a daunting but not an impossible task ahead for all of us. It starts with the attitude that riparian habitat is critical, an important resource shared by us and a multitude of plants and animals.

*(con't on page 11)*

primary vegetation characteristics are cover, composition and age demographics (specifically, the presence of new seedlings). Channel features include measurement of channel profile features, and soil characteristics are principally measures of soil stability at various distances from the main channel. We have chosen variables that we think reflect the functioning of important processes and that can be accurately measured at small (< 1 meter) to large (>10,000 meters) scales. We are also trying to construct a monitoring module that could be adapted to other riparian areas and other working conditions (such as available time, level of expertise, and access to ancillary resources). The selected ecological characteristics reflect principal properties of this system that should be measurable, repeatable,and indicative of process-based functioning of the watershed. The intent is to develop a data-based, scientifically sound approach to adjustment of management practices for the benefit of the riparian zone.

In doing this we are not operating in a vacuum. We have tapped into existing knowledge and approaches to monitoring that are currently available or in stages of development. We are working, through the Jornada Experimental Range, with other groups that have similar interests and goals.

The Coalition will also be making recommendations to the State Land Office about management of this riparian area. We will be meeting with the Land Office on-site this month to discuss those recommendations.

We can talk all we want about how we view conditions of lands, effectiveness of management, or the damage caused by a particular impact, but without objective and unbiased monitoring, we have little evidence for our perspectives. More importantly, with monitoring we can adjust management practices (if necessary) to achieve proper functioning conditions. Monitoring allows us to look to the future, rather than guessing at and dwelling on causes of past impacts. The Coalition wants to foster a deliberate, reasoned, ecologically based approach to evaluations of landscapes. The Coalition also wants to assist in on-the-ground conservation of New Mexico's resources. The Macho Creek project is structured with these goals in mind.

## The Thin Green Line

*(con't from page 10)*

The question is not do we want Black hawks or a domestic water diversion, do we want Rio Grande cutthroat trout or a timber sale or do we want beaver or livestock. The question is do we have the capacity and the willingness to change the way riparian areas have been used and abused over the last 150 years. Examples abound that show that changes can happen and that riparian recovery can occur, in some cases with little effort or cost to the land manager. We are fortunate in that, if treated right, many of these areas can still heal themselves to once again provide the many values we all need for survival.

## Macho Creek Monitoring Project

*(con't from page 3)*

*Touring Jim Winder's Ranch in September*

Photo by Courtney White

# The Far Horizon

*by Courtney White*

*"Men who look on nature, and their fellow-men, and cry that all is dark and gloomy, are in the right; but the somber colors are reflections from their own jaundiced eyes and hearts. The real hues are delicate, and need a clearer vision."* -- **Charles Dickens, *Oliver Twist***

What do environmentalists want? Concerning the grazing debate, a few years ago I thought the answer was easy: Kill the Cow. Rest the West. No Moo in 2002.

I learned the answer in an "anti-grazing" conference in Albuquerque one fine fall day. I sat in the dark, transfixed by colorful slides of lunar landscapes that had once been healthy green pastures, naked and starving streams, which looked like the victims of medieval torture, and a parade of endangered species that had been pushed to the edge of extinction by the unfeeling bovine. The environmental destruction I saw shocked me.

At lunch I went outside with my fellow environmentalists and sat on a cement curb. As I chewed my vegetarian sandwich thoughtfully, I peered at a nearby throng of people wearing cowboy hats and carrying handmade signs. They milled sullenly around a black coffin that had the word "RANCHING" stenciled on its side. I listened impassively as one cowboy stoked the crowd electronically with declarations of ranching's immortality. When I finished my sandwich I raised my hand and confidently waved "goodbye" to the throng.

Why not? We were right and they were wrong. It was as simple as that. The color slides did not lie. Cattle had nuked the West's environment to the point of no compromise. The land was "cowburnt," to use Edward Abbey's famous phrase, and had to be healed with emergency action.

The answer, everyone said, was extermination of the cow and the cowboy. Now.

### *Having Doubts*

My comfortable ride took a rocky turn a year later when I elected to take a tour of Jim Winder's ranch. Increasingly suspicious of bumper-sticker solutions to environmental problems, I was curious about Jim's talk of progressive ranching techniques. He told anyone who would listen, which wasn't many, that a healthy ecosystem was compatible with ranching. I found that hard to believe.

