Garrett Hardin

Thinking without limits about living within limits

Leon Kolankiewicz

What sort of world do we want — a world with the maximum number of human beings, but no canaries? I'd rather have a world with fewer people, but in which canaries are a part of the world.

—Garrett Hardin, in a 1997 interview with environmental scientist Craig Straub for *The Social Contract* (see this issue, pages 24-33) at his home in Santa Barbara, California.

Half a century ago, the multidisciplinary scientific journal *Science* published a seminal essay about overpopulation whose reverberations are still felt to this day. *Science*, the flagship publication of the American Association for the Advancement of Science (AAAS), is rivaled internationally in prestige among peer-reviewed general science journals only by the even more venerable *Nature*, published in the U.K.

The canonical essay was "The Tragedy of the Commons" by Garrett Hardin, an erudite, disabled professor of human ecology at the lovely seaside Santa Barbara campus of the University of California (UCSB). For an essay whose abstract was so short, "Tragedy…" has had a very long reach. The abstract consisted of but a single sentence: "The population problem has no technical solution; it requires a fundamental extension in morality."

When it comes to the fraught topic of population, only Thomas Robert Malthus' 1798 "Essay on the Principle of Population" and Paul Ehrlich's 1968 book *The Population Bomb* have stimulated such a response — both positive and negative. Like these other writings, Hardin's landmark essay has been both lauded as insightful and denounced as dangerous, dismal, racist, misanthropic, and of course, "Malthusian." For several decades, the publisher of *Science* received more requests to reprint Hardin's essay than it did for any other of the thousands of papers published in that august journal. "Tragedy…" was so influential, even in the criticism it provoked, that the late political economist Elinor Ostrom was awarded a Nobel Memorial Prize in Economic Sciences in 2009 for a career dedicated in part to examining, critiquing, and softening the stark implications of Hardin's thesis.

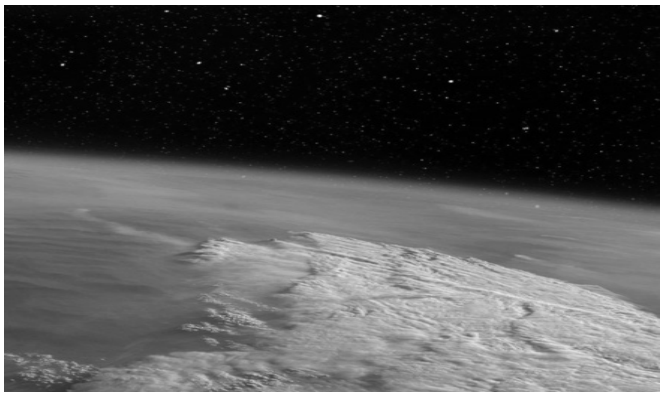
The emphasis of "The Tragedy of the Commons" was ostensibly the intractability of the population problem, appropriate given that it was published at a time (1968) when the global fertility rate was twice what it is today and many national populations were set to double in a single generation. Hardin wrote: "…there is no prosperous population in the world today that has, and has had for some time, a growth rate of zero." Circumstances have changed considerably half a century on, and that is no longer the case. Yet what the essay really addressed, and what makes it just as relevant and timely today, was a more general and eternal class of "common property" or "common pool" resource problems posed by an ever-larger human enterprise approaching the limits to growth on a finite ecosphere. Paradoxically, that growth itself undermines the very "natural capital" which sustains it.

The ultimate "Commons" on Planet Earth is our common, life-giving atmosphere, a single, shared, globe-enveloping sea of air, which blankets every continent and bathes every country. This thin, gaseous film provides animals and humans with oxygen to breathe, carbon dioxide for plants to grow, nitrogen to fertilize that growth, a shield against deadly radiation from the sun, and a critical "greenhouse effect" which moderates what would otherwise be extreme seasonal and diurnal temperature swings at the surface of the Earth associated

---

Leon Kolankiewicz *is a long-time environmental scientist, planner, and author. He has been an environmental consultant to the U.S. Departments of Energy and Agriculture, Army Corps of Engineers, NASA, NOAA, U.S. Forest Service, National Park Service, and U.S. Fish and Wildlife Service. He is the author of* Where Salmon Come to Die: An Autumn on Alaska's Raincoast.

with planetary revolution and rotation. Hardin's perceptive essay helps explain just why it is that 7.7 billion human beings divided among some 200 countries are having such a hard time cooperating to protect this vital atmosphere, a commons upon which we all depend with each and every breath.



Earth's precious atmosphere viewed from space — a thin envelope of life-giving air, water vapor, and clouds that is the ultimate "common pool resource" on Planet Earth. Source: NASA photo

The first time I saw Garrett Hardin in person was in about 1992 on his home turf at the scenic campus of UCSB, set beside the Pacific Ocean on the picturesque California coast. The occasion was a meeting of the Pacific Division of the AAAS, at which there was a session discussing Hardin's ideas. "The Tragedy of the Commons," published on 13 December 1968, was in fact based on a presidential address that Garrett Hardin gave at a meeting of the same Pacific Division of the AAAS on 25 June 1968 at Utah State University in Logan.

Of course I had known that Professor Hardin was disabled, but seeing him appear at the door in person for the first time, then in his late seventies, I could truly appreciate how physically frail he was. Using forearm crutches to assist his polio-weakened legs, he advanced slowly and painstakingly, with others helping him by holding the door open, moving a chair into position for him to sit on, and so forth. The contrast between his physical lameness and his intellectual potency was striking. I was also struck by how respectful the scholars in the session were.

I later encountered Garrett at a Californians for Population Stabilization (CAPS) function in Los Angeles and then at a Carrying Capacity Network (CCN) conference there as well, and I had a chance to chat with him and buy a copy of his recently published *Living Within Limits*, which he graciously signed for me. Still later I interacted with Garrett over my collaboration with NumbersUSA founder Roy Beck on a scholarly paper examining why American environmentalists had abandoned the U.S. population stabilization cause, as well as on research into the extent to which population growth and other factors were driving habitat-and-farmland devouring urban sprawl in the United States. He was enthusiastic about both research projects and asked to be one of our advisors on the sprawl studies.

Where had Garrett Hardin started from, and what path had he followed through life from modest origins to become one of the best-known — and controversial — scientists in the world?

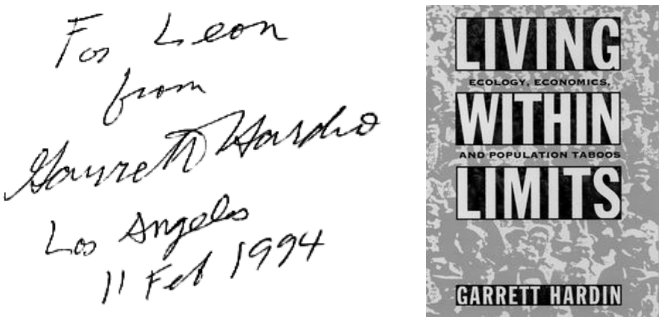
WHAT MADE THE MIND OF THE MAN — HARDIN'S ORIGINS, YOUTH, AND ACADEMIC CAREER

I spent all my summers [on the Hardin family farm in Missouri] until I was about eighteen or nineteen…. by the time I was eleven or twelve I was in charge of about 500 chickens, which I had to take care of — feed and water. And I had to kill a chicken every day for lunch.

This, I think, was a very important part of my education — learning to kill an animal. I regard this as an important part of everybody's education…. If you want to eat meat, somebody has to kill it. I think everybody ought to have to do it, and not just once but many times. Because one of the things that I was imbued with, by this farm family, was a horror of cruelty — not of killing, but of cruelty. If you are going to kill an animal, you have to kill it instantly and as painlessly as you can. It's a disgrace to do otherwise.

—Garrett Hardin in a 1997 interview with environmental scientist Craig Straub.

Garrett James Hardin grew up in the Midwest and spent much of his youth learning valuable lessons about life, death, and stewardship on his grandfather's farm. He was born on April 21, 1915 in Dallas, but didn't stay there long enough to take root as a Texan. As a boy, he moved frequently with his family because his father "kept moving from one place to another," he told interviewer Craig Straub in 1997; his dad worked for the Illinois Central Railroad, which obligated him to relocate every few years. The one place Garrett experienced some stability in his life was at the Hardin family farm in western Missouri, not far from the small town of Butler and a bit further from the Kansas border. Garrett called



Garrett Hardin's inscription inside the cover of the author's copy of *Living Within Limits: Ecology, Economics, and Population Taboos* (Oxford University Press, 1993).

it a "lonely but wonderful place," and out there in the solitude of the plains he appreciated the open space and low population density. He had time to think, and time to read. Missouri is famously known as the "Show-Me" state, meaning that its native sons and daughters are not gullible and are unwilling to believe a claim without sufficient evidence. That the critical, skeptical spirit of the state perhaps helped form Garrett Hardin seems fitting, given the kind of independent scientist and contrarian freethinker he chose to become.

As the quote above illustrates, from the time he was just a boy, Garrett was given more and more chores and responsibilities in caring for large numbers of farm animals, particularly chickens. He learned that not just death, but killing and causing death, are a necessary part of life. He also learned that what is fashionable is frequently foolish. He grew angry with cat owners from Kansas City who decided they no longer wanted or could care for their pets, and so drove them into the countryside to release them, consoling themselves they were doing a great and noble thing by "setting them free". Hardin saw what happened next: the abandoned, hungry cats would wander onto the family farm only to be hunted down and killed by the farm dogs. But the irresponsible owners didn't have to watch the cruel consequences of their superficially compassionate choices and actions. Years later, Hardin would write: "There is nothing more dangerous than a shallow-thinking compassionate person."

It was formative experiences like these which would lead Hardin, in thinking about the downstream environmental implications of a given human action, to insist that decision-makers ask and try to answer the question: *"And then what?"* As one who has dedicated my own professional career to conducting environmental assessments and managing Environmental Impact Statements for many years, I can relate to this. Asking and trying to answer "And then what?" is precisely what I do for a living, as an environmental scientist and planner implementing the National Environmental Policy Act (NEPA) as a consultant to a number of federal agencies.

