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Conservation in the Age of Consequences

We are not walking a prepared path.

Wendell Berry, at The Quivira Coalition's Sixth Annual Conference, in response to a question about the difficulties that lie ahead in the twenty-first century.

In June 2006, 49 heifers were delivered to The Quivira Coalition's ranch on the 36,000-acre Valle Grande allotment on the Santa Fe National Forest atop Rowe Mesa, southwest of Santa Fe, New Mexico. They were the first installment of what would become a 124-head herd of heifers, plus three Corriente bulls, all under our "Valle Grande" brand, and all under our management. And just like that, a bunch of conservationists became ranchers.

This was an intriguing turn of events for the staff and Board of The Quivira Coalition, a nonprofit organization whose original mission was to create common ground between ranchers and environmentalists. It was also a surprising twist for me personally. If ten years ago you had told this former Sierra Club activist that I would be in the livestock business, selling local beef to Santa Fe residents, I simply would not have believed you. But here I am—a dues-paying member of the New Mexico Cattlegrowers' Association.

Maybe it was not such a stretch. After ten years of encouraging ranchers to act more like conservationists, it suddenly seemed logical that we, as a conservation organization, begin to act more like ranchers. It was not just a matter of "walking the talk" either—the harder we looked, the more conservation opportunities we saw running the ranch *as a ranch*. In fact, when discussing this turn of events in my lectures around the region today, I state simply that The Quivira Coalition is "*a conservation organization that manages livestock for land health and prosperity.*" Obviously, this is something new under the sun. But what exactly?

To gain perspective, I reread Charles Wilkinson's classic study *Crossing the Next Meridian: Land, Water, and the Future West*, published in 1994, which I knew to be a thoughtful analysis of late twentieth-century conservation. In it I read that the major challenge for activists nearly 20 years ago was grappling with the legacy of the "lords of yesterday"—the laws, customs, and policies created in the wake of the West's vigorous frontier era. These "lords" include the 1872 Mining Act, which encouraged a firesale of public lands to mining interests; the 1902 Newlands Act, which

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inaugurated an era of frenzied dam building; the implementation of the “Western Range” concept in 1905 (and the follow-up 1932 Taylor Grazing Act), which institutionalized livestock interests on public land; as well as various timber, homestead, and water laws and regulations.

By the 1980s, Wilkinson wrote, these “lords” were out of kilter with the urban public’s burgeoning interest in outdoor recreation and the protection of natural resources, resulting in a great deal of conflict with rural residents across the region. From the “timber wars” of the Northwest, the “grazing wars” of the Southwest, the “wolf wars” of the northern Rockies, and the clashes over endangered species nearly everywhere, the struggle between the “old” West and the “new” kicked into high gear.

For nonprofit conservation organizations of the era, their mission was straightforward: fight *for* wilderness areas and national parks and *against* the “lords of yesterday.” On the economic side of things, these groups touted the tonic of increased recreation and tourism, whose mostly unquestioned benefits were blossoming at the time of the publication of Wilkinson’s book.

In my opinion, this mission caused two types of conservation organizations to bloom. The first was the advocacy-based organization, sometimes called the “watchdog” model, whose mission was to challenge wrongdoers and protect environmental values, principally on public land. Often this meant fighting the federal government—and by extension miners, loggers, and ranchers—in court as well as in the court of public opinion.

Concurrently, another type of conservation nonprofit formed in response to threats posed to the natural assets of private land. The modus operandi of these groups was preservation by purchase—buy it to save it—sometimes called the “trust” model, though they also leveraged land transfers to federal and state agencies.

Together, the “fight it, buy it” counterpunch to the “lords of yesterday” netted significant results, including a raft of important federal laws, which unquestionably improved the quality of life for wildlife and humans alike.

