



“ALL FLESH IS GRASS”

TOWARD A RE-ENGAGEMENT WITH THE PRAIRIE

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Introduction

Because I am not a scientist, an economist or an expert of any kind, I take a bit more latitude in describing a problem and then present ideas and possibilities. Like a lot of non-fiction writers I usually write about the things that worry me, things I care about, which means my perspective is more personal than objective, less technical or rational than it is moral.

Moral--that is a scary word sometimes because it makes us think of fundamentalist Christians or bad sermons we grew up with. I will admit to having an inner preacher I have to rein in. With my last book, the editor made me remove great chunks of text from my last book simply because they were too prescriptive. She didn't want me suggesting specific solutions to the mess we have made of our prairie landscapes.

One of the great things about a formal lecture like this is that I have a bit more freedom to talk about possible solutions—and that is exactly what I intend to do this evening.

All of which is my way of apologizing if this sounds a bit like a sermon and if it does then I hope it is, at least, the right kind of sermon.

Someone said a long time ago that a good sermon should disturb the comfortable and comfort the disturbed. If you have never really thought or cared much about what is happening to the prairie wildness, to our food growing culture here on the plains, to our health--physical, emotional, spiritual--under the juggernaut of industrial agriculture--then I hope some of what I have to say will disturb you.

If you are aware of these concerns and that awareness is eating a hole in your heart--as it is for many of us who worry about this place--then I hope that some of what I have to say will bring you comfort.



Why the title “all flesh is grass?”-- This is a line from the Old Testament. (I promise it is the only biblical reference in the talk.) It's an old line from Isaiah, written nearly 3,000 years ago: “The voice of one, saying: Cry. And I said: What shall I cry? All flesh is grass, and all the glory thereof as the flower of the field.”

On one level the phrase means simply that all animals are derived from plants--a thought that has a profound lesson for us. Our health comes from the earth and its green life and that means we'd be wise to take steps to nurture that life well.

And for prairie people of course this is even more immediate because so much of what we grow and eat here comes from grasses: the annual grasses in grains and cereals and the perennial grasses that feed the animals we depend on for meat and dairy.

On a deeper level though, the passage reminds us of the transitory nature of all flesh, all living things. Everything that lives soon passes away. Like individual blades of grass we fade and die, but the land itself abides.

In the subtitle I use the word “engagement.” And here I mean the form of relationship we have with the world. Something science and spirituality agree on is that we live in a relational universe. Even so it is easy to forget this truth and to think that we are somehow autonomous from the life systems we are destroying.

And I use the word “prairie”: prairie is a place where grass wants to grow more than trees or desert vegetation, because of climate and soil. Just recently, I realized I often say “land” when I could be saying “prairie.” When I talk about our place south of Indian Head I find myself calling it “the land” when I might call it “the prairie.” On my calendar on days I think I will be there I write “at the land.” I have started to think that this is maybe not a good idea, that in not giving this place its true name, I am in a small way writing it off--because **this world around us**, around this city, is more than *land*; it is **prairie**, which means a whole life community with impossibly complex and mysterious interrelationships feeding the grass that makes us flesh.

We can't give up. And my topic tonight is **how not to give up on prairie**. Your job is to not give up as I get started with the disturbing stuff. Please hang in there, because much of what I am about to tell you is going to make it sound like there cannot possibly be hope for this landscape.

I do promise to get to the reasons why there is hope, and possible pathways of change and renewal.

A very brief look at our present relationship with the prairie

I want to start, though, by explaining what grassland is and why it matters. The grasslands of North America have been here for thousands of years, are as old as any old growth forest. Old growth prairie is every bit as irreplaceable, every bit as venerable, worthy, and rich with life as the ancient forests of the continent.



We think of grassland as a thin band of life from just above ground level to the tips of the grass blades, this pelt of narrow-leaved plant growth covering plains and hills mostly in the Western half of the continent. . . .But it is more than that.

Under the husbandry of nature and wildness, grass is the organizing interface between things, a kind of ecological membrane that governs what is happening in the soil and water and on the surface.

A healthy grassland strikes a shifting, dynamic balance between the water it stores in the ground and the water it stores in wetlands.