Years later, as a prominent figure, Garrett was an invited speaker at the University of Washington for an annual lecture series called The Jessie and John Danz Lectures. These lectures addressed the Big Picture, and were given by some of the world's leading scientists and intellectuals. Distinguished speakers in previous years had included Sir Julian Huxley, addressing *The Human Crisis*, astronomer Sir Fred Hoyle, on *Of Men and Galaxies*, and DNA co-discoverer and Nobel Laureate Francis Crick, whose lecture was entitled *Of Molecules and Men*. Hardin's speech and subsequent book were called *Promethean Ethics: Living with Death, Competition, and Triage*. In it, he wrote:

> After two centuries of Progress-intoxicated Epimethean behavior the United States took a great Promethean step in January of 1971 when NEPA — the National Environmental Policy Act — was signed into law. NEPA requires a Promethean analysis of every proposed intervention in the environment before it can be carried out. As the world becomes more and more crowded with human beings it is harder to do anything to the environment without harming someone, somewhere. The greater the crowding, the greater the harm, and the more probable the harm. The Epimethean assumption, 'Innocent until proven guilty,' was tolerable in earlier, uncrowded days; from now on, only the Promethean assumption, 'Guilty until proven innocent,' is a safe guide to action.

At the age of just four, Garrett Hardin learned another painful early lesson in Life's school of hard knocks, when he contracted poliomyelitis from exposure to the polio virus. Until the development of the Salk vaccine in 1955, polio was a highly contagious scourge that killed and crippled millions of children around the world. Garrett's bout with polio left him with a permanently shortened and weakened right leg and a life-long limp. It affected not only his workload as a youth on the farm, but even his career prospects. So much for becoming a field geologist or an actor, two of his early serious career interests that depended on able-bodied walking.

But Garrett could still read, and read he did, avidly. According to a tribute written by Carl Jay Bajema of Grand Valley State University for a 1991 festschrift in Hardin's honor, published by the journal *Population and Environment*, the magazine *Popular Science* nurtured Garrett's interest in science. In high school, he also enjoyed drama, public speaking, and mathematics. His academic performance was strong enough to win three college scholarships. In 1932 he began attending the University of Chicago during the day and the Chicago Musical College drama program at night, though the latter soon had to be dropped because of the rigors of the former.

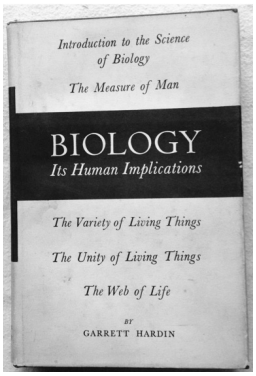
At Chicago, Hardin was mentored by Professor W. C. Allee, a pioneering ecologist and accomplished zoologist. Allee introduced him to the theory of ecological limits to growth of populations in nature, as well as to the Malthusian notion that the ultimate solution to persistent food shortages was to control the "longage" of population-drive demand. Hardin also studied evolution under the eminent geneticist Sewall Wright, one of the founders of the emerging field of population genetics. Hardin excelled at his coursework, earning his B.S. in zoology from the University of Chicago in 1936.

Later that year, he moved to the West Coast for the

first time and started graduate school at Stanford University, where two professors in particular had a major influence on him: George Beadle and C.B. van Niel. Beadle was a geneticist who won the Nobel Prize for discovering the role of genes in regulating cellular biochemistry, and van Niel was a microbiologist who made key discoveries elucidating the chemistry of photosynthesis. Garrett became Beadle's teaching assistant, and he took van Niel's class at the marine biology station. Van Niel taught using the Socratic method, asking and answering questions to stimulate critical thinking. This influenced Hardin's own approach to teaching when he later became an educator himself.

Hardin wrote his Ph.D. dissertation on microbial ecology and in 1941 earned his doctorate from Stanford. That same year he married Jane Swanson. From 1942 to 1946 he worked with the Carnegie Institution of Washington at the division of plant biology on the Stanford campus, applying his knowledge of microbial ecology to research focused on culturing algae to produce food, most of which tasted and smelled awful. But he came to feel that merely increasing food supplies ad nauseam simply enabled still more human population growth rather than permanently solving the perennial problem of food shortages. He was already coming to understand that "there could be too much of a good thing" — both too much food and too many people — and that alleged "shortages" of supply often in fact merely masked "longages" of demand.

In 1946 he left this research and Stanford behind to join the faculty at UCSB, then a small liberal arts college that had just joined the University of California system in 1944. Under the burden of a heavy teaching load and inadequate facilities at UCSB, Garrett abandoned his microbiology studies for good. Instead, he began his writing career in earnest, authoring an introduction to the science of biology, what would become a classic textbook initially entitled *Biology: Its Human Implications*, published by W.H. Freeman & Co. in 1949. It was dedicated to W.C. Allee, his old professor and ecologist at Chicago. The book's cover alludes to "The Measure of Man," "The Variety of Living Things," "The Unity of Living Things," and "The Web of Life." A second edition was released in 1951 and subsequent editions in 1961 and 1966.



Professor Bajema writes that Hardin's textbook "broke new ground by presenting biology through the teaching of the scientific method, i.e. the process by which theories are constructed, scientifically tested and evaluated." Australian philosopher John Passmore (1914-2014), in his 1980 Harvard University Press book *Philosophy of Teaching*, complimented Hardin's intro biology text for its emphasis on science as a structured process, instead of a collection of information and facts, like an encyclopedia.

It was while he was at UCSB that Garrett began to venture from science toward activism on controversial population and environmental issues. He started teaching his first class on human ecology in 1960. Several years later, he began speaking out that abortion should be legalized, lecturing around the country on the liberation of women from "compulsory pregnancy," a particularly disagreeable stance for many of the conservatives and Republicans with whom he identified. Garrett even joined an underground network that assisted women in the U.S., where abortions were still illegal and dangerous, to obtain them in Japan and Mexico. He explained to other conservatives that the cost to society of raising an unwanted child far surpassed the cost of an abortion, a utilitarian argument that would infuriate "Right to Life" or anti-abortion activists in the following decades as morally bankrupt or just plain evil.

From 1963 until his early retirement in 1978, Hardin was a professor of human ecology at UCSB. In June of 1978, he withdrew from teaching responsibilities and became an emeritus professor so he could "devote himself wholeheartedly to his writing." Yet his legacy and reputation at UCSB lived on long after his physical presence on campus. Decades afterwards, in 2005, I was on a visit to Montana's spectacular Glacier National Park. There I hiked alone through ranks of conifers and subalpine meadows to Piegan Pass, named in honor of a prominent tribe of Blackfoot Indians, longtime indigenous residents of the region. At the somber alpine pass itself, under heavy overcast skies, I happened upon another intrepid solo hiker, a young, slender, long-haired fellow who it turned out was a recent graduate of UCSB's environmental studies program. Out of curiosity, I asked him if he'd ever heard of UCSB's human ecologist Garrett Hardin. "Oh, you mean the genius?" he answered reverently.

It was nice to know that Hardin hadn't been entirely forgotten by a younger generation, because over the decades the all-but-complete capture of academia by the hard left cultural Marxists, "social justice warriors" (SJWs), and the pseudo-intellectual fads of postmodernism, critical theory, and intersectionality had denigrated his reputation and dismissed his ideas. An old friend of mine, a college professor with advanced degrees from Harvard and M.I.T., as well as a prolific author whose books have been published by the most prestigious university presses, denounced Garrett Hardin to me and mutual friends in private correspondence as a racist eugenicist and xenophobe.

Author Kolankiewicz at Glacier National Park's Piegan Pass in 2005, where he heard Garrett Hardin called a genius by a young man.

Today, even the natural sciences are subject to the dictates and whims of political correctness and identity politics run amuck. Leftist orthodoxy and dogma prevail. One of the most celebrated scientists of the twentieth century, Nobel Laureate James Watson (co-discoverer of the double helix structure of the DNA molecule with Francis Crick), was defenestrated and converted into an "unperson" (in his own words) for his decidedly politically incorrect views on the heritability of intelligence. In 2018, Italian particle physicist Fabiola Gianatti was suspended by the European physics lab CERN and condemned by hundreds of his colleagues (who ludicrously called themselves "Particles for Justice") for his unpalatable findings challenging orthodox views on the supposed difficulties faced by female physicists.

We have all but reached the point of show trials, and while Aleksandr Solzhenitsyn's Gulag Archipelago and Andrei Sakharov's internal exile may be a thing of the Soviet past, today those scientists and freethinkers in the West judged guilty of unacceptable thoughtcrimes are indeed exiled from polite society, the academy, respectable jobs, and reputable publications. They have been "deplatformed" from speaking engagements at university campuses, or mobbed and assaulted with impunity by SJW thugs and modern-day brownshirts. It is reminiscent of Communist China's Cultural Revolution, complete with cringe-worthy apologies from those accused of thoughtcrimes trying in vain to redeem themselves.

The upshot of the age of darkness and dogma into which we have devolved, or perhaps slouched: half a century after the date of its publication, it is doubtful that today "The Tragedy of the Commons" would ever be permitted to appear in *Science* or in any other "reputable" publication.

ENVIRONMENTAL BIOLOGY, EVOLUTION, MALTHUS, DARWIN, AND HARDIN

> *As for killing little Bambis, in an overpopulated species they won't be missed when the next year comes. There will be time enough to cherish the young after the population is reduced to a point* below *the carrying capacity of the land.* Thou shalt not transgress the carrying capacity. *So speaks rationality; sentimentality is shocked.*
>
> — Garrett Hardin, *Living Within Limits*, Part III "Biting the Bullet," Chapter 20, "Carrying Capacity"

Environmental biology is the study of the living organism in the context of its surrounding environment, both its abiotic, physical environment (e.g., space, time, energy, matter) and the biotic, or living, components of its environment, namely other members of its own species, populations of various species, communities of populations, food webs, and ecosystems. The evolution of species across the eons via the mechanism of natural selection, as first propounded in Charles Darwin's foundational 1859 book *On the Origin of Species*, is the unifying theory of modern evolutionary biology.

Garrett Hardin followed in Charles Darwin's intellectual footsteps. And both Darwin and Hardin followed in the footsteps of Thomas Robert Malthus, who was not even an ecologist but an economist, indeed the first professional economist in the world. (The essential but often unsuspected kinship of ecology and economics is revealed by the fact that both words are derived from the same Greek root *oikos*, or "household". Environmental historian Daniel Worster's popular 1977 book about ecology for a general readership was entitled *Nature's Economy*.)

Malthus postulated the intrinsic ability of human populations, through reproduction and geometric (exponential) growth, to outstrip the environment's ability to supply them with food. Darwin realized that this disparity caused by an innate overproduction of animals would lead to fierce competition among individuals and species for "survival of the fittest" (a term actually coined not by Darwin but by Herbert Spencer). Hardin and other neo-Malthusian ecologists in the twentieth century realized that resources other than food could also prove to be limiting factors in the growth of modern human populations, in spite of our vaunted technology and industry, which ultimately, do not exempt us from the underlying natural laws and resource constraints that impinge upon all living things.

