Reserving a Place for Nature on Spaceship Earth: Rethinking the Role of Conservation Easements

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There has always been something rather refreshing in the view that we should live like the birds, and perhaps posterity is for the birds in more senses than one; so perhaps we should all call it a day and go out and pollute something cheerfully. As an old taker of thought for the morrow, however, I

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cannot quite accept this solution; and I would argue, furthermore, that tomorrow is not only very close, but in many respects it is already here.

—Kenneth Boulding (1966)[1]

The Earth is the only world known so far to harbor life. There is nowhere else, at least in the near future, to which our species could migrate. Visit, yes. Settle, not yet. Like it or not, for the moment the Earth is where we make our stand.

—Carl Sagan (1994)[2]

I. INTRODUCTION

It has been over half a century since Kenneth Boulding introduced the metaphor of the Earth as a "spaceship."[3] In his compelling analogy he argued that, due to increasing human demands, the Earth was becoming more like a spaceship carrying limited supplies (and limited capacity to receive pollution) than an open prairie spreading endlessly to the horizon.[4] In what he called the "cowboy economy," "consumption is regarded as a good thing and production likewise," with the economy's success being measured solely "by the amount of the throughput from the 'factors of production.'"[5] Boulding pointed out that a portion of this throughput is necessarily "extracted from the reservoirs of raw materials and noneconomic objects" and that another part consists of "output into the reservoirs of pollution."[6] In the "spaceman economy," in contrast, "throughput is by no means a desideratum, and is indeed to be regarded as something to be minimized rather than maximized."[7] There the measure of success is not production and consumption, but rather "the nature, extent, quality, and complexity of the total capital stock," a term of art referring to the people and their satisfaction-yielding assets, whether natural or artificial.[8]

Boulding intended his "spaceship" analogy to emphasize the limitedness of the Earth's natural resources, a fact mainstream

1. Kenneth E. Boulding, *The Economics of the Coming Spaceship Earth*, *in* ENVIRONMENTAL QUALITY IN A GROWING ECONOMY 11 (H. Jarrett ed., 1968).
2. CARL SAGAN, PALE BLUE DOT: A VISION OF THE HUMAN FUTURE IN SPACE (1994).
3. *See* Boulding, *supra* note 1, at 3.
4. *Id.*
5. *Id.*
6. *Id.* at 8.
7. *Id.*
8. *Id.*

economists had long ignored, despite its common-sense obviousness to those untrained in the economic sciences. While his ideas gained traction within a certain segment of the economics academy, even spawning a new field called "ecological economics," they remain largely outside of mainstream economic, political, and legal discourse. That is unfortunate, as experiences of the last fifty years have only confirmed Boulding's central thesis. The Earth is indeed finite, and the human economy is pushing up against, if not already exceeding, its boundaries. The scale of our economic activities now threatens to alter some of the Earth's most fundamental processes, including those upon which our economy—and hence our well-being—relies.

As awareness of the need for conservation has increased, so too has the use of conservation easements—an instrument whereby landowners sell or donate certain of their development rights to another party in exchange for certain tax benefits—as one tool among many for meeting that need. Conservation easements now protect about forty million acres within the United States.[9] Their use of private property mechanisms to serve public purposes is a key reason for their popularity among conservation organizations and landowners alike. Still, they are not without their issues. What legal scholar Fred Cheever noted in 1996 remains largely true today: "some dark omens cloud the future of the movement and, absent some changes in the legal structures that support it, time may erode the happy congruity between public and private at the cost of the environment and the public good."[10] These legal and policy issues include the lack of coordinated landscape-scale planning, the lack of accountability for private owners of easements in enforcing the terms of their holdings, abuses of tax codes, and their inflexibility in responding to changing social or economic

9. Federico Cheever & Jessica Owley, *Enhancing Conservation Options: An Argument for Statutory Recognition of Options to Purchase Conservation Easements (OPCEs)*, 40 HARV. ENVTL. L. REV. 1, 3 (2016); Nancy A. McLaughlin, *Perpetual Conservation Easements in the 21st Century: What Have We Learned and Where Should We Go from Here?*, 33 UTAH ENVTL. L. REV. 1, 1 (2013).

10. Federico Cheever, *Public Good and Private Magic in the Law of Land Trusts and Conservation Easements: A Happy Present and A Troubled Future*, 73 DENV. U. L. REV. 1077, 1078 (1996). More recently, Nancy A. McLaughlin wrote that:

> The public is investing billions of dollars in conservation easements, which now protect an estimated 40 million acres throughout the United States. But all is not well. Uncertainties in the law and abusive practices threaten to undermine public confidence in and the effectiveness of the conservation easement as a land protection tool.

McLaughlin, *supra* note 9, at 1.

conditions. These issues have prompted calls for reforming the legal regime governing conservation easements—calls some states have answered in their own ways. Much more remains to be done.

This Article proceeds in three parts. Part II describes the field of ecological economics, including its central critiques of mainstream economic models, it explains the urgency of the conservation effort, and it outlines the role of conservation easements in the wider environmental portfolio. Part III describes some of the major problems arising from the use of conservation easements, including some that could arguably render them not just inefficient, but actually counterproductive to their conservationist purpose. Part IV assesses several proposals aimed at addressing these concerns, including some measures states have already adopted. It concludes with a call for states and the federal government to radically reform their methods for valuing conservation easements for tax purposes, namely by using insights from ecological economics to determine each easement's actual contribution to human welfare in the present and future. Only then will private parties supply conservation services and goods at the level society truly demands and needs.

