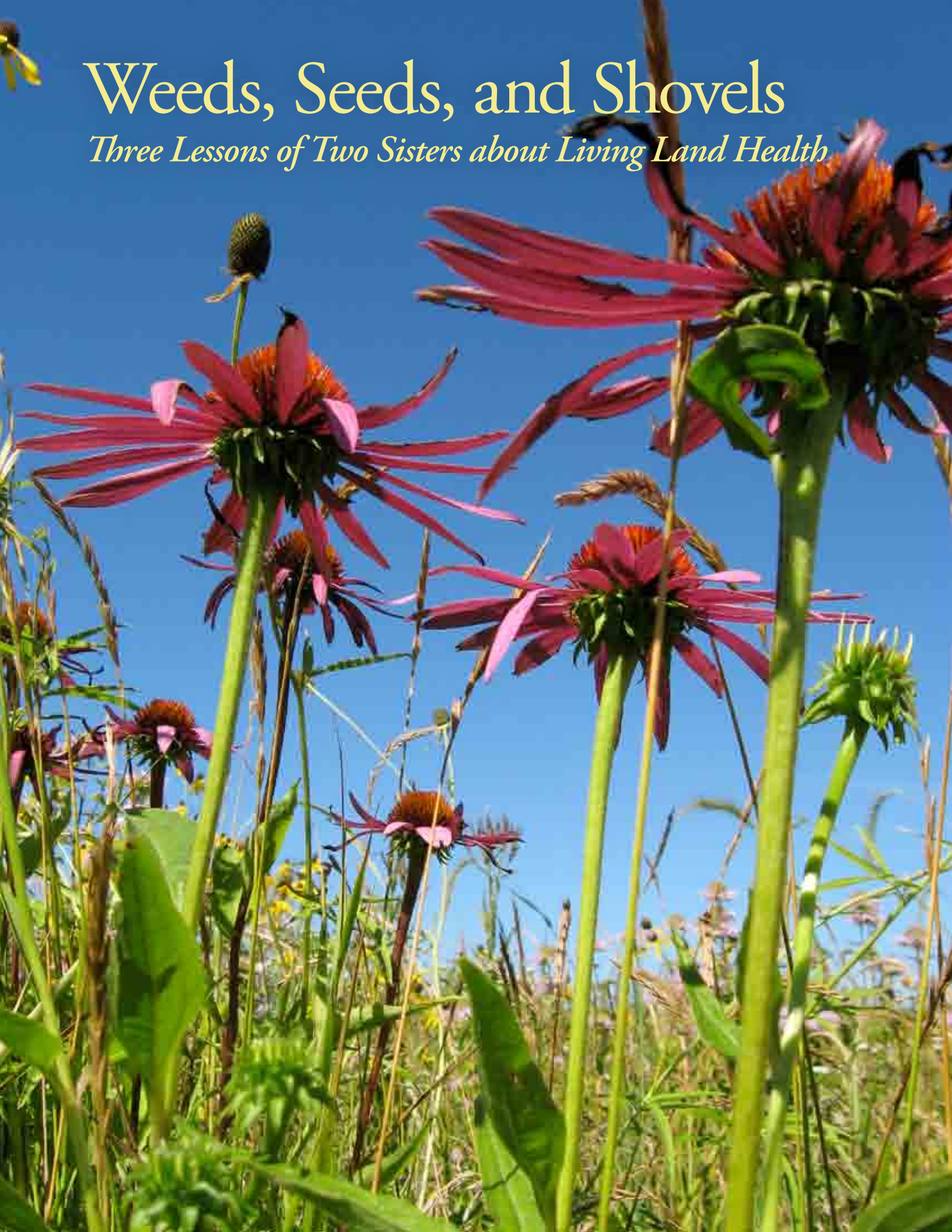


Weeds, Seeds, and Shovels

Three Lessons of Two Sisters about Living Land Health



Alanna Kosholek, Baraboo, Wis.

Healthy places...require and inspire dynamic innovation in implements, dwelling places, industries, economies, artworks, and relationships of all sorts.