And depending on the timing and degree of grazing and fire, the nature of the soil and climate, grass manages to organize a diversity of ecotypes that shift over time and from place to place, providing organisms in the soil, on the land and in wetlands with particular niches that come and go on spontaneous schedules: several hundred species of grasses and flowering plants, an astonishing array of animal life.



But the real wonder and miracle of grassland is occurring below the grass—in the soil.

Although grass captures carbon and nutrients, the job of storing it belongs to the soil. A forest stores this treasure in its trees, but grassland keeps most of it in the ground by making rich, life-giving soil. In effect, grassland's primary gift is this ability to **make soil, often incredibly rich soil** filled with an astounding biodiversity of microbial life that is all but invisible to us, even though it is essential to that process of capturing and storing carbon and other nutrients. You may have heard someone say that there are billions of microbes living in a teaspoon of healthy grassland soil. That is where the biodiversity and richness of grassland resides and the well-being of that diversity must be the measure of anything we do with grassland.

From that foundation in the soil, grassland distributes its great wealth of fertility upward through the lives of the plants, insects, reptiles, amphibians, mammals and birds.

But, for grassland to continue working its miracles—building soil, storing carbon, capturing rainwater and storing it in the ground and in wetlands, providing diverse niches for other organisms—grazing animals must participate in the processes, but it can't be just any grazing. The frequency and intensity of the grazing has to follow the plan set out in nature or else the soil actually loses its humus and the grass is no longer able to be that vital membrane governing life.

Directly or indirectly, everything in grassland is fed by the grass. Whether you are a microbe or a buffalo, **All Flesh is Grass. All of life is grass.**

The peoples who have lived longest in grassland knew this instinctively. We may tend to romanticize their relationship to the land in retrospect, as though they lived in an edenic wilderness and had no part in the undoing of their buffalo-hunting culture, but the facts are that they lived with grassland, not harming its ecology for thousands of years until a new culture arrived; a culture that has traditionally looked upon open grassy places as worthless until you plough them up and plant grain.



Prairie homesteaders were told they had to make “improvements” on their land or else lose it—and the main improvement was done with a plough, although planting trees and erecting buildings were also important.

One of the things that homesteaders were told was that land becomes more fertile if you plough it, improve it. These old beliefs have not died yet. They are still in our land-use language: you “improve” a cattle pasture by scratching it and seeding non-native grasses, which are often invasive species.

Highways departments and municipalities plant trees along roadways even through wide open patches of grassland, where they could be encouraging native grasses and wildflowers to grow.

Our settler culture came of age with a version of history that has become a primary myth of our origins: **there was nothing here but a few indians chasing buffalo over treeless barrens.** It was a wasteland but with hard work and superior technology we have made the prairie into the breadbasket of the world. This it seems was the biggest improvement of all.

Myths have great power and this one--the lie of improvement--has squandered the gifts of the grass, of the soil life and fertility that has always been the source of health and well-being in grassland.

This is a picture of my grandfather smiling because he has one of the gifts in his arms. This was taken in 1928, when he had a bumper crop after he ploughed the native grass on his homestead on the edge of the Great Sandhills. He had great results for a few years as he unknowingly used up the ancient fertility of the prairie. The burst of nitrogen and other nutrients gave him a heavy crop, but things went bad soon after that and he gave up on the land by the middle of the 1930s. He pulled up stakes and headed north with his family, leaving exhausted soil that today only produces a crop when artificial nitrogen is added.

This story was repeated across the plains as we stripped off the perennial grass and replaced it with annual crops and non-native grasses, which, though perennial, don't do as good a job supporting the rest of the ecosystem.



Instead of finding ways to husband and foster the gift of fertility and carbon sequestration, our dry-land agriculture is based on export of cash-crops and the prevailing theories of comparative economic advantage.

In effect we have been mining the fertility of the soil even as we poison it and our waterways, releasing carbon and nitrogen stored for thousands of years into the atmosphere.



Although many ranchers do their best to use the remaining native grassland in ways that work within what nature offers, not everyone does. Grazing regimes and practices are driven by a livestock industry and corporations that hold all the power and encourage the cultivation of grassland by feeding grain to the animals.