Fast forward to today, however, and both the problems and the cures for the American West as identified in *Crossing the Next Meridian* seem out of date. This is not Wilkinson’s fault, rather it is a sign of how much things have changed. For example, Wilkinson makes little or no reference to global climate change, restoration, collaboration, the rise of watershed groups, the expansion of local food markets, or the dynamic energy of agroecology, though he does identify the outlines of the progressive ranching movement. Similarly, there is little mention of the downside to an amenity-based economy, including the damage widespread suburban and exurban sprawl would soon do to communities of people and wildlife.

Wilkinson does talk about sustainability – much in the news these days – and concludes his book with a call for “sustainable development” in the West, though the main mechanism he proposes for achieving it is the planning and zoning toolbox. Presciently, he speculates that the journey to a sustainable West will be a long one.

In fact, by the mid 1990s, this question of sustainability had sparked the creation of a third model of conservation. New conservation concerns – open space protection, water quality and quantity, local food production, restoration of damaged ecosystems – along with significant advances in the land stewardship toolbox and a growing frustration with the limitations (and excesses, in some cases) of the “fight it, buy it” models to improve on-the-ground conditions long term, led to the development of a place-based, collaborative conservation movement, often called the watershed model. This grassroots movement engages multiple stakeholders who live or have an interest in a watershed with the goal of improving the economic and ecological vitality of a specific place.

Important elements of the watershed model, especially its emphasis on consensus decision making, local action, and a sustainable, “pro-use” philosophy of stewardship, contrasted with the previous conservation models, causing members of the “fight it, buy it” school to challenge its conservation credentials.

My frustration with the divisiveness of the “fight it, buy it” models led me to co-found The Quivira Coalition in 1997 with a rancher and a fellow conservationist. One of our original goals was peacemaking, exemplified by our tagline at the time: *Sharing Common-sense Solutions to the Rangeland Conflict*. But ten years later, the question on my mind was this: where did The Quivira Coalition fit in exactly?

We had our roots in the third model, of course, but we were not a watershed group, nor did we labor to achieve consensus among stakeholders or mediate conflicts over natural resource use. Instead, we worked regionally, aimed our efforts at “eager learners,” and promoted a land stewardship toolbox that focused on land health. Later, we moved into land restoration projects. Eventually, we became ranchers. It felt like we were walking a new path – but to where?

The Age of Consequences

Although no one knows what the decades ahead will bring precisely, there are enough indicators of change to say with confidence that the twenty-first century will look a lot different than the twentieth. Whether the concern is climate change, peak oil, overpopulation, species extinction, food and water shortages, or something else, the challenges ahead are daunting and varied.

Some are already here, including rapid land fragmentation, the expansion of destructive industrial agricultural practices, the compounding effects of population pressures, a burgeoning “over-recreation” of our public lands, a dissolving bond between nature and members of the next generation, and the effect of all of the above on biodiversity. These are all elements of what I have started to call the “Age of Consequences” – the era in which we, and subsequent generations, are required to grapple with the consequences of 200 years of full-throttle industrialism. Metaphorically, I think of the Age of Consequences as a hurricane that has been building slowly over open water – but is now approaching shore. We can already feel its winds. We do not know precisely where the bulk of the hurricane will make landfall or how strong its winds will be ultimately, but we do know that it will strike and that its destructive power will be awesome.

A strenuous effort must be made to lower the wind speed of this hurricane as much as possible, such as reducing the amount of greenhouse gases entering the atmosphere or preserving biologically rich natural areas from industrial development, which are great roles for the “fight it, buy it” school of conservation. At the same time, however, we must acknowledge the inevitability of the hurricane’s landfall. That means a simultaneous effort must be mounted to increase ecological and economic *resilience* among landowners, organizations, and communities so that they can weather the coming storm of change. This is an important role for the watershed model, which can strengthen resilience at the local level. It is also what The Quivira Coalition has been trying to accomplish over the past decade – though we did not think of it in those terms at the time. We do now.

