

Islands of Time

Paul Gruchow (1947–2004)

By Christian Knoeller

*This is the essence of wilderness;
that is what we must not forget:
how brief life is, how unexpected,
how little of it we glimpse, how rapidly it changes.*

—Paul Gruchow, *Boundary Waters*

Only grass is eternal.... I would be converted to a religion of grass.

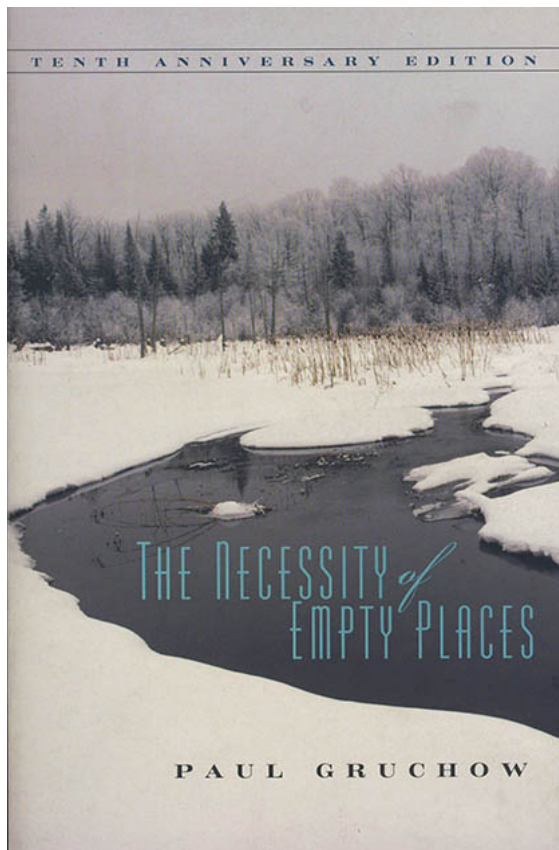
—Louise Erdrich, “Big Grass”

Paul Gruchow’s contribution as a literary naturalist lies at the confluence of ecology and memory, nature and culture. While the influence of Henry David Thoreau is pervasive, Gruchow’s reverence toward the natural world and the sheer lyricism of his writing can be likened to John Muir’s. He was also inspired by twentieth-century essayists such as Loren Eiseley, Rachel Carson, and E. O. Wilson, whom he credits with having bridged the humanities and sciences by synthesizing diverse disciplines.¹ Believing that the finest essays of this kind are inevitably personal and reflective, he most admired those writers informed by the scientific literature who nonetheless “democratized” the genre by addressing a wide, general audience—much as he himself sought to do. His work also follows in the tradition of American writing that explores natural history in relation to several dimensions of *time*—whether diurnal, seasonal, geological, or evolutionary. His convictions as a conservationist were ultimately grounded in an appreciation for ecological memory encompassing deep time as well as recent environmental history. By the end of his career, in fact, he had begun to articulate a more nuanced and intricate appreciation than had been advanced by previous generations of pioneering ecologists for the complex interdependencies governing succession through the coevolution of species. Above all, he believed that we must begin to stem the tide of extinction for *moral* as well as ecological reasons.

Thoreau was clearly a touchstone for Gruchow, who in his own journals reflected on the depth of this connection and expressed a profound affinity on several levels. First, there were similarities to their temperaments as fellow wanderers, prone to solitude and introspection. In fact, he regarded *Walden* as the finest book of *travel* literature an American has ever written.² Moreover, he relished one of its central concerns: what has been lost as our daily relationship to nature has

waned—and how it might be reclaimed. Moreover, both deplored conformity and were fiercely independent. He recognized that his approach to the essay in many respects resembled Thoreau's rhetorically. Perhaps there was an element of emulation, as he would occasionally copy out passages from Thoreau's journals into his own. Above all, he sensed a spiritual kinship: "We believe, against the fashion," he declared in his journals, "in the divine content of nature . . . in the importance of being attached irrevocably to place...in the ultimate authority of truth to oneself."³ Acknowledging parallels with English and German Romanticism, he shared Thoreau's penchant for contemplating philosophical and spiritual questions grounded in close observation of the natural world.

Gruchow's conception of wilderness was complex and vexing—he anticipated debates about human stewardship and management that rage to the present day. For example, while visiting Isle Royale in Lake Superior off shore of Copper Harbor at the northeastern extreme of Keweenaw Pen- insula on Michigan's Upper Peninsula, he considered the role ecologists play in maintaining the native species there, particularly populations of moose and wolves. Determining appropriate conservation measures on the island had been complicated by the arrival of wolves migrating across lake ice in winter; the dwindling genetic diversity of such a small, isolated population; and severe overgrazing whenever the moose population spikes. Gruchow distilled the ecological and ethical issues at stake into three questions: "Are our wilderness preserves



museums or are they laboratories? How much should they be managed and to what end? Where should the line be drawn between benign neglect and the failure of stewardship?"⁴ These in turn raise the more nuanced issues of degree, strategy, and ethical reckoning. Just when and how, he wondered, should we attempt to steer natural systems toward some idealized or preexisting state? Moreover, what purposes are to be served by protecting significant tracts of land where ecological integrity remains largely intact? He acknowledged the conventional aim of preserving biological resources that might fulfill utilitarian ends, such as a repository of botanical sources for formulating medicines. He deemed such rationales self-evident. In the long run, species diversity might also provide an ecological safety net, a library of genetic information to develop new crops, or to fortify existing ones. Moreover, he already sensed by the 1980s that the ecological consequences of human alterations to the planet were approaching the absolute. "Preservation of the

biosphere in all its present richness and diversity is not merely expedient," he declared at a meeting of environmentalists in 1988, but "essential to the very survival of life itself."⁵