And so we have replaced a diverse and rich native grassland with a handful of introduced species that contribute to environmental degradation. We have devised a livestock industry that is too focused on export and is addicted to using grain and drugs in feedlots.

Complicating all of this are our expectations as consumers that food should be cheap and require very little effort on our part to grow or prepare. The transformation of food into pre-processed and packaged products was made possible by cheap grain, sugar, and meat processed in industries supported by governments that want to keep farmgate prices low no matter what the cost to farm people or the environment.

These forces have driven agriculture toward the mechanized and chemical-intensive methods we see on cropped land, AND toward lower per-unit prices for farmers and ranchers. All of which makes it more difficult to follow ecologically-sound practices on their land—compelling cattlemen to continuously graze without thought for the grass or soil health and urging farmers to destroy wetlands and cultivate every last square yard of their fields.

The result of squandering the gifts of this land are all around us but we choose to ignore them:

- Rural depopulation and increasing urbanization with its attendant problems
- Urban sprawl and the loss of farm land to development.
- Boil water orders from polluted drinking water.
- Soil erosion, high nutrient loads in waterways.
- Endangered species and collapsing populations and ecosystems.
- Obesity from a combination of bad processed food being relatively cheap and easy to attain with very little physical effort.
- Other health problems associated with eating foods that include far too much grain and most of it refined and processed.

One strong indicator that this ecoregion is **heading toward collapse** is sharply declining biodiversity. Grassland species dominate Canada's list of endangered species. **21 of 24** grassland bird species are thinning out and disappearing. This is far more than any other group of birds—temperate rainforest, wetland birds, boreal forest birds, urban birds.



It is the most widespread and consistent decline of any group of birds in North America—and it is happening right here and now.

Here is a habitat comparison for you. We worry about the loss of the Amazon rainforest because in recent decades 20% of the rainforest has been destroyed. That is a terrible loss of habitat, but here in Saskatchewan, those numbers are reversed. 80% of the native grassland is gone, most of it seeded to crops.

Much of the remaining 20% is damaged—either it is not grazed enough and so it is overgrown and thatched, or it is grazed too much, or it has been invaded by shrubs and trees because of fire suppression for 100 years.

Ecologists now say that the Great Plains of North America is ***the most damaged*** biome on the continent. And the damage continues because people in power just don't get it. They look at native prairie and see it as wasteland waiting to be harnessed to the engines of progress.

Last month in Alberta, the Stelmach government revealed they are planning to sell 16,000 acres of native grassland to an industrial potato operation that has a contract to feed a major potato chip factory. Today this land supports a rich ecosystem with a host of endangered species, but if this sale goes through it will be tilled under to produce junk food.

Last year we found out about a coal development proposal the Brad Wall government is considering. NuCoal, a Saskatoon-based company owns the mineral rights to vast holdings south of the 50th parallel. If they have their way, they will strip mine low-grade lignite from Estevan to Eastend and use it to produce electricity and gasoline. This would destroy hundreds of thousands of acres of native grassland, dealing a death blow to our remaining large pastures along the U.S. border. NuCoal has been busy trying to get the Chinese interested in the project too and are telling everyone that their processes will have “little or no environmental impact.”

What they mean is they intend to capture the carbon in the process. They have not even considered that there would be anything wrong with stripping off the native grassland that took thousands of years to develop. This image shows the kind of places that would be destroyed by this strip mining.

An activist friend of mine spoke to an official with Energy and Mines about this, who was surprised that anyone would be concerned. **“Well, they put the soil back and plant grass, of course,” he said. “When they're done it'll be better than before.”**

It is this kind of ignorance in officialdom that makes it hard to conserve the prairie. OK, enough of depressing you.



Ways toward a better relationship with the prairie

“The world has room for many people who are content to live as humans, but only for a relative few intent upon living as giants or gods.” Wendell Berry.

By now you will be wondering if I believe we should somehow abandon all of agriculture and perhaps revert to hunting and gathering. Or at the very least you will be wondering how I think we are going to feed 6.7 billion people if we don't use industrialized, high-yield agriculture. I like to eat as much as the next person. I want to be able to feed my children too, but our current agricultural engagement is making the land sick and us with it. Something is wrong with our agriculture when we are making more nitrogen artificially than the biosphere itself provides.