II. CONSERVATION AS A RESOURCE

As living organisms, we are part of a global ecosystem and depend upon its flows of materials and energy for our very survival. This much should be fairly obvious, yet mainstream economics largely ignores the role of the physical world as a constraint on economic growth. Despite the importance of healthy ecosystems to human survival, the value of conserving ecosystems is one that typically has not been reflected in market decisions or in mainstream neo-classical macroeconomic analysis, unfortunately often resulting in conservation values being minimized, if not ignored, in policy decisions.[11] To be sure, some ecosystem functions, such as providing sources of food production and other

11. Robert Costanza et al., *The Value of the World's Ecosystem Services and Natural Capital*, 387 NATURE 253, 253 (1997); *see also* David Pearce, *Valuing the Environment: Past Practice, Future Prospect* 2 (Ctr. for Soc. & Econ. Research on the Glob. Env't, Working Paper No. PA 94-02, 1993) (calling this phenomenon an "asymmetry of valuation"). For a summary of "ecosystem services" as it relates to the law and to valuation practices, *see* Thomas C. Brown et. al., *Defining, Valuing, and Providing Ecosystem Goods and Services*, 47 NAT. RESOURCES J. 329 (2007).

raw materials including lumber, fuel, water, and minerals, have traditionally been able to be "captured," at least somewhat, by commercial markets through the institution of private property. However, markets are incapable of "capturing" so many others. These other "ecosystem services," as they have come to be called, include flood control, watershed protection, erosion control, soil formation, nutrient cycling, waste treatment, and pollination, among others.[12] The market, quite simply, lacks the mechanisms for accounting for these values, as essential as they are for society.

This Part explores the development of a new economic paradigm that envisions the economy as a subsystem of energy and material flows within a wider ecosystem, one whose limits mainstream economics for the most part ignores. It then details what this new paradigm—ecological economics—tells us in regards to the urgency of conservation, before outlining the role conservation easements have played in responding to that urgent need.

A. The Fallacy of Unlimited Growth

Boulding recognized how alien his idea of a "spaceship Earth" would be to economists, who he characterized as being "obsessed with the income-flow concepts to the exclusion, almost, of capital-stock concepts."[13] He even suggested economists might entirely ignore his ideas, as they had ignored his prior criticisms, instead continuing to "think and act as if production, consumption, throughput, and the [Gross National Product]" were all that mattered, a situation he found impossible to accept.[14] However, Boulding's ideas, despite his own pessimism, came to have a profound impact on economics over the next generation. Indeed, some economists spent the better part of the subsequent generation developing new economic models that incorporate the effects of economic decisions on the physical environment, including its capacity to supply materials and energy and to receive waste, just as Boulding proposed. Ultimately, an entirely new field, commonly called "ecological economics," emerged.

12. *E.g.*, Costanza et al., *supra* note 11, at 254 tbl. 1.

13. Boulding, *supra* note 1, at 8.

14. *Id.* at 10. For another succinct description of Boulding's ideas and a broader intellectual history of ecological economics and its relation to environmental law, *see generally* Douglas A. Kysar, *Law, Environment, and Vision*, 97 NW. U. L. REV. 675 (2003).

On its founding in 1990, the International Society of Ecological Economics defined the field's organizing principle to be that "the human economy is embedded in nature, and economic processes are also always natural processes in the sense that they can be seen as biological, physical and chemical processes and transformations."[15] While ecological economists differ as to many particulars, they are united in their rejection of mainstream measures of economic well-being for their exclusive focus on throughput, with the Gross Domestic Product ("GDP") being the most prominent measure, followed by the Gross National Product ("GNP"), today. In mainstream economics, growth can occur from one of two developments: 1) an increase in the exploitation of "natural capital," a term referring to that portion of humanity's satisfaction-yielding assets that occurs naturally rather than artificially; or 2) an increase in productive efficiency. Whereas traditional economists would see both as positives, ecological economists view the first as potentially being a net negative to social welfare and hence favor the latter of the two. Whereas mainstream economics, with its emphasis on the GDP or GNP as the measure of well-being, focuses solely on economic output, ecological economics emphasizes the importance of an economy being of a sustainable scale in relation to the natural capital of the earth and in fairly distributing the wealth derived from that capital.[16]

The economist who developed the GDP, Simon Kuznets, never intended it to be used as it has come to be. Indeed, he warned against its use as a general measure of economic well-being, explaining that "'the welfare of a nation can scarcely be inferred from a measure of national income'" as defined by the GDP.[17] Despite these warnings, the United States and the vast majority of States throughout the world rely upon the GDP as the measure of the health of their economies, with the U.S. Bureau of Economic Analysis explaining that the GDP is "the appropriate measure for

15. Inge Røpke, *The Early History of Modern Ecological Economics*, 50 ECOLOGICAL ECON. 293, 312 (2004).

16. For a succinct summary of ecological economics and its primary critiques of mainstream economics, *see, e.g.*, ROB DIETZ & DAN O'NEILL, ENOUGH IS ENOUGH: BUILDING A SUSTAINABLE ECONOMY IN A WORLD OF FINITE RESOURCES 3–41 (2013) (outlining the development of ecological economics, including its criticisms of mainstream economists' emphasis on growth, as measured by GDP or GNP, and its realization of the importance of limiting the economy's size to a sustainable scale).

17. EUROPEAN COMM'N, CONFERENCE DESCRIPTION: BEYOND GDP 1 (2007) [hereinafter CONFERENCE DESCRIPTION].

much of the short-term monitoring and analysis of the U.S. economy."[18] In part this is because of the GDP's almost universal acceptance in other countries and in part it is because the GDP is purportedly "consistent in coverage with indicators such as employment, productivity, industry output, and investment in equipment and structures."[19] All of that may be true, but as Kuznets once explained, a measure of "more" should not mean much without any specification of what there is "more" of and for what purposes. Rather, any "'goals for more growth,'" Kuznets implored, "'should specify . . . of what and for what.'"[20] Neither the GDP nor the GNP does that.

