

Conservation in the Anthropocene

Beyond Solitude and Fragility



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By its own measures, conservation is failing. Biodiversity on Earth continues its rapid decline.¹ We continue to lose forests in Africa, Asia, and Latin America.² There are so few wild tigers and apes that they will be lost forever if current trends continue.³ Simply put, we are losing many more special places and species than we're saving.

Ironically, conservation is losing the war to protect nature despite winning one of its hardest fought battles -- the fight to create parks, game preserves, and wilderness areas. Even as we are losing species and wild places at an accelerating rate, the worldwide number of protected areas has risen dramatically, from under 10,000 in 1950 to over 100,000 by 2009.⁴ Around the world, nations have set aside beautiful, biodiverse areas where human development is restricted. By some estimates, 13 percent of the world's land mass is protected an area larger than all of South America.⁵

But while conservation has historically been locally driven -- focused on saving specific places such as Yosemite National Park and the Grand Canyon, or on managing very limited ecological systems like watersheds and forests -- its more recent ambitions have become almost fantastical. For example, is halting deforestation in the Amazon, an area nearly the size of the continental United States, feasible? Is it even necessary? Putting a boundary around Yosemite Valley is not the same as attempting to do so around the Amazon. Just as the United States was dammed, logged, and crisscrossed by roads, it is likely that much of the Amazon will be as well.

Only with the rapid transformation of the developing world -- from rural or pastoral cultures to urban and industrial nations -- and the unmistakable domestication of our planet that has resulted has the paradox at the heart of contemporary conservation become apparent. We may protect places of particular beauty or those places with large numbers of species, but even as we do, the pace of destruction will likely continue to accelerate. Whether or not the developing world sets aside a large percentage of its landscapes as park or wilderness over the next hundred years, what is clear is that those protected areas will remain islands of "pristine nature" in a sea of profound human transformations to the landscape through logging, agriculture, mining, damming, and urbanization.

In the face of these realities, 21st century conservation is changing. Conservationists have taken steps to become more "people friendly" and to attend more seriously to working landscapes. Conservation will likely continue to create parks and wilderness areas, but that will be just one part of the field's larger goals. The bigger questions for 21st century conservation regard what we will do with the rest of it -- the working landscapes, the urban ecosystems, the fisheries and tree plantations, the vast swaths of agricultural monocultures, and the growing expanses of marginal agricultural lands and second growth forests that, as agriculture and forestry become more productive and intensive, are already returning to something that may not be wilderness, but is of conservation value, nonetheless.

In answering these questions, conservation cannot promise a return to pristine, prehuman landscapes. Humankind has already profoundly transformed the planet and will continue to do so.⁶ What conservation could promise instead is a new vision of a planet in which nature -- forests, wetlands, diverse species, and other ancient ecosystems -- exists amid a wide variety of modern, human

landscapes. For this to happen, conservationists will have to jettison their idealized notions of nature, parks, and wilderness -- ideas that have never been supported by good conservation science -- and forge a more optimistic, human-friendly vision.

1.

Since the early 19th century, a number of thinkers have argued that the greatest use of nature is as a source of solitary spiritual renewal describing nature as a place to escape modern life, enjoy solitude, and experience God. "To go into solitude, a man needs to retire as much from his chamber as from society," wrote Ralph Waldo Emerson in his seminal essay, "Nature."⁷ Cities and human development were portrayed as threats to these transcendence-enabling idylls, even though the writers were mostly urban intellectuals. Nathaniel Hawthorne complained bitterly of hearing the railroad whistle from his country home despite depending on modern transport to arrive at his own private Eden.⁸ Henry David Thoreau famously extolled his self-sufficiency, living in a small cabin in harmony with nature; in fact, Thoreau lived close enough to town that he could frequently receive guests and have his mother wash his clothes.⁹ More recently, Edward Abbey pined for companionship in his private journal even as he publicly exulted in his ascetic life in *Desert Solitaire*.¹⁰

The conservation movement's original justification for parks devoid of all people (unless those people were naturalists or tourists) was born from the 19th century spiritual view of nature as God. John Muir -- who, at age 11, could recite the Bible from memory -- read Emerson religiously while living in Yosemite. "No temple made with hands," Muir wrote, "can compare with Yosemite."¹¹ But if Yosemite was a temple, it was one full of commerce. Though Yosemite was a state park when Muir arrived, it was occupied by Miwok Indians growing crops, white settlers raising sheep, and miners seeking gold and other minerals. Not long after he built himself a cabin and a water-powered mill, Muir, as head of the Sierra Club, decided the other occupants had to go. Muir had sympathized with the oppression of the Winnebago Indians in his home state, but when it came time to empty Yosemite of all except the naturalists and tourists, Muir vigorously backed the expulsion of the Miwok.¹² The Yosemite model spread to other national parks, including Yellowstone, where the forced evictions killed 300 Shoshone in one day.¹³

