Quincy

Hawken: Beyond the doom and gloom talk of climate change and global warming, humanity is already successfully working on solving the problem. This is not wishful thinking, rather a conservative analysis of what's already happening. There's a credible path towards a just and livable world. This book offers empowerment and even a happy smile."

Solutions being put into action span the gamut, from wind turbines to biomass; methane digestion to in-steam hydro, and that's just the energy solutions. In food, multi-strata agroforestry combines crops and forests while the silvopasture invites livestock to graze in the forest. "Smart glass" used in new buildings changes four times daily, adjusting to different solar conditions, joining other urban solutions like bike infrastructure; green roofs and walking cities. Land use solutions range from ocean farming to artificial leaf to marine permaculture; fighting drought by adding manure to the land that harnesses water and eventually seeds trees.

One solution that is so surreal, and sounds so crazy and impossible that it is worth exploring not only because it sounds so crazy but because it highlights the perils of arrogance and the power of awe.

Sergey and Nikita Zimov, a father-son team of scientists have devoted their careers to awe in studying the Arctic permafrost. The Zimovs direct the Northeast Science Station near Cherskii, Russia, where they have created Pleistocene Park, a park in the Kolyma River basin in Siberia. The Kolyma basin is part of a much larger biome called the Mammoth Steppe, at one time the largest land mass of flora and fauna existing in any habitat on the planet.

The common assumption among scientists for decades had been that the depopulation of the mammoth steppe was caused by loss of pasture due to climate change. After years of careful observation, the Zimovs conclude that this theory of extinction is upside down and backwards. The Zimovs believe the valuable tundra pasture gave way to trees and boreal forest because hunters killed the arctic herbivores that preserved the tundra pasture as their natural habitat.

Archeology confirmed their theory. The road to the Kolyma River basis is referred to as the "Road of Bones" known for its basin of bonesevidence of thousands of years of arctic history. According to Hawken, the bone counts of the basin reveal a far different story than the previous image of a barren arctic river basin.

According to Hawken, bone counts indicate that 20,000 to 100,000 years ago, on just one square kilometer of pasture, grazed: one woolly mammoth, five bison, eight horses, 15 reindeer, with widespread muskoxen, elk, woolly rhinoceros, snow sheep, antelope, and moose. Roaming among them were predator populations of wolves, cave lions, and wolverinesas much as 20,000 pounds of animal life thrived on each square kilometer of pasture.

Enter the Yakut, a hairy, short, stock Siberian horse that looks like it might be ridden by a Star Wars space cowboy. With their thick layers of fat, keen sense of smell, and rock-hard hooves, these Yakutian horses survive temperatures of minus-100 degrees Fahrenheit above the Arctic Circle by scraping away snow and nibbling on shriveled grasses in winter darkness.

To keep the planet cool, you need grasses, not trees, and you get grasses when you reintroduce herbivores like the Yakut. The Zimovs are doing just that in their Plestocene Park, proving their point by bringing the animals back, a kind of tundra zoo. Though the woolly mammoth, the Beringian bison and native musk oxen are gone, the Zimovs are improvising. They purchased an aging Russian tank that they drive across the preserve to crush the shrubs and larch just as a mammoth would have done, producing a grassy trail of brome. In addition to the Yakut, the Canadian government is donating bison. The Zimovs hope to secure reindeer from Sweden, more Alaskan musk oxen, a shipload of five thousand Canadian bison and "a worldwide carbon tax that would finance the repopulation of the mammoth steppe."

Hawken: "Regeneration of the land can be brought about by rewilding the abandoned lands of the north, returning animals that created the great, once-dominant, carbon-sequestering grasslands. When herbivores were free to roam, the Earth supported twice the number and weight of animals that humans raise today in ranches, feedlots and animal factories. In the mammoth steppe, considered unlivable to all but a hardy few, the benefit of returning it to its wild origins would be immense."

For me, the lesson here is that the arrogance that breeds false assumptions kills optimism and opportunity. The Zimovs took their open minds and their awe to Siberia to study the story Nature had to tell, a story that is far different from what previous scientists had assumed to be true. Drawdown is filled with hopea hundred tales of openness, awe, hope and the actions of visionaries in all fields who are, right now, reversing global warming.