Gruchow understood that the conventional thinking of ecologists and wildlife biologists at the middle of the twentieth century had begun a subtle but fundamental shift away from models based on succession toward a presumably static climax community. The new thinking, which he fully embraced, posited ecological change as a constant process. Above all, he grasped that preservation was being redefined in bold new ways. In “The Kingdom of Grass,” an unpublished manuscript completed in 1995, he offered his most compelling synthesis of new directions in conservation emerging at that time. E. O. Wilson’s theory of island biogeography had recently been applied in other geographic contexts, and Gruchow knew that historically indigenous species were unlikely to survive let alone thrive on undersized and isolated parcels. For that reason, he advocated a system of preserves linked in strategic ways, such as establishing corridors for migration, which has since become a common conservation practice. Moreover, echoing bio-regionalists like Gary Snyder, he argued that, ideally, entire watersheds must be protected. Much like iconic figures advocating restoration, from Gene Stratton-Porter to Wendell Berry, he maintained that “a very poor remnant of prairie—one that has been used as pasture for many years but never plowed, for example—can sometimes be nursed back to health.”⁶ And like Aldo Leopold, he urged rural landholders to reintroduce native plants essential for regenerating habitat.⁷ He believed that natural history, beyond addressing the workings of biological processes per se, must attend to cultural significance—a much more inclusive view, one that complements ecological knowledge with the emotional, ethical, and spiritual dimensions of our relationship to the rest of life on earth. Indeed, he believed that “natural history inevitably includes a sense of oneself in relation to what is observed.”⁸ Such synthesis matters, he realized, “because we share with it a common past, and because, once we become aware of that commonality, we know in a deeper and truer way who we are.”⁹

Like preceding midwestern naturalists, Gruchow studied the landscape for evidence of change and recognized the cumulative impact of the ongoing expansion of cropland. He understood how the erasure of the grasslands and wetland ecosystems in the Upper Midwest had profound environmental consequences: “As we have drained the swamps and marshes, leveled the forests, farmed the prairies, and diverted the waters of the western rivers for the greening of the deserts, we have done something more pervasive than simply destroying a multitude of local habitats. . . . We undermined the framework for biological diversity.”¹⁰ And he was alarmed by the extent of this transformation: “Only about one-tenth of one percent of the native tallgrass prairie that covered the central United States at the time of white settlement remains.”¹¹ His prognosis for the biome as a whole was severe: “So much of the original prairie has been destroyed that even were we to preserve every remaining remnant, we still might not be able to save many prairie species.”¹² The toll on wildlife of the region had undeniably been extreme, yet during his youth the region’s verdant landscapes left an indelible mark on his imagination, and instilled a lifelong dedication to contesting relentless development that diminished their ecological integrity. “The prairie itself, as an ecosystem, is dead too,” he declared, since “most of its wetlands have been drained, and many of its rarest species have become extinct. There are only a few places left in the United States where you can see the prairies as they looked even a hundred years ago. The lessons that the prairies might teach us,” he lamented, “are almost lost.”¹³

In *Worlds Within a World*, Gruchow's depiction of the Ripley Esker reserve, one of a dozen designated ecological preserves in Minnesota, suggests several centuries of landscape change still unfolding: "I saw the remnant bur oak savanna, a prairie landscape, and beyond it an old field reverting to savanna," with the use of controlled burns to favor native species.¹⁴ This capsule narrative of environmental history encompasses three distinct phases: native grasslands altered by settlement and cultivation, reversion to a feral state once farmsteads had been abandoned, followed by subsequent management and regeneration. This progression parallels patterns of environmental history in other regions such as New England, as chronicled by William Cronon and Tom Wessels. While a scarcity of trees on the plains may have delayed development by white pioneers for generations, eventually successful settlers embraced technologies that would lay bare its rich soils for conversion to cropland. Inventions such as windmills and barbed wire in the 1870s, however, soon encouraged overgrazing across vast tracts of the prairie, much as the steel plow had begun the era of sod busting a generation earlier. Taken together, Gruchow declares, "in scarcely fifty years, the American grasslands had vanished and a way of life that had prevailed on the landscape for tens of thousands of years was at an end."¹⁵ What remained on the once expansive prairie was a veritable desert of cornfields, vast tracts of monocultural croplands plowed "to its last square inch."

As Scott Russell Sanders concludes, "By the mid-twentieth century, when Paul Gruchow was growing up in southwestern Minnesota, the tallgrass prairie, had become little more than a memory. All but a few remnants of these millions of acres had been plowed...vast herds and flocks had dwindled or entirely disappeared"; nonetheless, "the natural forces that had created the tallgrass prairie were still in play."¹⁶ Like other naturalists in the Midwest including Aldo Leopold and Paul Errington, Gruchow advocated preserving representative examples of a variety of naturally occurring ecosystems for posterity. He contemplated the fate of remaining fragments of wetlands on the grasslands and understood that by functioning as refugia, such wilderness preserves comprise biological islands in time. Places like Cayler Prairie in northwestern Iowa seemed emblematic to him of midwestern environmental history: a microcosm of the once vast tracts of grassland biome that have been plowed and planted with a handful of crops, predominantly corn. He realized that such a preserve represents an ecological oasis, since so much of the surrounding landscape had been converted to cropland: an "unusually large prairie remnant for cornbelt country, 160 acres...tallgrass prairie landscape as it might have been a couple of centuries ago."¹⁷

A generation earlier, the region had become a crucible for early ecological thought in the wake of agricultural practices that had profoundly altered the tallgrass prairie. Raised on a small farm in the Upper Midwest, Gruchow grew up on the frontline of upheaval sweeping the region as agribusiness displaced millions of families—including his own—twentieth-century farmers who tended a variety of traditional crops and livestock on relatively modest plots, a model of self-sufficiency rooted in the Jeffersonian tradition.¹⁸ His grandparents, who farmed as homesteaders, knew the region's hardships well, having buried their first eight children there.¹⁹ He described his own family's subsistence lifestyle in the 1950s on a seven-acre truck farm. Following the seasonal round of the almanac, they tended poultry for meat and eggs, goats for milk, hives for

honey, and wheat for our, as well as a cornucopia of vegetables for the table, supplementing their diet with wild game. By diversifying crops and livestock, he explained, they were bucking the tide of monocultural operations overtaking the landscape: “big open fields of corn and soybeans stretching to the horizon.”²⁰ Many such family farms, historically the mainstay of rural communities throughout the region, became increasingly less viable financially, marginalized in the new economy.

