The Quivira Coalition
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Ranching for Biodiversity

by Tony Malmberg

My grandfather used to say that cattle did better on a mixture of grass. This awareness of different grass species prepared me for the broader concept of biodiversity. As I began thinking about biodiversity, my awareness moved beyond a "mixture of grass" to recognize mammals, birds, predators and many species beyond grass as part of an interlinked system. That wasn't always the case. I used to consciously remove species, whether Canada thistle, coyote or beaver.

Our ranch sits in the foothills of the Southern Wind River Mountains. My father, uncle and I bought this ranch in 1978. Twin Creek, a small mountain stream, flows onto our ranch in an incised canyon for 4 miles before it comes to a narrow alluvial meadow at our headquarters. Here it turns north through juniper breaks for 8 miles before leaving the ranch. Elevation ranges from 5,800-8,000 feet. We use the tool of grazing to develop willows for beaver habitat but that wasn't always the case. An excerpt from my book, Overgrazed, recalls this scene when my brother-in-law and I blew a beaver dam.

> *Jim and I crawled through the meadow grass under his pickup giggling. We were about 100 feet from Twin Creek, one-half mile west of the house. Jim pulled the wires in behind him, leading to the charge of dynamite.*
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> *"This will show that little bastard," I said, wiping the drool from my chin.*
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> *Jim touched the two wires to the battery. WOOMPH! The concussion preceded the explosion. Sticks and mud came raining down on the pickup. As soon as it stopped hailing willows and mud, we scrambled out from under our shield.*
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> *"Yeah!" I hollered as we ran down to the creek bank, "I think we got it all."*
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> *Water gushed through the gutted beaver dam, and we could see the level dropping quickly. The next morning I rode my wrangle horse across the restored crossing. The beaver dam had gotten so deep; I couldn't bring the horses across. But that was taken care of now. I loped around the horses and galloped down the creek to the resurrected crossing. The water ran muddy and I couldn't help but notice creek banks caving into the stream. I wondered.*

As I realized the consequences of erosion, lowered water table and less riparian area production resulting from blowing up the beaver dam, I developed an entirely different mindset. I shifted my thought process to live with the beaver and their dams. With this commitment, I viewed the creek as a fence rather than something I could cross. This attitude gave me an extra pasture, a higher water table, less erosion and more grass on the riparian area. I learned that the hardest part of change is my mindset. The tough is only mental. The positive results energized me, and I began to curiously watch in a new way.

As beaver inhabited larger segments of Twin Creek, I began noticing more biodiversity. We had an occasional moose in the winter but now we have a residential population of moose. The University of Wyoming and Wyoming Game and Fish Department conducted a study on our ranch to see how beaver habitat affected bird population. They found an increased bird population by 50% and species jump of 70%. I view the addition of these species as key indicators of changing habitat. Blowing the beaver dam was my first realization that by killing a form of life, I could damage stability and my profitability.

A course with Kirk Gadzia in 1987 introduced me to the Holistic Management decision model. With this aide, I started concentrating cattle numbers and stopped my traditional practice of season-long grazing. In the beginning, I started with a simple deferred rotation plan. With developed water storage to enable larger herds and fencing, I ran a herd of 1200 yearlings and 600 pairs on our 33,000 acre ranch. In 1999 we sold a BLM allotment and leased an adjacent ranch. We now run two herds of 1,000 pairs and 1,200 yearlings on 50,000 acres. We utilize temporary electric fence to increase livestock density and

reduce grazing periods to less than 21 days per year. My goal is to reduce time to less than 14 days. During fast growth we attempt to move every 5 or 6 days.

When I first started running larger herds and moving cattle more often, I was concerned about labor. We started a ranch recreation business so paying guests could offset additional labor costs. I have learned that it takes cattle new to our operations about 3 years to adjust to increased concentration and moving. Now we can easily move 1,200 yearlings or 1000 pair to adjacent pastures with 2 or 3 riders and I have done it alone on many occasions. Longer moves take more help, depending on the terrain. Our operating expenses, particularly labor and fuel have decreased, even though we have nearly doubled our number of cattle.

Improved production, better land health, recovered riparian areas and increased biodiversity have all resulted from the core management practices of:

1. Concentrating cattle numbers (livestock density).
2. Reducing the length of time in one place (time).
3. Varying the time of year I return to a specific piece of ground (timing).

