

Four Farms... Down Under

—Courtney White

I had the pleasure recently of spending twelve days in Australia, visiting four amazing farms, giving a talk to a carbon farming conference, and having my brain saturated with a cavalcade of innovation. I also drank a boatload of instant coffee. I was impressed by Aussie inventiveness, by their open, upbeat, and nonconformist ways, and by their willingness to tackle topics that Americans shy away from, including climate change, a carbon tax, and paying farmers to sequester CO₂ in their soils. I was also impressed by their sheep.

Aussies have a lot of sheep.

This is a good thing. It says a lot about their past, of course, but it also indicates positive things about their future, as I'll try to explain. But first, I need to set the stage.

The founding of modern Australia is a familiar story. After losing her colonies in the American Revolution, old Mother England began looking for a new dumping ground for her overflowing prisons. Explorer James Cook's positive report of a fertile and temperate land at the other end of the world, soon to be called *Terra Australis*, which he claimed for the King in 1770, provided just the opportunity the Empire was seeking.

By 1791, two fleets of thieves, poachers, counterfeiters, highwaymen, and troublesome lasses, along with a forlorn contingent of soldiers, officers, and one highly competent Governor (luckily for them), had carved a home from the wilderness in Sydney Cove. Soon, they were starving. With enterprising grit, however, the colony survived and quickly overspread the continent in energetic rush of exploration and settlement not unlike the tide of "manifest destiny" that carried Americans across its vast frontier. What began as penal outpost had by mid-century become one of the last, great jewels in the English crown. But with typical independent spirit, by 1902 Australia was a sovereign nation, well on its way to becoming the prosperous, gregarious, beer-loving country that we know today.

Not so familiar is the story of the land itself. The continent is ancient, salty, flat, and mostly dry. Repeated submerging by the ocean over the eons combined with a lack of mountain-making geological uplift (necessary for the weathering of rock into life-giving topsoil) created thin, nutrient-poor soils that were rapidly depleted by a pattern of colonial settlement and agricultural use designed for the rich, wet climes of England. Plow, cow, sheep, gun, dog, fox, rabbit, and tractor—all exotic—transformed Australia's fragile ecosystem into a ravished landscape of eroding gullies, denuded flora, and declining native fauna. The advent of industrialized crop and livestock production after World War II made things worse as tilling and overgrazing continued to deplete what remained of the soil's fertility. To add insult to injury, an epidemic of voracious rabbits pushed the land to the

brink.

As I learned, however, a corner has been turned in Australia's assault on its soil.

I witnessed the evidence on the four farms I visited, each rebuilding soil health in its own way. I also heard evidence at the conference on soil carbon (the organic stuff that makes life possible), learning in the process just how far Aussies have come in the effort to overcome their legacy of hard use.

And the lesson I learned was a familiar one: work with nature, not against it.

Take Mulloon Creek Farm, for instance, located north of Canberra. Its owner, Tony Coote, has a vision of rehydrating the land, and by extension Australia itself. Dehydration occurred as a result of erosion and overgrazing, causing the water-holding capacity of the soil, along with water tables, to decline. To accomplish his goal of rehydration, Tony and the staff of the farm have implemented a variety of soil-building projects, the most ambitious of which is the repair of Mulloon Creek itself, which has become incised in its channel. A series of rock structures have been constructed in the creek, each designed to lift the water a few feet or so, thus re-hydrating the banks. It was familiar work to me—we've done similar things in New Mexico—and I knew that the chances of success were good. That's because Tony is working *with* nature's principles of water flow, not against it as we do when we build dams or line creeks with baskets full of rocks and cement. Nature isn't an engineering problem to be solved by human "ingenuity"—it just wants room to breathe, grow, and flow normally across a landscape.

Of course, human ingenuity is still critical, as I was reminded on the next farm, called Winona and owned by Colin Seis. It's the purpose to which our ingenuity is put that matters. For example, on Winona I learned that not only are Australians re-hydrating the soil of their depleted continent, but they are *re-carbonizing* it as well. That might sound rather abstract or academic, but it's vitally essential to our future.

In 1979, after a wildfire burned nearly the entire farm and



Dawn over Winona Farm, New South Wales

sent Colin to the hospital with burns, he came home and decided to rethink the way he had been practicing agriculture. His goal, though he didn't know it at the time, was to rebuild the soil's *fertility*—its carbon stocks—after decades of practices had depleted it alarmingly. It wasn't a criticism of Colin's father, who had followed the rules of farming at the time. Rather, Colin understood that the rules needed to change. The fire suddenly created an opportunity to do just that. Out of the ashes, a new farm would emerge.

Colin and his family raise Merino sheep (for wool) on their farm, so Colin decided to take up holistic management, which is a way of managing animals on pasture that mimics the graze-and-go behavior of wild herbivores. It's perfectly suited for central New South Wales, whose rolling grasslands, decent rainfall (when not stuck in a drought), and lack of native predators make it ideal for raising sheep—lots of sheep. But it is what Colin did next that really caught people's attention.

After a late-night talk at the local pub with a friend, an idea struck Colin: what if he no-till drilled an annual crop into his perennial grass pastures?

Meaning, could he raise two products from one piece of land—a grain crop and animals? Of course, this was a heretical idea. Crops and grazing animals were supposed to be kept separate, right? But that's because the traditional practice on cropland is *plowing*, which eliminates the grasses. But what if you no-till drilled oat or wheat or corn seed directly into the pasture when the grasses were dormant? Would they grow?