In 1961, the American Institute of Biological Sciences produced a film for beginning biology or anthropology students entitled *Darwin and Evolution, Life, Time,*

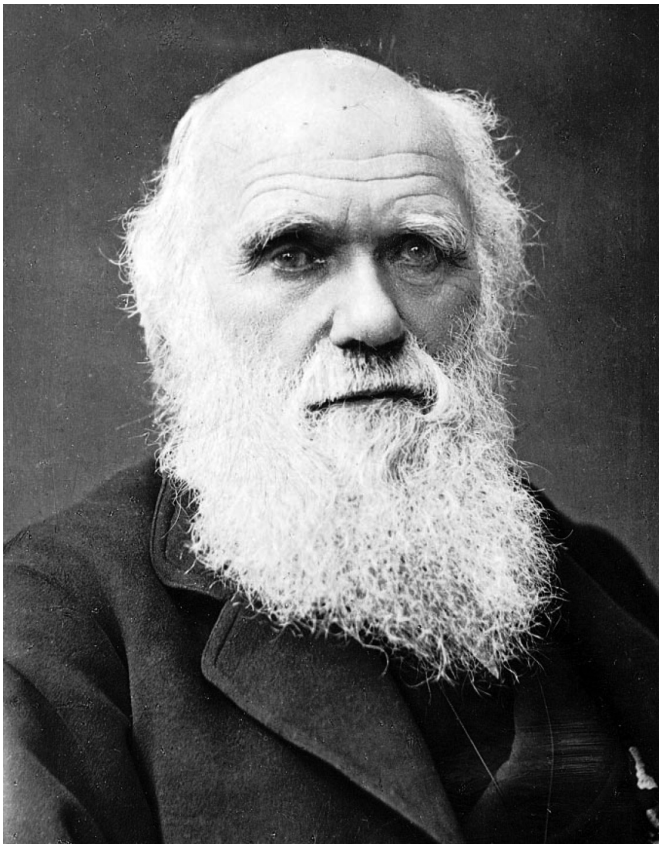
and Change, narrated by Garrett Hardin. In a 1999 interview with environmental journalist Nancy Pearlman, Hardin expressed some bemusement and bewilderment at the peculiarly American objection to Darwinism and evolution, which he said was not shared by Europeans.

In the same interview, Hardin defended Malthus from his critics, stating that Malthus wrote just prior to the Scientific/Industrial Revolution and couldn't have foreseen its remarkable advances. These advances, for a while in any case, vastly improved human prospects by accelerating our exploitation or drawdown of the environment's renewable and non-renewable resources (such as the fossil fuels and high-grade mineral ore bodies) and thus support a much larger human population — now nearly eight times larger than in Malthus' day. Malthus didn't anticipate these revolutionary advances, but neither did anyone else, noted Hardin.

A principal concept in environmental biology is that of carrying capacity: the largest population size of a species that can be supported by its environment or habitat in perpetuity, without degrading that habitat, or as the author of *Overshoot*, environmental sociologist William Catton, once put it more succinctly, "the maximum sustainable load." The populations of herbivores, say, grazers such as bison, wildebeest, or cattle — those "gentle" species adapted through evolution to eat only plants to survive — are generally controlled at or below the carrying capacity of the range by populations of carnivores, the "bloodthirsty" meat-eaters, including wolves, lions, and human beings.

When an ecosystem is disrupted by the removal of carnivores and predation, at first the herbivores are euphoric, and their numbers surge exuberantly in a "population irruption," that is, they experience uncontrolled, exponential growth. They proceed to breed with abandon…and with nothing to control that innate exuberance, inevitably eat themselves out of house and home. And in the fullness of time, only for a short while — mere weeks, months, years, or decades elapse, depending on the species in question — before the piper must be paid and the grim reaper swings his lethal blade. Then the "released" population, bloated beyond carrying capacity, that is, in a state of ecological overshoot, typically "crashes" or collapses, but not before damaging its environment, say, through soil erosion, or depleting juicy, nutritious, edible grasses and forbs and replacing them with inedible spines, toxic weeds, or creosote bush.

Hardin admired Aldo Leopold (1887-1948), the founding father of wildlife ecology, co-founder of the Wilderness Society, and author of the pioneering textbook *Game Management* and the conservation classic *A Sand County Almanac*. In his own career in the first half



Robert Thomas Malthus (1766-1834), left, and Charles Darwin (1809-1882), right, were the major intellectual influences in the evolution of Hardin's ideas.

of the twentieth century, Leopold underwent a powerful conversion from a rabid hater of iconic Western predators such as wolves and mountain lions, as competitors for "our" game species, such as elk and deer, to their ardent defender as integral members of a healthy biotic community or ecosystem. Hardin wrote about Leopold: "From one who had sought to maximize the number of deer lives, he became the proponent of the temperate killing of prey animals — by predators preferably, but by human hunters if necessary; in any case, *a killing of prey animals for the good of their own kind.*"

For the "lion to lie down with the lamb" may be a wonderful metaphorical allusion to a future Paradise of Peace between former human foes in Christian mythology, but in the real world of Life (and Death) on Earth, the lambs need the lions to eat them so that sheep do not overpopulate and lay waste to their home turf.

Garrett Hardin dedicated his career, his life really, to the proposition that the maximum is not the optimum. "There is no way in a finite environment that you can satisfy a need that is uncontrollable. Sometimes you just have to say, 'enough's enough, and now we're going to stop,'" he said in that 1999 interview with Nancy Pearlman. An author's bio in one of his books described Hardin as "a persuasive voice for ecological sanity. In his lucid, penetrating, and often witty prose, he urges man to consider the complex problems created by his failure to invent acceptable negative feedbacks to substitute for the predators that control all populations except the human."

Unfortunately, most men — and most women for that matter — would rather turn away from such rational, if unsentimental and unseemly, considerations. We prefer the easy way out of the dilemma, one that allows us to have our cake and eat it too. We prefer the elixir of technology. We swoon for it. We are transfixed by technology, and its seductive mirage of endless techno-fixes that catapult us over and beyond environmental limits, eluding them. Fertilizers. Fracking. Geoengineering. Genetic engineering. Nanotechnology. Nuclear fusion. We place all our faith in the magician of technology to continue pulling rabbits out of the hat forever, so that there is never any comeuppance, never a reckoning for our reckless ways.

REFLECTIONS ON A TRAGEDY

> *The most important aspect of necessity that we must now recognize, is the necessity of abandoning the commons in breeding. No technical solution can rescue us from the misery of overpopulation. Freedom to breed will bring ruin to all.*
>
> —Garrett Hardin, "The Tragedy of the Commons," *Science*, 13 Dec. 1968, pp. 1243-1248

At the outset of his most famous and formidable essay, Garrett Hardin challenged the laissez-faire economists' sacred cow of the "invisible hand." This is the notion, put forth by eighteenth century economist and philosopher Adam Smith in his 1776 magnum opus *The Wealth of Nations*, that an individual who "intends only his own gain" is magically guided, as it were, "by an invisible hand to promote…the public interest." Hardin notes that Smith never claimed that the invisible hand was always and everywhere at work, but that nonetheless, over time, a dominant tendency developed "to assume that decisions reached individually will, in fact, be the best decisions for an entire society." If this were indeed the case, "we can assume that men will control their individual fecundity so as to produce the optimum population."

He then launched into the scenario he made famous, that of a grazing pasture — the commons — to rebut the assumption that the invisible hand would invariably lead to an optimum population. Hardin acknowledged amateur mathematician William Forster Lloyd, who first sketched out this analogy in an obscure 1833 pamphlet. Hardin wrote:

> Picture a pasture open to all. It is to be expected that each herdsman will try to keep as many cattle as possible on the commons. Such an arrangement may work reasonably satisfactorily for centuries because tribal wars, poaching, and disease keep the numbers of both man and beast well below the carrying capacity of the land.

Yet finally, in an era of peace, due to increasing prosperity and population, the day arrives when the carrying capacity of the common grazing pasture is being approached. And then:

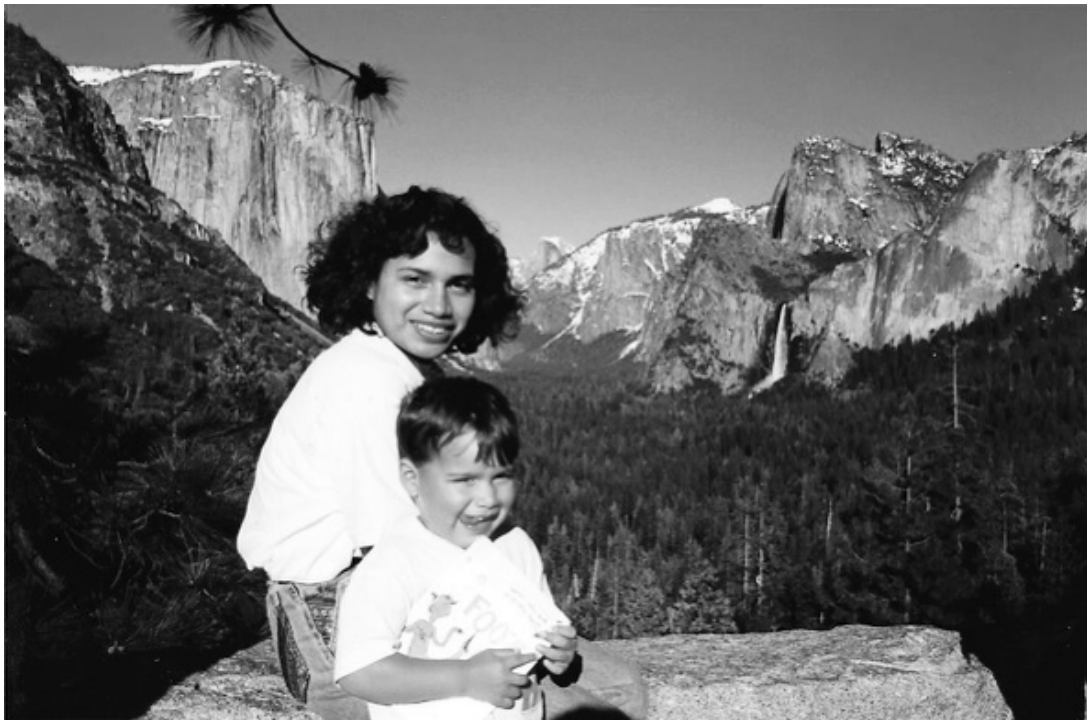
> As a rational being, each herdsman seeks to maximize his gain. Explicitly or implicitly, more or less consciously, he asks, "What is the utility *to me* of adding one more animal to my herd?" This utility has one negative and one positive component.
>
> The positive component is a function of the increment of one animal. Since the herdsman receives all the proceeds from the sale of the additional animal, the positive utility is nearly +1.
>
> The negative component is a function of the additional overgrazing created by one more animal. Since, however, the effects of overgrazing are shared by all the herdsmen, the negative utility for any particular decision-making herdsman is only a fraction of –1.