As a child he witnessed the advent of modern, large-scale farming methods at a time when the social and environmental consequences of this new agriculture were only beginning to be understood. He was born the very year that “the first miracle chemical of industrial agriculture was introduced” in 1947—a moment when the rhetoric of progress and efficiency was widely marshaled to justify a fundamental reorientation of American agricultural practices.²¹ At the industrial model, he argued, has largely eclipsed the deep and meaningful appreciation of nature gained by the direct personal engagement entailed in tilling and harvest. He lamented both the human and ecological costs: “In the decade of my coming of age, millions of farm dwellers left the land.... If you grew up on a farm in the last fifty years, as I did...you would have noticed the diminishing song-birds, the disappearing butterflies, the vanishing potholes, the uprooted fencerows, the balding hilltops.”²²

Returning years later to the site of his family’s farm in Rosewood Township, he reported that fencerows that had once provided forage and shelter for a host of small mammals and migratory songbirds were no longer to be found. Even the marsh was gone, with alarming consequences for the very wildlife that had inspired his interest in natural history: “The waterfowl are gone, the raptors are gone, the burrowing animals are gone, the predators and herbivores are gone.”²³ And once gone, he realized, such thriving wild communities are all too soon forgotten: “The heritage has so thoroughly vanished, in fact, that it no longer survives even in memory.”²⁴ The great herbivores have long since disappeared, along with “all that once was and might still have been,...the prairie chickens that no longer boom,...the pelicans that roost elsewhere,...the wolves that have ceased to howl in the night,...the elk and pronghorns that have vanished into the west.”²⁵ With the antelope, elk, and bison gone, what remained, he concluded, was indeed “a pale ghost of the world that once existed in this place.”²⁶ Moreover, he questioned the premises of agricultural practices that completely displaced wildlife, particularly how the region’s pothole lakes had been drained by the tens of thousands; these were wetlands that had provided breeding grounds for flocks of waterfowl numbering in the millions. Populations of game birds such as grouse plummeted as their native habitats vanished. Species previously subjected to overhunting or eradication as pests were among the most vulnerable locally, while some were in danger of outright extinction. His accounts of lost abundance resemble those of Errington, who had chronicled similar declines in wildlife population in Iowa and the Dakotas a generation earlier. Indeed, the narratives of environmental history by the region’s pioneering ecologists are a repository of cultural memory, chronicling landscape change as well as reflecting our shifting relationship to nature over time.

Gruchow viewed such trends as both ecologically “brittle” and socially destabilizing, causing

“the impoverishment that befell every aspect of rural culture with the industrialization of farming”; agribusiness was “the death of the culture of agriculture.”²⁷ Native ecosystems were often greatly compromised, with many uprooted or undermined entirely. Much of the surface water essential to indigenous flora and fauna had been drained away, and half the fertile topsoil was lost to erosion in a single century, leading him to lament that “the richest and most representative prairies—those on level black-loam soils that yielded the richest agricultural region on earth—have all but disappeared.”²⁸ This momentous transformation of the landscape precipitated a decline of rural communities throughout the region. “We have, over the past half century,” he concluded, “driven all but a handful of our farmers from the land, at an enormous cost to soil, water, fuel, and biological diversity.”²⁹ Moreover, he recognized that agricultural practices predicated on increasing dependence on petrochemicals and mechanization were unsustainable environmentally. While conversion to cropland may have proceeded incrementally, the cumulative impact has been monumental ecologically, especially on the diversity of native species: “We have steadily labored at turning one of the most fertile places on earth into a desert,” he asserted, adding that lest we mistake such a claim for hyperbole, “a square mile of conventionally cropped corn is biologically poorer than a square mile of arctic tundra.”³⁰

A litany of species had been lost: “The prairie world is now crisscrossed by a labyrinth of tiles and drainage ditches.... With the disappearing ponds have vanished, many of the waterfowl, many of the insects, many of the predators.”³¹ Recounting an excursion to Otter Creek with friends one Christmas, he recalled how developers in the nineteenth century had drained the marshes by channelizing waterways with steam-powered dredges, leaving a “naked ditch” devoid of wildlife to this day and making its name a cruel irony: “nowhere any sign of life or habitation, no bird overhead, no nest or burrow underfoot, no track in the mud, nothing to give credence to the name Otter Creek.... A romantic reference to time past.”³² As he offered a brief prayer of repentance, the naturalist in him held out hope for redemption: restoration through the biological imperative of ecological memory, with its potential for regeneration of historically indigenous species.

Gruchow’s narratives of environmental history take on an elegiac tone when he contemplates the mounting ecological costs. Well aware of the extent of what had already been lost, he championed the preservation of the native ecosystems that remained and advocated that rural students become acquainted with “the ecological and geological history of the place.”³³ A single site such as Minnesota’s Blue Mounds, for example, can provide habitat for thousands of species, including at least 220 birds and 30 mammals, as well as a smattering of reptiles and amphibians such as snakes, turtles, and salamanders, giving us a glimpse today of the historical biodiversity of the region. As ecocritic Kendra Smith observes, “Paul Gruchow contend[s] that knowing one’s place also engenders a sense of belonging and responsibility because it enables a person to understand one’s dependence on the natural landscape and on other members of shared communities . . . [and] as people have fewer opportunities to directly observe nature and to engage with one another, they know less and less about the natural and cultural history of the places they live.”³⁴ In his journals, he lamented that traditional bonds to place stretching back

across so many generations had been largely severed in transitory modern societies.

As a boy, Gruchow had been enraptured by unsettled places he perceived to be wild, and for a time he even fancied becoming a backcountry trapper, much as Errington had done, romanticizing the rugged, primitive lifestyles glorified by adventure and sporting literature. He imagined mastery of traditional woodcrafts, including trapping, as a way of engaging the wildlife at an elemental level. To hunt or trap successfully, he discovered, necessitates acquiring an intimate acquaintance with animal behavior as well as learning to read the ecological intricacies of a landscape. Reflecting on such childhood experiences later, he realized that pursuits that are likely to strike us as anachronistic today such as trapping had commonly been practiced by rural youth throughout the Upper Midwest well into the twentieth century. He believed the underlying impulse to be an archetypal one, still widely shared: “to undertake shooting or trapping as a rite of passage . . . an uncanny act of cultural recapitulation: the age at which boys become trappers is precisely the age at which, in pre-agricultural societies, boys left behind childish pursuits to take up the adult labor of hunting.”³⁵

“I was after a share of wildness in the creatures I was pursuing,” he wrote. “I wanted to be able to read the landscape...to assume its language.... I yearned for that leap of imagination that would send me off into the unimaginable wildness.”³⁶ His abiding fascination with the natural world, he realized, had been catalyzed by those youthful adventures in the outdoors, echoing a refrain commonly found in memoirs by field biologists of the time. Formative childhood experiences, he points out in “The Meaning of Natural History,” represent a “convergence” in the biographies “of most important naturalists in American literature.”³⁷ Moreover, such early experiences a field can inculcate a heightened empathy and lifelong appreciation for wildlife and, as others from Thoreau to Errington have observed, engender a sense of environmental ethics. He believed that what had begun as a youthful lust for hunting could mature, as it had for him, into reverence and a sense of responsibility.

