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Bison *(Bison latifrons)*

Rewilding for Evolution

by Connie Barlow

"Wilderness," as Dave Foreman has said, "is the arena of evolution." Saving it, and making space for the wildlife with which we share this continent, is a prospect that transcends the ephemeral.
—Tom Butler, summer 1998 **WE**, p. 9

Let me add here that, as brilliant and visionary as Soulé, Noss, and I may be, we are not coming up with something new under the sun. Listen: …"Only those able to see the pageant of evolution can be expected to value its theater, the wilderness, or its outstanding achievement, the grizzly." These words are fifty years old, they are part of the canon of the "received wilderness idea," and they are exactly what The Wildlands Project is about today: Ecosystem representation. Cores. Corridors. Carnivores. Aldo Leopold wrote them. —Dave Foreman, fall 1998 **WE**, p. 3

I am convinced that we cannot hope to protect native biodiversity and restore landscape evolutionary processes as long as the West is managed primarily as a feedlot for domestic animals.
—George Wuerthner, fall 1998 **WE**, p. 68

I can still cherish the thought of large, unmanipulated wilderness on this continent where the processes of evolution can go on more or less as they have for millennia…where evolution can continue on its own terms. —Donald Worster, fall 1997 **WE**, pp. 12, 13

illustrations of extinct Pleistocene megafauna by John C. Dawson,
courtesy of the George C. Page Museum and the artist

As this series of quotations demonstrates, the evolutionary value of wilderness is widely recognized in the pages of *Wild Earth*. Within the past two years, at least four contributors have made this point, and one (Foreman) traced the lineage of the idea back to Aldo Leopold. Nevertheless, wide recognition is not the same as depth of treatment. The evolutionary value of wilderness has been, rather, a turnip tossed into the pot. A bit of turnip adds a nice bite to a soup; but who wants to make turnip soup?

I do.

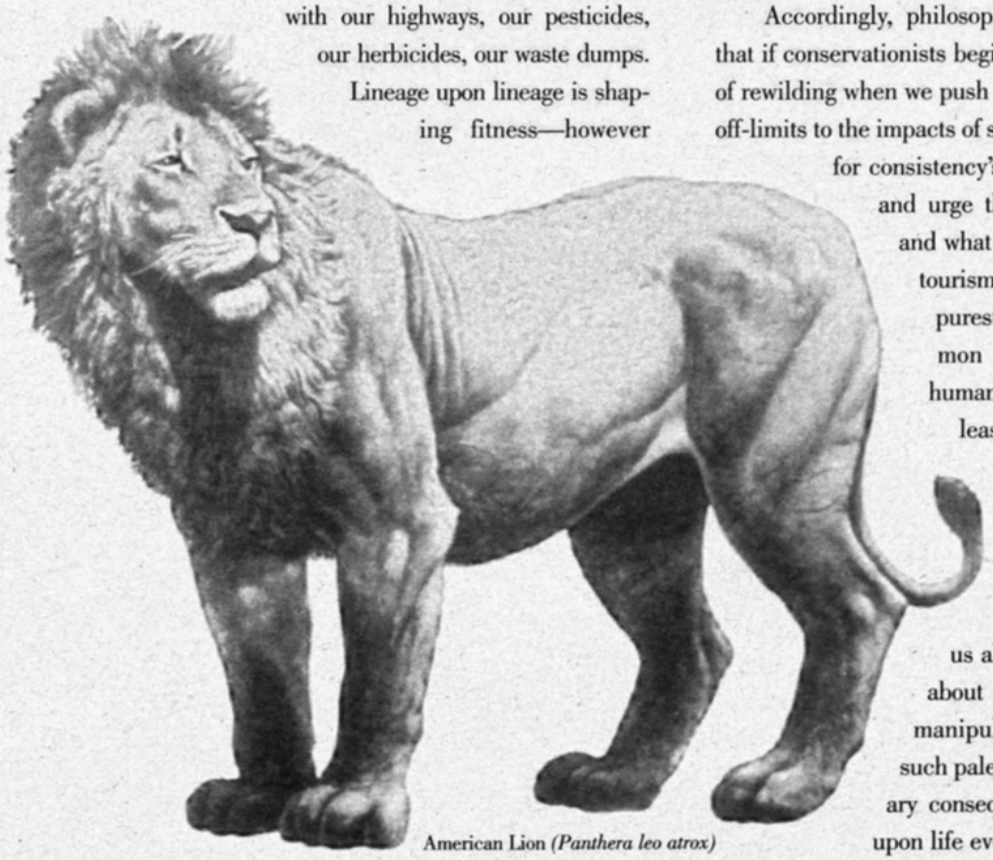
I believe the evolutionary value of wilderness could become one of the strongest arguments in its favor. Evolutionary value would thus join biodiversity preservation and ecological self-regulation as supports for rewilding.