> Adding together the component partial utilities, the rational herdsman concludes that the only sensible course for him to pursue is to add another animal to his herd. And another; and another... But this is the conclusion reached by each and every rational herdsman sharing a commons. Therein is the tragedy. Each man is locked into a system that compels him to increase his herd without limit — in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all.

Without intervention of some sort, which Hardin later in the essay called "mutual coercion, mutually agreed upon by the majority of the people affected," he reasoned that the commons are inevitably subject to overuse, degradation, and ultimate ruin from overgrazing, all as a logical consequence of each individual rationally pursuing his or her own self-interest. Without such intervention or "enclosure" of the commons, those moral individuals who might act selflessly or ethically to limit their own consumption to safeguard the commons and the future inevitably lose out to those who lack such concerns; in other words, the unscrupulous, amoral, or merely apathetic would vanquish and replace the righteous.

The essay then provided real-world examples of different types of common pool resources at risk of ruin unless society intervened, and stopped treating them as open commons:

- Cattlemen leasing federal grazing land in the West continually pressuring federal land management agencies to increase stocking rates to the point where overgrazing caused erosion and/or proliferation of inedible weeds ignored by livestock;
- Overfishing and whaling in the oceans, driving cetaceans to the brink of extinction, carried out by maritime nations professing to believe in "inexhaustible" oceanic resources and operating under the shibboleth of the "freedom of the seas;"
- Overcrowding and overuse of prime national parks, open to all without limit, eroding their values and resources; there is only one Yosemite Valley (or Grand Canyon, or Old Faithful) but large and growing crowds of visitors flocking to enjoy them inevitably tarnish the resource itself and the visitor experience for everyone;
- Pollution of the aquatic commons (water bodies) from sewage, chemicals, radioactivity, and heat wastes (such as cooling water discharges from thermal power plants);
- Pollution of the atmospheric commons from noxious and dangerous fumes;
- Visual pollution of the aesthetic landscape with proliferating advertising billboards;
- Noise pollution of the shared acoustic environment from a variety of noise makers



"[There] is only one Yosemite Valley—whereas population seems to grow without limit. The values that visitors seek in the parks are steadily eroded. Plainly, we must soon cease to treat the parks as commons or they will be of no value to anyone." —Garrett Hardin

Since 1906, the National Park Service has reported a total of 198,750,887 visitors. The author's wife and son at Yosemite Valley in 1995, with El Capitan, Half Dome, and Bridalveil Fall in view.

> ranging from those who blast their "mindless music" too loudly to "our government [which] is paying out billions of dollars to create supersonic transport which will disturb 50,000 people [from sonic booms by jets that exceed the speed of sound] for every one person who is whisked from coast to coast 3 hours faster."

Hardin pointed out that the pollution problem itself is actually a function of population density, of overburdening nature's innate biochemical recycling capabilities: "It did not much matter how a lonely American frontiersman disposed of his waste," he emphasized. Furthermore, he argued, the morality or immorality of an action depends on its context, on "the state of the system at the time it is performed." Killing a passenger pigeon when there were billions was inconsequential, killing the last of the species would be an ethical monstrosity.

So far so good; if the essay had stopped here, with suggested remedies to overgrazing on the West's public rangelands, overfishing in the oceans, and overcrowding in our national parks, "The Tragedy of the Commons" would have elicited a nod and a yawn from its readers. And perhaps it would have been cited once or twice in the academic literature but then largely forgotten.

But it didn't stop there. Instead, at this point Hardin tossed a hand grenade at readers and at tender American sensibilities with the startling heading: "Freedom To Breed Is Intolerable." These five brazen words struck at the very heart of the most sacred of all sacred cows, far more sacred than even the laissez-faire economists' "invisible hand" mentioned above: reproductive freedom, the sacrosanct, God-given right to have as many children as a woman or a couple desired without a whiff of any interference, coercion, or pressure on the part of the state, eugenicists, or population control activists.

Especially given growing revulsion towards the eugenics movement of the early twentieth century, carried to its murderous extreme by Nazi Germany, absolute reproductive freedom had become, and remains to this day, a fundamental tenet staunchly upheld by every religion, human rights campaigner, women's rights advocate, conservative, and liberal alike. The UN's Universal Declaration of Human Rights insisted that: "…any choice and decision with regard to the size of the family must irrevocably rest with the family itself, and cannot be made by anyone else." With these five words — "Freedom to Breed Is Intolerable" — Hardin ignited a firestorm and instantly became Public Enemy #1 to many conservatives, liberals, libertarians, leftists, religiously devout, and women's rights activists. Even some population campaigners were concerned that his ostensible take-no-prisoners stridency could tar everyone concerned about overpopulation as an extremist misanthrope.

Some readers squirmed uncomfortably, and others shrieked in outrage, as Hardin asked pointedly:

> In a welfare state, how shall we deal with the family, the religion, the race, or the class (or indeed any distinguishable and cohesive group) that adopts overbreeding as a policy to secure its own aggrandizement? To couple the concept of freedom to breed with the belief that everyone born has an equal right to the commons is to lock the world into a tragic course of action.

Nobody in the twentieth century had ever posed such an uncomfortable but legitimate question so bluntly in such a prominent forum before. Then, following his argument to its logical conclusion even as he piled on the offensive assertions, Hardin had the effrontery to argue in the next bold heading that "Conscience Is Self-Eliminating", and to proclaim "The Pathogenic Effects of Conscience" in the following one. "Good Lord," surely proclaimed some of his readers, "Who would stoop to attack a noble conscience? Surely only a moral ogre."

Yet here Garrett quoted no less a figure than the very grandson of Charles Darwin, the English physicist Charles Galton Darwin. In a 1959 speech on the centennial of the publication of his grandfather's revolutionary book, Charles Galton Darwin said that appeals to conscience to limit family size were self-defeating, because those who ignored those appeals and produced more children would comprise a larger and larger share of each subsequent generation. As this twentieth century Darwin colorfully expressed it: "…nature would [take] her revenge, and the variety *Homo contracipiens* would become extinct and would be replaced by the variety *Homo progenitivus*." In other words, strictly voluntary birth control and family planning would ensure their own eventual failure.

Hardin added to Darwin's gloomy analysis that the same counterproductive logic applied not just to the population problem, but more generally to any appeal to conscience on behalf of the common good to exercise self-restraint in exploiting any commons. "To make such an appeal is to set up a selective system that works toward the elimination of conscience from the race."

In the final paragraphs of "The Tragedy of the Commons", Hardin concluded his argument by noting that the commons is justifiable only under conditions of low population density. As the human population size has swollen in recent centuries, various common pool resources have been subjected to regulation or restriction, with each such "enclosure" of a commons necessarily infringing upon personal freedoms to achieve or at least pursue the wider social good. If the freedom to exploit the commons with abandon is not curtailed, Hardin argued, individuals "locked into the logic of the

commons are free only to bring on universal ruin;" but then, "once they see the necessity of mutual coercion, they become free to pursue other goals."

At this time in human history, he concluded, there was nothing more urgent than for humanity to recognize the "necessity of abandoning the commons in breeding." Why such urgency? Because of rapidly swelling populations, and because: "No technical solution can rescue us from the misery of overpopulation. Freedom to breed will bring ruin to all."

Reaction to "The Tragedy of the Commons" was sharp, and sharply divided. It was extolled by some (primarily the "numerate" and "ecolate"), accepted reluctantly by others as perhaps a "hard truth", and repudiated by many as a reprehensible assault on human rights, dignity, and liberty. Did Garrett Hardin call for forced abortions or mandatory sterilization of the overly fertile? No: in the next-to-last sentence, he merely issued a humble plea for "education to reveal to all the necessity of abandoning the freedom to breed." This was hardly a Hitler marching breeders to the gas chambers, or a mad misanthrope exhorting society to exile expectant mothers to the Arctic, to join hordes of lemmings in taking a plunge over a cliff to control excessive human numbers. But listening to some of the harsher Hardin haters, you wouldn't know that.

Hardin's harsher critics scapegoated him and other Malthusian population "alarmists" such as Paul Ehrlich and the Paddock brothers (William and Paul, authors of *Famine 1975!*) for creating a climate of supposed hysteria about overbreeding and overpopulation that allowed massive human rights abuses to take place. The most frequently cited of these occurred in the two most populous countries on Earth: China and India. China imposed its draconian one-child policy for several decades, including forced abortions and sterilizations for those attempting to defy the policy. Under India's Prime Minister Indira Gandhi, millions of poor men and women were sterilized in the 1970s under so-called "compul-suasion" (a combination of compulsion and persuasion), with Muslims disproportionately targeted, according to critics such as Steven Mosher.

All of this smacked of the kind of harsh coercion that Hardin seemingly approved of in "The Tragedy of the Commons." Yet even aside from whether Chinese or Indian leaders were ever influenced by "Tragedy" or were merely responding in their own way to their own pressing realities, the essay did not explicitly advocate

Sir Charles Galton Darwin (1887-1962), physicist and grandson of *Origin of Species* author Charles Darwin, quoted by Garrett Hardin in "The Tragedy of the Commons" for his pessimistic observation about contraception and conscience.

Under Prime Minister Indira Gandhi (1917-1984), the Indian government was accused of sterilizing millions of poor men and women in an effort to control India's burgeoning population, declaring a state of emergency in the 1970s.

forced abortions and sterilizations. Indeed, it could be seen rather as a call for less severe measures in the present — taxing additional births for example — that would head off the eventual need for harsher future penalties, either from strictly regulating reproduction or from overpopulation-induced environmental ruin, or both. Decades later, Hardin did take a harder line, lauding forced sterilization in China and advocating its extension to other developing countries. For him it was always about choosing the lesser of two evils.

Other milder critiques took "Tragedy" to task for supposedly unrealistic assumptions, such as the rationality and selfishness of individual users of the commons. Hardin was criticized for not understanding how historic commons actually did work, and for what was perceived as undue pessimism regarding both population growth and the supposed inevitability of overexploiting common property resources. Yet whatever one's take on "The Tragedy of the Commons," one could not dispute its widespread impact in public policy circles. Prominent journalist Gregg Easterbrook, a critic, writing in *The Wall Street Journal*, said that Hardin "simply failed to estimate how rapidly technology could respond to the needs of the commons," but nonetheless admitted that his essay had created a "sensation" when it was published.

