

# Pomegranates, Peccaries, and Love

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## Abstract

As a participant in the Natural History Institute's confluence on *Reciprocal Healing*, I was impressed by inconsistencies among nature lovers regarding human relationships with our environments. Here, these differences are considered from the perspective of a professional natural historian, using examples from the confluence in support of two propositions. First, with reference to pomegranates, I describe how ethology, ecology, and evolution provide conceptual filters that can enhance appreciation for nature, as exemplified by seed eating, plant dispersal, and domestication. Second, I use love for and consumption of peccaries to underscore how cultural legacies and individual experiences influence attitudes toward nature; in that context, I then focus on a conflict between indigenous concepts of ecological kinship and the view that deliberately killing other animals always is wrong. This tension in turn has implications for whether indigenous values are relevant to non-Native Americans and thus to prospects for environmental ethics that are at once participatory, pluralistic, pragmatic, and reverential. Key Words: Ecopsychology—Local ecological knowledge—Traditional ecological knowledge—Hunting—Conservation—Preservation—Environmental ethics—Fruits and seeds—Peccaries.

## Introduction

I am standing at the edge of the mystery in which terror is naturally and abundantly part of life, part of even the most becalmed, intelligent, sunny life—as, for example, my own. The world where the owl is endlessly hungry and endlessly on the hunt is the world in which I live too. There is only one world.

— Mary Oliver, *Upstream: Selected Essays* (2016, p. 137)

Yes, I truly do love pomegranates, have long relished drinking their outrageously red juice, even more so putting their multihued seeds on my morning cereal. I just as surely love peccaries and hunt them as part of a strategy to avoid eating industrial meat and more mindfully *participate* in nature. That highlighted verb, the two organisms named in my title, and the word *love*—as noun or verb—felt uncomfortably juxtaposed during the Natural History Institute (NHI)'s confluence on *Reciprocal Healing: Nature, Health, and Wild Vitality*. The awkwardness, despite a coming together implied by the meeting title, evidently stemmed from divergent perspectives among speakers and attendees: Questions I asked made some participants uncomfortable, and the awareness that more than a hundred fellow nature lovers held such starkly disparate, perhaps irreconcilable beliefs was personally troublesome. Was it all a matter of my naivete, admittedly substantial on many topics, or worse yet, as one break-out group discussant candidly implied, am I simply shallow?

The confluence left me enthused but also feeling like a lion in a den of Daniels, so I am grateful to NHI and *Ecopsychology* for this opportunity to collect my thoughts publicly. These reflections are intended first to complement Sewall and Fleischer's (2019) remarks on the importance of natural history for the journal's mission and to respond to editor-in-chief Peter Kahn's plea (quoted in Robbins, 2020) for more emphasis on interaction and immersion. Second, I use love for and consumption of peccaries to illustrate how cultural legacies and individual experiences shape attitudes toward nature. Within that framework, I then explore conflict between indigenous concepts of ecological kinship and the view that deliberately killing other animals is always wrong, full stop. That tension has implications for whether indigenous values are relevant to non-Native Americans and thus for whether environmental ethics can be—as I would hope—at once participatory, pluralistic, pragmatic, and reverential (see, e.g., Aftandilian, 2011; Hare, Blosssey, & Reeve, 2018; Minter, 2012; Minter & Pyne, 2015a).

## Background

Recent debates among nature lovers often have emphasized rhetoric and name-calling (e.g., Foreman, 2015) rather than fairly

articulating contrary viewpoints and whence they arise within us. Accordingly, I first supply context for the confluence and my own involvement in the issues at hand. NHI's mission is to provide "leadership and resources for a revitalized practice of natural history that integrates art, science, and humanities to promote the health and well-being of humans and the rest of the natural world" (Natural History Institute, n.d.). Founding director Thomas Fleischner (2005) defined natural history as "a practice of intentional, focused attentiveness and receptivity to the more-than-human world" (Fleischner, 2005, p. 10). The confluence credo was that "The health of humans and nature are inextricably linked. As we heal ourselves, we heal the earth—and vice versa" (Fleischner, quoted in Kahn, 2020). I am comfortable with those statements, and immersion in nature surely does improve human health (Fleischner, 2017; Robbins, 2020; Sewall & Fleischner, 2019), so the emphasis here is on how cultural legacies and individual experiences influence our attitudes toward nature (for details, see Greene, 2005, 2013, 2015; for general discussions, see Chan et al., 2016; Clayton and Myers, 2015; Minter, 2012).