Something is wrong when our oceans host massive dead zones caused by nitrogen runoff from farms. The one in the Gulf of Mexico is now more than 20,000 square kilometres in area.

Water pollution, soil depletion, erosion, siltation, salinization, endangered species--it does not have to be this way. American poet and farmer, Wendell Berry, says that the measure of everything we do in agriculture must be health. We must begin to see that every decision we make regarding technology, agriculture or economic development has to be measured against the absolute good of health and wholeness. *What will this tool, this incentive, this project do to the health of individual people, to the health of our families and communities, to the health of the land and its ecosystems?*

Many people today are coming to the same realization. Farmers, scientists, and economists are looking creatively at the question of how we might make the transition away from industrialized agriculture, and its destructive and petro-chemical-intensive methods. There are increasing numbers of people working on what is perhaps too loosely called "sustainable agriculture." We all know that organic agriculture has taken off in the last decade and made inroads on the main stream, showing us that change is underway, but organic is not going to be enough on its own.

Organic agriculture can still be industrial in its scale and driven entirely by a bottom line that externalizes costs to the ecosystems displaced by the farm. Beyond organic we are seeing ecologically-sensitive alternatives in things such as the permaculture movement, or biodynamic agriculture. Then there is the research into "perennial polyculture" studied at places like Wes Jackson's Land Institute in Kansas. We are seeing change in the local and slow food movements and farmer's markets popping up all over the developed world. We see it in the rise of alternative agriculture superstars like Joel Salatin and Michael Pollan and in documentaries films like *Food Inc.*



Even the big corporations are starting to pay attention. This fall I was invited to a conference on sustainable beef, sponsored by a group that includes organizations as varied as the World Wildlife Fund, McDonald's, Walmart and Cargill. I have my suspicions, but it is interesting that these groups are coming together to talk about making the livestock industry less damaging to the environment. Perhaps even they are seeing the writing on the wall.

Here in prairie landscapes we are seeing people try things like Community Shared Agriculture, Holistic Range Management, grass farming, and growing food for local markets. Most of this good work is aimed at finding ways to live within

ecological limits, within the limits of the nutrient cycles and productivity present in nature, within the limits of what we can take from the land without impoverishing our descendants. Traditionally, of course, our economics and agronomy have not given much regard to these limits. If science can produce artificial fertilizers, high-yielding hybrids, and designer pesticides that will help us exceed the land's natural limits then why would we hesitate?

The green revolution took this mode of thinking to an extreme. By the 1960s, after 10,000 years of agriculture, we had virtually used up all the arable lands on the planet and the global population had reached 3 billion. In the next few decades, by doubling yields of all grain varieties--wheat, rice, and maize-- we doubled that population to 6 billion without having to increase land under cultivation significantly. Depending on your perspective, this fact is either a great achievement or a deadly ecological trap that we have constructed for the human race.

If it is a trap, and I believe it is, one way to proceed is to carefully disengage it by making the transition to growing most of our own food and doing it with health rather than corporate profit leading the way. Part of that process comes in bringing to light every element of the trap's mechanism and how it undermines the health of individuals, communities and ecosystems.

In this part of the world, we have contributed significantly to the trap by committing too much of our prairie grasslands to the growing of grain crops. The higher yields of grain have driven prices so low that it has become valuable only as a commodity that can be bought in huge quantities and added to industrial processes at very little cost.

And so today our former grasslands are growing wheat that is used in things like wallboard, cosmetics, newsprint, paperboard, and other paper products, soap, trash bags, and concrete.

And a significant portion of land that could be grassland is growing wheat that is used in unhealthy, processed foods. The list of bad foods that contain wheat--often unnecessarily--is too long to include here, but just ask anyone suffering from Celiac's disease how difficult it is to avoid wheat. Next time you are shopping take a look at lists of ingredients, watching for the words wheat, gluten, whole grains. Wheat is used everywhere because prairie people have sacrificed so much land to make it cheap and over abundant.