When I met Jim he sat on the Executive Committee of the Rio Grande Sierra Club. What, I wondered initially, was he doing there? Were we out of our minds? Ranchers were our sworn enemies. A book I was reading at the time declared ranching to be "the West's most environmentally destructive land use, and one of the rural West's most economically, politically, and socially harmful influences as well." But there was Jim, talking about sustainable ranching. So who was telling the truth? I took a tour to find out.

What I saw opened my eyes. I saw healthy grass, I saw running water in a previously dry streambed, I saw wildlife. I listened to Jim talk about herding his cows up, rotating them through small pastures, and grazing the land during the dormant season. He said positive things about biodiversity, about coyotes, Mexican Wolves, and termites. He talked about managing his land for ecological and economic health simultaneously. He said bad management was the problem in the West, not the cow.

Although I liked what I heard, I had to admit that I knew little about the ecology of rangelands. I, like many environmentalists, could not tell the difference between black gramma grass and tabosa. What did I want the land to look like, asked Jim? I said I wanted clean and abundant water, loads of diverse wildlife, natural grasses, and the protection of open space. Jim said he did too.

The answer to the grazing debate, I suddenly realized, was a complicated one.

The trouble was, I had been indoctrinated into the doom-and-gloom school of environmentalism. The goals of our movement are mostly punitive--close that bad mine, stop this awful clearcut, clear

the air, clean the water, sue the bastards. As it should be. The Big Stick should never be put away, at least not until people begin behaving better. But this gloomy approach precluded clearer vision; we were spending all our time whacking the bad guys and not spending any time encouraging the good ones. There was a critical shortage of hope out there, which blocked creative solutions. There was little education, and no dialogue among combatants. Meanwhile, the land kept deteriorating.

### *Trust*

Shortly after the tour of Jim's ranch, I read Dan Dagget's book ***Beyond The Rangeland Conflict***, which profiled 10 ranches around the West that managed their land in a style similar to Jim's. In each case the twin goals of ecological restoration and economic growth were approached or achieved. Jim's method was not as mad as it first appeared; others were doing it too.

Dan's book tells the story of ranchers who "changed their grazing practices and reversed the loss of riparian habitat, biodiversity and recreational opportunities on public lands." Success is measured in improved wildlife habitat AND economic returns. "We have come to know and respect communities and individuals around the region that grew up ranching--and loving--the same lands we do. We've discovered that neighbors don't have to agree on everything to work together when there is some common ground."

The key is trust. Progress in the grazing debate will not be possible without the establishment of a dialogue between reasonable players. Ranchers, environmentalists, land management agencies, and others need to open lines of communication to one another. It can be as simple as meeting for coffee around a kitchen table, or taking a tour. Of course, dialogue is the first step toward building trust.

As Jim and I, and eventually Barbara, talked, we began to see that an organization would be required to encourage further discussion. We proposed a big tent, under which any person with an open mind could gather to exchange ideas, learn things, and make friends. There is no "one way" to graze properly while restoring ecosystem health, we realized. Rather, there are many ways, though most point in a similar direction.

In June we founded the Quivira Coalition as our big tent. My personal odyssey from bumper-sticker activist to tent builder took less than three years. In the past four months, the Coalition has been swamped with positive press and very favorable newspaper editorials from around the state, indicating that we have struck a nerve. All sorts of people have said kind things, and they are walking into the tent.

Slowly but surely, trust is beginning to grow.

### *Riparian Areas*

The question remains, however--what do environmentalists want? As Jim often asks "What does an environmentalist want my ranch to look like exactly?" It is a very good question.

Take riparian areas, for example. This complex nexus of land and water is the source of much debate, and litigation, in the arid West. If environmentalists could communicate clearly their conception of healthy riparian zones, and if ranchers would resolve to protect these areas, then much of the contention in the grazing fight would be greatly reduced.

We know that a healthy riparian area, full of native grasses and trees, provides critical habitat for wild fish and animals; slows floods and retards erosion; ensures the high quality of drinking water; reduces sedimentation that can shorten the life of a lake or reservoir;

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## A QUIVIRA DEAL

Copies of Dan Dagget's pathbreaking book ***Beyond The Rangeland Conflict: Toward A West That Works*** are available from the Coalition for $15.00 plus $3.00 mailing (that's $5 off the list price!).