Beneath the invocations of the spiritual and transcendental value of untrammelled nature is an argument for using landscapes for some things and not others: hiking trails rather than roads, science stations rather than logging operations, and hotels for ecotourists instead of homes. By removing long-established human communities, erecting hotels in their stead, removing unwanted species while supporting more desirable species, drilling wells to water wildlife, and imposing fire management that mixes control with prescribed burns, we create parks that are no less human constructions than Disneyland.

Conservation is widely viewed as the innocent and uncontroversial practice of purchasing special places threatened by development. In truth, for 30 years, the global conservation movement has been racked with controversy arising from its role in expelling indigenous people from their lands in order to create parks and reserves.¹⁴ The modern protection of supposed wilderness often involves resettling large numbers of people, too often without fair compensation for their lost homes, hunting grounds, and agricultural lands.

In 2009, the investigative journalist Mark Dowie, now professor of journalism at University of California, Berkeley, published *Conservation Refugees*, which estimated, "About half the land selected for protection by the global conservation establishment over the past century was either occupied or regularly used by indigenous peoples. In the Americas that number is over 80 percent."¹⁵ Estimates vary from five million people displaced over the last century by conservation to tens of millions, with one Cornell University professor estimating that 14 million individuals have been displaced by conservation in Africa alone.¹⁶

In the early 1990s, indigenous groups spoke out against these evictions at various forums, including at the United Nations Earth Summit in Rio. As a result, conservation groups pledged to respect and work with the communities living in or around protected areas. Over the next few years, conservation organizations prioritized working with local organizations including indigenous people in "stakeholder" meetings, "community-based conservation," and "sustainable development." Gorgeous photos of indigenous people started gracing the glossy annual reports and fundraising brochures of conservation groups. But by 2004, the conflicts had only increased. That spring, the International Forum on Indigenous Mapping resulted in a declaration signed by all 200 delegates that the "activities of conservation organizations now represent the single biggest threat to the integrity of indigenous lands."¹⁷

In many parts of the world, parks have become anathema to conservation. Consider the 1982 effort to create a national park in Mburo, Uganda. In the name of preserving the wildlife, the government violently expelled thousands of men, women, and children from the surrounding region, without compensation. This expulsion proved self-defeating. In 1986, a new government encouraged these conservation refugees to resettle their former homelands, where they promptly slaughtered wildlife and vandalized the park facilities in retribution.¹⁸

In Indonesia, every major international conservation NGO has invested heavily to stem the tide of deforestation and the decline of iconic species, such as the orangutan. As a result, the country now has many protected areas. But you would never know it if you were to visit them because these areas are so heavily logged. Quantitative analyses of deforestation rates using satellite imagery reveal that forest loss is much greater inside protected Indonesian forests than in forests managed by local communities for sustainable logging.¹⁹

Conservation organizations counter these examples by saying that the displacements of people are old news. They point out that they have learned from past mistakes. Today, most conservation NGOs have policies of best practice intended to protect the rights of local communities, and conservation NGOs are increasingly hiring social scientists and anthropologists who incorporate indigenous people into their conservation strategies.

But conservation will be controversial as long as it remains so narrowly focused on the creation of parks and protected areas, and insists often unfairly, that local people cannot be trusted to care for their land. In his 2005 book, *Collapse*, the geographer Jared Diamond famously claimed that Easter Island's inhabitants devolved into cannibalism after they mindlessly cut down the last trees -- a parable for humankind's shortsighted overuse of natural resources.²⁰ But Diamond got the history wrong. It was the combined effect of a nonnative species -- the Polynesian rat, which ate tree seeds -- and European slavery raids that destroyed Easter Island's people, not their shortsighted management of nature.²¹

2.

As conservation became a global enterprise in the 1970s and 1980s, the movement's justification for saving nature shifted from spiritual and aesthetic values to focus on biodiversity. Nature was described as primeval, fragile, and at risk of collapse from too much human use and abuse. And indeed, there are consequences when humans convert landscapes for mining, logging, intensive agriculture, and urban development and when key species or ecosystems are lost.