Throughout his life, Gruchow retained a capacity for wonder afield and a keen desire to engage the natural world in direct and primal ways. He described the calling of literary naturalists in precisely this light: “They are all, to the last one, celebrants of nature.”³⁸ In his second book, *Grass Roots*, he recounted early encounters with open land neighboring his family’s pastures, a landscape he characterized as “remnant virgin prairie.”³⁹ The place that initially captivated him there was actually a bog—his first glimpse of the ancient wetland ecosystems of the tall grass prairie—verdant and teeming with life. A cattail marsh in particular inspired profound reverence. He recognized the staggering concentration of life in such places and intuitively grasped that even smaller pothole lakes were wellsprings of species biodiversity. Moreover, he relished their antiquity—having “existed for thousands of years, a surviving testament to the tallgrass prairie” with its miles of roots and unseen rivers underground.⁴⁰ Astonished by sheer biological abundance, he marveled how such ecosystems centered on surface water supported “as rich a diversity of life as anywhere on the prairies.”⁴¹

Frogs, snakes, and insects numbering in the thousands of species; and so came the skunks and weasels, the minks and foxes, the raccoons, the mice and shrews, and on the uplands the

burrowing animals, the ground squirrels and badgers, and pocket gophers; and in pursuit of them came the wolves and coyotes, the raptors, the hawks and owls; and in the tall grasses around them grazed the great herbivores, the bison, elk, and antelope...and the water lasted from year to year, attracting muskrats, and turtles, clams and cray shes.⁴²

This litany of species once native to Minnesota is reminiscent of Errington's accounts of the abundance a generation earlier in the Dakotas at the time of settlement, when extensive wetlands still provided habitat for a wide variety of native wildlife to thrive. Gruchow recounted how the prairie biome had historically been anchored by nearly one hundred varieties of grasses, each species a marvel unto itself: "the big bluestem, taller than a man, and, in September, the color of ne wine; the needle sharp grasses with their twisted seed pods, sharp as pins, that wind themselves into the earth like corkscrews; the bearded plumes of the Canada wild rye; the feathery spires of the Indian grass; the little tuft s of blue grama grass with owers."⁴³ To his eyes, the profusion of hundreds upon hundreds of types of wildflowers elevated the grasslands to a veritable garden, from the first phlox of spring to the profusion of plants blooming in autumn. Beneath them a labyrinth of roots held the fertile soil against the erosive forces of wind and water. He treated such themes lyrically in poems, such as when describing bluestem in "Reasons for Living 9":

its flowers and blades conspiring
to conceal the hundreds of miles
of vital roots in fertile darkness.
A prairie...is
like a forest whose canopy grows,
underground.⁴⁴

Not until the catastrophic drought that triggered the Dust Bowl would the profound ecological significance of prairie sod be fully understood.

Beneath this protective turf, a host of smaller mammals burrowed, including pocket gophers and ground squirrels, badgers and prairie dogs. Yet the abundance and diversity of such diminutive creatures, he realized, is all too easily overlooked. Bird species were particularly numerous, including over one hundred kinds of songbirds, as well as raptors, owls, and millions upon millions of migratory waterfowl. Moreover, countless pothole lakes were once populated by multitudes of amphibians, particularly frogs, as well as reptiles such as turtles and snakes. In the long run, he reckoned, ecological complexity ensured vitality: prairies composed of an enduring mosaic of thousands of separate species that had coevolved over millennia. Indeed, like Leopold, he saw such biodiversity as evidence of ecological integrity and a measure of its resilience. "One of the principles upon which the prairie was made," he wrote, was "the principle of diversity. It is in an alliance of differences that the prairie finds its vigor; it fashioned its resilience and stability."⁴⁵

By contrast, monocultural cultivation, he understood, is ultimately unsustainable—even precarious—due to its dependence on a handful of plants. In "Corn Is Not Eternal," he described

how only a century or so before, many Native American peoples had come to rely heavily on the buffalo that then numbered some sixty million in North America. “We have made upon Indian lands and in place of the prairies a new kind of grassland based upon corn rather than upon big bluestem or buffalo grass,” he warned, “and that culture depends on corn as completely as the Lakota depended upon the buffalo.”⁴⁶ Similarly, during the twentieth century, he reasoned, coming to rely increasingly on a single crop such as corn as the basis for so many processed foods was to court disaster, since “it would take exactly one persistent pathogen to devastate our culture as we know it,” not unlike the Plains Indian cultures undermined by the precipitous decline of the bison.⁴⁷

Who could have imagined how vulnerable the once seemingly inexhaustible herds would become—or how suddenly they would nearly disappear? Gruchow lamented how the species had long since been eradicated across much of the continent: “It has been a century since buffalo wandered freely in that country, but their ghosts linger in the grass,” as well as in our memory and imagination.⁴⁸ At moments that memory seemed palpable to him: A haunting passage in the closing chapter of *Grass Roots* describes listening in the dark to the howls of dogs on farms in the distance: “I could hear in their voices the ancient cries of gray wolves in the days when great herds of bison roamed the plains and moonlight dances in the endless waves of grass. I could feel then the wilderness in my own bones.”⁴⁹ When a member of his party unearthed a buffalo skull from an embankment while visiting a stretch of the Oregon Trail in Nebraska, he described the impressive visage of this creature with its “wickedly pointed horns, the breadth of its hairy brow, the wide spacing of its enormous black eyes.” “A buffalo” he concluded, “looks ancient.”⁵⁰ Later, observing a remnant herd preserved at Minnesota’s Blue Mounds grazing the pasture in a fenced enclosure, he was again reminded of the region’s environmental legacy in deep time. “These survivors,” he declared, “are the ghosts of the lost world of the prairie.”⁵¹