My love of the outdoors began in childhood, among relatives who visibly depended upon their surroundings. A Texas dirt farmer grandpa taught me how to put worms on a hook and what to do when the bobber splashed out of sight. Grandma cooked the fish. At his side I was tutored in firearm safety and marksmanship. Grandpa failed to pass on the finer points of milking a cow—more went on my socks than in the bucket—but by exploring the woods with him I came to recognize the hammerings of red-headed woodpeckers, the high-pitched "bob-WHITE!" whistle of quail, and the clattering buzz of "chaparral cocks" (roadrunners). As my youthful fascination with reptiles took shape, he talked of the defensive huff-puffery of "spreadin' adders" (eastern hog-nosed snakes) plowed up in his fields, of coachwhip snakes longer than he was tall that would thrash a person if restrained and how uncle Roy, walking barefoot in his barnyard, was bitten by a "ground" (pygmy) rattler. When I picked up horned "frogs" (lizards) and "dry-land terrapins" (box turtles) during our walks, my soft-spoken grandpa's face would light up as if I'd shown him something really special.

As a subsistence farmer and hunter, my grandfather was steeped in what anthropologists call *local ecological knowledge*, information that has been gained by working participation in a landscape and passed on by social learning. Indigenous people with tribal memberships, like Peruvian Matsigenka hunters who imitate raptor calls to scare monkeys to the ground (Voss & Fleck, 2011), are sometimes further distinguished as possessing *traditional ecological knowledge* (e.g., Pierotti & Wildcat, 2000). Grandpa's homespun ethnobiology, virtually none of it from books, mostly agreed with what I later

learned from reading and observations. Often, but not always—"glass snakes," which he said shatter into pieces when threatened and reassemble after danger passes, are really legless lizards with long fragile tails which, once broken, regenerate from the remaining stumps. No matter such discrepancies, his people lived and died out in nature; they *engaged* with microbes, plants, and fungi, with animals large and small, native and domestic. Even as a child, I could see how natural history informed their meager livelihoods. We will return below to whether this sort of close-to-the-soil reality necessarily leads to what Leopold (1949) famously called a land ethic.

My attitudes toward nature also have been shaped by a career of studying and teaching about ethology, ecology, and evolution. That first discipline examines animal behavior in terms of motivation and control (sensory and integrative mechanisms), development, adaptive significance, evolutionary history, and private experiences (e.g., awareness). Ecology entails research on population biology (reproduction, mortality, and other demographic phenomena *within* species), community ecology (predator-prey, mutualistic, and other relationships *among* species), and ecosystem studies (energy flow, nutrient cycling, and other interactions *between* organisms and abiotic factors). Evolution addresses mutation, genetic variation, selection, gene flow, and genetic drift, processes that during four billion years of what Charles Darwin termed "descent with modification" have resulted in life's diversity, including pomegranates, peccaries, and us. Ethology, ecology, and evolution, with all the complexity inherent in each of their subdisciplines, are thus among the lenses through which I have come to value nature in particular ways.

With respect to aesthetic filters that also might inform one's ethics, it's been my privilege to squander countless happy days outdoors. I've maneuvered with a pack through Utah's Buckskin Gulch, the world's longest slot canyon, and trudged without guide or porters over Peru's 4,215-meter-high Warmi Wañusca (Dead Woman's Pass) on the trail to Machu Pichu. I once tried and failed to hike across Mexico's rugged Barranca del Cobre (Copper Canyon), about which more shortly. As a naturalist, at work and at play, my most rewarding moments have entailed observing other species in the field—wondering what's it like to *be* the maned wolf loping through Brazilian savanna or a black-tailed rattlesnake mom parenting her pups in the Chiricahua Mountains, the Cape cobra trap-lining weaverbird nests in the Kalahari or a half-ton longhorn cow adjudicating scuffles among calves on a Texas ranch.

With that background, I came to the confluence already concerned with how wildness, animal welfare, and the fate of biodiversity are addressed within philosophical and evolutionary approaches to

environmental ethics (e.g., Chan et al., 2016; Hare et al., 2018; Minter, 2012; Minter & Pyne, 2015a). During the meeting, I became ever more fascinated by the extent to which we nature-lovers explicitly participate or not in local ecosystems and by how those dynamics might relate to what Tom Fleischner referred to in his plenary talk as “falling in love with the earth.”