But ecologists and conservationists have grossly overstated the fragility of nature, frequently arguing that once an ecosystem is altered, it is gone forever. Some ecologists suggest that if a single species is lost, a whole ecosystem will be in danger of collapse, and that if too much biodiversity is lost, spaceship Earth will start to come apart. Everything, from the expansion of agriculture to rainforest destruction to changing waterways, has been painted as a threat to the delicate inner-workings of our planetary ecosystem.

The fragility trope dates back, at least, to Rachel Carson, who wrote plaintively in *Silent Spring* of the delicate web of life and warned that perturbing the intricate balance of nature could have disastrous consequences.²² Al Gore made a similar argument in his 1992 book *Earth in the Balance*.²³ And the 2005 Millennium Ecosystem Assessment warned darkly that, while the expansion of agriculture and other forms of development have been overwhelmingly positive for the world's poor, ecosystem degradation was simultaneously putting systems in jeopardy of collapse.²⁴

The trouble for conservation is that the data simply do not support the idea of a fragile nature at risk of collapse. Ecologists now know that the disappearance of one species does not necessarily lead to the extinction of any others, much less all others in the same ecosystem. In many circumstances, the demise of formerly abundant species can be inconsequential to ecosystem function. The American chestnut, once a dominant tree in eastern North America, has been extinguished by a foreign disease, yet the forest ecosystem is surprisingly unaffected. The passenger pigeon, once so abundant that its flocks darkened the sky, went extinct, along with countless other species from the Steller's sea cow to the dodo, with no catastrophic or even measurable effects.

These stories of resilience are not isolated examples -- a thorough review of the scientific literature identified 240 studies of ecosystems following major disturbances such as deforestation, mining, oil spills, and other types of pollution. The abundance of plant and animal species as well as other measures of ecosystem function recovered, at least partially, in 173 (72 percent) of these studies.²⁵

While global forest cover is continuing to decline, it is rising in the Northern Hemisphere, where "nature" is returning to former agricultural lands.²⁶ Something similar is likely to occur in the Southern Hemisphere, after poor countries achieve a similar level of economic development. A 2010 report concluded that rainforests that have grown back over abandoned agricultural land had 40 to 70 percent of the species of the original forests.²⁷ Even Indonesian orangutans, which were widely thought to be able to survive only in pristine forests, have been found in surprising numbers in oil palm plantations and degraded lands.²⁸

Nature is so resilient that it can recover rapidly from even the most powerful human disturbances. Around the Chernobyl nuclear facility, which melted down in 1986, wildlife is thriving, despite the high levels of radiation.²⁹ In the Bikini Atoll, the site of multiple nuclear bomb tests, including the 1954 hydrogen bomb test that boiled the water in the area, the number of coral species has actually increased relative to before the explosions.³⁰ More recently, the massive 2010 oil spill in the Gulf of Mexico was degraded and consumed by bacteria at a remarkably fast rate.³¹

Today, coyotes roam downtown Chicago, and peregrine falcons astonish San Franciscans as they sweep down skyscraper canyons to pick off pigeons for their next meal. As we destroy habitats, we create new ones: in the southwestern United States a rare and federally listed salamander species seems specialized to live in cattle tanks -- to date, it has been found in no other habitat.³² Books have been written about the collapse of cod in the Georges Bank, yet recent trawl data show the biomass of cod has recovered to precollapse levels.³³ It's doubtful that books will be written about this cod recovery since it does not play well to an audience somehow addicted to stories of collapse and environmental apocalypse.

Even that classic symbol of fragility -- the polar bear, seemingly stranded on a melting ice block -- may have a good chance of surviving global warming if the changing environment continues to increase the populations and northern ranges of harbor seals and harp seals. Polar bears evolved from brown bears 200,000 years ago during a cooling period in Earth's history, developing a highly specialized carnivorous diet focused on seals. Thus, the fate of polar bears depends on two opposing trends -- the decline of sea ice and the potential increase of energy-rich prey. The history of life on Earth is of species evolving to take advantage of new environments only to be at risk when the environment changes again.

The wilderness ideal presupposes that there are parts of the world untouched by humankind, but today it is impossible to find a place of

Earth that is unmarked by human activity. The truth is humans have been impacting their natural environment for centuries. The wilderness so beloved by conservationists -- places "untrammelled by man"³⁴ -- never existed, at least not in the last thousand years, and arguably even longer.