Ultimately, the key difference between the ecological economics model and neoclassical economics comes down to the relationship between the economy and the environment. Mainstream economists for the most part view the environment, inasmuch as they see it at all, as a facet of the economy. They thus assume there to be an infinite supply of natural resources as inputs into the economy and an infinite capacity of nature to absorb economic wastes as outputs. In contrast, ecological economists envision the economy as a subsystem existing wholly within an ecosystem that is indeed finite. With that as a paradigm, ecological economists

18. U.S. BUREAU OF ECON. ANALYSIS, GROSS DOMESTIC PRODUCT AS A MEASURE OF U.S. PRODUCTION 8, 8 (1991).

19. *Id.*

20. CONFERENCE DESCRIPTION, *supra* note 17, at 1. In 1968, Robert F. Kennedy offered a succinct rebuke to materialism and the conflation of an accumulation of things (i.e., throughput) and well-being, as embodied in GNP and GDP measures:

> Our Gross National Product, now, is over $800 billion dollars a year, but that Gross National Product—if we judge the United States of America by that—that Gross National Product counts air pollution and cigarette advertising, and ambulances to clear our highways of carnage. It counts special locks for our doors and the jails for the people who break them. It counts the destruction of the redwood and the loss of our natural wonder in chaotic sprawl. It counts napalm and counts nuclear warheads and armored cars for the police to fight the riots in our cities. It counts Whitman's rifle and Speck's knife, and the television programs which glorify violence in order to sell toys to our children. Yet the gross national product does not allow for the health of our children, the quality of their education or the joy of their play. It does not include the beauty of our poetry or the strength of our marriages, the intelligence of our public debate or the integrity of our public officials. It measures neither our wit nor our courage, neither our wisdom nor our learning, neither our compassion nor our devotion to our country, it measures everything in short, except that which makes life worthwhile. And it can tell us everything about America except why we are proud that we are Americans.

Robert F. Kennedy, Remarks at the University of Kansas (Mar. 18, 1968) (transcript available at the John F. Kennedy Presidential Library and Museum).

argue there is an optimal physical size for the economic subsystem, one which maximizes well-being in the present without sacrificing the ecosystem's capacity to sustain well-being into the future, and one beyond which any growth in the physical size of the economy is detrimental or "uneconomic."

According to prominent ecological economist Herman E. Daly, the optimal economy is of a size whereby "we keep the throughput within the natural capacity of the ecosystem to absorb wastes and regenerate depleted resources."[21] It is of a size that fits within the broader ecosystem without suffocating it. This stands in marked contrast to mainstream economists who advocate for perpetual growth into a presumably infinite void.[22] That advocacy may have made sense when the economy was so small that natural resources seemed inexhaustible, their services incorruptible. That is no longer the case, however.

Of course, determining the point at which growth in the physical size of the economy becomes economically inefficient requires policymakers and advocates to determine the values of those ecosystem services sacrificed in the name of economic growth. In economic terms, the optimal physical size of the economy is that size at which "the marginal benefit of services of more man-made capital is just equal to the marginal cost of natural services sacrificed when the natural capital that had been yielding those services is transformed into man-made capital."[23] In this vein, ecological economists have developed new economic models that purport to fully account for the costs and benefits of economic developments, including their impacts on natural capital stocks and other ecological impacts.

Daly and John B. Cobb, for instance, in 1989 proposed a model they called the Index of Sustainable Economic Welfare ("ISEW").[24] The ISEW differs from the GDP primarily in its inclusion of costs related to environmental degradation and in its consideration of

21. Herman E. Daly, Keynote Address at the Canadian Society for Ecological Economics: The Concept of Scale and its Relation to Allocation, Distribution, and Uneconomic Growth (Oct. 16–19, 2003), *in* HERMAN E. DALY, ECOLOGICAL ECONOMICS AND SUSTAINABLE DEVELOPMENT, SELECTED ESSAYS OF HERMAN DALY 82, 86 (2007).

22. E,g. HERMAN E. DALY, BEYOND GROWTH: THE ECONOMICS OF SUSTAINABLE DEVELOPMENT 34-35 (1996); DIETZ & O'NEILL, *supra* note 16, at ix-x.

23. DALY, *supra* note 22, at 68.

24. *See* HERMAN E. DALY & JOHN B. COBB, JR., FOR THE COMMON GOOD: REDIRECTING THE ECONOMY TOWARD COMMUNITY, THE ENVIRONMENT, AND A SUSTAINABLE FUTURE (1989).

natural capital depletion and income distribution—all things the GDP ignores.[25] Shortly thereafter, a group called Redefining Progress, whose stated mission is in "[s]hifting public policy to achieve a sustainable economy, a healthy environment and a just society," proposed another metric, the Genuine Progress Indicator ("GPI").[26] The GPI, like the ISEW, uses personal consumption as a starting point before considering other factors that traditional economic measures ignore. These include resource depletion, pollution, and long-term environmental damage—all as negatives.[27] Though these models differ in their valuations and methodology, they both show convincingly that the economic growth of the past few decades has not translated into improvements in human welfare. They show that the physical size of the economy has surpassed its optimal scale.[28]

Some ecological economists, rather than placing negative values on the various ways the human economy impinges upon the wider ecosystem, have instead attempted to place positive values on ecosystems themselves. In 1997, one group of ecologists, led by Robert Costanza, even tried to quantify the value of the entire global ecosystem using established per-acre values for each type of ecosystem. Strikingly, they valued global ecosystem services per year as averaging roughly thirty-three trillion dollars, almost double the gross world product of eighteen trillion dollars.[29] The authors knew their attempt would elicit controversy, and they knew there were inherent issues with such an attempt. However, they also understood that curing the under-representation of natural conservation resources in economic and policy decision making required first that the issue itself gain notoriety—that they precipitate a robust, transdisciplinary discussion of the problem.