To this waste of grassland we can add the millions of acres in North America now growing grain used to make so-called biofuels. Studies have repeatedly proven grain and corn-based fuels to be woefully inefficient, and a net contributor to greenhouse emissions, but we keep making it. If there were no incentives and subsidies, it just wouldn't fly. We are better off using fossil fuels.

Finally, a great percentage of our cropland is growing barley and other grains that end up in feedlots, feeding animals that nature has designed to eat grass. This feedlot use of grain is often criticized by environmentalists as one of the world's primary sources of greenhouse gases--but feedlots are of course environmental disaster zones for many reasons, which I will summarize in a moment.

The point I am getting to here is that we could liberate a lot of former grassland that is growing grain for animal feed, to make inefficient ethanol, and to be added to processed foods, and industrial products.

If we converted all the millions of acres currently used to grow grain for these unhealthy purposes back into perennial grasses, we would have more than enough pasture land to feed livestock for beef and dairy. The ecological benefits would be tremendous: the land's renewed cover of perennial grass would sequester carbon, create improved wildlife habitat, and protect soil and water from erosion as well as from fertilizer and pesticide runoff.

Then there are the human health benefits of not eating meat and dairy tainted with the growth hormones, e coli, and antibiotics that occur in factory farming, and instead eating meat and dairy that comes from healthy, grass-fed animals. Of course, the ecological and human health benefits would increase even further if at the same time we cut back on our consumption of beef and dairy, whether it is grass-based or not. We all know that too much eating high on the food chain is not good for us.

This reduction would happen naturally if we switched to pasture-raised animal products because they are more expensive--as they should be. We need to begin to pay the ecological costs of eating high on the food chain. Grazing your land in an ecologically-sustainable way that sequesters carbon, protects habitat and waterways takes a different approach that may reduce overall yields and increase labour costs. A fair price for animal products would allow ranchers and grass farmers to adopt practices that might otherwise hurt their bottom line, and the premium would encourage the rest of us to eat smaller portions of leaner meat.

As things are, almost all of the beef we eat in North America comes through feedlots, which concentrate animals and their manure in massive facilities, polluting air, water, and soil--all to make meat as cheap as possible to mass produce. These industrial animal-fattening depots waste energy and contribute more greenhouse gases on a per head basis than animals raised entirely on grass. The crowded animals are given antibiotics to prevent the spread of E. Coli and other pathogens, and hormones to promote growth. Their diet makes them fat and degrades their health, so other drugs are used to keep them alive until their slaughter. All of this--the hormones, the pollution, the antibiotics and the drug-resistant strains of bacteria they foster--have implications for human health.

The Union of Concerned Scientists (UCS), a nonprofit partnership of 200,000 scientists and citizens, agrees that grass-fed is best. The organization has come out strongly against the grain-fed livestock industry and in favour of grass-fed beef. In a report called *Greener Pastures: How grass-fed beef and milk contribute to healthy eating*, the UCS claims that grass-fed livestock production reduces emissions of heat-trapping or greenhouse gases, increases carbon sequestration, decreases energy use, water and air pollution, soil erosion, soil nutrient loss, fertilizer and herbicide use and runoff, and creates more wildlife habitat.



Farther along the spectrum we have vegetarians and animal rights people saying that the best thing you can do for the environment is stop eating animal products altogether.

This popular theory begins with research that shows it takes 13 pounds of grain to produce one pound of beef. Then it proceeds with assertions that using more cultivated land to grow grain for livestock feed takes food out of the mouths of the starving multitudes and reduces habitat for wild creatures.

In recent years, vegetarian organizations, quoting a U.N. Food and Agriculture study that blames livestock for 18% of greenhouse emissions, have produced impressive documents demonstrating that livestock production is making a huge contribution to climate change. These arguments are compelling, given the rising levels of meat consumption around the world and the central role feedlots play in modern livestock production. Take away the feedlots and livestock feed factories, however, and the data changes significantly, showing that it is not eating meat that causes so much mayhem; it's eating meat that comes from grain-based, intensive livestock rearing operations.