The dictionary defines “resilience” as “the ability to recover from or adjust easily to misfortune or change.” In ecology, it refers to the capacity of plant and animal populations to resist or recover from disruption and degradation caused by fire, flood, drought, insect infestation, or other disturbance. Resilience also describes a community’s ability to adjust to incremental change, such as a slow shift in rainfall patterns or a rise in temperatures. Building resilience means many things. For the purposes of conservation work in the future, I believe there are three areas that need to be addressed:

(1) *Reversing Ecosystem Service Decline*. In 2005, the United Nations published its *Millennium Ecosystem Assessment*, a global evaluation of the ecosystem services on which human well-being vitally depends. These services include food, fresh water, wood, fiber, fuel, and biodiversity; climate, flood, pests and disease regulation; nutrient cycling, soil stability, biotic integrity, watershed function, and photosynthesis; and spiritual, educational, recreational, and aesthetic experiences. The basic conclusion of the Assessment is this: globally, ecosystem services are in decline and as they decline so will human well-being.

In my opinion, as human well-being degrades (and this degrading has already started in many places around the globe), traditional conservation concerns, such as wilderness protection, parks, and recreational experiences, will fall in priority. That is because as conservation strategies they will be less and less effective as basic human needs such as meeting food and energy requirements rise in importance.

The *Assessment's* authors make much the same point. To reverse the decline in ecosystem services, they encourage *active adaptive management* – experimentation and monitoring with new management methods – to maintain “diversity, functional groups, and trophic levels while mitigating chronic stress [in order to] increase the supply and resilience of ecosystem services and decrease the risk of large losses of ecosystem services.” In other words, conservation will shift from protection and preservation to restoration and management – from “saving” land to working it properly.

(2) *Creating Sustainable Prosperity*. Ecosystem services have declined partly because their conservation value is not seen to be in the economic self-interest of important portions of society. As a result, conservation, including the restoration and maintenance of natural systems, became primarily a subsidized activity, accomplishing its goals principally by (1) direct or indirect governmental funding; (2) as an indirect product of commercial agricultural activity; or (3) by philanthropy; or some combination of each. Conservation remains subsidized for a variety of reasons, including its high cost. Another reason is a well-founded concern about the role uninhibited market forces play in the overexploitation of natural resources – a role that has contributed widely to ecosystem service decline around the planet.

But can conservation pay for itself? If it cannot, at least at some significant level, then the objective of reversing the decline of the ecosystem services on which human well-being depends might be impossible. *That is because more than a century of conservation work has demonstrated the limitations of subsidized incentives (case in point: the current condition of the planet)*. Additionally, the scale of the conservation job continues to grow, especially as ecosystems decline, which means that the cost of restoration will grow as well.

But even if conservation can be profitable, can it be sustainable – can it be *prosperous*? For many family-scale, progressive ranchers the answer is “yes.” They have done it by working on the original solar power, as grass farmers. Many have been profitable and sustainable simultaneously, and often for the same reason, thus prospering in multiple ways, not just economically.

(3) *Relocalization*. This word will likely dominate the upcoming decades. The inevitability of rising energy costs means more and more of our daily lives, from food production to where we work and play, will be lived closer to home at local and regional scales. This will not be by choice,

as it is currently, but by necessity. The key is to look at relocalization as an opportunity, not just a challenge. It can be a form of rediscovery – learning about our roots, about community, neighbors, and gardens, and doing with less in general. One could even look at relocalization entrepreneurially – those individuals and organizations that get into the game early, by providing re-localized goods and services, will stand a very good chance at a profitable living.

Relocalization includes the following:

The Development of Local Food and Energy Sources: Working landscapes will become critical again, as will the innovations currently taking place at the nexus of agriculture and ecology – a nexus that requires healthy lands. Could New Mexico feed itself? Could Montana? Phoenix? And if not, why not, and what can we do to stimulate local food and energy production?

Farm and Ranch Land Will Become Important Again for Food Production. So will farmers and ranchers. Local food and energy, as well as recreational opportunities, require local land. We will need local people to do this work too, as well as their local knowledge. This means figuring out how to keep the current generation of farmers and ranchers on the land, as well as encourage the next generation to stay, come back, or give agriculture a try.