In provoking controversy and precipitating conversation, Costanza and his coauthors surely succeeded.[30] The responses

25. *See* Eric Neumayer, *On the Methodology of ISEW, GPI and Related Measures: Some Constructive Suggestions and Some Doubt on the 'Threshold' Hypothesis*, 34 ECOLOGICAL ECON. 347, 348 (2000).

26. *Genuine Progress Indicator*, REDEFINING PROGRESS, http://rprogress.org/sustainability_indicators/genuine_progress_indicator.htm [https://perma.cc/U36J-VJZZ] (last visited Aug. 18, 2017).

27. *Id.*

28. *Id.*

29. Costanza et al., *supra* note 11, at 259.

30. *See, e.g.*, Richard B. Norgaard & Collin Bode, *Next, the Value of God, and Other Reactions*, 25 ECOLOGICAL ECON. 37, 38 (1998) ("Such numbers provide new and critically important

varied from condemnation to celebration. As an example of the former, some conservationists objected to what they saw as the further commodification of nature. In one response to the study, for instance, William E. Rees asked rhetorically how "a parasite" (by which he meant humans) should value "its host" (by which he meant the Earth), explaining that:

> The valuation of nature represents the commodification of global life support. This is worrisomely serious business. For the first time in human history, it seems necessary to some to put a price on the biophysical structures and functions that make higher life possible on Earth. Until now, the essentials to life have been free.[31]

Indeed, one can argue that the problem of commodification as a concept is one that American environmental literature as a whole has largely ignored.[32]

However, Costanza and his colleagues did not actually intend to put a price tag on nature so that it might be sold or rented. Rather, it was to recognize a staggering wealth of materials and services that currently are not adequately considered in human decision making and to begin the process of making explicit the value judgments we as humans already make every day. As they explained the following year:

benchmarks for environmental discourse with respect to where we are and the relative importance of things. We were impressed that the article generated coverage in, for example, *Science* as well as in the popular press. Clearly, this was good, for it meant that the approach was effective at generating widespread attention and instigating discussions like our own. We noted the advantages of speaking in the dominant economics language.").

31. William E. Rees, *How Should a Parasite Value Its Host*, 25 ECOLOGICAL ECON. 49, 49 (1998); *see also* Norgaard & Bode, *supra* note 30, at 38 ("Many of us would like to see a greater diversity in valuing processes and are quite pleased with how conservation biologists and other activist scientists have consciously enriched our understanding of nature through narratives.").

32. *See, e.g.*, Norman W. Spaulding III, Note, *Commodification and Its Discontents: Environmentalism and the Promise of Market Incentives*, 16 STAN. ENVTL. L.J. 293, 295–96 (1997) (arguing that "[o]ne of the costs which has received too little attention thus far is commodification—the problems that arise when the environment and our relation to it are reduced to the commodity form. Current inattention to issues of commodification is partly due to the fact that American legal thought is still somewhat aloof to the achievements of continental theory. Even as American legal scholars began to appropriate continental thought in the 1960s and 1970s—a step that paralleled the rise of environmentalism as a social movement in this country—the appropriation came at a time when faith in classical Marxism was generally receding on the left. At present, even when the problem of commodification is mentioned in the literature of environmental regulation, the treatment often consists of mere notation without analysis.").

> [W]e (humans—both as a society and as individuals) are forced to make choices and trade-offs about ecosystems every day. These imply valuations. To say that we should not do valuation of ecosystems is to simply deny the reality that we already do, always have and cannot avoid doing so in the future.[33]

Daly agreed, cautioning that "[i]f we are to avoid uneconomic growth we must be sure that the value of the natural capital services sacrificed as a result of human expansion are not greater than the value of the services gained from the expanded manmade capital."[34]

The confusion over the "price of the earth" study is rooted in disagreements over what it means for something to have "value." In one sense, of course, the global ecosystem has a value approaching infinity, since neither we nor any of the things we value could exist without it. It is clear Costanza and his coauthors did not use that measure, even as they acknowledged its fundamental truth.[35] However, they obviously also did not use the traditional economics view, one that equates "value" with what people are willing to pay for a good or service, as measured in markets. Had Costanza and his colleagues used that definition, it would have entirely defeated the purpose of the study: to redress the failure of markets to account for the full value of nature. Rather, their study synthesized previous studies using a variety of valuation methods, all incorporating a mix of market and non-market components.

It would also be a mistake to interpret the staggering value attached to the planet's ecosystems as additional wealth we did not even realize we had, as at least one reporter did.[36] The reason is

33. Robert Costanza et al., *The Value of Ecosystem Services: Putting the Issues into Perspective*, 25 ECOLOGICAL ECON. 67, 68 (1998).

34. Herman E. Daly, *The Return of Lauderdale's Paradox*, 25 ECOLOGICAL ECON. 21, 21 (1998). Daly further explained:

> The purpose of the authors of 'Pricing the Planet' is quite reasonable, and not, contrary to some wags, to sell, or rather rent, the earth to extraterrestrials. Nor do I consider their exercise in any way blasphemous, akin to putting a price on God. The pricing effort is, in the interest of better stewardship, to put relative values on various aspects of creation, not on the Creator.

Id.