Riparian areas, which compose three percent of the surface area of our ranch, particularly responded to this increased level of management. That 3% contributes 35% of our production. The more we slow water down and the higher we raise the water table, the more production we have. Increased biodiversity of willows, beaver, moose, and songbirds reflect increased production and profitability.

Once I realized benefits from beaver, I became more aware of diversity of all sorts. In 1989 we were moving cattle and passed through a prairie dog town and I noticed a coyote lying quietly beside a prairie dog hole. After moving the cattle we retraced our steps past the prairie dog town. The coyote was patiently waiting in the same spot, hunting prairie dogs. As a result of that observation 12 years ago, I have not shot a coyote or allowed anyone to hunt coyotes.

With planned grazing and a predator friendly policy, prairie dog colonies stay small. The smaller colonies of 20-40 prairie dogs seem to move around from place to place, particularly when I place a salt block in an active town. When the prairie dogs relocate, the western wheat grass explodes around their holes. Applying the tools of animal impact and grazing with prairie dogs increases grass production.

The same awareness of diversity holds true with weed management. I have learned that whatever grows should be there. If I spray and kill a weed, I am moving succession backwards to bare ground. This happens when I focus on the problem of weeds rather than the goal of a diverse and complex plant community. Once we have moved succession backwards to bare ground, we must again populate that ground with annuals and weeds until the soil and plant complexity can support perennial plants. With proper time and timing of the tools of animal impact and grazing, the succession process will move toward a perennial grass plant community.

Canada thistle is an easy example. Canada thistle cannot stand hot season grazing. By planning timing to graze riparian areas in the hot season every three to five years, I keep Canada thistle in control. I would rather have cheat grass, Canada thistle; knap weed, or leafy spurge than bare ground. With these weeds I have plant material to place on the soil surface creating mulch and incubation sites for perennial grass plants.

The level of complexity and diversity defines succession on the land, or community dynamics. As a person, I experience succession processes also. This is a fancy way of saying I change and evolve. Change is uncomfortable. I learned that in order to keep up with changes around me, I had to become comfortable with being uncomfortable. As I learned to seek change I increased learning opportunities.

Most of my rancher neighbors remain guardedly skeptical but some have adopted the fence and livestock water practices we use. The local environmentalists are more open to grazing as a viable tool because of what they see on our riparian areas and bird populations. My BLM range conservationist has been the same for 23 years and has been very supportive. When I first asked him what he thought about implementing planned grazing he said he thought some management was better than none at all. It is easy for me to stop by the BLM office and visit casually with the personnel because of an increased trust. With more than half of our ranch being public land, I am concerned about environmentalist and agency perceptions and concerns. By pursuing dialogue with these people in my community I have gained valuable resources in knowledge and experience, which helps me better manage our ranch.

As an individual, my level of succession can be defined by the diversity and complexity of my knowledge and experience. My ability to interact and manage the land is directly proportional to my level of succession. My guiding principles in land management change as my level of knowledge and experience evolve. At this point in my development I have two guiding principles.

1. First, I avoid actively killing anything and notice what is here. Whether a weed or an animal, it would not be here if it's habitat were not. I plan the time and timing of tools (grazing, rest, fire, animal impact, technology and living organisms) to move community dynamics to a level of higher diversity and complexity.

2. Second, I ask myself what is missing. Problems are not due to the presence of a species but rather the absence of a species. The absence of moose meant willows were missing, which meant beaver were missing and the chain continues. Some think the weak link in Sage grouse survival lies in the early brood rearing stage, which requires a high protein diet. This consists of forbs and insects. Are these missing? If so, why?

My goal is to manage for diversity and complexity of life on the ranch. Biodiversity. Each plant species has different growing seasons, different root zones and different leaf capacity. Each provides a different pathway for conversion of solar energy to life. By maximizing the pathways of solar energy conversion I maximize production. I have learned that biodiversity extends beyond a mixture of grass. Each animal, fish and insect species expresses something about the niches provided. Indicator species of moose, migratory-song-birds, and black bear tell me something about the habitat. If I honor my rule of not suppressing life, I will see beyond symptoms to address problems. If I continue asking, "What is missing?" I will continue to see beyond simple systems and realize the whole. When I increase biodiversity I improve land health, I improve community relations, and I improve our ranch profitability.