Restoration Will Become an Important Business. Producing local food and energy from working landscapes, especially in quantity, will require healthy land as well as best management practices that work “within nature’s model.” Unfortunately, while the “toolbox” of progressive stewardship is now well developed, a great deal of our land is still in poor condition (for a variety of reasons), requiring restoration and remediation.

Co-Management of Public Lands Will Evolve into the Norm: Pressure will build on the federal land agencies to adopt co-management principles with private organizations and associations on public land. Partnerships with private entities, including a new generation of grazing permittees, that aim at progressive activities on working landscapes will evolve.

All of this work involves creating a “new path” – to paraphrase Wendell Berry – since many of the challenges that it addresses are novel (though some are old – a concern for land health is as old as agriculture, for example). The “fight it, buy it” models of conservation, which have an important role to play in slowing the hurricane down as much as possible, alone are no match for the big job of resilience. It is my opinion that the challenges of the Age of Consequences require a new type of conservation organization. In fact, I will postulate that *reversing the decline in ecosystem*

services on which human well-being depends will ultimately prove to be the primary mission of conservation in the twenty-first century.

Reversing this trend requires a proactive strategy that gets at economics as well. Fortunately, there have been plenty of hopeful, proactive responses already, including the development of progressive land management methods, restoration of land health, production of local food, expansion of watershed-based democratic collaboratives, and the exploration of regenerative economic strategies, albeit on small scales so far. Reversing ecosystem service decline, however, requires adopting a simple but radical new philosophy: *all natural landscapes must now be actively managed*. Some may need more management than others depending on the level of resilience required, but under the global effect of climate change we can no longer turn our backs on our responsibilities, no matter how big or small. For ranchers and conservationists alike, this means doing things differently.

Case Study

The Quivira Coalition is consciously moving toward this new goal for conservation, so it might be worthwhile to review where we came from, what we have accomplished over ten years, and what parts of our model, as it stands today, might effectively address the three overarching goals outlined above.

The Quivira Coalition was founded during an era of intense conflict between ranchers and environmentalists, with federal land managers caught in the middle and many scientists on the sidelines. Our original goal was to create a neutral place where people could “explore their interests rather than argue their differences,” in the words of Bill deBuys, a leader in the collaborative conservation movement in New Mexico. This was not peacemaking between extremes, however. Instead, we endeavored to create a “third position” outside the continuum of combat, which we called the “New Ranch,” so that those interested in fruitful dialogue would have a place to meet, talk, listen, and learn.

The New Ranch was more than a meeting place, however. It was also a toolbox, much of which was filled initially with management techniques pioneered by Allan Savory, a wildlife biologist from the former Rhodesia, in southern Africa. While this land management methodology was principally directed at the ranching community, we saw its value for broader social and cultural purposes as well. In particular, its emphasis on land health—the ecological processes that sustain rangeland function over time—had the potential to unite disparate interests. In fact, our peacemaking was founded on principles of land health—by employing the common language that describes the common ground below our feet.

The first five years of The Quivira Coalition focused on creating this common ground. We understood that land and people were inseparable

and that healthy economics, based on nature's model of herbivory, and healthy ecosystems were inescapably intertwined. That is why we chose Wendell Berry's quote, "*You cannot save the land apart from the people, to save either you must save both,*" as our motto. It also explains our original mission statement: "to demonstrate that ecologically sensitive ranch management and economically robust ranches can be compatible."

In 2001, we met Bill Zeedyk, a retired Forest Service biologist who reinvented himself as a riparian restoration specialist. Soon we were working together on two large riparian restoration projects funded by the Environmental Protection Agency's 319 program (Clean Water Act), one on the Dry Cimarron River, in northeastern New Mexico, and the other on Comanche Creek, within the Valle Vidal unit of the Carson National Forest. Both grants contained funding for a substantial series of educational workshops, publications, and conferences.

Bill Zeedyk's requirement, for example, that riparian restoration work be restricted to ranches that have a planned grazing program in place—so the newly grown riparian vegetation would not simply be munched down to the nub by unmanaged cattle—taught us that a "holistic" vision of land health meant integrating various land management practices. It was not just about cows anymore. But it was not just about fish either. Or riparian vegetation. Or collaboration. Or paychecks. Long-term health, both economically and ecologically, meant ALL OF THE ABOVE and more.