35. Costanza et al., *supra* note 11, at 253.

36. Daly, *supra* note 34, at 22.

the distinction between what James Maitland, an early nineteenth-century classical economist, called "public wealth" and "private riches." The former "'consists of all that man desires that is useful or delightful to him,'" whereas the latter is "'all that man desires that is useful or delightful to him, which exists in a degree of scarcity.'"[37] The former includes everything of utilitarian value to humans, whereas the latter includes only those things of utilitarian value for which people are willing to pay, and only to the extent they are willing to pay. Classical and neo-classical economics emphasize the latter. Maitland discovered a paradox in the relationship between these two measures of value, namely that "private riches" could expand simply by destroying "public wealth."[38] This is because in such a scenario, as Daly explained it centuries after Maitland's discovery, "formerly abundant things with great use value but no exchange value became scarce, and thereby acquired exchange value and were henceforth counted as riches."[39] The paradox is that the degradation of the very resources on which our economy depends makes us richer in the ways economists typically measure. However, even though we may get richer as measured in terms of "private riches" or incomes, Maitland still contended "'the common sense of mankind would revolt at a proposal for augmenting wealth by creating a scarcity of any good generally useful and necessary to man.'"[40]

Thus, the best way to understand the thirty-three trillion dollar figure is not as a measure of untapped values beyond those recognized by our markets. Rather, it is "an indirect index of the extent of past sacrifice of natural capital, and thus of the scarcity of remaining natural capital."[41] Daly would have us "[t]hink of it as an index of how far we have moved away from the baseline of the 'Garden of Eden' when the marginal utility of natural capital was zero, and its total utility at a maximum for that 'empty world' state."[42] In short, "[t]he figure of 33 trillion dollars screams at us to save what natural capital is left."[43]

37. *Id.*
38. *Id.*
39. *Id.*
40. *Id.*
41. *Id.*
42. *Id.*
43. *Id.*

Still, some environmental philosophers consider it misguided to think of nature's value only, or even primarily, in terms of what it means for humans, whether that involves actually "putting a price tag" on nature or not. The value of conserving nature lies not in its utilitarian value to humans, they contend, but rather in its importance to other species and to nature itself. Philosopher Paul Taylor summarized this view when he wrote that "humans are members of the Earth's Community of Life in the same sense and on the same terms" as "other living things," that all species, including humans, are "integral elements in a system of interdependence," that "all organisms are teleological centers of life," meaning that each organism has a purpose and a reason for being, and that "humans are not inherently superior to other living things."[44]

Although various forms of this philosophy have been around for centuries or even millennia—including being featured in several major world philosophies[45]—it has only ever been a minority viewpoint in the United States, having been most famously articulated by the Romantics in the mid-nineteenth century and Aldo Leopold in the early twentieth.[46]

This critique of utilitarian, or "anthropocentric," views of nature extends to the broader American conservation and environmental movements. As philosopher Gordon Steinhoff recently outlined, many environmental-protection measures rely upon, and are guided by, a utilitarian rationale.[47] For example, Congress

44. PAUL W. TAYLOR, RESPECT FOR NATURE: A THEORY OF ENVIRONMENTAL ETHICS 99–100 (1986).

45. *See, e.g.*, J. BAIRD CALLICOTT, EARTH'S INSIGHTS: A MULTICULTRUAL SURVEY OF ECOLOGICAL ETHICS FROM THE MEDITERRANEAN BASIN TO THE AUSTRALIAN OUTBACK (1994); Robert Kuhn McGregor, *Deriving a Biocentric History: Evidence from the Journal of Henry David Thoreau*, 12 ENVTL. REV. 117, 119 (1988) ("In the past, various people have expressed the concept of spiritual oneness with all nature. In the fourth century B.C., Lao Tsu suggested that 'Knowing the ancient beginning is the essence of Tao,' and that by comprehending the Tao we come to understand the unity of all creation. In the thirteenth century A.D., the Japanese teacher Dogen enlarged upon the philosophies of Buddha to encourage the acceptance of a single world spirit. Native Americans also created a vast mythology investing non-human species with a spirituality, as did the ancient Celts.").

46. Aldo Leopold proposed his "land ethic" as "an evolutionary possibility and an ecological necessity." As he explained it, this ethical view "simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land." ALDO LEOPOLD, A SAND COUNTY ALMANAC AND SKETCHES HERE AND THERE 204 (Oxford Univ. Press 1987).

47. Gordon Steinhoff, *Why We Should Protect Natural Areas*, 5 ARIZ. J. ENVTL. L. & POL'Y 364, 367–73 (2015).

established America's national park system in substantial part "to provide for the enjoyment of the scenery, natural and historic objects, and wild life in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."[48] America's national forest system was established to protect watersheds and to ensure a perpetual supply of timber, and now exists for a variety of "multiple uses." Even arguably the least anthropocentric of conservation laws, the Endangered Species Act and Wilderness Act, both were justified with reference to their values to human uses, even if those human purposes were not meant to guide their actual implementations.[49] The Endangered Species Act justifies protections of endangered species based upon their "esthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people."[50] Meanwhile, the Wilderness Act provides for areas to be protected for the "use and enjoyment" of present and future generations of Americans, including the "public purposes of recreational, scenic, scientific, educational, conservation, and historical use."[51]

As interesting as this philosophical debate might be, it should not distract from the practical issues facing not just Americans, but humanity as a whole. Regardless of what the proper scale of the human economy is, it is clear it is smaller than its current size (and even clearer it is smaller than the projected size of the economy in

48. *See, e.g.*, National Park Service Organic Act § 1, 54 U.S.C. § 100101(a) (2017) (original version at ch. 408, §1, 39 Stat. 535 (1916)).