### Pomegranates

At one confluence workshop, each attendee was given a pomegranate seed and encouraged to concentrate on its size, shape, texture, colors, smell, and taste. We also were instructed to successively investigate it with fingers, eyes, nose, lips, teeth, and tongue. Then after swishing the crushed seed around, noting how taste varied within regions of our mouths, we swallowed. Next, participants were to wander individually, taking in our edge-of-the-Colorado-Plateau surroundings with heightened sensitivities. This idea of attending more precisely to details led me to ponder how distance affects perception, so first I stared at shimmering mountains far to the south, noting how depth of field shrank over the miles, that profiles of the more distant ranges flattened together in my mind’s eye. After shifting focus to a few centimeters away, I searched a mistletoe for attachment to its host tree and mentally tried out words that might do justice to the intricacies of their branching surfaces. Finally, glancing about for an intermediate visual challenge, I spotted a small carnivore’s fresh scat on the path ahead and upon closer inspection—*Holy shit!*—confirmed that it was resplendent with dull-reddish fruit chunks and seeds far tinier than the one I had just eaten.

Among my all-time favorite fruits, pomegranates are produced by 5- to 10-meter-high, deciduous, spiny-branched shrubs native to southwest Asia. Turns out, the species featured in our workshop was among the first trees domesticated in the Mediterranean region, at least seven thousand years ago, and reached the New World with Spanish colonists in the sixteenth century (Morton, 2013). Each fruit, closer to a large orange in heft than a lemon, consists of leathery outer and corklike inner husks; within the latter, multiple chambers contain hundreds to more than a thousand glistening seeds. In botany-speak, each fruit is a berry, its seeds and pulp developing from an ovary within a bright red flower. Pomegranates are only available for a few months every year, and because I enjoy squeezing out juice and pounding forth seeds with a wooden spoon, when the fruits are not in season I daydream of their return rather than resort to packaged versions.

When I showed our leader a photo of the scat, she smiled, said “Thanks for that,” and moved on to regrouping everyone. The workshop had been mostly about us, I surmised, not so much seeds

and organisms. Mostly human sensory psychology, not so much ecology, at least the latter as science. Laudable goals for sure, but providing a few natural history details could have further enhanced our appreciation for pomegranates, as well as inspired novel conversations about the confluence focus on reciprocity and wild vitality. Flowers and fruits are how plants have sex and disperse offspring, for example, so why do various species have different textures, colors, and so forth? Just how could people eating wild fruits and nomadically pooping seeds—reciprocal interactions that happened thousands of years ago—have led to a few domesticated, globally distributed food types today? Can we speak of elephants as *domesticating* chosen fruits when *they* defecate viable seeds, and if not, does reserving that word for plant- and animal-*human* mutualisms implicitly distance us from nature? With such puzzles in the mind, I’d also have urged participants to swallow a few corn kernels as easily visible meal markers, so that later we might discuss how gut passage times and distance to latrines influence seed dispersal.

### Peccaries

When some confluence participants mentioned having just seen collared peccaries, often called javelinas in the southwestern United States, I immediately recalled a video of white-lipped peccaries in Costa Rica. In the short film clip, there are perhaps fifty *cara blancas*, as they are known locally, their distinctive “white faces” easily visible. Two adults and a smaller one, perhaps scouts, come out of forest on the far bank of a shallow creek, move a few meters upstream along a gravel bar, then rejoin the emerging herd. As they surge diagonally toward the near bank, individuals begin erecting dark bristly crests from head to tail. Tooth popping, also indicative of uneasiness in peccaries, becomes much louder and continuous. Upon reaching shore, some of them evidently sense the observer, whereupon they choreograph a tightly cohesive U-turn and swoosh back against the current. In an instant, what appears as some sort of pulsating super-organism—actually several dozen large, locally endangered mammals—vanishes behind a green wall. Bubbling water is again the only sound. My eyes moistened upon first viewing the 80-second vignette, and as is so often true of unexpected emotions, there’s backstory. I’d adored peccaries for decades, cherished field experiences with two of the three living species, and read much of what’s available on their natural history.