Gruchow’s first book offers a comprehensive account of the cultural significance of the buffalo to those Native Americans for whom they were the very staff of life; he exhaustively catalogs their uses for its hides and horns, sinew and hooves, organs and bones. Indispensable, their continued abundance had long been a cultural article of faith: “For thousands of years it seemed as if there could be no end to the bison. The Plains Indians believed they were eternal.”⁵² Yet their eradication was unmercifully swift: “the last of the southern herds of bison expired” in 1874, he reports, following a three-year campaign that had slaughtered over four million animals, turning the prairie into a bone yard. Farther north, “farmers settling in Nebraska and Kansas in the 1870s sometimes found it necessary to pick the bones from their claims before the land was fit to plow.”⁵³

Gruchow sympathized with the plight of the Plains Indian, deprived of game that had sustained an entire way of life, particularly following introduction by Europeans of horses in the Americas. For once the great herds had been extirpated, such traditional lifeways would become untenable. “As the buffalo died,” he explains, “so died whole nations and cultures on the Great Plains,” as prophesized by the Pawnee who believed “that the father of all buffalo lived in the north at the junction of heaven and earth and that every year he shed a little hair. When the last hair had been

shed, they said, life would end.”⁵⁴

Yet what fascinated Gruchow most was the complex role of this formidable animal in Plains Indian life; besides providing sustenance and the makings of material culture, it had taken on great symbolic and mythological significance. In his journals, Gruchow began to conceptualize plans for an ambitious book about the American bison—one he did not live to complete—coupling natural and cultural history that spanned the centuries from first European contact to the tragedy at Wounded Knee. He hoped that such a study could ultimately encompass indigenous cosmologies based on the spiritual dimensions of a sacred relationship to nature.⁵⁵

Indeed, the Mandan, as well as many other Native Americans reliant on the bison, he recognized, forged one of the closest relationships between human beings and a single animal the world has ever known—one encompassing religion.⁵⁶ He described how Black Elk had witnessed their disappearance, which inspired the Lakota holy man’s vision of a cultural renewal. In fact, he observed, the Ghost Dance religion was predicated on the reappearance of the vanquished herds from the underworld. Sun Dance ceremonies similarly sought to ensure their enduring strength and return year after year. Such rituals were an expression of reverence and gratitude that maintained a sacred balance between a people and the creatures on which their survival depended. Yet such heavy dependence on a single species, he recognized, left Plains tribes vulnerable.

Like other literary naturalists before him and since, Gruchow contemplated the complex cultural legacy of the Americas. He challenged conventional stereotypes that posited Indian identity in essentialized ways, such as monolithic depictions of nomadic buffalo hunters of the Plains, stressing instead the linguistic and cultural diversity to be found historically among hundreds of tribes across the continent. He pointed out how the Mandan practiced an elaborate array of subsistence activities, supplementing wild edibles and cultivated crops with seasonal rounds of fishing and hunting—above all, buffalo. Understanding how a number of Native American nations engaged in shaping the grasslands by regularly burning it to create habitat attractive to game, he characterized Plains Indians as “agents” of fire, and observed how burning had also been employed historically in southeastern Minnesota at Mound Prairie.⁵⁷ Like naturally occurring conflagrations, he realized, these blazes played an essential role in the dynamic equilibrium of the prairie biome.⁵⁸ He grasped how such subsistence practices are tethered to seasonal cycles and so connected to specific places—and understood as well the potential for religious expression of such a relationship.

These reflections were often occasioned by traveling to places where Native Americans had left major traces on the landscape. Like Scott Russell Sanders and Elizabeth Dodd, who have also pondered the Ojibwe pictographs painted on islands in Minnesota’s Boundary Waters, Gruchow sensed how such ancient art can stir our imaginations today in powerful ways. Some of these figures are thought to have survived up to two thousand years, and while the sources of pigments are known—such as iron, egg shells, and

“Why they were made; or why they were made *where* they were made; or what, in general, they

signify; or to whom they were addressed.”⁵⁹ No doubt those images derived from mythic and historical cycles of stories had symbolic resonance for their makers. In “The Grace of the Wild,” originally published as *Travels in Canoe Country* and reprinted in *Boundary Waters*, Gruchow acknowledged that little is now known about the peoples who created the paintings, let alone their “intentions.” “The battle of the human heart,” he quotes Loren Eiseley as saying, “is endlessly waged between memory and forgetfulness.”⁶⁰ Some of the figures seem representational: “A few of the markings are immediately recognizable: a canoe, a moose, a human figure, a thunderbird,” he wrote, while others remain “utterly mysterious.”⁶¹ Were such images connected with rituals to ensure success of the hunt, he wondered, or perhaps linked to shamanistic rites? It is tempting to speculate, for example, that depictions of animals favored as game correspond to religious beliefs and practices associated with the hunt. Since successful hunting was essential to a tribe’s survival, ceremonies expressing reverence carried profound—even *existential*—significance.

Pondering the meaning of ancient art and its possible purpose as prayer, Gruchow approached such sacred sites with humility. He realized that interpreting what they were once meant to represent—let alone *why* they were originally made—remains subject to conjecture. He acknowledged the difficulty of interpreting the significance of the glyphs fully since cultural memory had been disrupted, including the narratives of their creation, meaning, and function. Since the symbolism of geometric figures such as spirals and concentric circles continues to elude us, the mystery evokes wonder while tantalizing the imagination. Indigenous peoples, he concluded, “came to know the place spiritually.... is what it means to be native to a place: to know it intimately enough so that one can say where lives its spirit, or spirits.”⁶² Ultimately, he confided, “I hope that they might tell me something about what it means to be indigenous.”⁶³

Visiting Medicine Wheel monument in the Big Horn Mountains of Wyoming, Gruchow contemplated another historical trace left by Native Americans on the landscape. He described that journey and the profound resonance he experienced there in “Medicine Mountain,” an essay critics have hailed as the most incisive writing in *The Necessity of Empty Places*. Medicine Wheel struck him as hallowed ground, an impression amplified by the grandeur of its panoramic vistas of surrounding country and distant horizons. The site is still in ceremonial use, he reports: “To this day the ancient rites of the native Americans are celebrated there, and... worship of some kind has been practiced there for at least a couple of centuries.”⁶⁴ Similarly, brightly colored prayer bundles left by today’s Indian pilgrims are still to be found at Bear Butte (also in the Big Horn Range), traditionally venerated for vision quests by Plains tribes, and a place familiar to Crazy Horse.⁶⁵ From its summit, the Black Hills sacred to the Lakota are visible to the south.