49. *See* Sean Kammer, *Coming to Terms with Wilderness: The Wilderness Act and the Problem of Wildlife Restoration*, 43 ENVTL. L. 83, 113–14 (2013) ("To ensure that an area, once designated, retains its wilderness character, Congress defined its basic management mandate, in section 4(b) of the Wilderness Act, as being to 'preserv[e] the wilderness character of the area.' This section also provided that each wilderness area be managed for 'such other purposes for which it may have been established' and that all wilderness areas also be 'devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use.' These additional obligations, however, are made contingent upon the agency also preserving the wilderness character of the area. As to the 'other purposes' for which an area has been established, Congress reiterated that managers must do so while also 'preserv[ing] its wilderness character.' As to the other 'public purposes,' the Act directed managers to take actions in furtherance of these purposes 'except as otherwise provided in this Act.' This includes the requirement—twice stated in the Act's preceding sentence—that wilderness character be preserved. In short, managers should allow for and even promote these public uses of wilderness, but they cannot allow such uses to detract from the wilderness resource itself. Preservation of wilderness is the paramount obligation.") (internal citations omitted).

50. Endangered Species Act of 1973 § 2(a)(3), 16 U.S.C. § 1531(a)(3) (2016); Steinhoff, *supra* note 47, at 367.

51. Wilderness Act of 1964 § 4(b), 16 U.S.C. §1133(b) (2016).

the near future). That is true whether one considers the arguable intrinsic value of nature or only its utilitarian value, as ecologists and ecological economists have already shown.[52] This is why Gordon Steinhoff argued for a pragmatic approach to conservation, one that embraces the lack of a single ethical foundation for protecting nature. The important point, to Steinhoff, is that Americans feel a "deep affinity" towards "natural areas and native species" and wish for them to be conserved.[53]

Even as the field of ecological economics has grown as a field of scholarly study, its impact on economic policy has been underwhelming. Indeed, as the Stiglitz-Sen-Fitoussi Commission on the Measurement of Economic Performance and Social Progress concluded in 2009, "those attempting to guide the economy and our societies are like pilots trying to steer[sic] a course without a reliable compass. . . . We are almost blind when the metrics on which action is based are ill-designed or when they are not well understood."[54] This blindness, which of course has deep historical roots, has allowed human communities to expand their influence over purportedly "natural" processes to the point of endangering the very systems on which humans depend for continued survival. This makes any discussion on the efficacy of various environmental or conservation tools all the more urgent.

B. The Urgency of Conservation

The need to conserve land and its many resources and services has perhaps never been more urgent. According to some, humans have altered the earth's energy and material flows to such a degree as to have pushed the planet into a new geological epoch, the "Anthropocene," translated literally as the "age of man."[55] Some have described the Anthropocene, potentially soon to become official, as meaning our:

52. *See supra* notes 21-28 and accompanying text; *infra* notes 55-61 and accompanying text.

53. Steinhoff, *supra* note 47, at 365.

54. J. STIGLITZ ET AL., EUROPEAN COMM'N, REPORT BY THE COMMISSION ON THE MEASUREMENT OF ECONOMIC PERFORMANCE AND SOCIAL PROGRESS 9 (2009).

55. *E.g.*, Paul J. Crutzen & Eugene F. Stoermer, *The "Anthropocene,"* GLOBAL CHANGE NEWSL. (Int'l Geosphere-Biosphere Programme), May 2000, at 17–18; Louis J. Kotzé, *Rethinking Global Environmental Law and Governance in the Anthropocene*, 32 J. ENERGY & NAT. RES. L. 121, 122 (2014).

> [H]uman imprint on the global environment is now so large that the Earth . . . is leaving . . . the environment within which human societies themselves have developed. Humanity itself has become a global geophysical force, equal to some of the "great forces of Nature" in terms of Earth System functioning.[56]

Sean Kammer recently summarized the nature and extent of human influence as follows:

> First, we have taken carbon stored in the ground and burnt it into the atmosphere, the result of which is the greenhouse effect and a warming climate. As of now, the concentrations of carbon dioxide have reached levels unmatched over the last three million years. Second, we have degraded the biosphere and contributed to a collapse in biodiversity, one some are going so far as to call the "sixth extinction," placing it on par with five other mass extinctions in the Earth's distant past. Finally, we have altered the flows or cycles of important biogeochemicals, including water, nitrogen, and phosphate. We have drained wetlands, constructed dams, and taken nitrogen from the atmosphere and phosphorous from the ground to be used in fertilizers. In all, over eighty-percent of the Earth's ice-free land is under direct human influence, and ninety-percent of photosynthesis on Earth occurs in 'anthropogenic biomes'—ecological communities modified by, and for, humans.[57]

Importantly, it is not just that humans are dramatically altering their physical environment, but that we are doing so in ways that could jeopardize humanity itself. Indeed, the Millennium Ecosystem Assessment Board concluded in 2005 that: "Many human and ecological systems are under multiple severe and mutually reinforcing stresses. . . .[a] large and growing number of people are at high risk of adverse ecosystem changes[,] [and that,] [t]he world is experiencing a worsening trend of human suffering and economic losses from natural disasters."[58] Some portray the danger facing humanity in terms of "boundaries" which humanity should not cross. This model recognizes that while some Earth systems respond linearly or smoothly to increasing pressures, many

56. Will Steffen et al., *The Anthropocene: From Global Change to Planetary Stewardship*, 40 AMBIO 739, 741 (2011).

57. Sean M. Kammer, *No-Analogue Future: Challenges for the Laws of Nature in a World Without Precedent*, 42 VT. L. REV. (forthcoming) (citing CHRISTOPHE BONNEUIL & JEAN-BAPTISTE FRESSOZ, THE SHOCK OF THE ANTHROPOCENE 5–9 (David Fernbach trans., 2016)).

58. 1 MILLENNIUM ECOSYSTEM ASSESSMENT BD., ECOSYSTEMS AND HUMAN WELL-BEING: CURRENT STATE AND TRENDS 2 (Rashid Hassan et al. eds., 2005).

