

# Carbon Neutral Ranching— Blackstone Ranch

by Ann Adams

In 2003 Pat and Susan Black purchased the Blackstone Ranch in Ranchos de Taos, New Mexico. The Blacks already owned a biodiesel facility in Pennsylvania and funded the Blackstone Institute, a foundation that funded sustainability focused working groups. So with Blackstone Ranch they were committed to achieving sustainable agricultural practices. In 2007 they retained Holistic Management International to train Blackstone employees in a variety of sustainable land and cattle management techniques, producing a healthier landscape.

From a business standpoint Blackstone is a cow/calf herd of approximately 60 head of black Angus. The ranch in Ranchos de Taos is approximately 160 acres (64 ha) of mostly irrigated pasture, and they also own property in Questa (a colder and drier location approximately



The top photo was taken in 2008. The one below was taken in 2009. Note the additional forage production and tighter plant spacing despite 2009 being a dry year.



*Blackstone Ranch in Ranchos de Taos has improved its grazing planning and implementation so much that in one year they increased their sequestering of CO<sub>2</sub> by 13,638 tons.*

45 minutes away to the North) which includes 140 acres (56 ha) of range as well as 346 acres (138 ha) of irrigated alfalfa. The long-term goal of the Ranch is to raise only enough calves to select for replacements and feed into a finishing operation up at the Questa operation which has infrastructure for cattle finishing and has been reseeded to perennial grasses on the pivots.

When HMI began working with Blackstone and Livestock Manager, John Adams, there were a number of issues to address due to previous infrastructure decisions and additional recreational use of the land as well as concerns about management practices by neighbors. As ranch staff learned more about grazing planning and implementation, the results were spectacular.

- Stocking rate increase of over 200%
- Livestock gross income increase by 395%
- Animal Day Production increase of almost 300%
- Stock density increase by 220%

## Healthy Land

Under HMI's recommendations, not only did Blackstone personnel increase recovery periods and stock density, they

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also began bale grazing in the dormant season. When HMI performed the baseline biological monitoring in the summer of 2008 and again in 2009, it was evident that these combined practices resulted in the following improvements:

- Organic Matter increase average 48%. Some areas as much as 90%
- Bare ground decrease average 27%. One pasture has a decrease in plant spacing of 400%
- Plant diversity increase average of 106%. As much as 133%

As per Holistic Management biological monitoring protocols, monitoring transect sites were selected from diverse soil types and key management areas. Two transects were socially sensitive sites due to neighbors and recreational use. One of those sites, the Uplands, was a wetlands area and was rested with a close eye for negative land health resulting from that treatment. Questa, as a range pasture, was very different biologically from Blackstone headquarters which was irrigated. The NE Pasture #1 was a good example of a productive pasture and the Red Barn Pasture was an example of a less productive pasture with many weeds and less palatable grasses.

## Questa

Questa monitoring showed there was still need for more animal impact, but there had been great improvement from the 2008 to 2009. As you can see from the monitoring photo on the previous page, the plant spacing is

BSR GRAZING DATA			
	2007	2008	2009
Number of Paddocks	13	15 (with temporary fencing up to 30 paddocks)	15 (with temporary fencing approx. 15)
SAU Carried	77	98	151
Total Animal Days Produced (INCLUDES HAY OPERATION)	10,667	25,160	85,113

BSR Soil Samples (New Mexico State University)						
Paddock	Organic Matter	Organic Matter	2008/2009 Increase OM	Percentage Increase OM	Acres	Additional Tons CO2
	2008	2009				
1	5	8.32	3.32	66%	21.7	2215
2	9.6	9.87	0.27	3%	6.7	56
3	6	12.11/10.43	5.27	88%	26	4212
5	6.6	12.52/10.74	5.03	76%	15	2319
8	6.5	7.45	0.95	15%	8.5	248
9	4.8	7.99	3.19	64%	6.7	657
10	4.7	4.97	0.27	6%	7	58
12	1	1.9	0.9	90%	140	3873
<b>Total</b>						<b>13638</b>
Organic Carbon is 58% of Organic Matter				Average is 48%		
1% increase in Organic Carbon = an additional 53 tons				As much as 90%		
6 tons = average yearly emissions for American				2273 people		

improving. There is still a great deal of bare ground with little litter but plant spacing has decreased from 3.51 inches to 2.92 inches. This represents an almost 25% decrease in bare ground—a significant improvement in one year on this type of land. HMI noted that water development in this area was critical in order to increase stock density to create greater land health improvement. Likewise, winter feeding on this area would increase organic matter.

Another interesting shift was that plant species shifted from a mix of 57% Dropseed (warm) and 43% Crested Wheat (cool) to 36% Dropseed and 64% Crested Wheat. Likewise, seedling and young plant percentages rose from 32% to 44% also indicating more new plants in a community that is increasing in health. Likewise, overrested plants have been reduced from 47% to 42%. This is a positive trend and will improve with increased stock density.

## NE#1 Pasture

This pasture had good soil cover to begin with, but the breakdown of litter had improved dramatically since the previous year. Likewise there is now an increase of species due to longer recovery periods and increased stock density (an 80% increase in grass species). There was also a huge increase in warm season grasses from 0% in 2008 to 28% in 2009. There was also 32% young/seedlings up from 22% in 2008. Lastly, insect sign went from 6% to 66%.

## Red Barn Pasture

This was the challenge pasture we picked with some heavily disturbed areas from equipment and from prairie dogs and gophers. In 2008 50% of the ground was bare with an average of 8.54 inches between the dart point and the nearest perennial grass. In 2009 there was 38% bare ground (30% decrease) with the average distance to nearest perennial being 2.1 inches (400% decrease). Feeding cattle here in the dormant season helped as there were many new seedlings and forbs coming into to cover bare ground. A good sign was the 100% increase in plant species.

## Soil Sampling

When we compared soil samples between the two years there was a significant increase in organic matter in most pastures. When using standard calculations on the number of acres and the percentage increase in organic matter, we calculated that Blackstone had sequestered an additional 13,638 tons of CO2. If the ecological services of that sequestered carbon were given a \$25/ton value (as some scientists have calculated),

then Blackstone created \$340,954 additional value through increased organic matter. Likewise, if we take the average of 6 tons of CO2 each person in the U.S. contributes to the atmosphere, then in one year Blackstone helped 2,273 people become carbon neutral.

HMI thanks Pat and Susan Black, Debbie Peterson who oversaw the contract, and John Adams and all the livestock crew at Blackstone for their excellent work at improving land health and demonstrating how ranching can be carbon neutral. ♻️

*To learn more about HMI's consulting services, contact Tracy Favre, HMI's Senior Director of Contract Services at [tfavre@holisticmanagement.org](mailto:tfavre@holisticmanagement.org)*