BY JULIANNE LUTZ WARREN

A year or so ago now, I had a chance, at the height of Wisconsin's growing season, to stay with my dear friend and mentor Nina, Aldo and Estella Leopold's eldest daughter, who took much her parents' wisdom to heart and passed on so much of her own. She was only ninety-two, then, living at home where she died recently, several miles from town and down the road from the Shack, the sole remaining building on the worn-out farmland her father bought in 1935. The family has worked to restore this place to health ever since. Nina loved to cultivate a garden spilling over with such good things as onions, green beans, potatoes, tomatoes, peppers, kale, blueberries, and raspberries, which she characteristically and generously shared with me, as she did always with her family and her neighbors. In August, her garden's production was in full swing and Nina's younger sister Estella happened to be there, too—an extra treat.

As I sat on the plane headed home to the East after my visit, I looked down at my fingernails. There was still soil under them. As I remembered back over my brief time, I smiled. In one day at Nina's I had needed to scrub them vigorously three times, watching the good browned-water flow down the drain. I started thinking more about that dirt under my fingernails. I thought about what I had learned from my time spent with Nina and Estella and from all that hand-washing. The traits of humility and intelligence toward nature that their father was calling for back in the 1930s, I realized, had a lot to do with gardening, land restoration, and wilderness—all of which were part of Nina's home-crafting life. Leopold understood that there was not such a distinct boundary between these aspects of whole land after all. They were all part of what he came to call "land health," which was what unfolded as the visionary goal of his land ethic. Nina joyfully and not frivolously took up the challenge of learning to live out the vision of land health. Her spirit of land health, which she practiced so gracefully on her real land, is one part of her love that remains in me and in the world, making it a better place.

Weeds The first time I scrubbed my hands at Nina's was after pulling some weeds and old lettuce plants that had gone to seed. "What is a weed?" Aldo Leopold asked in an ironic 1943 typescript essay by that title. "To live in harmony with plants is, or should be, the ideal of good agriculture," he wrote. To him this meant *not* calling every plant a weed that cannot be fed to livestock or people. But, to grow a garden to feed a family, one must somehow nurture edible, useful plants over seemingly useless ones, especially ones that tend to become



Eg Pemberton, St. Paul, Minn.

Nina Leopold Bradley and Estella Leopold with shovels, breaking ground for the Aldo Leopold Legacy Center, 2006.

pests. Figuring out which plants were weeds, though, was far from simple. Nature held a lot of surprises. Leopold pointed out, for example, that new research indicated that there were some plants that seemed like pests, like often hated ragweed, which, it was turning out, actually helped prepare the soil for high-quality, high-yield tobacco crops. How, then, could a person know for sure what was a helpful or desirable plant and what a useless or harmful one?

In places where nature's long-term processes and native self-organization are at liberty the question becomes largely moot. The wild exuberance of a variety of richly evolved species fighting and cooperating with each other for their spaces in the sun (and the shade), as Leopold came to view it, is one of land's values as a whole. One way Leopold came to define wilderness was as something that in its fullness could not be created or re-created by humans. Wildernesses of all types—of prairies, forests, deserts, and rivers and oceans, for example—over ages of time evolve groups of diverse species that form communities of interdependencies. These communities, Leopold came to articulate with increasing eloquence, keep nutrients cycling within them. From bedrock to soils, waters, plants, and animals, and atmosphere, and back around again, food energy flows through the land's "circulatory system" indefinitely. The net



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In terms of healthy land, then, Leopold pointed out: “No species is inherently a pest” (or a weed). But, “any species may become one,” particularly, he had learned, when humans thinking merely in the “iron-heel” categories of useful vs. useless disrupted ecological interconnections in historically unprecedented and violent ways. Native species like mule deer or elk could become pesky when wolves, and other “hated” native predators, were shot out, Leopold learned. Non-native species introduced intentionally or by mistake into human-disturbed landscapes—like cheat grass, which replaced native grasses in the overgrazed northwestern mountains, could also take over a place. Weeds then were not the real problem themselves but were symptoms of underlying land misuse resulting in land illness. Moreover, all native species, Leopold believed, have the moral right to share the land with people. No one has the right to eliminate them, in other words, “except when sustaining injury,” Leopold concluded. Turning this principle on its head, if we have caused the losses of a species in some place—lady slippers, wolves, owls, bats, or bison, for example—if possible, we have some obligation to restore them as part of the goal of promoting the health of the land as a whole. This is the only “cure” for weed problems, Leopold knew.