"react in a nonlinear, often abrupt, way, and are particularly sensitive around threshold levels of certain key variables."[59] Importantly, once these thresholds are crossed, then these fundamental systems could shift into an entirely new state, one that will probably not be as favorable to human civilization.[60] Using this as a model, one group found in 2009 that humanity may have pushed three Earth systems, namely climate change, rate of biodiversity loss, and the nitrogen cycle, across their respective boundaries, while the Earth quickly approaches the boundaries for "global freshwater use, change in land use, ocean acidification and interference with the global phosphorous cycle."[61]

In a way, this sense of impending crisis is nothing new. In the United States during the nineteenth century, for instance, increased urbanization and the resulting loss of open, green spaces led to the establishment of municipal parks in cities beginning with Central Park in New York City.[62] Whereas some called for more expansive parks outside of cities, it was not until the apparent ending of the "frontier" at the end of the nineteenth century that the movement to preserve "wilderness" in the form of national parks gained a real foothold in American culture and politics.[63] At

59. Johan Rockström et al., *A Safe Operating Space for Humanity*, 46 NATURE 472, 472 (2009).

60. *Id.*

61. *Id.* at 473. In regards to ocean acidification and the phosphorous cycle, the authors warned that the rates of change "cannot continue without significantly eroding the resilience of major components of Earth-system functioning." *Id.*

62. *See* WILLIAM CRONON, NATURE'S METROPOLIS: CHICAGO AND THE GREAT WEST 328, 368, 380 (1991); ROY ROSENZWEIG & ELIZABETH BLACKMAR, THE PARK AND THE PEOPLE: A HISTORY OF CENTRAL PARK 3 (1992); Terence Young, *San Francisco's Golden Gate Park and the Search for a Good Society, 1865-80*, 37 FOREST & CONSERVATION HIST. 4, 4–6 (1993). In his 1866 plan for an urban park in San Francisco, famed park designer Frederick Law Olmsted had this to say of San Francisco's need for such a park:

> While an unusually large proportion of the population of San Francisco is engaged in no useful industry, the more important part of it is wearing itself out with constant labor, study, and business anxieties, at a rate which is unknown elsewhere. This is to a great extent, perhaps, a natural and necessary result of the present circumstances of its commerce; but that there should be so little opportunity and incitement to relief to intervals of harmless and healthy recreation, as is the case at present is not necessary, and is not wise or economical.

Young, *supra* note 62, at 9.

63. *See* JOHN MUIR, OUR NATIONAL PARKS 1 (1981); THEODORE ROOSEVELT, THE WILDERNESS HUNTER 19 (1893); RODERICK FRAZIER NASH, WILDERNESS AND THE AMERICAN MIND 2 (4th ed. 2001); THEODORE ROOSEVELT, THE WILDERNESS HUNTER 19 (1893); Ashley K. Hoffman & Sean M. Kammer, *Smoking Out Forest Fire Management: Lifting the Haze of an Unaccountable Congress and Lighting up a New Law of Fire*, 60 S.D. L. REV. 41, 62, 62 n.167 (2015).

the same time, a sense of an impending timber famine contributed to the establishment of national forest reserves to be managed on a sustained yield basis.[64]

In the twentieth century, notions of even natural conservation areas being too heavily manipulated caused some to push for the designation of areas completely outside of human cultivation, ultimately leading to the passage of the Wilderness Act in 1964 and the designation of millions of acres as "wilderness," the most restrictive of all federal public land designations.[65] At the same time, awareness of a loss of biodiversity led to treaties and statutes protecting the existences of certain species, culminating in a 1973 statute seeking to protect all species whose existence is threatened or endangered.[66] What makes this current episode unique is its global scale and the extent of what needs to be conserved. It is not just certain aspects of the physical environment, but indeed the very functions that might be necessary for human civilization to prosper.

C. The Role of Conservation Easements

With the development of ecological economics to quantify the value of conservation and an increasing awareness of the urgency of addressing humanity's ecological footprint, conservationists developed a new tool for promoting ecosystem health: the conservation easement. A conservation easement is a binding agreement between a landowner and a third party by which the landowner sells or donates certain development or land-use rights for an explicit conservation purpose.[67] According to the 2015 National Land Trust Census report, the predominant uses of conservation easements have been to protect important natural areas or wildlife habitats, to protect water quality, including

64. GIFFORD PINCHOT, BREAKING NEW GROUND 85 (1998); Sean M. Kammer, *"No Trespassing": Railroad Land Grants, The Right of Exclusion, and the Origins of Federal Forest Conservation*, 90 N.D. L. REV. 87, 112, 115-16 (2014); *see generally*, CHAR MILLER, GIFFORD PINCHOT AND THE MAKING OF MODERN ENVIRONMENTALISM (2001) (examining Pinchot's political and conservationist philosophies and their impacts on federal land policies and the broader environmental movements of the twentieth and twenty-first centuries).

65. Wilderness Act of 1964, 16 U.S.C. §§ 1131–1136 (2016); Sandra Zellmer, *A Preservation Paradox: Political Prestidigitation and an Enduring Resource of Wildness*, 34 ENVTL. L. 1015, 1043 (2004);

66. Endangered Species Act of 1973, 16 U.S.C. §§ 1531–1544 (2016).

67. *See* 1 FRANK P. GRAD, TREATISE ON ENVIRONMENTAL LAW § 10.03[1][c-1][iv][D] (2017) (describing conservation easements).

wetlands, and to preserve working farms or ranchlands, though they can also be used simply to preserve open spaces or any historic or recreation features of the land.[68]