Apart from its focus on grain-fed beef—which is understandable, given the reality that feedlots produce most of the beef on the market—the vegetarian argument is blind in at least three significant ways: first, it misses the truth that while much land is arable and good for growing plant-based food, some land is far better suited to grazing animals and, in places where wild grazers have been extirpated, domestic grazing animals are an important ecological substitution and provide an economic argument for the maintenance of threatened grassland habitat.

Second, listening to the vegetarian logic that using land to feed people instead of animals would allow us to feed more people, we have to wonder just how far we are going to take that line of thinking. If we were to convert the remaining grassland on the continent to produce even more grain, corn, and soy beans, we'd be exporting these commodities at even lower prices which would lead to further population pressure abroad and the ecological devastation it always stimulates. Destroying the earth's last grasslands to feed seven billion vegans is not going to help us address the central ecological question of our era: how many people can this farm, this nation, this earth sustain without sacrificing more biodiversity and ecological integrity than we can afford to lose.

Third, if we want to support an overall goal of sustainable farming, it would seem wise to include animals in the cycling of nutrients on a farm. Livestock manure, used by agricultural people for millennia, must once again become important in maintaining the organic matter and fertility of cultivated land, whether it grows vegetables or grains.



Even so, it's worth saying that the vegetarian argument contains a kernel of truth: **we eat far too much meat and dairy.** The intensive livestock rearing model, fueled by cheap feed grains and pharmaceuticals, has made it possible for us to afford to eat far more beef than is strictly healthy. Today, a head of organically grown lettuce will cost three times the price of a McDonald's hamburger, cooked and served to your car window.

To circle back for a moment, then, we have set a trap for ourselves with industrialized agriculture and in this part of the world the way to disengage our portion of that trap's mechanism is to disable the systems that are over-producing grain and instead work with what nature does best here--grow perennial grass.

So far much of this discussion has been conducted in broad terms, with no details on how consumer choice or anything else might help bring about a radically transformed, ecologically sustainable engagement with grassland. There are many possibilities and pathways this could take.

One way would be to work on full cost accounting and pay the embodied ecological costs of growing food in a grassland region, then pass on a premium to the farmers and ranchers.

For this to work there would have to be a non-governmental organization--something like the existing Forestry Stewardship Council--certifying producers so that consumers would know that the higher-priced products they are purchasing are helping to maintain grassland habitat for birds and other species threatened by agricultural practices.

That might be a modest way to get things started, but I have something more ambitious in mind, something that I think would take advantage of an opening formed by trends we are seeing in prairie culture and economy. There are more trends I could mention but here are six that help set up an opportunity for change:

1. Ranchers' and farmers are showing a lot of interest in ecological goods and services, that is the water filtering, carbon sequestration, soil development, and wildlife habitat their lands provide;
2. People both urban and rural are expressing widespread dismay over the loss of the small family farm to industrialized agriculture;
3. We are seeing increased bison herds on both public and private grasslands;
4. Consumer interest in healthy, locally-grown food is increasing fast;
5. Input costs for farmers are spiraling; and
6. Aboriginal peoples on the plains are undergoing a cultural re-birth as they adapt their traditional values to modern realities. I could also mention other factors: such as global concerns about food security and increased public awareness about pesticides or about the ecological role of fire--and so on.



Just to get discussion started, though, and encourage others to suggest their own ideas, I want to sketch out one scenario that could act within these openings.

In the face of overwhelming economic forces and hardship, prairie people have traditionally met in town halls and church basements to find a better way ahead. The co-operative model has helped us to face the tyranny of corporate agri-business before. When people are ready, and things get bad enough, cooperation will do the job again.

Imagine a room that contains biologists, ranchers, farmers, aboriginal elders, consumers and urban conservationists—all interested in a large expanse of prairie, a watershed with farms, towns, and ranches. Sitting around a large table they agree on a single value statement, something as simple as “grass is good; more grass is better.” After some discussion they also agree that it is important to protect waterways and biodiversity. Other shared values around human culture and the health of rural community also emerge.



Eventually, after a few of these meetings, this varied group writes a statement of values. They begin to see that their personal interest in the larger landscape under discussion would fit into a planning framework that would help them to reach personal goals while still serving the shared values of the entire group. The details of what the next steps are—in making plans and implementing them—would reflect the people and organizations around the table, the resources they can offer and their willingness to change the way they use the land.