In a 2017 anthology of writings issued by New York University Press, entitled *Environment and Society: A Reader*, published nearly 50 years after Hardin's essay, there was an entire section of six selections called "Public Goods and Collective Action" devoted to discussing "Tragedy"'s implications and limitations. One of the essays, "Revisiting the Commons: Local Lessons, Global Challenges," which had also originally appeared in *Science*, in 1999, was by the above-mentioned Nobel Laureate Elinor Ostrom and co-authors. This article acknowledged Hardin's "seminal" contribution to raising awareness of the widespread commons dilemma and went on to describe the pros and cons of various property-rights systems used to regulate common pool resources: open access, group property, individual property, and government property. Ostrom et al.'s essay concluded with a section on the particular challenges of managing global commons, to which I will return in a moment.

As one who has been both a population activist and a professional environmental scientist for nearly four decades, I too have long been under the spell of "The Tragedy of the Commons." Yet I am not in its thrall. Half a century after it appeared, the world that Hardin described is no longer the world we live in. Some aspects of his essay remain timeless and relevant, while others have become dated. That is to be expected in a dynamic world that has changed faster in the past half century than during any comparable period in human history, with only the previous half century even coming close.

First, the obvious. Hardin had predicted total and universal ruin from overpopulation, yet half a century after "Tragedy" was published, about twice as many people live on Earth today, and the number is still growing by about 85 million per year, a higher annual incremental increase than in 1968. On average people around the world are much better fed and enjoy a much higher standard of living than in 1968, especially in the less wealthy countries. A smaller percentage go to bed hungry now than back then, even with a much larger population demanding much more nutritious and ecologically burdensome food. (As Worldwatch Institute and Earth Policy Institute founder Lester R. Brown once put it, more and more people in developing societies around the world are "moving up the food chain," and coveted diets rich in meat and dairy products require far more land, water, and energy — inducing much greater environmental impact — for the same amount of calories and protein provided directly from plants via a vegan or vegetation diet.)

The fact is that both humans and nature have proved far more resilient and resourceful than Hardin and other prophets of imminent doom foresaw. (The same could be and has been said of the grim two-century-old Malthusian predictions of dieback as population growth outstripped food production.) The so-called Green Revolution in agriculture — higher-yield hybrids of maize, wheat, rice, and other staple food crops dependent on greater inputs of irrigation water, fertilizers, and pesticides — vastly increased global food production in the following decades. Many other unforeseen technological advances occurred in agriculture and raw materials industries, boosting production, harvest, and extraction of almost all renewable and non-renewable natural resources. There were discoveries of new stocks of frontier fossil fuels, such as petroleum in the remote North Sea and the North Slope of Alaska. And more recently still, the ability to exploit large quantities of additional unconventional oil and gas deposits through the application of hydro-fracking and horizontal drilling to shale source rocks, and the mining of tar (oil) sands.

Many scientists would argue, myself among them, that the inevitable day of reckoning between unstoppable human growth in population/consumption (for population and aggregate consumption are really two sides of the same coin) and implacable biophysical limits has only been postponed. It has not been circumvented by all these new resource discoveries and technological progress. Resource stocks haven't actually increased in size, only our knowledge of their whereabouts and our ability to exploit them, so that drawdown is actually proceeding faster than ever. In so doing, we are only casting ourselves ever further into the extended ecological overshoot of carrying capacity, so that the crash, when it comes, will

be that much harder. "The higher they are, the harder they fall." Therefore, Hardin et al.'s thesis is not fundamentally wrong, but its timing was off by any number of decades, or perhaps even longer. I for one, do not believe for one moment that this negates the essential reality of limits to population growth in an earthly commons that Hardin warned of so poignantly in "Tragedy."

The world's demographic context has also changed enormously in the past half century, and in some respects for the better, undercutting a core part of Hardin's argument that coercion would be necessary to reduce aggregate breeding. When "Tragedy" was published in 1968, Garrett wrote that: "there is no prosperous population in the world today that has, and has had for some time, a growth rate of zero." And he was correct — every single nation in the world then, including both the more developed and the less developed countries, was undergoing quite rapid population growth and/or had fertility rates well in excess of replacement level (i.e., a Total Fertility Rate or TFR of 2.1).

Today, it is a different story altogether. The countries of the world are now divided into radically different demographic camps facing distinct, even opposite, realities and dilemmas. These two camps have been dubbed the "bust" and the "boom" countries. The bust countries — approximately 90 nations worldwide — are not creating enough babies even to maintain their current populations, while about 105 nations are experiencing high birth rates and booming, unsustainable population growth.

Scores of countries in different continents now have TFRs near, at, below, or even well below replacement level. According to the respected Population Reference Bureau (PRB) in Washington, D.C., the "more developed countries" of the world had a combined TFR of 1.6 in 2018, fully half a birth (0.5) below replacement level. Even South America, dominated by the Catholic Church led by a Vatican still openly hostile to artificial contraception (a reality which hasn't changed, unfortunately), had an aggregate TFR of 2.0 in 2018, just below replacement level. Brazil, the most populous Latin American country by far (210 million), had a TFR of 1.7. On the other side of the globe, China, with a population of 1.4 billion, had a 2018 TFR of 1.8; Iran, governed by a fundamentalist Shiite Islamic regime, 2.0; and even India, the country adding more people annually than any other, had a TFR of 2.3, not far above replacement level.

As to Hardin's point that in 1968 no prosperous country had halted population growth (i.e., zero population growth [ZPG], or a growth rate of zero) for some time, that is no longer the case either. The native populations of two of the most prosperous countries in the world, Germany and Japan, are essentially at zero growth right now, and on the cusp of seeing declining real numbers in the near future and for as far as demographic projections foresee. Germany is increasing slightly at the moment only because of mass immigration and the 2015 refugee crisis. Many other more developed countries will soon be following in Germany's and Japan's footsteps. Even with annual net immigration of 1.2 million, the population of the European Union is projected to decrease from 510 million at present to less than 460 million by 2100. The PRB projects that the population of East Asia (including the prosperous countries of China, Japan, and the Koreas) will be 75 million *smaller* in 2050 than today.

Except for China's now abandoned one-child policy, which did entail widespread coercion of reproductive freedom in that country for some decades, none of the scores of countries that have achieved or approached ZPG, or are headed in that direction through a sustained decline in fertility levels, had to resort to the kind of "mutual coercion, mutually agreed upon by the majority of the people affected" that Hardin thought would be necessary to achieve ZPG.

Instead, voluntary family planning and reproductive health programs, ready availability of contraceptives, and most importantly, large-scale women's empowerment through educational and economic opportunities, allowed much of the global population in very different cultures to freely choose to restrict and reduce their breeding. That coercive measures to reduce birth rates to necessary levels could be avoided would surely have pleased Garrett Hardin. Contrary to what his spiteful detractors believe, he was not anti-human or a killjoy; he recoiled at casual cruelty or unnecessarily curtailed freedoms. He was merely an ecological realist grounded in the Earth, not an idealist floating away on fluffy clouds of lofty but insubstantial sentiments.

It would have been virtually unthinkable at the time "Tragedy" was published, but so many countries now have TFRs that are so low — some not much more than half of replacement level — that they are pushing measures to encourage women to have more children rather than fewer. And these societies are being forced to consider socially unpalatable or problematic remedies such as raising retirement ages, increasing immigration, and embracing robotics as means of addressing projected worker shortages from ever more skewed, unfavorable dependency ratios (the ratio of working-age population to pensioners).

Unfortunately, the above, relatively optimistic discussion pertains only to about one-third of the world's people. The other two-thirds, consisting of "less developed countries" and "least developed countries," face a demographic reality closer to what Hardin described back in 1968. According to the PRB, in 2018 the "less developed countries" (excluding China), with an aggregate population of about 5 billion, had a TFR of 2.6,

while the "least developed countries," with a combined population of approximately 1 billion, had a TFR of 4.2, at which they will double in size approximately every generation.

Most of the least developed countries are in sub-Saharan Africa, where desired family sizes are still extremely high, and cultural or religious resistance to family planning and contraception has proved strong. According to the PRB, the 2018 TFR of sub-Saharan Africa was 4.9. Because of this continuing, stubbornly high fertility, coupled with declining mortality rates thanks to Western humanitarian intervention (food and development aid, medicines, antibiotics, vaccines, etc.), the population of Africa is projected to explode from about 1 billion at present (an approximate three-fold increase from the time of "Tragedy") to 4 billion by 2100. Out-migration pressures from Africa will only intensify, and how the world decides to respond to that emerging exodus will be a defining issue for the rest of the twenty-first century.

In the original "Tragedy" paper, before he zeroed in on the particular challenge to the commons associated with overpopulation and overbreeding, Hardin discussed how treating national parks and other publicly owned resources as a commons would lead to their ruin. Perhaps in part due to the extraordinary interest and widespread discussion generated by his essay, federal government agencies such as the National Park Service (NPS) now limit access to the national treasures they are charged with protecting if it is apparent that overuse threatens the resource in question. In the 1970s, NPS began issuing backcountry permits to prevent overcrowding in wilderness areas. Eventually, they began limiting entry even to iconic Yosemite Valley.

Similarly, state Departments of Natural Resources issue hunting licenses to control hunting levels and manage the size of deer herds, waterfowl flocks, and other game species. Poaching (illegal hunting) is recognized, condemned, and controlled as an illegitimate raid on the commons. Access to commercial and recreational fisheries is limited by the federal and state governments. The U.S. Fish and Wildlife Service actually prohibits any public access at all to certain national wildlife refuges that protect certain highly endangered species. As a consultant, I once helped the Service prepare a long-term comprehensive conservation plan for one such refuge in the U.S. Virgin Islands — Green Cay National Wildlife Refuge — all of 14 acres in size. This tiny refuge was established precisely to protect the largest surviving population of the highly endangered St. Croix ground lizard (*Ameiva polops*). Before recovery efforts began in earnest, the entire remaining world population of this six-inch, inconspicuous reptile could probably have fit easily into two pails. Now their numbers are slowly recovering and the species may yet endure the hurricanes, humans, and invasive species (such as mice and mongoose) that threaten its survival.

In conceptualizing the commons, Garrett Hardin included not only shared environmental resources or "sources" (e.g., open grazing land, marine fisheries), but also shared environmental "sinks", that is, common pool resources such as air, water, and the acoustic or sonic environmental media which we all affect and which affect us all. The 1999 Ostrom et al. essay in *Science* mentioned above discussed how management of the global commons, especially the ocean and the atmosphere, including the climate, is bedeviled by difficult challenges over and above those facing management of local commons like pastureland. One of those challenges is accelerating rates of change that are hard to keep up with or adapt

The highly endangered St. Croix ground lizard in the Caribbean, a member of the Teiidae family of lizards, is protected in part by not treating the particular national wildlife refuge that provides sanctuary to their greatest surviving population as a commons; public access to the refuge is prohibited.