Why rewilding? Why should vast expanses of self-willed terrain be protected and recovered? An evolutionary perspective provides this answer: *Rewilding must be undertaken because, next to outright species extinctions, the most abhorrent outcome—the greatest crime against creation—humankind might effect would be for surviving lineages to skew their future evolution substantially in response to us.*

Arthropods and vertebrates, angiosperms and bryophytes—all these and more, right now, and whether or not we so intend, are building and shedding genes to cope with our highways, our pesticides, our herbicides, our waste dumps. Lineage upon lineage is shaping fitness—however subtly—to survive in a world in which the human presence is pervasive. Even well-intentioned and scientifically based management decisions in the most excellent of biodiversity reserves designed to preserve this planet's evolutionary *heritage* are an inescapable manifestation of humanity's unchecked reach into evolutionary *futures*.

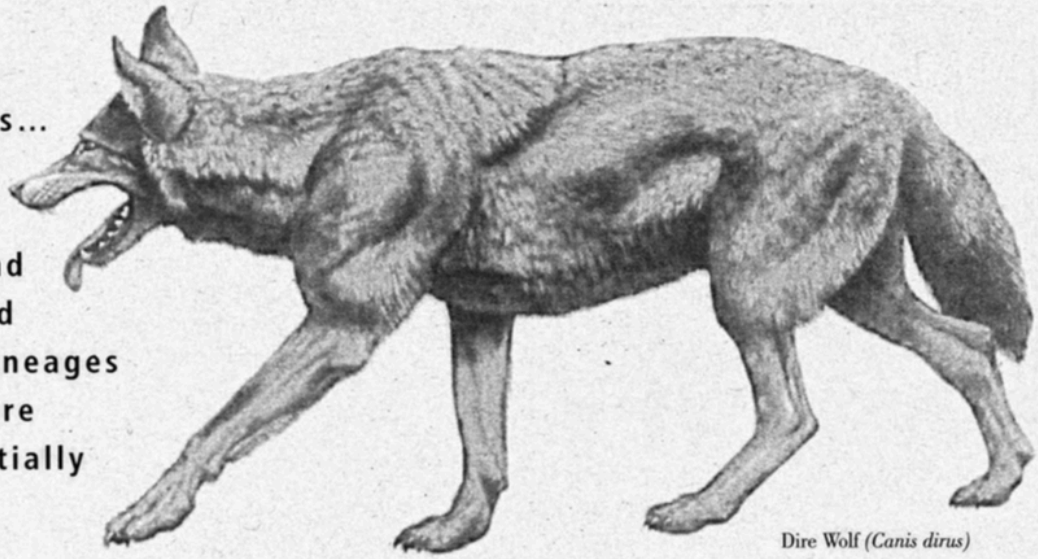
Sadly, the human impact on evolutionary futures is substantial even in the wildest areas under federal land management today. Designated Wilderness Areas in many parts of the United States are open to livestock grazing. And even where large carnivores do not face the challenge of figuring out that the easiest four-legged creatures to catch (domestic sheep and cattle) are not, in fact, on the menu, they have to cope with contradictory signals from two-legged creatures who trespass into their territories. Backpackers should be easy to hunt; nevertheless, if a large carnivore experiments in this direction, the innovator will be tracked down and killed. Intermittent exposure to the magical powers of humans to kill or wound at a distance does seem to preclude that kind of experimentation in the wilderness region I am most familiar with—the Gila Wilderness in southwestern New Mexico. There bears and lions are hunted for sport. In this, the first of all designated Wilderness Areas, the evolutionary futures of wild beasts are thus profoundly influenced by human demands for meat and recreation.

Accordingly, philosopher Baird Callicott has contended that if conservationists begin to speak of the evolutionary value of rewilding when we push for a remnant of America to be held off-limits to the impacts of settlement, logging, and mining, then for consistency's sake we ought to go the full route and urge the elimination of grazing, hunting, and what he calls "wilderness voyeurism and tourism" too. Rewilding for evolution, in its purest form, would thus challenge common assumptions about compatible human uses of Wilderness. At the very least, such discussion would make arguments for rewilding based on biodiversity preservation and ecological integrity appear modest indeed. At its best, this kind of discussion would serve to remind us all that whatever each of us may feel about the propriety of intentional genetic manipulation conducted in laboratories, such pales next to the reality of the evolutionary consequences that our species is forcing upon life everywhere outside the scientist's lab.