Since the Medicine Wheel became known to Europeans in the 1880s, ethnographers and astronomers have speculated about its antiquity, purposes, and symbolism. Its possible use for astronomical observances, for instance, is suggested by the precise placement of cairns that align with solstice points, or presumably had done so in the past. The overall configuration of stones at Medicine Wheel has also been likened to a sacred geometry found in the design of earth lodges

of the Pawnee, the tipis of the Cheyenne, and above all the medicine lodges associated with the Ghost Dance. Twenty-eight spokes radiate from the circle's center, corresponding to days of the lunar month, ribs of the buffalo, and arithmetically the product of seven and four, both sacred numbers in Native American cosmologies several times over. Yet Gruchow approached such conjecture with caution, since such theories are necessarily speculative once the cultural history has been forgotten. The Crow Indian Nation that today inhabits the area adjacent to the site knows only that it predates their arrival in the area. We do not know how the monument came into being, he concluded, or why. These mysteries still beckon us, often evoking a sense of reverence. After its makers moved on, the narratives that once animated this sacred place fell silent. Consequently, modern interpretations remain provisional, since we are reading the indigenous text of this landscape but lack the cultural memory that brought it into being.

In a similar way, reading natural landscapes for narratives of *environmental* as opposed to cultural history also entails imagining what had come before, such as recognizing the way ferns and fungi, moss and lichen of a northern forest floor harken back to an epoch before flowering plants had even evolved. Gruchow recounts a succession of ecosystems in the wake of glaciation, as tundra studded with spruce were followed by bur oak savanna, and finally the grasslands whose extent bewildered the first Europeans to explore them. After the last ice age, grasses that had evolved perhaps eighty million years ago began to reshape and ultimately dominate the prairie landscape. Nomadic hunter-gatherers moved their seasonal encampments in anticipation of the migration of game and according to the cycle of ripening and harvest; yet by the time of European exploration, the vast majority of Native American peoples across the continent were also cultivating corn in virtually every region where the climate and growing season allowed. Consequently, subsistence skills passed from generation to generation included a place-specific mix of hunting and gathering practices often in conjunction with the cultivation of crops such as beans, melons, squash, sunflowers, and tobacco. When in 1541 Coronado crossed the plains of what today is Kansas, he reportedly likened the abundance of plums, nuts, grapes, and mulberries to those grown in Spain.⁶⁶ The sustainability of such pre-contact agriculture, Gruchow reasoned, was not due to ecological reckoning but rather mobility: once a tract of arable land was worn out and lost its fertility, villages were simply moved and new fields cleared.

By contrast, when European settlers arrived in the Upper Midwest, the grasslands adjoined woodlands that spanned over thirty-four hundred square miles of Indiana, Iowa, Minnesota, and Wisconsin. A single square mile of the "Big Woods," considered the most extensive of remnants remaining today, is an island ecosystem that still supports a number of especially primitive life forms. These include mosses, ferns, and horsetails, as well as some of the earth's first flowering plants and species such as the dwarf trout lily, which is "among the rarest plants in the world" and occurs only in a handful of surviving fragments of Minnesota's original Big Woods.⁶⁷ Gruchow's depiction of such refugia underscores how surprisingly dynamic and precarious such places can be: "Though ornamented with plants of venerable lineage," he explains, "the Big Woods is only about three hundred years old. When the climate suddenly became warmer and wetter," today's maple-basswood forest replaced the oaks that had once dominated.

Because the grasslands repeatedly advanced and retreated, Gruchow realized, its boundaries were transitory: “Where trees and grasses have battled for supremacy, there has been a critical influence. When trees prevailed, grasses extended their dominion. When they did not, trees took hold.”⁶⁸ Moreover, he recognized just how dramatic the effects of such gradual ecological processes could be: “The lands I have come to thinking of as naturally prairie,” he realized, “were, in fact, forests.”⁶⁹ The idea of such a dynamic successional pendulum in deep time had intrigued Leopold as well. Tenacious bur oak pioneered drier terrain by surviving fire, while cottonwood, chokecherry, and willow might colonize riparian corridors.

He recognized that the dynamics of the biome as a whole had prevailed for many millennia: colonization and succession showing resilience following flash floods and prolonged drought, severe weather and infernal fire. At Cayler Prairie in northwest Iowa, for example, he readily recognized the geological processes that had once shaped many midwestern landscapes, regenerating after ice retreated. Situated on a terminal moraine, it reveals to this day traces of ancient glaciation.

Among the creatures that inhabit the region’s wetlands, including kettle lakes shaped by glaciers, are several ancient species such as the snapping turtle, which evolved close to three hundred million years ago. Similarly, the dragonfly is part of the legacy of a primordial ecological order and has found a way to survive for hundreds of millions of years. Gruchow reminds us that the dragonfly was among the very first flying creatures on earth. He grasped that the biological imperative of ecological memory was a key mechanism ensuring the survival of such native species—the dynamic capacity for regeneration following disruptions, which enabled aquatic ecosystems to persist over the ages. Seeds dormant for many years remained viable, while grasses were especially resilient: well-established systems of deep roots could be revived after decades, whenever favored by ample rain.⁷⁰ He described how cattails, the plant that plays a pivotal role in the latter stages of the dragonfly’s metamorphosis, can be rekindled from seeds that have been long dormant: a marsh could spring forth from a place that had been parched for a quarter of a century.

Great antiquity also heightened Gruchow’s sense of reverence toward species such as sandhill cranes, among the oldest of all birds. Fossils of this archaic bird date from at least fifty-five million years ago. They are a vestige of the age of dinosaurs, from which all birds have descended. The species seemed to him a living relic that has managed to survive eons of environmental change. The cry of the cranes also awakens connotations of great migrations predicated on ecological memory. Some routes of up to six thousand miles each way span nearly half the circumference of the globe, and rely on particular types of habitat across the hemispheres to provide forage and suitable breeding and wintering grounds. Whatever had originally prompted sandhill cranes to undertake such an astonishing journey in the first place, the spectacle of their arrival on the Platte River in March and April inspires awe. Gruchow contemplated how routes from such far-flung places as Tierra del Fuego near the tip of South America effectively tie the Upper Midwest to the planet as a whole—“bearing news of distant worlds,” he mused, and reminding us “that the prairie world is not a world unto itself. It is a

world within a world.”⁷¹ The sight of such an epic migration inspired a lyrical flight of the imagination: “Part of me ached to follow them, to rise up on wings of my own, to fly to some wild and unbounded place.”⁷²