Nina thoughtfully chose to grow diverse crops, but most garden species have not co-evolved to work together building up the garden’s own diversity as does a native prairie, river, bog, forest, or

desert. To keep growing the nutritious foods she and her family and neighbors needed, she had to pull some plants likely to out-compete her vegetables and fruits. To help keep up her garden’s fertility, Nina added guano shipped from some distance to her soil. Are such gardens unhealthy places, then? It is a matter of degree and scale, as her father understood. A quarter acre turned into a carefully-tended garden set in a matrix of prairie covering many more acres does not diminish the health of the whole. Eschewing chemicals and gently pulling a few “weeds” by hand, as Nina did, is not the same thing as persecuting an entire species or group of species. If, on the other hand, much or all of the self-renewing community—as has been the case in many regions—were fragmented and turned up into more gardens and vast wheat fields treated with tons of chemicals, over-stocked grazing lands, or housing subdivisions with MiracleGro lawns, that land will show signs of illness. This is what happened to the over-wheated, worn-out landscape in which the Shack was embedded and what is now Nina’s garden,

effect is that over time a community builds up its own fertility faster than it loses it downhill due to gravity and running water and wind eroding it eventually to the bottom of the ocean where it must wait for another geological uplift to restore it to life’s use. Life continually creates the conditions for more life, which competes and cooperates for its places. The process of evolution by natural selection diversifies forms faster than old ones die out. Over many generations there is a net gain in biodiversity, which builds up fertility and so on. Meanwhile, all this growing life breathes and, exchanging gases, maintains an atmosphere that is also self-enhancing. Leopold in *A Sand County Almanac* understood this whole, wild, interdependent condition of self-renewing nature—in other words, this “slowly augmented revolving fund of life”—as healthy. Moreover, he argued that such healthy lands—lands expressing “integrity, stability, and beauty,”—are the only truly useful ones in the long run—to people and to all the other members of shared ecological communities.

before the Leopolds got there. It is what has been happening increasingly to landscapes across the country and globe.

Leopold and his family are well-known for their work in helping to restore fertility lost to plows, cows, winds, gravity, and flowing water to their whole landscape. This work has continued with Nina, her family, and the Aldo Leopold Foundation: planting trees, cutting trees, fighting back garlic mustard and reed canary grass that leave little room for native prairie plants, and gleaning from the few remaining nearby patch-sized prairie remnants hands-full of seeds such as coneflowers, blazing star, and big bluestem. They go on planting these species, hoping they will take root and become re-acquainted in their old places together, doing the best they can to bring back what neither they nor anyone else could ever originally create—helping the land help itself in rebuilding its own fertility and diversity. How much more sensible it would have been if a lot more of it had been kept intact in the first place. This is still possible in some places. There are, for example, lands still-waving with sego lily, elephant head, harebell, Indian paintbrush, and Rocky Mountain pussytoe. Furthermore, there is new long-term hope in a new kind of land-health agriculture inspired by Leopold. In the U.S., Wes Jackson of the Land Institute is learning how to grow gardens like native Midwestern prairies—full of diverse, productive perennials. Western ranches that mimic the native disturbance regime of moving bison herds become healthier, as Courtney White of the Quivira Coalition understands. In both cases, with only gentle human sway, lands may be both productive and capable of regulating their own diversity and building up their own fertility. Nina was as excited as can be about these developing prospects.

Seeds Nina always set her exquisitely round table with candles and, whenever possible, food from her garden. The second time I washed my hands on this particular visit was after harvesting potatoes for supper. I love this pre-candlelight hunt for buried treasure. You never can be quite sure what you’ll encounter down under the humus. Reaching into the cool, moist darkness underneath the shriveled leaves of the potato plant is entering into its coming death and returning to the light with a handful of life. Unless a seed (or a tuber, as the case may be) goes into the ground and dies, as Jesus speaks in the Biblical book of John, it remains only a single seed. But if it dies, it produces many seeds—many potatoes...onions, carrots, beans, and raspberries. This is a great mystery.