American Lion *(Panthera leo atrox)*

Next to outright species extinctions... the greatest crime against creation humankind might effect would be for surviving lineages to skew their future evolution substantially in response to us.



Dire Wolf *(Canis dirus)*

Conservationists need not argue that human hegemony over the future evolution of life on Earth is somehow unnatural. The most natural thing for any form of life to do is to pursue its biotic potential: to reproduce as fast as it can and to invade any habitat in which a toehold can be gained. Nevertheless, because today's biological holocaust owes to a single species, we can argue that such hegemony is unprecedented in the history of life. Indeed, this sixth major mass extinction may be the first time that life of any sort is to blame for deep cutbacks in biodiversity across the globe. Previous mass extinctions may all have been caused by volcanoes or meteors.

Natural or no, unprecedented or no, we shudder at the thought of human hegemony over future evolution. We shudder because we know in our souls that this behavior is not right. This is not the way we wish to be human. This is not our ideal for participation in the Earth Community.

TO ACKNOWLEDGE THE EVOLUTIONARY VALUE OF WILDERness would thus be both a strength and a burden for the rewilding movement. Evolutionary valuation of wilderness carries a strong ethical, even religious, appeal, but it questions the wisdom of allowing traditional human uses of wilderness to continue in the deepest cores of our wildest landscapes. It would also complicate "management" decisions. Consider: in rewilding a landscape that has already lost a great proportion of its endemic richness, should reintroductions be attempted? If an endemic subspecies is now extinct, should another subspecies be introduced—both as a substitute for the *heritage* of richness lost and as a chance for endemism to once again work its way into evolution's *future*? Similarly, if a keystone species is extinct, should an ecological proxy—perhaps from another continent and of another genus—be introduced?

As students of evolution, we know that much of the wildlife in North America derived from stocks that not long ago, geologically speaking, were alien invaders. Porcupines and possums originated in South America, but they waddled across the newly formed Isthmus of Panama some three million years ago and have long since earned their ecological citizenship in the North. Grizzlies and elk crossed over from Asia near the end of the Ice Age. (As did humans.)

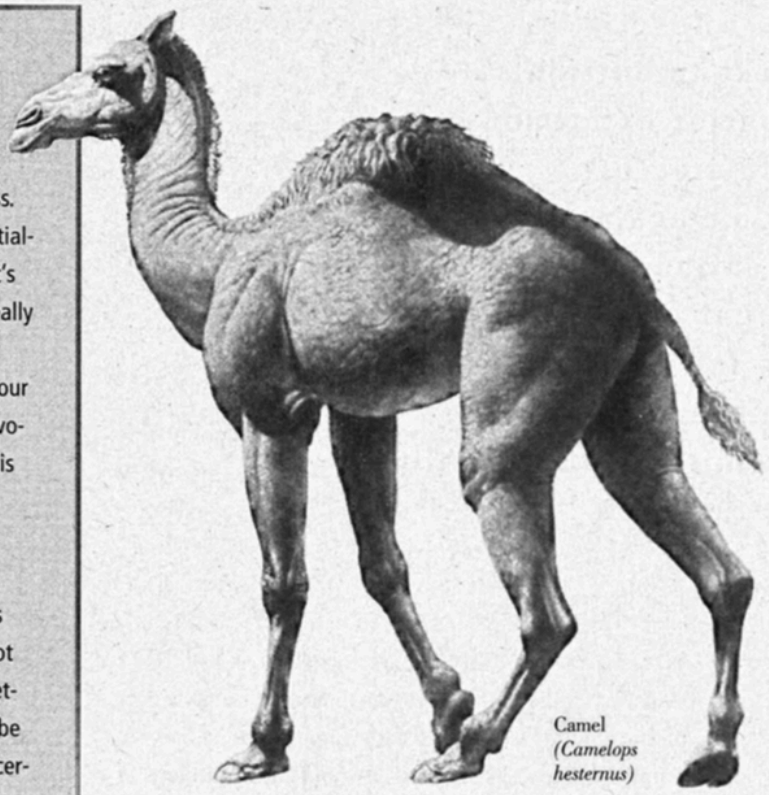
Paul Martin, Pleistocene ecologist and early proponent of the Overkill theory of end-Pleistocene extinctions, encourages us to adopt a broader time perspective in our vision for rewilding. To Martin's way of thinking, a goal to restore a representative and sizable chunk of North America to the "pre-Columbian" conditions that prevailed 500 years ago is shortsighted. Rather, we should be aiming to restore conditions toward as much of America's *pre-Holocene* richness as humanly possible. That pre-Holocene richness was marked by the magnificent megafauna of the late Pleistocene.