Especially given the evolutionary history of such species in deep time, their continuance has profound significance. Gruchow returned every March to the Platte River in Nebraska, a personal pilgrimage to witness once more a migration rivaling any in the world. In 1987, for instance, he described in his journals visiting for the tenth time in three years, likening the experience to dream or prayer, entranced by the “hypnotic chant of the cranes.”⁷³ He marveled how the birds return each year, monumental flocks synchronized to seasonal changes in light. Observing their stylized rite of “dancing” in greeting and courtship—along with their especially distinctive call—prompted him to contemplate the ongoing survival of such seemingly primeval species. “We need to be reassured that there is order and logic in things,” he declares in *Grass Roots*, “that there is predictability and regularity in life, that some things stand fast and hold firm. The cranes never disappoint us. The cranes are always there.”⁷⁴ For Gruchow, as Loren Gustafson concludes, the sandhill cranes represent nothing less than “a reassurance of order behind change.... Reassurance comes from the collective migration of cranes . . . [confirming that] their collective journey will continue unchanged.”⁷⁵

Gruchow’s writings about backcountry experiences in rugged terrain of the Rocky Mountain West were often framed by recollections of the Midwest. Wherever he travelled, in fact, he consistently brought to bear an appreciation for environmental history forged in the region. “In all these journeys,” Lou Martinelli observes, “the damaged tallgrass prairie and Gruchow’s agricultural roots will not be forgotten.”⁷⁶ Hiking the remote alpine foothills of the Big Horn Mountains, for instance, his thoughts returned to the extirpation of many species throughout the Midwest. He was reminded that today’s inhabitants of the grasslands no longer recognize how dramatically the region’s wildlife has diminished: “In my prairie town, the upland sandpipers and the bobolinks are mostly gone and the meadow-larks become rarer every year.... White pelicans no longer nest there, but wood ducks do, in artificial nests. The gray wolf is extinct.... The otter has disappeared.”⁷⁷ In their place are the coyotes, opossums, and ubiquitous white-tailed deer—species adept at colonizing the outskirts of factory farms. “Most prairie children do not now encounter any of the magnificent large mammals of their place,” he continues, “the grizzlies, the elk, the antelopes, the bison until they take a trip to one of the sanctuaries in the intermountain west.”⁷⁸

If the early books, such as *Journal of a Prairie Year* and *Grass Roots*, attempt “the reconstruction, through memory, of our damaged prairie ecology,” as Martinelli contends, subsequent essays are set in a variety of unsettled places that still represent “ecology that largely survives, but is vulnerable”.⁷⁹ whether Isle Royale and the Quetico-Superior Wilderness described in *Boundary Waters*, Minnesota’s designated scientific and natural reserves portrayed in *Worlds Within a World*, or remote landscapes of the Rocky Mountain West explored in *The Necessity of Empty Places*. Such journeys became pilgrimages, inspiring spiritual overtones and reflections on our perception of nature as sacred. His ambitious essay “The Grace of the Wild,”

reprinted in *Boundary Waters*, is formed of nine sections mirroring the canonical hours of the Roman Catholic Church and has been likened to Biblical psalms.⁸⁰ Indeed, Gruchow believed that “the beginning of spirituality” could come from encounters with such places: “Wildness matters not because it alone is sacred,” he reasons, “but because it arouses in us the sense of sanctity that makes visible the sacredness of everything else in life.”⁸¹ He concludes: “the way to restore our sense of interconnectedness of all life is to rebuild our memories of nature by experience.”⁸² He came to believe that our sense of place is reconstructed through ecological memory and that therefore the study of natural history must encompass our own ever-changing relationship to the rest of life on earth.

Rather than hewing to any Romantic notion of an idealized, “pristine” wilderness, Gruchow grappled with the deeper ethical dilemma of what forms of stewardship are still possible given the deteriorating state of the natural world—and what purposes they might ultimately serve. The sad irony, he observes, is that “we are now condemned to be nursemaids to a natural world that is ailing because of our improvements upon it.”⁸³ This is “the paradox of wilderness,” he declares. “It was only when we had already lost it that we could begin to see the value.”⁸⁴ He laments that it is “still unclear how to reinsert ourselves into nature, which our survival requires, given the biological constraints of life itself.”⁸⁵ Even preserves and refugia protected from development, he realized, become increasingly vulnerable and volatile precisely because they have become progressively more fragmented and isolated. In the context of environmental history, such surviving islands in a sea of development (such as remnants of tallgrass prairie surrounded by seemingly interminable tracts of cropland) represent an irreplaceable ecological legacy.

He held no illusions about human stewardship, however, recognizing that returning nature to any venerated ancient state was already beyond reach. This in turn led to a rethinking of the purpose of the preservation of a wide variety of ecosystems where processes of disruption and renewal were ongoing. “A patch of prairie is not a museum piece,” he declares, “but a living experiment, a laboratory of constantly evolving ideas . . . a changing world.”⁸⁶ Such places, he realized, were each a unique repository offering alternative strategies for biological survival of the biome, which humans might ultimately learn to heed. “When we have exhausted our soils and need to learn how to make new ones,” he wonders, “where will we go for instruction? Into the wilderness,” he concludes, “where this delicate and complicated work of reconstruction is constantly in practice.”⁸⁷ As early as the beginning of the 1990s he had publicly championed a bold alternative to modern agriculture: a “newly emerging paradigm is that of the ecological economy which values diversity [and] sustainable yields.”⁸⁸ He envisioned an integrated approach that emphasized diversification of crops tailored to particular places—patterned in part on preexisting native ecosystems. Yet, he conceded, even full-fledged “prairie restorations are probably, at best, only approximations of the real thing.” Indeed, he maintained that if any hope remains at all, “Our damaged ecologies—the places we live—can be made whole in part by remembering them when they were whole, then living in such a way as to restore them.”⁸⁹ He believed such attempts at conservation were likely to be beneficial in significant and unanticipated ways. “The very difficulty of creating even a restored prairie teaches us something valuable about the beauty and complexity of the prairie world.”⁹⁰