“That land yields a cultural harvest,” Leopold wrote in the foreword of *A Sand County Almanac*, “is a fact long known, but latterly often forgotten.” The land around us, in other words, shapes how we consider ourselves and our place on Earth. Helpfully, intimacy with land can encourage the very human qualities required for its own health—intelligence hand-in-hand with humility. Given time and space to observe and contemplate, we encounter in everything from vast swaths of forests to the grass in sidewalk cracks to the living darkness under the soil’s surface many things that we not only do not know, but probably cannot know, at least not in a scientific way or a strictly economic

one. Leopold came to use the word “wilderness” to encompass areas of all sizes and degrees of wholeness, each still containing at least some of its will-of-its-own and thus deserving protection. It was years of close attention to the vast intensively used wilderness of forest in the southwestern U.S. where Leopold had begun his forestry career, met his beloved Estella, and fathered Nina (and her three brothers) that helped raise what was to him a critical question for how human conduct shapes the land. Was the Earth made for man’s use? Leopold had asked in an unpublished 1923 essay titled “Conservation in the Southwest.” Or, perhaps Earth was made for other purposes than for man’s use—inscrutable ones or even none at all? In any case, for the sake of argument, Leopold reasoned, say that Earth is made solely for man—viewed as the highest life form—as so many people believed. What man was it for, then? The Pueblos? The Spaniards? United States citizens? Indeed, if Earth was made for a human race that was somehow superior to all other species then how would that superiority be manifest in human behavior?

In this, then, European-Americans had much to learn from indigenous people who had earlier inhabited North America. The earliest European travelers in the Southwest described the mountain rivers as clear. Barely anyone alive by Leopold’s arrival there, however, could remember such conditions, having grown used to cloudy, troutless rivers with soil-less, moss-less banks. Indeed so had Leopold himself. In 1935, however, he came to understand what he had been missing when he visited over the



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border in Mexico’s Sierra Madre of Chihuahua along the Rio Gavilan. There in stark contrast to the U.S. side, the landscape had not been over-grazed or otherwise worked by “machinemen.” As a result, this river was the most robustly healthy one he had ever seen. It had, he reported, a physical song of waters on rock, root, and rapid that anyone with hearing can hear. The Gavilan also had a song that was by no means audible to all, explained Leopold in the essay “Song of the Gavilan.” To hear even a few notes of this other music bespeaking eons of the still-evolving community life, he wrote, “you must first live here for

a long time, and you must know the speech of hills and rivers.”

“There were once men capable of inhabiting a river without disrupting the harmony of its life,” Leopold wrote. The Rio Gavilan had been inhabited by ancient people. These people, too, had been gardeners it appeared. Leopold tried to read the secrets written by them in this old landscape. As he explored the area he came across hundreds of small, centuries-old, loose-masonry check dams that looked a bit like little rock terraces ascending a canyon draw. Behind each dam was a little plot of soil, which, he imagined, caught rainwater coming down the steep adjoining slopes. With this natural irrigation, former inhabitants of this landscape evidently had been able to grow food. Perhaps ancient farmers had stood guard over their plots and grew a range of corn, squash, beans, peppers, potatoes, and tobacco. Leopold believed, however, that the most likely crop capable of withstanding native wildlife depredations would be potatoes. In any case, all indications were that the ancient people had managed to garden in harmony with the whole land community, keeping land health intact.

Here on each side of the Southwestern U.S.-Mexico border were views of two different responses to Leopold’s earlier question. If the human race were superior to other species, Leopold had asked with irony, how would that “nobility” be manifest? “By a society decently respectful of its own and all other life, capable of inhabiting the earth without defiling it?”



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he suggested. Or would it be “by a society like that of John Burroughs’ potato bug, which exterminated the potato, and thereby exterminated itself?” How, then, can people today live and prosper everywhere without defiling the Earth? Not only vast spaces, but wildernesses of all sizes and degrees give us fresh chances to respond to this question with humility and intelligence. Nina was situated on a relatively few acres within a greater landscape already severely altered yet still containing

the mysterious promise of growing seeds. Her lifelong work unfolded as a vibrant example of learning “the oldest task in human history,” as her father put it. This task was “how to live on a piece of land without spoiling it.” Nina listened for her land’s harmonious song beyond the discordance of its abuse. She desired to be shaped by the will of the land, successfully wrestling with how to grow potatoes and restore wild prairie at once promoting the native health of the whole land community.