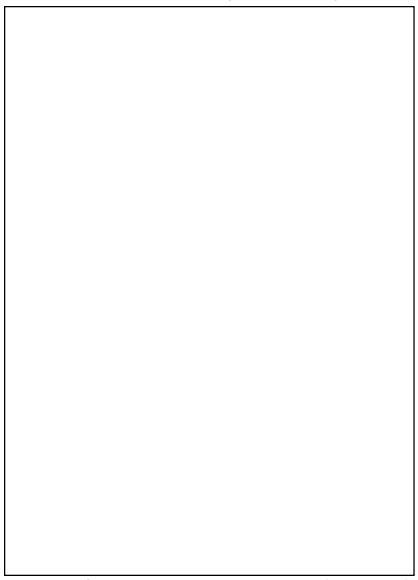
Dan's book, which was nominated for a Pulitzer Prize, explodes the myth of rancher vs. environmentalist by profiling 10 ranches around the West that have turned to collaboration, instead of conflict, in a search for ecological and economic sustainability. One reviewer called the book "an essential loom we'll need if we are to reweave human communities back into the larger fabric of life in the Intermountain West."

For copies of ***Beyond the Rangeland Conflict***, please send a check for $18.00 to the Quivira Coalition, 535 Cordova Rd. Suite 423, SantaFe, NM 87501.

# Examples Of Good Stewardship: Rex Salvador and the Bar 15 Ranch

*by Courtney White*

Photo by Courtney White



*One of Rex's watering tanks, with abundant grass*

The Rio Puerco watershed, west of Albuquerque, is justly infamous as the poster-child of overgrazing in the West. A century of heavy, continuous grazing by sheep and cattle, combined with poor oversight by land management agencies have created the most desiccated and degraded landscape in New Mexico.

Times are changing, however. In 1996, Congress directed the Bureau of Land Management to gather together an Advisory Committee of diverse players and charged it with the responsibility of restoring economic and environmental vitality to the Rio Puerco. It will not be an easy task.

### *"Excellence in Grazing"*

Perhaps they should follow the example of Rex Salvador's ranch. The Pueblo of Acoma purchased the Arroyo Colorado allotment in 1978 and turned it over to Rex to manage in 1984. In cooperation with the Soil Conservation Service and the BLM, Rex transformed the ranch into a showcase of good stewardship. In 1989 the Society for Range Management awarded Rex its "Excellence in Grazing" award.

It is easy to see why. On a recent tour we saw ample evidence of rangeland health. Vine mesquite and fourwing saltbush were growing abundantly among the knee-high sacaton; the edges of the arroyo were gently rounded and covered with green grass; vegetation grew right up to the edge of the watering tanks and troughs; plant and animal litter covered the ground; and bare spots were few and far between.

Although it has been a wet year, evidence of long-term restoration was evident when we compared "before" photographs, taken a decade prior, with what we saw today. The "before" photographs showed a moon-like landscape, full of broken and bleeding land. The land today is covered with vegetation.

Rex said he now sees plenty of ducks, quail, and cranes on the ranch; an occasional elk as well. In 1989 the BLM reintroduced antelope into the allotment. Today they are thriving.

### *"Good Cows"*

What has Rex done? He follows his instincts mostly. Using three or four cowboys, Rex herds his cattle up and keeps them moving. They never rest for long in any one place. When they do, he places his salt blocks far away from the water tanks in order to disperse their impact on the land. He primarily grazes the plants during their dormant season.

As recently as 1976, the cattle on the Bar 15 were not under control and trampled the riparian areas. Today, Rex says, they are trained to act as a herd and accept his intensive rest-and-rotation system. "They're good cows now," he says with a smile.

During the recent drought he divided his herd into much smaller units and moved them around more frequently. By doing this, he avoided taking a stock reduction. "You always have to think about drought," he said, "and plan for it."

Although he currently serves as Second Lieutenant Governor of Acoma, Rex has not been able to persuade other tribal grazers to follow his regimen. The tradition of continuous stocking remains strong, he says, and its damage to the land shows. The stark contrast with a neighboring Pueblo ranch was eye-opening.

### *Willingness*

The difference, of course, is attitude and a willingness to work hard for change.

One tour attendee, who knew this ranch 20 years ago, was amazed by what he saw on the Bar 15. "It's incredible what he's done with this place," said Kelly Leslie, the new manager of the 160,000-

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## The Far Horizon

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enhances the aesthetic experience of a hiker or fisherman; and contributes vitally to the overall ecological health of a region.