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Notes

1. Gruchow was an exceptionally well-read and attentive naturalist, and his narrative and reflective writings frequently cite Thoreau, as well as other major American naturalists and conservationists. His essay “The Meaning of Natural History” discusses Rachel Carson, Aldo Leopold, John Muir, and E. O. Wilson.
2. Pronouncing *Walden* a singular work, Gruchow conceded that he also admired a variety of modern essayists—many with a proclivity for natural history—including Edward Abbey, Diane Ackerman, Wendell Berry, Bruce Chatwin, Annie Dillard, Sue Hubbell, Peter Matthiessen, John McPhee, Richard K. Nelson, Gary Snyder, and Paul Theroux.
3. Journals of Paul Gruchow, February 18, 1987. Permission to quote archival material granted by Louis Martinelli, director of the Paul Gruchow Foundation. All archival material is located in the Paul Gruchow Papers in the Southwest Collection/Special Collections Library, Texas Tech University, Lubbock, Texas.
4. Gruchow, *Boundary Waters*, 188.
5. Gruchow, *Uses of Wildness*, 9–10.
6. Gruchow, “Kingdom of Grass,” 103.
7. Promoting “land health” and conservation generally, Leopold exhorted rural citizens throughout the region to adopt practices advocated by professional biologists on public lands, such as setting aside acres of prime habitat in close proximity to their cropland where natural ecosystems could still readily thrive.
8. Gruchow, journals, February 12, 1987.
9. Gruchow, “Prophet of Joy,” 10.
10. Gruchow, *Necessity of Empty Places*, 124–25.
11. Gruchow, *Grass Roots*, 136.
12. Gruchow, “Kingdom of Grass,” 102.
13. *Ibid.*, 95.
14. Gruchow, *Worlds Within a World*, 19.

15. Gruchow, "Kingdom of Grass," 76.
16. Sanders, foreword to *Journal of a Prairie Year*, vii–ix.
17. Gruchow, *Journal of a Prairie Year*, 25.
18. For the yeoman landholder, stewardship of natural resources amounted to enlightened self-interest: taking care of watersheds and soil are prudent precautions for ensuring successful harvests in perpetuity.
19. Gruchow, "Kingdom of Grass," 82. 20. Gruchow, *Grass Roots*, 91.
21. Gruchow, *Boundary Waters*, 57.
22. Gruchow, *Grass Roots*, 86–87.
23. Ibid., 38.
24. Gruchow, *Necessity of Empty Places*, 125.
25. Gruchow, "On the Blue Mound," 22.
26. Gruchow, *Journal of a Prairie Year*, 71.
27. Gruchow, *Grass Roots*, 46, 15.
28. Gruchow, *Worlds Within a World*, 55.
29. Gruchow, *Boundary Waters*, 38–39. 30. Gruchow, "Naming Names," 28.
31. Gruchow, *Journal of a Prairie Year*, 71.
32. Ibid., 133.
33. Gruchow, *Grass Roots*, 114.
34. Smith, "American Studies and Environmental History," 12.
35. Gruchow, "Walking the Border—III," 18.
36. Gruchow, *Journal of a Prairie Year*, 14.
37. Gruchow, "Meaning of Natural History," 35.
38. Ibid., 43.
39. Gruchow, *Grass Roots*, 133.
40. Ibid., 21.

41. Gruchow, *Boundary Waters*, 122.
42. Gruchow, *Grass Roots*, 21–22.
43. Gruchow, "On the Blue Mound," 22.
44. Gruchow, "Reasons for Living 9."
45. Gruchow, *Journal of a Prairie Year*, 21.
46. Gruchow, "Kingdom of Grass," 97.
47. Gruchow, *Grass Roots*, 67.
48. Gruchow, *Necessity of Empty Places*, 41.
49. Gruchow, *Grass Roots*, 205.
50. Gruchow, *Necessity of Empty Places*, 53.
51. Gruchow, "On the Blue Mound," 21–22.
52. Gruchow, *Journal of a Prairie Year*, 127.
53. Ibid., 129.
54. Gruchow, *Necessity of Empty Places*, 54–55.
55. Gruchow's projected book about the biological and cultural legacy of bison paralleled the historical scope of Theodore Roethke's planned sequel to "North American Sequence." At the very end of his life, Roethke began to conceive a revisionist account of American history to be composed while visiting the sites of major Native American battles and betrayals, culminating with Wounded Knee.
56. Gruchow, "Kingdom of Grass," 50.
57. Gruchow, *Worlds Within a World*, 36.
58. See *Changes in the Land* by William Cronon and *The Ecological Indian* by Shepard Krech III for an analysis of the uses of re by Native Americans to reshape woodland and prairie landscapes.
59. Gruchow, *Boundary Waters*, 35.
60. Gruchow, introduction to *The Invisible Pyramid*, vii.
61. Gruchow, *Boundary Waters*, 35.
62. Ibid., 36.

63. Ibid., 30.
64. Gruchow, *Necessity of Empty Places*, 197.
65. Gruchow, journals, June 10, 1994.
66. Gruchow, "Kingdom of Grass," 66.
67. Gruchow, *Worlds Within a World*, 27.
68. Gruchow, *Journal of a Prairie Year*, 46.
69. Ibid., 42.
70. In "Ecology and Memory: The Essays of Paul Gruchow," Louis Martinelli asserts that a single square meter of prairie can sustain up to twenty-five miles of roots.
71. Gruchow, "Kingdom of Grass," 11–12.
72. Gruchow, "What Cranes Say," 17.
73. Gruchow, journals, March 22, 1987.
74. Gruchow, *Grass Roots*, 17.
75. Gustafson, "Revisiting," 7.
76. Martinelli, "Ecology and Memory," 50.
77. Gruchow, *Necessity of Empty Places*, 125.
78. Ibid., 125.
79. Martinelli, "Ecology and Memory," 55.
80. Carlson, "Walking the Two Landscapes," 339.
81. Gruchow, *Boundary Waters*, 201.
82. Gruchow, journals, February 16, 1987.
83. Gruchow, *Boundary Waters*, 189.
84. Gruchow, *Necessity of Empty Places*, 93.
85. Gruchow, introduction to *The Invisible Pyramid*, xii.
86. Gruchow, "Kingdom of Grass," 38.

87. Gruchow, *Uses of Wildness*, 6.
88. Gruchow, journals, 1992.
89. Martinelli, "Ecology and Memory," 63.
90. Gruchow, "Kingdom of Grass," 103.