Many possibilities are considered, but one of the shared goals they settle on is to protect and improve the health of native prairie in the region while expanding the total acreage under perennial grasses. Expansion would require connecting native remnants with restoration projects to create a contiguous block of grassland for livestock production and to restore some of the ecology of the region.

Early on, they build flexibility and adaptation into the co-operative's plan. Many ranchers in the region are reluctant to participate so they need to be reassured that they can continue to run their operation as they always have, with the option of joining in the co-operative's marketing, programming, and support if they deem it to be in their interest. The men and women on some of the long-standing native grass ranches, regardless of their views on the co-op, are treated as elders of the region. Their knowledge as the long term stewards of the native grasslands is recognized as an irreplaceable resource for the co-operative. Any land belonging to these heritage ranchers that comes available over time is a priority for purchasing. Crown leases on heritage ranchland that become available will, through policy negotiated with federal and provincial governments, be offered first to the co-op and its members. Treaty land entitlement also comes into play, creating a land base in the area for First Nations involved in the co-op.

As for managing the land in the co-op for livestock and ecosystem health, any issues of grazing rotation, water access and fencing are handled by the co-op's range ecologists, in consultation with ranchers and grassland biologists, following the co-op's principles and shared values. Once large enough tracts of land come under the co-op's management, bison and fire are added into the pasture rotation. Bison are kept mobile and brought into selected zones for short periods of intense grazing on both native and restored grasslands, according to models that emulate natural grazing and foster a patchy diversity of habitats throughout the region.

Fire is handled much the same way, with burns designed and scheduled according to ecologists' understanding of natural fire and First nations' knowledge of the way fire was traditionally used to improve hunting. Co-op members whose pastures are lost to bison or fire for a season shift their own livestock to pastures held in reserve by the co-op for that purpose.

Herding bison, lighting and controlling fire, collecting wild seed and sowing land back to native grasses requires a lot of labour. Because the co-op also includes consumers and conservationists, there are green dollar programs that allow people to come from towns and cities to trade their labour for healthy, grass-fed beef and bison meat. As well, a youth program fashioned after the Rediscovery camps held on Haida Gw'aai brings aboriginal teens from cities and reserves to month-long camps led by elders where they are immersed in the traditions and shown that their energy can be used to create and heal. The young people are shown how to handle the bison and fire by a team of skilled men and women from the First Nations involved in the co-op.

Long range planning for the co-op includes provision for phasing out cattle over a thirty year period and expanding the bison herd as the grassland fills in and reclaims areas of cropped land and non-native pasture. To speed this conversion process, there are incentives and support to help landowners make the shift when they choose.

To foster grassland restoration by young farm families, the co-op establishes a non-profit land trust. The trust uses donated land and money to secure targeted blocks of cropland in cropped landscapes that connect and surround remnants of natural grassland. This land is then leased at below market value to young couples and families who want to join. These families cultivate small portions of the land to grow their own gardens or Community Shared Agriculture gardens, while they earn extra income from the co-op by overseeing work to restore the land to native grass. When their land is mature enough to be brought into the grazing cycle they become full members of the co-op with an option to purchase their land or continue leasing.

These programs are costly to run and the grazing regimes selected by the range ecologists balance weight gain in livestock against the long term vision of the co-op to keep the grassland healthy. These costs and income restrictions are offset by a mix of foundation grants, government conservation programs and income from the consumer and marketing side of the co-op. Consumers who are members of the co-op can purchase beef and bison products directly, but the same products are also marketed to the public under the co-op's certified conservation-grade labeling.



The co-op runs a modest communications campaign to spread the word about their efforts to restore the health of the prairie and to educate consumers and restaurateurs on the health benefits of grass-finished beef and bison. After the first few years of selling their products through health food stores and organic grocers, the co-op's products make it to the meat departments of some supermarkets in the region. People are willing to pay more for their steaks and hamburgers, not only because they know grass-fed is much healthier; they feel good knowing that part of the higher price is keeping family-based agriculture alive and sustaining the ecological health of North America's best managed grassland.