Peccaries (Tayassuidae) diverged from true pigs (Suidae) in the Old World, tens of millions of years ago (Sowls, 1997). The former dispersed into North America, went extinct in Eurasia, and three million years ago colonized South America. Like pigs, a peccary’s nose forms a tough circular disk used for rooting. Pigs, however, have canine

tusks that grow horizontally (all four can curve upward, as in wart-hogs) and long tails; peccaries have vertical tusks (upper canines point down, lowers point up) and a vestigial tail, above which is a rump gland used for social signaling. White-lips weigh 25–40 kilograms and occur from Mexico to Argentina, mainly in rainforests; their herds contain dozens to hundreds of animals. Javelinas weigh 15–25 kilograms, range from the United States to Argentina, in diverse habitats, and typically move in groups of five to twenty-five. Through some curious turns of taxonomic legalese, those two species' scientific names are *Tayassu pecari* and *Pecari tajacu*, respectively. Mammalogists in the 1970s, alerted by indigenous Paraguayans, discovered a third and largest living species, the Chaco peccary (*Catagonus wagneri*), already known from fossils. Among the eighteen species of true pigs, Old World wild boars were domesticated, as such are now cosmopolitan, and have widely gone feral.

Natural history research also reveals that peccaries are behaviorally complex, perhaps unusually so (Kort, Altrichter, Cortez, & Camino, 2018, and references therein), as well as likely major ecosystem players. They are primarily herbivores, consuming plant parts as diverse as cactus pads and palm fruits, but in the course of rooting eat or otherwise disturb various small animals (Sowls, 1997). And peccaries themselves are taken by large carnivores—I once found six javelina hooves and three sloth claws in a single jaguar turd (Greene, 1988, Fig. 1). Some indigenous peoples favor them as prey (e.g., Papworth, Milner-Gulland, & Slocombe, 2013; Voss & Fleck, 2011), and peccaries may figure heavily in their emotional lives and cosmologies (Peluso, 2004). As for broader ecological roles, some small tropical frogs require surprisingly large rainforest fragments to persist because they need sufficient habitat for peccaries that make wallows, which when flooded become the amphibians' breeding ponds (Zimmerman & Bierregaard, 1986). And in another unexpected twist, feral pigs in Brazil encourage survival of white-lipped peccaries because subsistence hunters prefer to eat the former and stopped killing the latter (Desbiez, Keuroghlian, Piovezan, & Bodmer, 2011).

My own first meeting with a javelina was as a teenager looking for snakes, just west of the Devil's River in Texas—we'd almost collided from opposite sides of a VW-sized prickly pear patch. A nearby friend couldn't say who ran faster, only that the animal and I fled in opposite directions. Back then I knew little of javelinas beyond exaggerated claims that they attack people, but have since had countless encounters with them as far south as Brazil. I had first hoped to see white-lipped peccaries in the 1980s, while conducting a biodiversity survey in Costa Rica, but already their Middle American range was shrinking, and *cara blancas* had been shot out locally (Pringle et al., 1984). I've still only met white-lips once, in an Amazonian rainforest,

when several walked through our small group and many others passed nearby, unseen but obvious thanks to their strong odors and tooth popping. Even that unnerving run-in put a smile on me. Peccaries, with their formidable weaponry and swaggering social solidarity, fear only large carnivores and humans. As large herd-dwelling herbivores they are emblematic of reasonably intact ecosystems.

Things became more complicated in 2009, when I became what ex-vegan Tovar Cerulli (2013) calls a late-onset deer hunter—took full responsibility for my carnivory, turned away from industrial meat consumption, and began to more directly participate in local ecosystems (for details, see Greene, 2013, pp. 201–219). A Texas big game license includes tags for two javelinas, which are common on a preserve I visit. When shot carefully from ambush, they drop like stones. Butchering is slightly trickier than for pigs, to avoid the stinky rump gland, but their meat is pleasantly leaner than domestic pork, a bit sweeter and more peppery. My favored javelina dishes are tacos with thin-sliced backstrap or tenderloin, and a macaroni-and-cheese casserole prepared with braised hindquarters and fresh-roasted Hatch green chiles. Since becoming a born-again predator, I rarely take any food for granted, and never anything eaten at home. Deer, feral pigs, and javelinas killed for my annual household meat budget can be counted on one hand, and during meals I gratefully recall each individual whose death sustains me. I imagine how those animals all lived too, even the plants they ate, like the aspiring little oak seedlings we call acorns.

*Love* surely owns more nuance than any other four-letter word in English, but an internet search yields as defining elements “intense feeling of deep affection” and “great interest and pleasure in something” (Lexico, 2020). I do indeed love peccaries for their many unique natural history attributes. I also reciprocally interact with them on a nature preserve where I hunt, as well as more broadly, by supporting financially and with advocacy the integrity of ecosystems in which they live. The Costa Rica video allowed me to glimpse a lifestyle intriguingly different from that of javelinas—the larger herd size and cohesive social behavior of white-lips, rendered even more sublime by a few wee ones scrambling to keep up with the adults. There was, too, the abrupt recollection that javelinas thrive even in some Arizona suburbs, whereas persecution and the loss of intact habitat increasingly threaten white-lips. As with the jaguars who eat them, they are wilderness animals. I teared up with vicarious joy of discovery when those peccaries crisscrossed the stream, only to be hit by a wave of sadness as they disappeared. I knew firsthand that a tropical rainforest without them feels profoundly impoverished.