The effects of human activity are found in every corner of the Earth. Fish and whales in remote Arctic oceans are contaminated with chemical pesticides. The nitrogen cycle and hydrological cycle are now dominated by people -- human activities produce 60 percent of the fixed nitrogen deposited on land each year, and people appropriate more than half of the annual accessible freshwater runoff.³⁵ There are now more tigers in captivity than in their native habitats. Instead of sourcing wood from natural forests, by 2050 we are expected to get over three-quarters of our wood from intensively managed tree farms. Erosion, weathering, and landslides used to be the prime movers of rock and soil; today humans rival these geological processes with road building and massive construction projects.³ All around the world, a mix of climate change and nonnative species has created a wealth of novel ecosystems catalyzed by human activities.

3.

Scientists have coined a name for our era -- the Anthropocene -- to emphasize that we have entered a new geological era in which humans dominate every flux and cycle of the planet's ecology and geochemistry. Most people worldwide (regardless of culture) welcome the opportunities that development provides to improve lives of grinding rural poverty. At the same time, the global scale of this transformation has reinforced conservation's intense nostalgia for wilderness and a past of pristine nature. But conservation's continuing focus upon preserving islands of Holocene ecosystems in the age of the Anthropocene is both anachronistic and counterproductive.

Consider the decline of the orangutan, which has been largely attributed to the logging of their forest habitats. Recent field studies suggest that humans are killing the orangutans for bush meat and bounty at rates far greater than anyone suspected, and it is this practice, not deforestation, that places orangutans at the greatest peril.³⁷ In order to save the orangutan, conservationists will also have to address the problem of food and income deprivation in Indonesia. That means conservationists will have to embrace human development and the "exploitation of nature" for human uses, like agriculture, even while they seek to "protect" nature inside of parks.

Conservation's binaries -- growth *or* nature, prosperity *or* biodiversity -- have marginalized it in a world that will soon add at least two billion more people. In the developing world, efforts to constrain growth and protect forests from agriculture are unfair, if not unethical, when directed at the 2.5 billion people who live on less than two dollars a day and the one billion who are chronically hungry. By pitting people against nature, conservationists actually create an atmosphere in which people see nature as the enemy. If people don't believe conservation is in their own best interests, then it will never be a societal priority. Conservation must demonstrate how the fates of nature and of people are deeply intertwined -- and then offer new strategies for promoting the health and prosperity of both.

One need not be a postmodernist to understand that the concept of Nature, as opposed to the physical and chemical workings of natural systems, has always been a human construction, shaped and designed for human ends. The notion that nature without people is more valuable than nature with people and the portrayal of nature as fragile or feminine reflect not timeless truths, but mental schema that change to fit the time.

If there is no wilderness, if nature is resilient rather than fragile, and if people are actually part of nature and not the original sinners who caused our banishment from Eden, what should be the new vision for conservation? It would start by appreciating the strength and resilience of nature while also recognizing the many ways in which we depend upon it. Conservation should seek to support and inform the right kind of development -- development by design, done with the importance of nature to thriving economies foremost in mind. And it will utilize the right kinds of technology to enhance the health and well-being of both human and nonhuman natures. Instead of scolding capitalism, conservationists should partner with corporations in a science-based effort to integrate the value of nature's benefits into their operations and cultures. Instead of pursuing the protection of biodiversity for biodiversity's sake, a new conservation should seek to enhance those natural systems that benefit the widest number of people, especially the poor. Instead of trying to restore remote iconic landscapes to pre-European conditions, conservation will measure its achievement in large part by its relevance to people, including city dwellers. Nature could be a garden -- not a carefully manicured and rigid one, but a tangle of species and wildness amidst lands used for food production, mineral extraction, and urban life.

Conservation is slowly turning toward these directions but far too slowly and with insufficient commitment to make them *the* conservation work of the 21st century. The problem lies in our reluctance, and the reluctance of many of conservation's wealthy supporters, to shed the old paradigms.

This move requires conservation to embrace marginalized and demonized groups and to embrace a priority that has been anathema to us for more than a hundred years: economic development for all. The conservation we will get by embracing development and advancing human well-being will almost certainly not be the conservation that was imagined in its early days. But it will be more effective and far more broadly supported, in boardrooms and political chambers, as well as at kitchen tables.

None of this is to argue for eliminating nature reserves or no longer investing in their stewardship. But we need to acknowledge that a conservation that is only about fences, limits, and far away places only a few can actually experience is a losing proposition. Protecting biodiversity for its own sake has not worked. Protecting nature that is dynamic and resilient, that is in our midst rather than far away, and that sustains human communities -- these are the ways forward now. Otherwise, conservation will fail, clinging to its old myths. /

Further Reading

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The views here are the authors' own and do not necessarily reflect the official position of The Nature Conservancy.

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