In an article in this issue of *WE*, Martin and coauthor David Burney remind us that our modern extinction crisis was underway well before humans figured out how to plow the prairie. North America lost its mammoths, mastodons, giant ground sloths, glyptodonts, horses, camels, shrub oxen, and a number of species of the genus *Bison* eleven or twelve thousand years ago. The extinction of most of this continent's great Pleistocene herbivores was attended by the loss of many of their coevolved carnivores and large scavengers, too: the dire wolf, sabertooth cat, giant short-faced bear, American cheetah, and American lion. All this happened a geological blink of the eye ago. Should we perhaps aim to rewild toward end-Pleistocene standards? Is it even possible?

Proxies for some of these beasts (notably, elephants for mammoths) *do* remain elsewhere in the world. Should we, as Martin and Burney urge, bring back the elephants?

Dave Foreman What happens sometimes is we get the notion that wilderness is just this outdoor gymnasium, this yuppie backpacking park. It's not that at all. It's really a reservoir of wildness. Wildness is something that permeates all life. It's essentially the evolutionary force. It's the process of evolution. It's the flow of life. And that is what conservationists are really trying to save. It's not a matter of preserving scenery or backpacking parks. It's not even a matter of improving our quality of life. It's a matter of allowing the process of evolution to continue to flow on, to continue to produce this incredible diversity of species, this beautiful planet.

Edward Abbey We've got to share this planet with the other living creatures. Sharing means not merely preserving them in zoos or National Parks but setting aside huge areas, whole regions perhaps, that will be free of human interferences. Ideally I would like to see certain large areas of the planet set off-limits to human entry of any kind, even aerial overflights. Let evolution proceed undisturbed even by human observation in certain places at least. See what surprises it comes up with.



Camel
(Camelops hesternus)

Mammoths, mastodons, and the smaller gomphotheres were prominent (and the authors argue, keystone) members of the Pleistocene menagerie on this continent. Coming from Old World lineages, the forebears of all these creatures were at one time alien invaders in this part of the world. But evolution got to work and brought forth the endemics. If we ourselves do not bring elephants back and offer them a second chance for an evolving, deepening citizenship, then Order Proboscidea will never again produce American endemics; the evolution of Order Proboscidea in the New World will be over.

Paul Martin and David Burney's proposal thus opens up a packrat's nest of questions, delving into ecological ethics as well as ecological science. Here I wish only to encourage that the evolutionary implications also be brought to the table. We should consider, too, that a back-to-the-Pleistocene standard for rewilding, at least in one test area, would help transcend the current controversy over how extensively American Indian cultures manipulated the landscape. Because humans were not part of American ecosystems until just before the great mammals went extinct, there should be no question that wilderness areas that emulate the late Pleistocene should be places where humankind "is a visitor who does not remain." The indigenous-management argument simply does not arise in this context.

Another imperative to bring back the elephant and to offer this lineage "untrammeled" wilderness derives from the strong scientific evidence that we humans are centrally implicated in its loss. According to the Overkill theory, before the first humans became fully native to this continent, we overhunted the great, naive beasts that had evolved no behavioral defenses against our projectiles. It can thus be argued that we are ethically obliged to do whatever we can to begin to right that wrong, our once and continuing crime against creation.

WHY, THEN, WILDERNESS? BECAUSE WILDERNESS IS THE arena of evolution—especially for the megafauna. Large herbivores and carnivores cannot be expected to survive, much less evolve, in tame little woodlots, no matter how pure the waters and how sweet the air. Great beasts will not emerge from the furrows of farmlands, no matter how organic and sustainable the agricultural practices. The human imprint on future evolution will be felt, too, wherever landscapes are intensively managed, no matter how scientifically informed and ethically enlightened the managers. For the Cenozoic Era, the Age of Mammals, to continue its tens of millions of years of stunning experimentation in large, hot-blooded beasts, Earth needs wilderness. ☾

Connie Barlow (cbtanager@aol.com) is a founding member of the Epic of Evolution Society and author of Green Space, Green Time: The Way of Science *(Copernicus, 1997) and a book-in-progress,* The Ghosts of Evolution, *to be published by Basic Books.*