Shovels The third time I washed my hands at Nina’s house was after Estella taught me how to clean soil and a touch of rust off the surface of shovels and to file them to a good edge. While Nina worked on dinner, Estella and I lined up three of Nina’s good shovels along the workbench. I watched Estella and then she handed me the file, telling me to really lean into it. “I only know,” her father wrote in his essay “Pines above the Snow,” “that a good file, vigorously wielded, makes my shovel sing as it slices the mellow loam. I am told there is music in the sharp plane, the sharp chisel, and the sharp scalpel, but I hear it best in my shovel; it hums in my wrists as I plant a pine.” With axes and shovels, a conservationist is one who knows that with every move he is writing his “signature” on the land, Leopold said. All people, he explained, by what they think about and wish for in effect wield all tools or determine whether it is worth wielding any.

Leopold understood the power of human minds and the land-altering work their hands could do aided by their inventions. Modern civilization itself, he knew, was a product “hammered” out of land with technology. He also understood that the way people had ordered this civilization was linked with what they valued and expected of the world. Leopold by no means was against all tools and machines, including cars, or all roads, all so-called progress and modern civilization. He, after all, liked to hear his own shovel sing. “Like winds and sunsets,” Leopold wrote in the “Foreword” of *A Sand County Almanac*, “wild things were taken for granted until progress began to do away with them....These wild things, I admit, had little human value until mechanization assured us of a good breakfast, and until science disclosed the drama of where they come from and how they live. The whole conflict thus boils down to a question of degree.” What then should limit our use of power? What should guide how and how far we re-shape the land? In the final lines of his now-famous essay “The Land Ethic,” Leopold answers with a challenge: “By and large, our present problem is one of attitudes and implements. We are remodeling the Alhambra with a steam-shovel, and we are proud of our yardage. We shall hardly relinquish the shovel, which after all has many good points, but we are in need of gentler and more objective criteria for its successful use.”

Land health was the vision that Leopold’s suggested as the much-needed “gentler and more objective criteria” to guide how people should wield their tools. And it was, ultimately, Earth’s ages-old, co-evolved, wild communities—wildernesses of the wildest sorts—that Leopold understood as places to start with in defining what should be expected of land. This was the



Nina Leopold planting a pine, circa 1938

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proper attitude. Earth’s unique, long-evolved, life-building communities, whatever was left of them, should be studied carefully in order to better understand their trends. People should then figure out accordingly how to tend gardens and develop civilization in harmony with the “capacity of the land for self-renewal.” Learning what tools were needed and how to use them well would naturally follow from what people valued and understood. Nina worked, well-sharpened shovel-in-hand, toward the goal of integrating wilderness, gardening, and land restoration into one landscape that would be whole and healthy.

How may a person develop this kind of vision? As Leopold came to learn and pass on to his children and so many others, perception is both a treasure of the human mind and the key to unlocking the creative, land-ethical attitudes that point us in this direction. Land perception may grow not only with study, but perhaps even better with play. Indeed these may become two words for the same thing. In the evening of my hand-washing visit at Nina’s, the supper dishes cleaned and put away, out came the backgammon board. “Which one of you five Leopold kids was most competitive,” I asked, as Nina and Estella set up the pieces so that I could watch the first game and learn as they played. “We all were,” Estella answered with a keen smile as she rolled the dice. Indeed, the Leopolds know well how to play.

Nina, for example, swam bare in her pond and cross-country skied into her 90s. There was also the phenology, which Nina so loved and kept up, and bird-banding at the Shack—examples of the “sport” of “wildlife research,” in her father’s words. Think of following skunk tracks in the snow; watching cranes gathering on the river, which paints its own shores; sky-dances of the woodcocks in the spring; and the “drama in every bush.” Think of the wind—which Nina loved so well, if not longingly—“that makes music in November corn,” before it departs with the geese.