The ocean and the atmosphere are a closely coupled system and commons that affect — and are affected by — every continent and every country on Earth. The severe and growing problem of plastic pollution in the world's oceans is another symptom of the tragedy of the commons on a grand scale.

to. The authors wrote: "Population growth, economic development, capital and labor mobility, and technological change push us past environmental thresholds before we know it."

For the past two decades, the United Nations Framework Convention on Climate Change has tried to herd nearly 200 disunited nations and 7.7 billion global residents toward a binding commitment to combat climate change. It is much worse than trying to herd cats. Every participant in the process acknowledges that we may collectively be rushing toward a particularly harsh version of the "ruin" Hardin wrote of in his classic essay. But while many have been willing to make virtue-signaling promises, few have delivered with concrete actions, because these come at a cost that none are willing to bear unless all have to share. Progress is stymied because of the north-south divide, the rich-poor divide, and the demographic divide, among other sources of tension.

Elizabeth Kolbert wrote in *The New Yorker* (May 9, 2005): "It may seem impossible to imagine that a technologically advanced society could choose, in essence, to destroy itself, but that is what we are now in the process of doing." Particularly after the disastrous climate conference in Copenhagen in 2009, disenchantment and cynicism overtook hope and hype. The Paris Accord in 2015 seemed to improve prospects for cooperation and progress on reducing carbon dioxide emissions, although the Trump administration has disavowed it. In any event, by the end of 2018, both annual global greenhouse gas emissions and the concentration of CO_2 in the atmosphere (411 parts per million), were the highest they had ever been in human history. What course of action would Hardin have recommended? "Mutual coercion, mutually agreed upon by the majority of the people affected." To both liberals and conservatives enamored of unfettered freedom, "coercion" is now a dirty word. Yet Hardin would have been thinking more along the lines of a global carbon tax, like that proposed by noted climatologist and former NASA scientist James Hansen. Even "tax" is a dirty word to many. Humans will have to "choose their poison" or face the tragedy of the climate commons writ large.

Our inability so far to cope with the tragedy of the commons when it comes to climate is distressingly revealed in this litany from the website collapseofindustrialcivilization.com:

> Today's global consumption of fossil fuels now stands at roughly five times what it was in the 1950s, and one-and-one-half times that of the 1980s, when the science of global warming had already been confirmed and accepted by governments with the implication that there was an urgent need to act. Tomes of scientific studies have been logged in the last several decades documenting the deteriorating biospheric health, yet nothing substantive has been done to curtail it. More CO2 has been emitted since the inception of the UN Climate Change Convention in 1992 than in all of human history. CO2 emissions are 55 percent higher today than in 1990. Despite 20 international conferences on fossil fuel use reduction and an international treaty that entered into force in 1994, manmade greenhouse gases have risen inexorably. If it has not dawned on you by now, our economic and political systems are ill-equipped to deal with this existential threat. Existing international agreements are toothless because they have no verification or enforcement and do not require anything remotely close to what is needed to avoid catastrophe.

LIMITING THE NUMBER OF LIFEBOAT PASSENGERS — ETHICAL OR EVIL?

> *We are all the descendants of thieves, and the world's resources are inequitably distributed. But we must begin the journey to tomorrow from the point where we are today. We cannot remake the past. We cannot safely divide the wealth equitably among all peoples so long as people reproduce at different rates. To do so would guarantee that our grandchildren, and everyone else's grandchildren, would have only a ruined world to inhabit.*
>
> — Garrett Hardin, "Lifeboat Ethics"

As hard-hitting and controversial as "The Tragedy of the Commons" was, it was not destined to be Garrett Hardin's hardest-hitting and most controversial article. That title surely belongs to "Lifeboat Ethics: the Case Against Helping the Poor," which appeared in *Psychology Today* in 1974. In "Lifeboat Ethics," Hardin firmly grasped the nettle, tackling another taboo that earned him the ire of the shallow-thinking but compassionate crowd, namely, so-called humanitarians. He railed against "misguided idealists" and their "suicidal policies" of uncontrolled migration and generous foreign aid. Garrett accused said idealists of confusing the ethics of a spaceship — that evocative metaphor of an inhabitable, fragile, and resource-constrained Spaceship Earth that could be shared equitably and navigated carefully through the hostile void of outer space — with the ethics of a lifeboat carrying the survivors of a shipwreck.

As was his wont, Hardin put it bluntly: "does everyone on earth have an equal right to an equal share of its resources?" His answer was an unequivocal no, and everywhere, the heads of egalitarians and humanitarians exploded. Hardin, they said, was hung up on the

bleak, zero-sum game of carrying capacity rather than acknowledging and encouraging our innately human "caring capacity." For those steeped in the compassion-laced rhetoric of the revered Mahatma Gandhi, "the world has enough for everyone's need, but not enough for everyone's greed," Hardin's unfeeling willingness to allow those unfortunate human beings left behind in the water of his lifeboat metaphor to drown or die of exposure was an outrage. He was an ethical monster.

Here is how he framed the lifeboat analogy:

> If we divide the world crudely into rich nations and poor nations, two thirds of them are desperately poor, and only one third comparatively rich, with the United States the wealthiest of all. Metaphorically each rich nation can be seen as a lifeboat full of comparatively rich people. In the ocean outside each lifeboat swim the poor of the world, who would like to get in, or at least to share some of the wealth. What should the lifeboat passengers do?
>
> First, we must recognize the limited capacity of any lifeboat. For example, a nation's land has a limited capacity to support a population, and as the current energy crisis has shown us, in some ways we have already exceeded the carrying capacity of our land.

If too many from the surrounding waters are rescued and brought aboard in a praiseworthy effort inspired by the Christian ideal of being "our brother's keeper" or the Marxist ideal of "from each according to his ability, to each according to his needs," then the outcome, according to Hardin, would be: "The boat swamps, everyone drowns. Complete justice, complete catastrophe."

Once again, Garrett Hardin had framed a moral dilemma in stark relief. Too stark, argued his many critics, who pounced on his preferred solution as "morally abhorrent": that is, limiting entry to the lifeboat while there was still some freeboard, allowing for a safety factor, i.e., not cramming the maximum possible number into the lifeboat and risking the survival of all. To these critics, the lucky, kindly ones compassionate enough to feel guilt for those unlucky souls, excluded and left to perish at sea, Hardin had a cheeky suggestion: "Get out and yield your place to others." That suggestion was not well received.

Garrett upped the ante by pointing out that the population of those in the water (i.e., the poor nations) is increasing much faster than those inside the lifeboat (i.e., the rich nations), exacerbating the imbalance between the two and ensuring the impossibility of helping all of the multiplying needy.

Survivors from the sinking of the RMS *Titanic* on a lifeboat in 1912. How many passengers can a lifeboat hold without endangering everyone?

Critics complained that Hardin's lifeboat metaphor left out a crucial and telling detail, namely how those in the lifeboat managed to get there while others were left behind, stranded in the lethal water. And furthermore, who had caused the mother ship to capsize in the first place? In their telling, it was the greed, recklessness, and irresponsibility of the ship's technocratic crew in cahoots with its wealthy passengers that sank it in the first place. And then, it was their wanton selfishness that ensured their own boarding of and survival in the lifeboat (a lifeboat equipped with considerable luxuries at that), the exclusion of the hapless masses, and their banishment to the wrath of the waves and water.

In real life, scolded Hardin's many critics, it is the wealthy world, primarily Europeans and the rich countries they created out of invaded, colonized lands — e.g., the United States, Canada, Australia, and New Zealand — who are the culprits. It is they who committed genocide and slavery against indigenous populations. It is they who have endangered the world's environment with their nuclear weapons, profligate and conspicuous consumption, and plastics pollution. It is they who have imperiled marine fisheries. It is they who have overexploited global resources such as oil, minerals, and the climate, so they can continue living like gluttons in energy-hungry McMansions, cavorting frivolously in gas-guzzling SUVs and pickup trucks, and jet-setting around the world to indulge their fetishes for exotic and posh vacation spots, whose humble inhabitants they look down upon and want to keep out of their own walled countries.

Hardin recognized that world history was full of deep wrongs and injustices that have occurred across the centuries and millennia, but that:

> …the concept of pure justice produces an infinite regression to absurdity. Centuries ago, wise men invented statutes of limitations to justify the rejection of such pure justice, in the interest of preventing continual disorder. The law zealously defends property rights, but only relatively recent property rights. Drawing a line after an arbitrary time has elapsed may be unjust, but the alternatives are worse.

The essence of Hardin's audacious position rings true 45 years later. Today, with massed migrant caravans from Central America traversing Mexico on foot one after another toward the promised land just across America's southern border, his lifeboat ethics essay is just as timely as ever. Millions of refugees from failed states and civil wars in the Middle East and Africa — bursting at the seams with people, poverty, and conflict — stream across Turkey and the Mediterranean aiming towards a wavering Europe wracked with guilt for its colonialist, racist past. Weak western European leaders hesitate and dither. With Africa's population projected to quadruple by this century's end, today's migration crisis will explode into a full-blown catastrophe for Europe unless its feckless leaders display far more fortitude than they have to date. If not, indigenous Europeans will suffer the grim fate long ago foreshadowed in Jean Raspail's dystopian, despised novel *The Camp of the Saints*. This book is a fictionalized account of what will come to pass if leaders fail to heed Hardin's advice.

LIVING WITHIN LIMITS…OR NOT

"…the dream of a bucolic global village dissolves into a nightmare of global pillage."

