

# "Stomp" Restoration

—Courtney White

Pulling up at a stoplight in Globe, Arizona, during a spring break sojourn with my family last month, I casually glanced at the hill to my right—where I saw something moving. Craning my neck, I peered through the windshield and saw maybe thirty cattle grazing peacefully on the slope, bunched together in a tight herd.

In the next instant, the light turned green and I pulled hard on the steering wheel, whipping my head around to look over my left shoulder. I punched the accelerator, shot across three lanes of asphalt, and pulled into a large parking lot. The kids thought this sudden maneuver was great fun—and asked me to do it again. But I was already digging for my camera. A moment later I stood outside the truck's door, snapping photos.

That's because this was no ordinary hill slope and this was no ordinary herd of cattle.

The hill was actually a huge mine tailing—where the waste rock from decades of open-pit copper mining was hauled and dumped. From a distance, it looked like a giant steep-sided ziggurat—an ancient Assyrian edifice that rose in levels from a massive base—and in a sense it was. It stood as a monumental temple to our collective prayers for prosperity and progress—a half-mile wide on a side and five stories tall!

The main problem with mining, of course, is not the mineral extracted but the waste left behind. Whether it is a lone prospector hauling ore out of a shaft, or a multinational corporation moving mountains, the process of extracting this particular non-renewable resource from the earth is messy, to say the least. Since the rock is excavated far below the surface, it is essentially sterile—pretty to look at, but lifeless. When piled high, it quickly erodes, especially after a torrential summer thunderstorm.

Unregulated, poorly designed, and poorly executed mining has caused a litany of environmental damage around the world. I won't go into their sins here, which have been well-documented, other than to say there's nothing pretty about an open-pit mine other, perhaps, than its awesomeness.

But spectacle wasn't why I stood in the parking lot of a

Wal-Mart snapping photographs that day. Partly, I liked the anachronistic image of the cattle grazing on a mine within shouting distance of a busy shopping center. But mostly what I wanted to capture was the *grass*. This was no sterile pile of rock any longer—it was covered with vegetation. For confirmation, I climbed back into the truck and drove around to the eastern side of the ziggurat, where, as I expected, I saw grass—lots of it. The cows had worked, over time, around the tailing and apparently it had rained in the interim. I snapped more photos.

I knew exactly what was happening. We had tried something similar years ago on a mine tailing in New Mexico, albeit on a much smaller scale. Our goal had been to grow grass—life, in other words—on largely lifeless soil.

And for a while, it worked.

## FLOSBies

At this point, you may be wondering: cattle grazing on a mine tailing? *What is he talking about?*

The quick answer is that it's called a "poop-n-stomp"—a name I made up to describe our little mine reclamation project. Not only did it convey our employment of cattle as agents of restoration, it was a literal description of the process.

In early 1999, I received a phone call from an EPA administrator in Dallas, Texas, who said they had some money "left over" in a Clean Water Act account and asked if I might be interested in conducting a restoration project with it? He knew that our little start-up nonprofit, which focused on the ecological benefits of good livestock management, was eager to implement demonstration projects. When he specifically suggested mining, whose eroding tailings are a perpetual source of headaches for his agency, I said "You bet." That's because I knew who to call.

I had recently met Terry Wheeler, a feisty and outspoken rancher from Globe. I knew he had successfully pioneered a mine reclamation strategy that used only livestock, hay, grass seed, electric fencing, a portable water source, one or two humans, and not much else.

His idea was as simple as it was brilliant: build a small paddock on a patch of eroded slope, spread the grass seed and hay across the ground, turn out the cows for a few days, and watch as they stomp the seed into the ground while eating the hay. Add the bodily functions of the livestock, some well-timed precipitation, and presto! Green grass.

It was no different, Terry liked to observe, than the instructions on the back of a packet of seeds that you buy to plant in your garden: press seed firmly into soil. Just add water. The only variations were the hay (a carbon source), the nature of the fertilizing process, and the 700-pound animals who did most of the work.

And the fact that you're gardening on a 40-degree sterile slope.

As Terry tells the story, when he first approached the owners of a copper mine in Globe with his idea, they were both curious and skeptical. Curious because mine reclamation is a nightmare for many companies; it's expensive, time consuming, difficult, a source of conflict with regulating agencies, and frequently prone to failure.

Many traditional reclamation strategies involve costly combinations of water pipelines, mechanical sprayers, chemical fertilizers, diesel-powered machines, and tons of human labor. And if the process is not designed properly, implemented correctly, or maintained adequately (especially if the mine owner's heart is not in it, as is often the case), then all that work, and money, is often literally washed away in a few years.

So when Terry told the corporate owners that he could reclaim one of their massive tailings for less money and with better results, he got their attention. Their skepticism kicked in when he said he would do the work with cattle.

"One mining executive," Terry told me, "liked to joke that they should line up barbecue grills at the bottom of the slope for all the cattle that would come tumbling down."

The cattle didn't, of course, come tumbling down. They did just fine, stomping and leaving manure on their way back and forth across the tailing, pressing the grass seed firmly into the soil with their hooves.

When the rain came and the grass began to grow, Terry

said, the jokes stopped.