We know that by stripping riparian zones of their vegetation, overgrazing causes ancient topsoil to be washed away; downcut erosion to accelerate dramatically; water temperatures to rise unacceptably; sediment loads to increase substantially; native grasses to be replaced with sagebrush; and wildlife to become threatened and endangered.

We want the damage to stop, and the healing to begin. How EXACTLY that is to be accomplished is why we have built the big tent. We need the advice of good science, the experience of good land stewardship, the example of good livestock management, and the help of good environmental guidelines.

I know it can be done--because it has already begun.

## Good Stewardship

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Photo by Courtney White

*The riparian area on the Bar 15*

acre York Ranch near Grants. Leslie said he intended to use some of Rex's techniques to manage his ranch.

It did indeed look incredible. Although issues of science, wildlife management, and ecosystem health were not discussed in detail, it was clear that Rex had restored a large degree of environmental vitality to his ranch.
He was clearly proud of his work, and the attention it has received. Rightly so.

Rex has managed the Bar 15 with ingenuity, dedication, and lots of sweat. Ranching is a labor of love for him, as is caring for the earth. He is making a profit for the Pueblo while maintaining his ancestral respect for the land. On the Bar 15, the two goals blend harmoniously.

Perhaps this seed of change can spread to the rest of the Rio Puerco watershed.

For more information on the Bar 15, contact Steve Fischer of the BLM at 761-8993.

# HELP!

Would you like to help the Quivira Coalition? While we wait (and wait) for the IRS to process our application for non-profit status, we are relying exclusively on donations to produce this newsletter and our next workshop. If you would like to help with these projects, please send your contribution with this form to our Santa Fe address.

**Yes!** I would like to help the Quivira Coalition in the following amount:

___$15

___$30

___$50

___$100

___Other

Contributions entitle you to be on our mailing list, to receive this newsletter and notices of upcoming events and publications.

**Thank You!**

# UPCOMING EVENTS

## ECOLOGICALLY SENSITIVE RANCHING? IS IT POSSIBLE?
## Find Out At a Free WORKSHOP

**8:30 a.m.-4 p.m., Saturday, January 17th, 1998**

in the **Meeting Room at the Holiday Motel - SILVER CITY, NM**, with

**DAN DAGGET** - Environmentalist, author of ***Beyond The Rangeland Conflict: Toward a West that Works***.

**JIM WINDER** - Cattle Rancher and Co-Founder of the Quivira Coalition.

**KRIS HAVSTED** - Supervisory Scientist of USDA/ARS Jornada Experimental Range.

And a **Panel Discussion**

The Workshop will be moderated by **Dutch Salmon**, author and activist.

The purpose of this Workshop is to demonstrate to ranchers, environmentalists, land managers, and any interested member of the public, that ecologically healthy rangeland and economically robust ranches can coexist. The Speakers intend to teach that, under most circumstances, ecological goals, such as abundant wildlife, clear streams, hardy riparian zones, and healthy grasses, can be compatible with the commercial goals of livestock raising. For more information, call Courtney White (982-5502), Barbara Johnson (466-4935), or Jim Winder (267-4227).

## Tours of Jim Winder's Ranch:
## Sunday, January 18th and Saturday, February 7th

Jim will lead a four-hour tour of his ranch. Learn about cattle rotation, range ecology, biodiversity, economics, and other cool stuff. Enjoy the open space and blue skies of southern New Mexico. We will assemble at 10 a.m. at Jim's house, located two miles north of Nutt, NM. Take I-25 to Hatch, then drive 19 miles west on Highway 26 to Nutt (or 29 miles east from Deming). Bring a lunch, water, a hat, and plenty of sunscreen. For more information, call Jim Winder at (505) 267-4227.

## Tour of the USDA's Jornada Experimental Station:
## Saturday, February 28th

Tour the premier rangeland research station in New Mexico with Kris Havstad, Director and Chief Scientist of the Jornada station. This large tract of land, located squarely on the historic Jornada del Muerto, was closed to uncontrolled cattle grazing 85 years ago. A long-term research station was then established to provide data on the effects of grazing on arid environments.

We will assemble at 10 a.m. at the south boundary of the Jornada property. From I-25, turn east on Highway 70 (just north of Las Cruces) at a Shell Station, drive three miles, then turn north on the Jornada Road (dirt), drive 12 miles to the boundary fence. Bring a lunch, water, and a hat. For more information, call Kris Havstad at (505) 646-7018.

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