For this reason we changed our mission statement in 2002 to read, "Our mission is to foster ecological, economic and social health on western landscapes through education, innovation, collaboration, and progressive public and private land stewardship." The issue now was how to accomplish social and ecological health on a bigger scale. Our work with range consultant Kirk Gadzia and progressive ranchers taught us that the opportunity for imaginative use of livestock for economic and ecological gain was large. Our work with Bill Zeedyk taught us that overcoming the challenge of restoration was both possible and practical. Other nonprofits and ranches in the region taught us that innovative strategies on a variety of economic and environmental fronts were being developed around the region.

An opportunity to integrate all of these concerns and opportunities opened up when we assumed ownership of the Valle Grande Grassbank in 2004 from The Conservation Fund. A "grassbank" is defined as a physical place, as well as a voluntary collaborative process, where *forage* is exchanged for one or more tangible *conservation benefits* on neighboring or associated lands.

In 1997, Bill deBuys had a question on his mind: could cattle, curlews, prescribed fire, ranchers, environmentalists, and the U.S. Forest Service all get along together? To find out, Bill assembled the Valle Grande Grassbank, located on a 36,000-acre allotment of national forest land on

Rowe Mesa, 25 miles east of Santa Fe, New Mexico. Inspired by a pilot grassbank on the privately owned Gray Ranch in southwestern New Mexico, Bill convinced The Conservation Fund, a national environmental organization, to purchase 240 acres of deeded land on top of Rowe Mesa. The property came with a year-round federal grazing permit, but no cattle. Instead of buying cattle, Bill proposed to offer the grass of the Valle Grande allotment as a “bank” to national forest permittees around the region in exchange for restoration work on their home ground – principally forest thinning and prescribed fire.

Although successful initially, the Grassbank eventually succumbed to a variety of challenges, including substantial financial ones, and is now dormant. In the meantime, we decided to get down to the serious business of running the ranch *as a ranch*, which included direct marketing our beef to residents in Santa Fe. Becoming livestock owners was part of our new business plan for the Rowe Mesa Grassbank. Knowing that the grant funding was about to end, we developed a plan that emphasized lowering costs, raising earned income, improving land health, providing educational events, and turning a profit if possible. One unexpected bonus of the new plan was the discovery of a local market for pasture-raised beef.

The next step is to use the ranch’s profitability to pay for conservation. Our initial goal – based on a land health map of the allotment that we created in 2005 – is to focus on improving and maintaining the allotment’s meadows, which are slowly being choked by trees due to the lack of fire. Over time, however, our goal is to improve the health of the whole allotment (which is in reasonable condition overall despite past hard use). This will require addressing forest health issues in addition to the grasslands. But the main goal of the ranch is to demonstrate that land health can be improved with a business plan that includes livestock. By becoming ranchers, as well as businesspeople in the process, we officially began walking down this new path. Although we have only traveled a short distance, and we are not entirely certain where the path leads, we have accumulated enough experience to offer a summary of what appears to be an effective model of conservation for the twenty-first century.

Conservation Model

Our conservation model has five core elements: (1) diffusing knowledge and innovation, (2) building capacity among willing partners, (3) improving land health, (4) using “conservation with a business plan,” and (5) strengthening diverse relationships.

One. We seek out ideas and practices that work and try to share them as widely as possible. For example, a great deal of positive energy is being generated at the nexus of agriculture and ecology today by a number of farms, ranches, businesses, and other organizations. Sharing these

practices, some of which are old traditions being rediscovered—such as herding—so that others may learn about them is the first step to their adoption.