— Garrett Hardin, *Living Within Limits*, Part III "Biting the Bullet," Chapter 21, "The Global Pillage: Consequences of Unmanaged Commons"

Garrett Hardin's first book, the biology text mentioned earlier — *Biology: Its Human Implications* (W.H. Freeman & Co.) — was published back in 1949. Fifty years later, his final work, *The Ostrich Factor: Our Population Myopia*, was published by Oxford University Press in 1999. In that productive half-century span, Garrett published more than 30 other books, among them:

- *Creative Altruism: An Ecologist Questions Motives*
- *Exploring New Ethics for Survival: The Voyage of the Spaceship Beagle*
- *Filters Against Folly, How to Survive despite Economists, Ecologists, and the Merely Eloquent*
- *Mandatory Motherhood*
- *Naked Emperors: Essays of a Taboo-Stalker*
- *Nature and Man's Fate*
- *Population, Evolution, and Birth Control, A Collage of Controversial Ideas*
- *Promethean Ethics: Living With Death, Competition, and Triage*
- *Science, Conflict, and Society*
- *Science and Controversy — Population: A Case Study*
- *Stalking the Wild Taboo*
- *The Immigration Dilemma: Avoiding the Tragedy of the Commons*
- *Living Within Limits: Ecology, Economics, and Population Taboos*

The last on this list, and the next-to-last of all Garrett's books, was *Living Within Limits*, published in 1993. It was the sum and culmination of all his previous work, and it received the 1993 Phi Beta Kappa Award in Science. In *Limits*, Hardin once again took aim at one of his favorite targets — compassion. He wrote: "We fail to

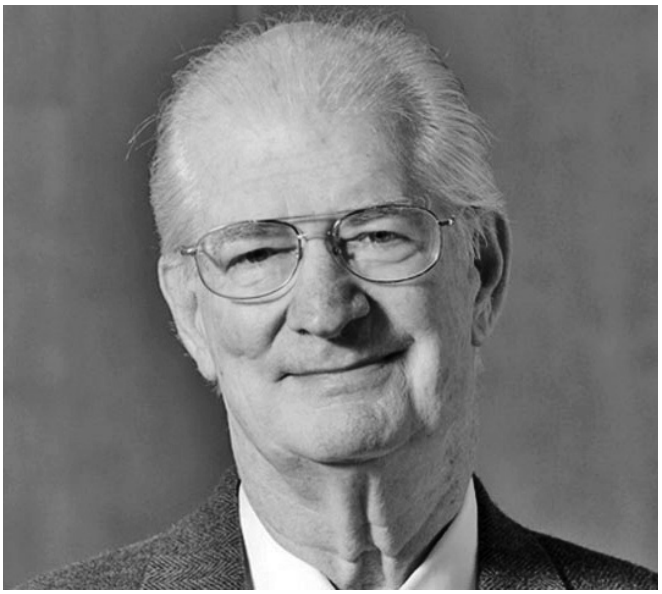
mandate economic sanity," he wrote, "because our brains are addled by [author shudders]...*compassion*."

He also aimed his fire at the social sciences, especially every eager ecologist's bugbear: economics. Whereas the natural sciences are based on the concepts of laws and limits (such as the law of gravity and the speed limit of light), the social sciences typically recognize no such natural limits and are therefore frequently detached from physical reality — untethered or unhinged, we might say. Social scientists are enamored of what they see as the infinite potential of the ingenious, creative human mind and the science and technology that emerge magically from that black box of the human mind. In the past two hundred years especially, science and technology have indeed performed what would once have been regarded as miracles. Except for a few perennially discontented Luddites, we are all grateful beneficiaries of those miracles.

It is not a coincidence that the ongoing spirited debates that began in the last third of the twentieth century over limits to economic and population growth on Earth were mostly between natural scientists on one side and economists on the other. Among the former were biologists Paul and Anne Ehrlich and Norman Meyers, complex systems scientists Dennis and Donella Meadows, and physicists John Holdren, Albert Bartlett, Ben Zuckerman, and Henry Kendall, all of whom recognized and warned about limits. Among the latter were eminent economists such as Julian L. Simon, Milton Frieman, Larry Summers, and Robert Solow, who denied, dismissed, or derided limits to growth. The few brave, renegade ecological economists like Herman Daly were mostly shunned by mainstream neoclassical economists.

A prominent article of Simon's in *Science* in 1980 was called: "Resources, population, environment: an oversupply of false bad news." Simon's 1981 Princeton University Press book was entitled *The Ultimate Resource*, by which he meant the resourceful, ever-inventive human mind. As long as the unfettered human mind had the freedom to function and to soar without inhibition, there was no effective limit to what it could accomplish. Other resources were immaterial because our brains could always invent new ones, turning gunk into gold as it were, as need required. Hard scientists like Hardin — experienced in the intricate study of nature and natural processes — scoffed at such ideas as mere wishful or magical thinking.

In Chapter 8 of *Limits*, "Growth: Real and Spurious," Garrett illustrated the unsustainable nature of exponential growth, using its better-known expression in the



Professor Julian L. Simon (1932–1998), left, wrote that: "It is your mind that matters economically, as much or more than your mouth or hands. In the long run, the most important economic effect of population size and growth is the contribution of additional people to our stock of useful knowledge. And this contribution is large enough in the long run to overcome all the costs of population growth." Not coincidentally, Simon argued vigorously for increased immigration to the U.S. to provide for even more rapid population growth. Herman Daly, above, emeritus professor at the School of Public Policy, University of Maryland, College Park, is an ecological economist critical of unrestrained growth.

worlds of business and banking: compound interest. He started with Judas' notorious thirty pieces of silver from his betrayal of Jesus in the Bible. Compounded annually at 5 percent, after 2,000 years, "every man, woman, and child would be entitled to only (!) 160,000 earth-masses of gold. Where are the vaults that could store so great a quantity? Not on this earth, certainly." Logically then, any economic system based on long-term compound interest or exponential growth will fail sooner or later due to the mathematical and physical impossibility of long-term exponential growth on a finite planet. As Herman Daly once quipped, "Sustainable growth is an impossibility theorem"; physicist Al Bartlett debunked the mantra of sustainable growth as an oxymoron.

Hardin wrote acidly:

> …during the past thousand years we have built a civilization on the seldom questioned assumption that money is fertile. "Make your money work for you!" bankers say — meaning, "Make it breed for you." At this late date millions of people believe in the fertility of money with an ardor seldom accorded to traditional religious doctrines.

Hardin mocked the religion of "growthmania," whose *Homo economicus* and "growthmaniac" followers worshiped at the altar of perpetual growth. Now, with accelerating post-World War II globalization encouraged by laissez-faire economists and "Davos Man" elites, that irrationally exuberant faith is bingeing on steroids, enraptured at its own successes, and giddy at its glitzy future prospects. The entire world is now under the sway of its delusions, save perhaps the tiny, inaccessible Himalayan kingdom of Bhutan, which purportedly emphasizes "Gross National Happiness" or GNH as a more appropriate measure of well-being than GDP or GNP.

The world's economists, entrepreneurs, academics, its tycoons, kingpins, and politicians — to say nothing of its masses of eager new producers and consumers in China, India, Korea, and Brazil, and struggling, straggling survivors in the deindustrializing West — have largely forgotten or ignored Hardin's "tough love" about the tragedy of the commons, lifeboat ethics, and living within limits. Now, with the biosphere starting to buckle under the strain of too many people extracting, producing, consuming, and discarding too much stuff, perhaps it is time to embrace Elon Musk's lofty plans to establish a colony on Mars, or Buzz Lightyear's even more ambitious exhortation, "To Infinity, and Beyond!"

Unfortunately for shallow thinkers and the easily bamboozled, Garrett Hardin had already evaluated the option of escaping the confines of the Earth by heading to space decades ago, in his trenchant essay "Overpopulation: Escape to the Stars?" It was included as Chapter 2 in *Living Within Limits*. With his cold, calculating logic, he demolished the vain hope that humanity could one day escape the restrictive clutches of an over-protective Mother Earth for a grandiose future in the Heavens, à la *Star Trek* or *Star Wars*. For fans of these beloved sci-fi classics, as well as aficionados of Carl Sagan's popular PBS series *Cosmos*, and Neil deGrasse Tyson's newer version of the same, Hardin's essay makes for depressing reading, for it punctures our delusions of a dazzling future of truly "dancing with the stars."

The first big letdown or cold, hard reality check is simply the daunting distance. It's a cliché that the stars twinkling above are far, far away, but just how far away they actually are is truly mind-boggling. Alpha Centauri is the closest star at 4.3 light-years. (A light-year measures distance, not time; it's how far light travels in a year, almost six trillion or 6,000,000,000,000 miles.) That's about 25 trillion (25,000,000,000,000) miles away.

However, the nearest star that might possess a habitable planet is believed to be 12 light-years away, or about 70 trillion miles. Assuming that our Sun were the size of a tennis ball on a South Carolina beach, then this possible habitable planet in the "Goldilocks Zone" (neither too hot nor not too cold) would be roughly 2,600 miles away on a California beach. Even with vastly advanced technology, it would take centuries for human astronauts to reach even this closest possible outpost of life, at staggering cost. Starfarers who boarded a star-bound vessel would depart Earth essentially forever, in contrast to most science fiction, where galaxy trotters hop back and forth as if it were a simple flight between New York and San Francisco.

German astrophysicist Sebastian von Hoerner believed it might be possible someday to build a starship that could reach 3 percent of the speed of light, or 22 million mph. This would be almost a thousand times faster than the Apollo voyages to the moon, which attained 0.0037 percent of the speed of light, or 25,000 mph. Even at 22 million mph, it would take almost 360 years — multiple human generations — to reach the nearest star with a potentially habitable planet.

While this might be a worthy endeavor in and of itself someday for a far more technologically and socially advanced civilization, it would be far too little and far too late to save the Earth from overpopulation. Hardin pointed out that during 28 years in which world population increased by 2.2 billion people, NASA managed to put 12 men on the moon temporarily for a few hours, or about 1/183,000,000 of the increase in human numbers. The problem of mismatched scale is and always will be insurmountable. For better or worse, we are stuck here on Earth, our birthplace, and so we had better make the best of it rather than treating our home planet like a business in liquidation or a dumping ground.

LOVING LIFE, LEAVING LIFE, AND THE RIGHT TO DIE

> *"Garrett Hardin's most striking characteristics, which marched shoulder to shoulder, were an unflinching realism and an equally unflinching courage…. He had a notoriety for being harsh and cruel; in reality, his writings showed a search for humane solutions to agonizing problems…. he was, like the similarly maligned Malthus, a friendly and kindly man."*
>
> — Economist and author John Attarian, Ph.D. (1956-2004), "Tribute to Garrett Hardin", 2003

The late John Attarian lauded Garrett Hardin for his "unflinching realism and an equally unflinching courage"; he was, in sum, "a friendly and kindly man." Garrett himself once described the great Charles Darwin in similar terms, as "a notably compassionate man," who, "as an adult, though a shy man…would intervene in any public mistreatment of horses, dogs, or children. The mere thought of cruelty often robbed him of sleep."

Yet compassion, physical frailty, or even shyness by no means imply timidity or weakness, and both Charles Darwin and Garrett Hardin demonstrated the courage of their intellectual convictions in their own personal lives. Hardin in particular showed the courage of his own convictions right up to his dying day — Sunday, September 14, 2003. This was the day on which he, then 88, and his 81-year-old wife Jane, both frail and in failing health, chose to end their lives together, the week after celebrating their 62nd wedding anniversary.