Colin decided to find out. Fast forward to the present—and the answer is a resounding “yes!” Pasture cropping, as Colin dubbed it, works beautifully and has spread across Australia to some 2000 farms. As it turns out, nature likes annual and perennial plants to grow together, Colin told me. He also reiterated the old saying that “nature never farms without animals.” So, today Winona grows grain *and* wool—and, if Colin wanted, a harvest of native grass seed, which was an original food

source for the Aboriginals of the area. It's all carefully integrated and managed under Colin's stewardship. It's been productive and profitable too, which suggested that pasture cropping could be an important way to feed people globally. It was the right kind of ingenuity at work and it was exciting to see.

It got better.

A research experiment that compared the soil of Colin's farm to his brother's neighboring farm, which uses conventional agricultural practices, revealed stark differences in soil fertility. The organic content of Winona's soil was much deeper than that of the neighboring farm, indicating that Colin was re-carbonizing his land. In fact, the data suggests that pasture cropping may build soil organic content faster than other holistic or regenerative farming practices alone because of the integration of annuals, perennials, and animals on one patch of land. More research will be necessary, of course, but Colin is certain it will confirm his hunch that annuals, perennials, and animals work best together.

There was one more bit of good news. Rebuilding carbon stocks in the soil has an important positive impact on climate change. That's because plants, via photosynthesis, draw carbon dioxide out of the atmosphere—where it is now considered by scientists to be in excess—and stores large portions of it in the soil where it enriches all kinds of life forms. In other words, Winona today is sequestering more CO₂ in the soil than it did prior to 1979—and that's

a very good thing. In climate circles, this is called “mitigation” and it's a much-discussed and sought-after climate strategy. On Winona, it's not talk, it's happening. So, in addition to food, fiber, and fertility, Colin is “farming” CO₂—all on a few thousand acres!

Thank God for pubs, I thought as Colin drove me to the next farm on my itinerary. Thank God for innovators like Colin Seis too—and for farmers in general. Pasture cropping wasn't invented in a laboratory or classroom—it was invented, and field-tested, on a farm—a farm of the future, here today.

My next stop was Norm and Pip Smith's sheep farm, Glenwood, located in the lovely hilly country near Wellington. A few months earlier, Norm had been selected as the “Farmer of the Year” for New South Wales—which is a significant honor considering how many good farmers there are and how big New South Wales is (larger than Texas). A tour of the 6000-acre farm—they don't call them “ranches” in

The “fjerd” on Eric Harvey's Gilgai Farm



Pasture divisions and lots of green grass at a watering trough on Glenwood Farm



Australia—quickly revealed why. In a dry year, the farm was exploding with green grass. I saw it everywhere we went, across fields, under trees, and right up to the edge of the watering tanks. It was a bright, vibrant color of green too—the kind that if I were a sheep or cow I'd say, “Wow!”

I didn't notice a lot of green on the drive to Glenwood, at least not the “Wow” variety. I saw instead a great deal of “industrial green”—monocrop fields of canola and wheat, planted in rows cheek-to-cheek. I also saw a lot of brown. Precipitation levels in New South Wales were only half what they should have been at that time of year, which meant that much of the grazing country had a distinct “dry brown” tinge to it.

But not Glenwood.

The difference is Norm's management. He switched to holistic planning back in 1999, writing out ecological, financial, and personal goals for himself and his family, many of which appeared to have been achieved. On the sheep front, Norm subdivided his pastures into many small paddocks, using electric fencing, and rotationally grazed the animals through them in a rapid sequence (only a few days in each paddock). This provided three big benefits to the land and its grass: the stimulating effect of grazing on the plants (plus the positive effect of hoof disturbance on the soil), the fertilizing effect of free-range manure, and lots of rest between grazing episodes, which gives plants plenty of time to grow again.

It was also a familiar story to me. I've now been on enough ranches and farms in enough variety of landscapes (hot, cold, wet, dry, high, low, rocky, flat) to know that holistic management works and works well. It's not a silver bullet, however. It still takes careful stewards like Norm Smith to make it sing. But as Glenwood demonstrated, managing land in nature's image makes all the difference. Green grass doesn't lie. It may still be a puzzle to researchers (I learned that the gulf between farmers and academics in Australia is just as wide as it is in America), but it's not a mystery to practical-minded farmers like Norm Smith.

It's not a mystery to Eric Harvey either. I visited Eric on his farm, Gilgai, next. Located a few miles from the crossroads city of Dubbo, Gilgai also employs holistic planning and has achieved similar success. In less than seven years, Eric told me during a tour that hoesDoese expanded the number of grass species on the farm from seven to over 130 using only planned grazing! He had steadily increased the size of the herd as well while lengthening the period of rest between grazings.

More significantly, I thought, was how he did it: by running sheep and cattle together as one herd, or *flerd*. Eric said he has run as many as 5000 sheep and 600

cattle together as a unit, moving them as frequently as every four days. Other than calving and lambing season, when the animals need their own space, he's never had any trouble running sheep and cows together. They get along fine, he said. Nature, in fact, likes mixed-species grazing, Eric said, because animals complement each other in what they will eat, the composition of their manure, and the way their hooves interact with the soil and so on. Having two different types of livestock also buffers Eric's finances against fluctuations in the marketplace.

“Does anyone else in New South Wales run a *flerd*?” I asked. “Not that I'm aware of,” he responded. Why not? He shrugged. “It's a mental thing, I suppose,” he said. “Cattle and sheep are supposed to be kept apart. We're not supposed to manage them holistically either,” he added. “It's not supposed to work.”

But it does. I saw the evidence with my own eyes—8000 miles from home. I saw, once more, that nature still has the best ideas.

Good on the Aussies, I say. Whether it's rehydrating the land with innovative creek work, feeding people and storing carbon in the soil with pasture cropping, growing bright green grass, or running a *flerd*, the willingness of Tony, Colin, Norm, Eric, and their families to try something novel and make it work is both impressive and hopeful.

I can't wait to return to see what else is going on Down Under.



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 backyard full of chickens.

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