When I hired Terry to do our little project—a twenty-acre patch of eroding soil on an abandoned copper mine near Cuba, New Mexico—using the EPA funds, I had a different objective in mind. I was intrigued by the possibility of using cattle in the service of environmental restoration. As a former local Sierra Club leader, I had been told repeatedly by anti-grazing activists that bovines were "irredeemable" land abusers. But my recent introduction to progressive ranching methods, which worked in harmony with natural processes, contradicted this orthodoxy. That's why Terry's work seemed terrifically heretical—and a main reason I decided to give it a

go.

In truth, it wasn't so far-fetched. Aldo Leopold, the famous American conservationist, once wrote that wildlife could be "restored by the creative use of the same tools which have heretofore destroyed it—axe, plow, cow, fire, and gun."

What Leopold meant, of course, was that the tool itself wasn't the problem. How the tool was used, and for what purpose, was the main issue. A hammer can be used to knock someone in the head—or build a house.

This was precisely Terry's point. In fact, he didn't think of his cattle as cattle. Instead, he called them FLOSBies—Four-Legged Organic Soil Builders.

And that's exactly what they did for us over the course of two summers on that New Mexico copper mine—build soil. And grow grass.

But they did more than that. Though

we didn't talk about it in these terms at the time, what Terry's FLOSBies were doing was building resilience—and not just in the soil. For a society fixated on technical and petroleum-based solutions to every problem—many of which are proving to not be very sustainable—it was inspirational to discover an organic alternative that could be durable.

Redeemable too. And ecologically prosperous. Perhaps even profitable!

I saw all of the above on our little reclamation project in New Mexico. And I could see a lot of it from the Wal-Mart



*A "poop-n-stomp" in action – viewed from a parking lot in Globe.*

parking lot too. That's another reason why I wanted a photo—more heretical evidence.

### Lessons

Actually, there was a more important reason. For all of its achievement, our enchanted little restoration project outside Cuba eventually turned into a pumpkin, teaching me a lesson about a deeper definition of “success”—and, ultimately, resilience.

Ecologically, our reclamation results were great, at least initially. Over two summers, Terry's herd of FLOSBIes poop-n-stomped those twenty acres back to life. Winter snows and spring rains caused the slopes to explode into grass. Soil stabilized, gullies healed, rain soaked in instead of running off—and the ground turned green during the summer. Various agencies, including the EPA, were pleased. So was I—I pleased to demonstrate that things were more complicated than the black-and-white vision of my former Sierra Club colleagues.

But be careful of what you wish for—sometimes things get more complicated than you might like.

Returning to the mine two years later to take follow-up photos, I was shocked to discover that all the grass was gone—almost every last blade. At first I suspected the ongoing drought, but as I walked through the project site I came across the real culprit: trespass cattle. Unfenced, the grass had disappeared into the bellies of local herbivores.

I reflected on this unexpected turn of events. Although we had enjoyed the cooperation of the private landowner, a local rancher, I realized that we had failed to engage him meaningfully in the mine project. He gave us permission to do the work, but he gave us little else. He never became a real partner. It was our project, not his—or the community's. When we left, cows magically appeared (the tool was there, but no one was controlling it). Nobody was to blame, but it taught me a lesson about local buy-in. Innovation can't be imposed from outside.

Three years later, however, I was in for another surprise. It had been a wet winter and I was curious to see how much erosion had returned to our former restoration project. Imagine my surprise, then, when I rounded a curve in the road and saw—grass! I parked my truck, grabbed the camera, and climbed the steep slope of the tailing. I wasn't sure what had happened—perhaps there was enough seed and straw still in the soil to overcome the overgrazing. Whatever the reason,

it was a pretty sight to see.


All of this came rushing back to me as I stood in the parking lot in Globe, observing what were very likely Terry's cattle at work.

I recalled a conversation Terry and I had during the second summer on the mine. “Could poop-n-stomps work on any type of eroded land?” I asked. “Absolutely,” he replied with his usual assurance. “It'll even work on burned-over land. All those seeds that they release from a plane after a fire's been put out—most of them wash away with the first storm. A herd of cattle, however, could break up that burned soil and allow that seed a chance to reach fertile ground. It'd work. I know it.”

For a moment that summer I thought we might get a chance to try. When the *Cerro Grande* fire burned a sizable chunk of national forest above Los Alamos, New Mexico, home to a nuclear weapons lab, Terry suggested we give the Forest Service a ring and make a pitch. I actually got an official on the phone. I proposed a demonstration project on part of the burn. A small part, I said. With local cattle. We wouldn't even ask for money.

He said “no.”

I think that's the real reason I stopped so abruptly for a photo in Globe—because somebody was saying “yes.” Recalling Wendell Berry's observation that our economy's most prolific product today is *waste*, I was happy to see that Terry's unorthodox idea was still alive on another waste pile. His FLOSBIes were still creating life, anachronistically enough—in contrast to the Ozymandius-like arrogance of the mine that dwarfed them—still growing grass.

I snapped one more photo. That's what I like about resilience—the only thing that matters in the long run is what sticks around. 



*Another view of the same project – notice the grass growing.*

*A former archaeologist and Sierra Club activist, Courtney White voluntarily dropped out of the 'conflict industry' in 1997 to co-found The Quivira Coalition, a nonprofit organization dedicated to building bridges between ranchers, conservationists, public land managers, scientists, and others. His book Revolution on the Range: the Rise of a New Ranch in the American West was published by Island Press in May 2008. He lives in Santa Fe, New Mexico, with his family and a back yard full of chickens.*