This **imagined co-operative model** will to some people sound Utopian and far-fetched from the reality of today's grassland agriculture. While it is true that nothing on this scale has been accomplished, most of the programs and methods I outlined are working right now either on private ranches or on publicly-managed rangeland and conservation areas in North America.

Changing a big thing like our food production systems means that a lot of levers have to be pulled--some of them are small like the work of individual farmers and scientists looking for alternatives, or even smaller, like the purchasing power of a consumer looking for real food, healthy food that does not harm the land, water and atmosphere.

The levers we like to pull of course are the big ones wielded by governments and even though these ones often bring on unintended consequences, I think we have to consider them too. Here are some worth thinking about, many of which are based on ideas from Wendell Berry's book, *The Unsettling of America: Culture and Agriculture*:

1. We need to find ways for government policy to reward the use of human energy, in general but particularly in growing food. As Berry likes to say when people brag of "labour-saving devices": "there is no such thing as a reservoir of bodily energy. . .by saving it we simply waste it." And I think we could spell "waste" the other way too, for in fact when we save too much of our bodily energy we do store it--as fat.
2. We need to use the tools of government policy to put some restraint on the accumulation of property. Our tax systems and farm policy could favour small family farms with diversified operations who are feeding local communities rather than the mega-farms producing grain for international markets and feedlots.
3. We should make low-interest loans available for people who want to buy family-size farms to grow food in ways that work with and conserve natural systems.
4. We need programs to promote local food self-sufficiency, fostering direct marketing from farmers to consumers and encouraging producer and consumer co-ops.



5. We must disengage biotech and agribusiness interests from our universities. If we could turn our agri-science resources away from the corporate world that has made food into a commodity for profit and toward the growing of food that is healthy for people, communities and the land, we'd receive a big boost in the transformational work we are facing as a civilization.
6. Our policy-makers must begin to see that every decision they make about technology, agriculture or economic development has to be measured against the absolute good of health and wholeness. What will this tool, this incentive, this project do to the health of individual people, to the health of our families and communities, to the health of the land and its ecosystems?
7. Finally, we have to **Make more grassland**. In as little as ten years you can grow a restored prairie that is a fair facsimile of virgin grassland—not as diverse but a net gain over what was on the land before. These places almost always show improved biodiversity over tame grass fields, and support a range of breeding grassland birds. Returning large tracts of prairie to native cover is a vital step in halting the decline of grassland ecologies but in Saskatchewan we have scarcely begun to talk about it.

Now of course it is easy to scoff and say that all of this is far too idealistic, that it simply won't happen because no one wants to give up the easy access to cheap food that we currently enjoy. If that were true there would be no local food, fair trade coffee, and organic food movements, no outcry against genetically-modified food, intensive livestock operations, and pesticide use. These are relatively small movements today but they are making a difference and growing fast.

Imagine what we could achieve if we could divert even one-tenth of the energy and ingenuity we currently devote to the accumulation and protection of wealth and put it to work finding ways to grow and distribute food that arise out of respect for the land and the health and wholeness such a respect fosters.

Yes, we need hope, but real hope doesn't come in the form of a technology or mega-project that promises to save us today by helping us to continue our delusion that humanity can escape the boundaries of nature. Real hope is a radical form of patience that urges us to invest in the distant future by choosing the right way to act today. In de-forested lands that means planting trees even though you may never see them become a true forest. In prairie damaged by years of bad agricultural policy, hope is having the patience to plant grass and trust that, with the right care and attention, it will come to good.

Thank you.



Trevor Herriot is an award-winning author, naturalist and speaker. His first book, *River in a Dry Land*, won the Drainie-Taylor Biography Prize, the Saskatchewan Book of the Year Award, the Regina Book Award, a CBA Libris Award and was shortlisted for the Governor General's Award. *Jacob's Wound* was shortlisted for the Writers' Trust Non-Fiction Prize. Herriot is an active member in the Nature Conservancy of Canada, is featured regularly on CBC Radio and is a frequent guest on the call-in show *Blue Sky*. He lives in Regina, Saskatchewan.