For land health, modern adults need to work better at good play and to help our children do so even more so. Nina’s garden, her pond, and her house became open space for her young grandchildren to play—and she welcomed the older ones among us to join in too. The unknown places of well-inhabited landscapes—as wide as acres of prairie or as small as the inches of soil surrounding a hidden potato—are critical not only to our physical and spiritual senses, but also to releasing our intellectual, curious, inventive, and eventually grown-up selves. We need “Unknown Places” on our maps, Leopold recognized, times and places we have not planned out or pre-conceived. We need spaces for adventures that allow unsupervised time for practicing adulthood. We need, that is, opportunities to practice on a lesser, perhaps low-stakes scale privation, courage, constant vigilance, and, yes, even sometimes calamity. “We all strive for safety, prosperity, comfort, long life, and dullness,” Leopold wrote in “Thinking Like a Mountain.” But, he continued, “too much safety seems to yield only danger in the long run...Perhaps this is the hidden meaning in the howl of the wolf.” The requirements of land health, in other words, are the same ones that have the



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Restored prairies at the Aldo Leopold Legacy Center in Baraboo continue the Leopold tradition of land restoration today.

potential to help teach us to be mature.

Maturity means respecting limits in the interests of all. Leopold described an ethic ecologically as “a limitation on freedom of action in the struggle for existence.” Philosophically, it defined right social conduct. “A thing is right,” he wrote, summarizing his expression of a land ethic, “when it tends to preserve the integrity, stability, and beauty of the biotic community.” But maturity is also, as contemporary climate change activist and author Bill McKibben writes, “what makes hope possible.” By this, McKibben means, as did Leopold, that we must responsibly face reality as we reach for a better world. It may be said that we now live in the “Age of Humans”—the “Anthropocene.” The globe has already been gravely altered by our species’ activities. The stakes of how we orient our attitudes and implements are sky high. The present and future are full of uncertainty, demanding us to figure out how to adapt quickly and justly to change we have ourselves set in motion. Ironically, as a result of believing that humanity could be in control of nature, we are seeing more clearly now how out-of-control we actually are. Hope rooted in fraudulent faith makes satisfying desire impossible.

Leopold honestly doubted that a land ethic would evolve fast enough to stave off the land-damaging industrial mentality with so many of today’s consequences that will ripple thousands of years into the future—“that the situation is hopeless should not prevent us from doing our best,” though, he wrote in 1946 to his friend Bill Vogt. That the situation is hopeless, in other words, does not necessarily leave us bereft of hope. Nina was angry at the “situation,” which she lived to understand even more fully than her father had. Because her anger was rooted in love for the land community, though, full of gracefulness—that quality that so defined her—she was able to turn her vehemence into working hope. She might root out some more reed canary grass, for example. She might take a walk pausing to delight in a successful native compass plant that she had helped thrive there, now sending down a deeper root, showing us all how to bend our heads toward the sun. She might refresh herself in the evening

with a glass of white wine, a crackling fire, and a good book.

Moreover, her father’s land ethic, which Nina helped flesh out, does not only put a “limitation on freedom of action.” Ironically, the land ethic also makes liberty, which is inseparable from healthy land, possible. It does so as it protectively encompasses the exuberant creativity out of which our own species evolved. This is the faith-worthy creativity upon which the hope of all life to flourish continually depends. Within the generous margins of Leopold’s land ethic, too, as I thought about things after my recent visit to Nina’s, we may see how where highly developed cooperation reigns weeds belong, seeds humble us with mysteries, and sharp shovels sing in concert with the whole land community. The heart of such a beautiful community is the source of abundant opportunity for fresh imagination. Healthy places, that is, require and inspire dynamic innovation in implements, dwelling places, industries, economies, artworks, and relationships of all sorts. Indeed, learning how to express a positive land ethic, as Leopold understood, is a job that will never be finished, but must constantly evolve within the land—with intimate knowledge of its unique local communities and of what adds up to health for the planet as a whole. This is the vision toward which Nina’s life invited all of us to work. And as we do, her spirit passes on. It certainly is not forgotten. Moreover, it is not lost. “In the marsh,” as Nina loved to read in *A Sand County Almanac*, “long windy waves surge across the grassy sloughs, beat against the far willows. A tree tries to argue, bare limbs waving, but there is no detaining the wind.” ■



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