Over the years, our outdoor educational work has included clinics, workshops, outdoor classrooms, trainings, tours, and special events on topics as diverse as drought management, riparian restoration, fixing ranch roads, conservation easements, reading the landscape, monitoring, water harvesting, local food, low-stress livestock handling, grassbanks, grassfed beef, and many others. They have been attended by ranchers, scientists, environmentalists, public land managers, and many members of the public. In 2002, we began an annual conference, the purpose of which is twofold: to create a neutral place where ranchers, environmentalists, public land managers and others can meet, learn and listen; and, secondly, to disseminate new (and old) ideas, practices, and other forms of knowledge.

Two. We help to build capacity among willing partners—i.e., those individuals or organizations who are willing to invest time and energy in new ideas and practices—through hands-on training, workshops, clinics, mentoring, and other activities. We began the New Ranch Network, for example, as a way of giving landowners access to service providers. We also implemented a small grants program that assists local organizations or individuals, and we have begun a contractual program with the goal of delivering capacity-building in direct association with The Quivira Coalition. We are exploring other forms of assistance, including an internship program in conservation and ranch management so that young people can be trained in these new approaches and subsequently hired to implement them.

Three. The Quivira Coalition takes a “land health” approach to its work. By starting at the level of soil, grass, and water we apply adaptive management methods that restore and maintain ecosystem functions. This approach, in turn, has benefits for other ecosystem services, including fire protection, food and fuel production, and cultural benefits. On our ranch, for example, we are aiming to improve the health of the land so that natural processes function properly, wildlife populations are viable, healthy food can be produced for nearby residents, and the land itself can sustain us economically and ecologically.

From the start, The Quivira Coalition has been engaged in on-the-ground demonstration projects, primarily involving riparian restoration. The purpose of these projects is to demonstrate the significance, as well as the practicality, of improving land health. Much of the region is degraded ecologically to one degree or another for a variety of reasons, raising Aldo Leopold’s famous question: what do you do when you know land to be unhealthy? Turn away and hope for the best? Or do you act? We have chosen to act. That is because we believe that improving land health is the

foundation for much of what society values on the land, from food production to recreation, hunting, and biodiversity.

Four. We believe conservation needs to have a business plan. It needs to generate revenue to support the enterprise and do so with as little subsidy as possible. Counting on government grants, private philanthropy, or some other form of subsidy has been worthwhile, but it has not as yet created the scale of conservation action that is required to reverse the degradation of ecosystems worldwide. By following the lead of profitable and sustainable farms and ranches, we think we can change this equation. The Quivira model can contribute to the development of sustainable prosperity in a variety of ways – by assisting individuals, organizations, and businesses to become sustainably prosperous and by becoming sustainable ourselves as a nonprofit business.

Five. We continue to emphasize relationships – between people, between people and land, and between ecological processes – as the foundation to long-term resilience. Over the years we have partnered with many diverse organizations, associations, and individuals on various projects. Our on-the-ground workshops get a variety of people out on the land, and the land health idea is all about repairing and sustaining ecological relationships. But collaboration is hard work, as anyone who has tried it knows. In fact, the “people part” of any project can quickly become its weakest element. Respect, trust, diplomacy, fairness, and a willingness to listen are the keys to strong relationships.

I believe that our model does not have to be replicated per se to effectively address the challenges of the Age of Consequences. Building resilience can be done at a variety of scales, from planting a garden where you live to landscape-scale restoration work. But I do believe that the five core elements need to be in place to one degree or another for the model to work. Creating a neutral ground for diverse interests to meet, talk, and learn is critical – but it does not necessarily require a large, annual event.

A conservation group does not necessarily have to run a ranch either, though managing land of some sort is probably a requirement. That is because you cannot improve land health by just talking about it – you need to do it, either by directing projects on someone else’s land or on your own place. And you need to figure out how to pay for it in a business-like way. Of course, producing healthy food for local consumption is not a bad way to accomplish this goal. In fact, over time it may be the only way to go!

A New Future

My twins, Sterling and Olivia, are nine. When I was their age, the Wilderness Act was five years old. The cement on the national Interstate Highway system had barely dried. Footprints in the lunar dust were still fresh. The Endangered Species Act was four years off. The Internet was just

a gleam in some engineer's eye. When I was their age, the gradient of progress still sloped upward without discernable consequence. The world was our oyster. Gas was cheap. The horizon easily reached. The nights were bright. Anything seemed possible.