Garrett never shied away from taboos and awkward topics. Not only his life, but the proactive manner in which he and his wife Jane left this life together rather than submit to further indignity and suffering en route to an inevitable outcome, are worthy of note, and I would submit, admiration, empathy, and under some circumstances, even emulation. I speak as a lapsed Catholic who even as a kid, diligently attending mass and kneeling in the pews every Sunday, sensed that I disagreed strongly with the Vatican's consistently "pro-life" preaching on contraceptives, abortion, and euthanasia. (Only later did I realize I also strongly opposed its open-borders posturing on immigration.)

Like Hardin, I too am a trained, experienced biologist, and I certainly consider myself pro-life, but not just human life; rather, I am an advocate for all living things, and for biodiversity, which a surfeit of one type of life — of the human variety — is crushing. The Catholic Church's positions are not pro-life; they are unrealistic, dogmatic, and extreme, contributing to prolonged and unnecessary human suffering. They fetishize human life *über alles*, and human life alone, at the expense of all other life. When it comes to other species, Church teachings are anti-life; other creatures have no intrinsic value in Catholic cosmology (and that of other Abrahamic religious traditions). They are mere window dressing put here for the pleasure and use of humans, who are all that count. Yet if there is a God, saving His or Her species — "Creation" as it were — from extinction on this living Earth is a higher priority than saving souls from supposed perdition.

Despite my open-mindedness about end-of-life issues, when I learned in 2003 that Garrett and Jane had jointly committed suicide, at first I was taken aback, because of the social stigma still attached to it, even in the twenty-first century. Even in our post-Jack Kevorkian world. The late Dr. Kevorkian, or "Dr. Death" as the tabloids kindly nicknamed him, served time for second-degree murder in Michigan for illegally assisting terminally ill patients who sought his professional help to end their lives and halt their suffering.

A decade after the Hardins' suicides came that of the sympathetic and brave Brittany Maynard, a fellow Californian turned Oregon resident who publicly chronicled the final weeks and months of her life. In 2014, Ms. Maynard ended her all-too-brief existence on Earth with a fatal dose of barbiturates under Oregon's Death With Dignity Act at the age of just 29. Earlier that year, she had been diagnosed with inoperable Stage 4 brain cancer, and given months to live; informed medical opinion was that the final stage of her illness would be excruciating and the outcome inevitable. Brittany's very public passing helped de-stigmatize euthanasia, advancing public understanding and compassion in the right-to-die debate.

Brittany Maynard (1984-2014) opted to die with dignity at the age of 29, and avoid the final, brutal stage of terminal brain cancer.

On her deathbed, the wise-beyond-her-years Ms. Maynard wrote: "The world is a beautiful place, travel has been my greatest teacher, my close friends and folks are the greatest givers…. Goodbye world. Spread good energy. Pay it forward!" In their own long lives, Garrett and Jane Hardin had also paid it forward.

Suicide, physician-assisted suicide, and euthanasia all remain contentious, emotionally fraught and sensitive issues, ones literally of life and death. It is understandable and natural that different individuals and different faith and cultural traditions reach diametrically opposed beliefs on the right course of action when confronting our inevitable mortality. The Christian view is that because God grants us the precious gift of life, it is supremely immoral to take away what God has given us and only God has the right to take back. I was taught in Catholic school years ago that suicide is a mortal sin, one that damns you to an eternity in hell because it cannot be forgiven, as your final, fatal act. However, if one does not accept this fundamental premise, and believes instead that every person is the master of his or her own destiny, then this proscription vanishes. As humanists, Garrett and Jane certainly believed that they themselves held their lives and destinies in their own hands.

Several years ago, I was living in a condominium complex for residents 55 and up. Most residents were retirees in their seventies and eighties, and the ambulance was a frequent visitor. Many of those taken away in the ambulance never returned, and their next and final ride was in a hearse. My next-door neighbor Charlie was a pipe-smoking, perceptive 80-year-old former CIA agent and interrogator in the Vietnam War, as well as a keen lover of Shakespeare. In an essay about a feeble mutual acquaintance of ours in his nineties who had recently drowned himself deliberately in a nearby lake, Charlie wrote:

> On the radio I once heard a panel of scientists and philosophers attempt to answer this simple question: "What is the most fundamental difference between us humans and all other animals?" The panel quickly reached a consensus: We know as an absolute certainty each of us will die — but no other animal does. A mouse who had lost a litter-mate to a cat may think death is a pure accident that can't possibly happen to him.
>
> Having lived for years in this community of the aging, I sense another consensus: there's something worse than dying. It is half-dying: the gradual loss of your mobility, independence and dignity, a long, lingering desperately delayed slow death in the hospital while your hard-earned financial resources and those of your children bleed away, even though the end is inevitable."

The Hardins had been in poor health for quite some years, and had given family members to understand that they would choose when to die. Garrett and Jane belonged to the Hemlock Society, whose name of course, referred to the highly poisonous plant in the carrot family that the ancient Athenian philosopher Socrates ingested to take his own life in the year 399 BCE, according to the account in Plato's *Phaedo*. The Hemlock Society later merged with the Compassion in Dying Federation to become Compassion & Choices.

I think it is fitting, though perhaps might strike some as a bit incongruous, that the word "compassion" should arise in the context of the choices Garrett Hardin and his lifelong partner Jane made concerning their own demise. Wasn't Hardin a staunch critic of compassion? Yes, but only of promiscuous and conspicuous compassion, coupled with shallow thinking. In contrast to that, it is an appropriate expression of compassion to respect an individual's choice that he or she has reached the end of the line, and no longer wishes to suffer or to impose an extended emotional, physical, or financial burden on family, friends, and society. This is the opposite of the kind of short-sighted, destructive compassion for those who would impose unlimited demands — such as an infinite right to breed, migrate, or consume the commons.

In his final years, despite his declining health and strength, Garrett remained an active writer and correspondent. In a 2001 letter to a friend, he gushed about a new 68-page booklet just published by the Center for Immigration Studies called "Forsaking Fundamentals: The Environmental Establishment Abandons U.S. Population Stabilization" by Leon Kolankiewicz and Roy Beck. About the first author, he wrote: "I have not met Mr. K., so far as I can remember. (What a name to be saddled with in the USA!) He is now a collaborator of Beck's." As I mentioned at the beginning of this article, Garrett and I had met and spoken briefly on a couple of occasions in the previous decade, though it's unsurprising that he did not recall that. And his blunt reference to my being "saddled with" a long, tongue-twisting Slavic surname was all too close to the mark; I didn't stop hearing bigoted and puerile Polack jokes until the 1980s, as American sympathy and respect grew for the Solidarity movement in Poland defiantly standing up to oppressive Soviet communism.

Garrett went on to write:

> [Roy Beck's] work is an inspiring example of what journalism should be. He presents both sides fairly and by the construction of his work you know where the truth lies. This pamphlet thoroughly tells us how it happened that ZPG and the Sierra Club, *and all the other environmental organizations* became so corrupted between 1970 and 2000.
>
> So far as I know, Roy Beck is the only publicist who is presenting "the truth, the whole truth, and nothing but the truth" when it comes to America and population. It's a tragic tale. Any

> progress we make in population matters from this point on begins with the K & B analysis. I am going to study their document over and over. It is rich in information.

He had started this letter with a light-hearted poke at his own poor health: "When I'm feeling blue about my situation, I think *things could be worse*. I could be one of the men in the photo below [from *The Economist*, with the caption "We're betting on globalization"], which I regard as a masterpiece of visual journalism. Taken at an English racetrack, I suppose."

Throughout his life, Garrett Hardin's ready acceptance of the reality of his own physical limitations from his disability incurred with his youthful bout with polio was nothing short of remarkable, especially in view of the culture of victimhood glorification that has now overtaken our society. Take, for example, his essay "The Economics of Wilderness," published in the American Museum of Natural History's monthly magazine *Natural History*, and first delivered as an address to the Sierra Club's Western Wilderness Conference in 1969.

As a wilderness devotee, I remember being sick and tired of arguments made at that time that it was elitist, unfair, or discriminatory to deny access to beautiful backcountry areas to those unwilling or unable to shoulder 50-lb. packs and hoof several miles on foot. Wilderness should be made accessible for the masses to use and appreciate, went the ostensibly egalitarian reasoning. Thus I was struck by Garrett's spirited defense of the wilderness ideal in "The Economics of Wilderness," in spite of the fact that with his own disability, he would never be able to visit and experience true wilderness in person. Garrett did not believe it was fair to allow his own physical limitations to reduce the dwindling supply of remaining wilderness even further. Perhaps for Garrett it was enough to be as captivated as I was by Aldo Leopold's timeless evocation of Alaskan and Canadian wilderness in *A Sand County Almanac*: "Where nameless men by nameless rivers wander, and in strange valleys die strange deaths alone."

Garrett's own death and the manner of it were noted and remarked upon in *The Los Angeles Times*, *New York Times*, *Wall Street Journal*, his hometown newspaper, the *Santa Barbara News-Press*, and other publications. In the journal *Science*, which had published two of his classic essays, "The Tragedy of the Commons" and "Nobody Ever Dies of Overpopulation," acclaimed science writer Constance Holden wrote that: "Ecologist Garrett Hardin never minced words in presenting his unvarnished view of humanity's impact on the planet."

Journalist Gregg Easterbrook, writing in the *Wall Street Journal*, was rather less charitable in his assessment: "The newborn's cry was not, to him, a celebration of life; it was just more breeding." Easterbrook's *WSJ* article was cleverly titled "The Tragedy of Garrett Hardin," and while he concluded that Hardin was "desperately wrong" in his gloomy outlook, he nonetheless called him "brilliant, wise, and gentle." And he confessed: "I liked the world much better when Garrett Hardin was in it, and am glad his parents never took the advice their child later gave." A cheap shot? Perhaps, but at the same time an expression of genuine admiration for the man and the thinker in spite of acknowledging profound philosophical disagreement.

In the end, Garrett Hardin's death, like his life, generated such polarized reactions, ranging from begrudging respect to utter contempt. And also in the end, it didn't matter to Garrett Hardin how people reacted to his telling of the truth as he saw it. He was unflinching indeed. For what mattered most to Hardin was not to avoid giving offense to some people's fragile feelings and exalted ethics, but to point the way toward genuinely reduced human suffering and toward an authentic, sustainable future for humanity, all within the constraints of the biosphere as revealed by science. He wanted a world not with the maximum number of people that could be supported sustainably, but a more glorious world with lower numbers of humans that would still allow for the existence of canaries and many other creatures that grace our unique planet with their beauty.

After all, it is not a coincidence that Garrett Hardin quoted one of the historical figures he admired most inside the front cover of his masterwork *Living Within Limits*:

> "I teach only two things: the cause of human sorrow, and the way to become free of it."
>
> —Siddhartha Gautama,
> The Buddha (563 – 483 BCE) ■