Now recall that Tom Fleischner had spoken in his confluence lecture of the practice of natural history as “falling in love with the earth.” During the following open discussion, I noted that some

attendees had seen javelinas during a sunrise hike, that the many ways I love those animals includes eating them, and therefore my question: Would his version of loving nature accommodate hunting other species for food? After Tom said “Of course,” a workshop leader admonished him from the floor for responding “without further thought” and asked that we “create some space for rejecting this claim that killing animals for food ever can be justified.” Tom replied that we each have reflected a lot on this topic, but there was no chance at the time to provide the details with which to reasonably assess my views.

### Ecological Kincentricity: What’s Love Got to Do with It?

The NHI confluence began with Robin Wall Kimmerer’s eloquent plenary address, in which she offered the perspectives of an indigenous biologist and teacher, someone comfortable with both traditional ecological knowledge and academic science. Using mainly plants as examples, Robin spoke of *kinship* with the rest of nature as a form of *reciprocity*, of us being *part of an ecological and evolutionary story*. She referred to this ecological and evolutionary kinship as “the other side of the human exceptionalism coin” and asserted that the latter needs to go extinct. Her lecture (available on the NHI website) and books (e.g., Kimmerer, 2013) illuminate how alternative views of our relationships within nature might influence healing the Earth as well as ourselves (for additional examples and discussion, see Aftandilian, 2011; Booth, 2003; Nadasdy, 2005). Although my focus here is on North America, accounts of indigenous kinship with nature elsewhere, of which my favorite is Thomas (2006), also are pertinent to this challenge.

Robin’s talk struck an unexpectedly personal chord when she credited Rarámuri scholar Enrique Salmón for the term *ecological kinship*. Decades ago I’d set out with three others to traverse the 1700-meter deep Barranca del Cobre, in the heart of Salmón’s Sierra Tarahumara homeland. We’d expected to hike six days, carried food for eight, and right away compounded two errors—not hiring a local guide and, after a long but idyllic first day, misreading our crude trail map. Nightfall found us out of water, within hearing of the Río Urique but atop an impassable cliff. By late the next day, carrying our packs back up out of sweltering tropical thorn forest into cooler pine woods, we were exhausted and badly dehydrated when a passing Rarámuri teenager in flipflops led us to a spring. The following morning, two elders invited us into their rock-walled family compound to buy peaches and basketry, so after appropriate pleasantries I asked about wildlife. “Yes, there are rattlesnakes, sometimes they bite people.” “Yes, there are bears, they raid our cornfields.” “Mountain lions and jaguars are here too, but those cats walk really hidden.” A few years later, when I first read Salmón’s (2000) paper, vivid memories flooded

back of our ineptness, no matter fancy boots and gear, and of the contrastingly graceful, ecologically kincentric competence with which his Rarámuri inhabit their landscape.

Because I had been so inspired by Robin’s confluence talk, the non-Native workshop leader’s assertion that all hunting is wrong immediately reminded me of an astonishing Washington DC bus stop sign. The ad, sponsored by People for the Ethical Treatment of Animals, depicted a ragged bloody-red X splashed over black pictograph-style silhouettes of a person with a ponytail, carrying a bow and arrow, who was chasing an antlered deer. A red dot behind the buck’s shoulder marked the place for a reliable kill shot. Below the figures, graffiti-like black letters spelled out “The writing is on the wall,” and then, in red font, “Eating meat should be ancient history. Go vegan.” Well now, for countless twenty-first-century Native Americans, ecological kincentricity still means “Indigenous people are affected by and, in turn, *affect the life round them*” (Salmón, 2000, p. 1327, emphasis added)—which for Rarámuri entails hunting deer and small game, using livestock for labor, food, and clothing, and so forth. More generally, adherents of traditional ecological knowledge still

identify with predators ... they must take lives to live themselves ... they may be potential prey for other large carnivores ... connectedness and ecological similarity allows native people to respect predators, since they know how difficult it is to take the lives of others. (Pierotti & Wildcat, 2000, pp. 1337–1338)