My parents endured a Depression and a war to end all wars. Their coming of age included privation, limitation, and self-sacrifice. It is little wonder that they celebrated their victory over fascism with a party that would last for the rest of their lives. I knew none of their hardships. I grew up in a bubble of middle-class comfort, a member of the first generation in American history to be shielded from hunger and hard choices, which was probably precisely how my parents wished it to be. Coming of age for my generation meant joining the party started by our parents—consumerism, materialism, and unshakeable faith in the future. When I was six, I moved from a farmhouse on the outskirts of Philadelphia to the post-war boomtown of Phoenix, catching one of the first waves of mass suburbanization that would transform the American Southwest. We had air-conditioning, flood-irrigated lawns, a pool, and awesome sunsets. I did not have to grow my food, produce the energy we used, or build a house. Life was great.

Even as a coddled kid, however, I was aware of trouble in the wider world. I knew that an endless, and increasingly unpopular, war was being fought in a distant land. I knew from watching the evening news with my father that civil disobedience, governmental malfeasance, and senseless acts of violence were shaking various segments of our society. I became vaguely aware that something was wrong with the air in Los Angeles. I knew rivers could burst into flames. But none of this altered my fundamental faith in the future, which was my chief inheritance from my parents. Things would get better because, sooner or later, they always did.

When I was sixteen, I discovered our national parks: Zion, Bryce, Arches, Grand Tetons, Yellowstone, Glacier, Yosemite, Sequoia. I backpacked in each one during a glorious, unforgettable summer. A universe of golden possibility opened up as a result, and I would never look back again. The wilderness seemed to stretch on forever.

I was not the only one to feel this way. My generation embraced a future that seemed as unlimited as the wide, open spaces of the West. We fought for that future too, especially as boundaries inevitably began to appear. In college, I collected signatures on petitions that demanded the resignation of James Watt, Ronald Reagan's zealously anti-environmental Secretary of the Interior. Soon, I became aware of the sins of overgrazing, overlogging, and overmining on our public lands. I joined the Sierra Club, the Wilderness Society, the Nature Conservancy, and other groups in response. I wrote letters. I protested the threats to the golden universe I had recently discovered in nature.

But thresholds and boundaries kept coming. I learned that we were overfishing our oceans, that we were overpopulating the globe. Our cities

were oversprawling. We were overconsuming. We were overheating the planet. By the time I turned 40, it seemed like we were overeverything. In less than 25 years, all had changed.

When I was nine, progress was good. The future was certain. All signs pointed up.

Where do the signs point for Sterling and Olivia today at nine? A news story on the radio the other day about climate change and the potentially unhappy fate of polar bears as a result of disappearing arctic ice caused both of them to burst into tears. How do you explain to your children that their future is now officially uncertain? Will there be polar bears in 50 years? We do not know. Could the signs of progress actually start to point down due to energy or food shortages? We do not know. Will my children have to endure privation and limitation in their lives the way my parents did (thanks to our hard partying)? No one knows. The only thing we can say with certainty is that the twenty-first century will look a lot different than the twentieth. Beyond that, all bets are off.

My children will come-of-age in the Age of Consequences. I have no idea what this means, but there is no point in casting blame, wringing hands, or living in the past. We must now look to a new future, one filled with anxiety and uncertainty. But we do not have to act with uncertainty. We have a good idea of what we have to do, for instance, to lower the wind speed of the hurricane of change that bears down upon us. And we are developing a working knowledge of how to build resilience at home and in our communities. As an ecologist friend of mine likes to say, we don't know all the answers, but we know enough to get started.

We can get started by restoring land to health, by producing food locally, by sharing information and resources, by working together, and by looking and learning. We do not know all the answers – I'm not even sure we know all the questions yet – but we know enough with certainty to begin building a path so others may follow. One stepping stone at a time.