So, pomegranates, peccaries, and love. A health advantage to humans from meditating on sensory responses to seeds seems likely, but how would that help heal the planet? Adding on ethological, ecological, evolutionary, and cultural filters—natural history à la Fleischner (2005)—could have motivated confluence attendees to imagine domestication of plants and animals as ancient coevolved mutualisms and thus led to thinking about our *kinship and reciprocity within communities of interacting species*. The peccary example is more fraught, of course, by the killing of other sentient beings, and thus love comes in for harder thinking. I do not suggest everyone eat meat, that those who do must hunt, or that vegans never participate in nature. Nor do I believe a rural youth in itself justifies hunting, but rather that cultural traditions and lived experiences shape who we all are, that as such they deserve consideration when assessing our individual moral stances. Counter responses to my claim to both love and eat other animal species could include dismissing it out of hand or giving indigenous people an ethical pass on hunting (e.g., Kretz, 2010), either of which ignores a lot of complexity and begs an inconvenient question: Of what relevance, then, are indigenous scholars like Kimmerer and Salmón to non-Native

American nature lovers like me, worried about our own health and the fate of biodiversity (for general discussions, see Aftandilian, 2011; Nadasdy, 2005)?

Confronting that last question means first admitting that however central ecological knowledge was to grandpa's people, ethical aspects of hunting likely were of not much concern to them. They struggled to persist, endured hardships and dealt with threats to their livelihood. As a girl, my mom dispatched egg-eating "chicken snakes" (rat snakes) with a hoe kept in the hen house for just that purpose. "Chicken hawks" (probably red-tails) were shot simply for showing up overhead. When rodent droppings appeared near stored food, gruesomely effective snap traps were set. That little other effort was devoted to killing wildlife likely was due to practicalities—gray foxes and other medium-sized predators persisted in surrounding wildlands because they never ate *too* many chickens, whereas ammunition cost scarce dollars and hunting meant avoiding chores. If nobody chopped wood, nothing got cooked. Mom's rural Christian family gave daily thanks for God's bounties, with special emphasis at Thanksgiving, but they didn't have environmental ethics as envisioned today. For that they would have needed a more specific, culturally transmitted framework, of which now there are several at hand.

Conservation and preservation have been dominant themes in US environmentalism since the early twentieth century (e.g., Minter & Pyne, 2015b; Wuertner, Crist, & Butler, 2014), generally differentiated in terms of instrumental versus intrinsic values, respectively. Within that dichotomy, conservation emphasizes "wise use" of natural resources, for the good of people, and is offensive to many environmentalists. Preservation celebrates aesthetic (some say spiritual) rewards of wild places but idealizes human insignificance in ways that are literally unrealistic (e.g., Greene, 2015; Thomas, 2006); we always have been and always will be what Yale biologist Evelyn Hutchinson (1965) called "evolutionary players in an ecological theater." As traditionally conceived, these two themes also have been limited by groundings within postcolonial Eurocentric worldviews and by having been at least implicitly dismissive of Native Americans, other minorities, and women (e.g., Marvier and Wong, 2015; Nadasdy, 2005; Pierotti & Wildcat, 2000). Moreover, simply contrasting instrumental and intrinsic values fails to capture their relational aspects—origins, content, and adaptive roles with respect to place, culture, feelings, religion, other species, and so forth (Chan et al. 2016; Hare et al., 2018).

A third approach, with ties to Aldo Leopold—and thus to ecological knowledge and science—urges pluralism and pragmatism (e.g., Meine, 2014; Minter, 2012). As Leopold wrote in *A Sand County Almanac* (1949, p. viii, emphasis added), "We abuse land because we regard it as a commodity belonging to us. When we see land as a

community to which we belong, we may begin to use it with *love and respect*." Salmón's and Kimmerer's reflections on ecological kincentricity parallel that framework, in particular their emphasis on humans as mindfully, functionally participating in nature; notably for non-Natives, their writings and those of others also imply environmental ethics in North America before Europeans arrived (see also Aftandilian, 2011; Booth, 2003; Nadasdy, 2005). Most importantly, ecological kincentricity highlights relationships with other species, including those that are mortal, and underscores that these interactions are coupled with an *obligation for reciprocity*. To thrive we must take from the land, but we should do so respectfully, with gratitude, and we must return the favor.

My bet is that local and traditional ecological perspectives on participation and reciprocity, bolstered by natural history writ broadly, have key roles to play if there is to be any hope for healing ourselves and the earth.

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