Although conservation easements date to the late-nineteenth century, they were rarely used prior to the late 1970s.[69] In 1981, in recognition of an emerging demand for conservation easements and of questions being raised regarding the enforcement and legal validity of conservation easements under the common law,[70] the National Conference of Commissioners of Uniform State Laws ("NCCUSL") passed the Uniform Conservation Easement Act ("UCEA").[71] The UCEA provided states with model legislation and language to incorporate within a conservation easement agreement so that states may enact their own enabling statutes that may better serve for maintenance, enforcement, and validity purposes.[72] According to the NCCUSL, the UCEA's purpose was to "provide . . . a simple, limited way to end impediments to the use of easements under the common law" and to "permit . . . the acquisition of easements as limited interests in land with the

68. LAND TRUST ALL., 2015 NATIONAL LAND TRUST CENSUS REPORT 19 (2015).

69. The first use of modern conservation easements was in the Boston area in the 1880s to protect land adjacent to parkways. Throughout the twentieth century, the federal government used forms of conservation easements for particular purposes. In the 1930s, for instance, the Fish and Wildlife Services purchased almost three-hundred easements for the preservation of wildlife habitats in North Dakota, South Dakota, and Minnesota. John L. Hollingshead, *Conservation Easements: A Flexible Tool for Land Preservation*, 3 ENVTL. LAW. 319, 333 (1997). Later, between 1965 and 1985, the Fish and Wildlife Service obtained more than twenty-thousand conservation easements to protect almost 1.2 million acres of wetlands. *Id.* William H. Whyte first coined the term "conservation easement" in the 1950s. *Id.* at 325.

70. *See* RESTATEMENT (THIRD) OF PROP.: SERVITUDES § 1.2 cmt. a (AM. LAW INST. 2000) ("The uncertainty and difficulties imposed by the common law of servitudes led to the widespread enactment of statutes. The Uniform Conservation Easement Act was promulgated in 1981."); Hollingshead, *supra* note 69, at 333–34 (discussing conservation easement disputes and litigation). As the NCCUSL explains, the validity of conservation easements was questioned because they are "'in gross,'" meaning there is no "dominant estate"—no particular parcel of land—benefitting from the easement, and because they are "negative" in nature (i.e., they limit the use of land rather than granting an additional right of use). *See Conservation Easement Act Summary*, UNIFORM LAW COMM'N, http://www.uniformlaws.org/ActSummary.aspx?title=Conservation%20Easement%20Act [https://perma.cc/T4ZS-AB7R] (last visited Aug. 18, 2017). Courts disfavor non-possessory interests that are "in gross" or "negative" because they tend to cloud titles. *Id.*

71. *See* Terra M. Fisher, Note, *The Productivity Problem: An Analysis of Conservation Easement Taxation Issues Following South Dakota's Implementation of A Productivity-Based Land Valuation System*, 60 S.D. L. REV. 353, 358 (2015) (citing UNIF. CONSERVATION EASEMENT ACT, 12 U.L.A. 165 (2008)).

72. *See id.* (citing UNIF. CONSERVATION EASEMENT ACT, 12 U.L.A. 165, prefatory note, 166–69).

minimum disturbance of other interests and uses."[73] In that, the UCEA was successful. In just three years, thirty-seven states had passed conservation easement laws.[74] Today, twenty-three states plus the District of Columbia and the U.S. Virgin Islands have adopted the UCEA in full, and all fifty states have adopted enabling statutes that incorporate the UCEA in one way or another.[75]

The UCEA provided for conservation easements to be treated much the same as all other easements. It defined "conservation easement" to include easements whose purposes are "protecting natural, scenic, or open-space values of real property, assuring its availability for agricultural, forest, recreational, or open-space use, protecting natural resources, maintaining or enhancing air or water quality, or preserving the historical, architectural, archaeological, or cultural aspects of real property."[76] While its definition of "conservation" was broad, it narrowed who could acquire such easements to governmental agencies so empowered by the state or federal government, or to charity organizations whose purposes are conservationist in nature.[77]

Additionally, Congress recognized the potential public benefits of conservation easements in 1976 when it made conservation easement donations tax deductible.[78] Although this deduction was originally meant to be temporary,[79] it remains in the federal tax code now four decades later.[80] Although individual states retain the power to define conservation easements for themselves and there remains a great amount of variety in state programs, Congress limits the deduction to easements meeting certain requirements. First, the interest being sold or donated must be a "qualified real property interest."[81] Second, the qualified real property interest must be donated or sold to a "qualified

73. *See Conservation Easement Act Summary*, *supra* note 70.

74. S.D. LEGISLATIVE RESEARCH COUNCIL, ISSUE MEMORANDUM 04-04: CONSERVATION EASEMENTS 5 (2004).

75. JESSICA JAY, LAND CONSERVATION LAW TEXTBOOK 5 (2015) (on file with author); *Legislative Fact Sheet—Conservation Easement Act*, UNIFORM LAW COMM'N, http://www.uniformlaws.org/LegislativeFactSheet.aspx?title=Conservation%20Easement%20Act [https://perma.cc/V4EC-X8QK] (last visited Aug. 19, 2017).

76. UNIF. CONSERVATION EASEMENT ACT §1(1).

77. *Id.* § 2.

78. Daniel Halperin, *Incentives for Conservation Easements: The Charitable Deduction or a Better Way*, 74 LAW & CONTEMP. PROBS. 29, 35 (2011).

79. *Id.*

80. 26 U.S.C. § 170(h) (2015).

81. *Id.*

organization."[82] Finally, the sale or donation must be made "exclusively for conservation purposes," which requires the interest to be protected in perpetuity.[83]

The federal government has also supported conservation through programs that include agencies directly purchasing and holding conservation easements. For example, the Natural Resources Conservation Service, an agency within the Department of Agriculture ("USDA"), has implemented an Agricultural Conservation Easement Program as part of meeting its mission. Specifically, this agency aims to "mitigate the significant risks of farming through crop insurance services, conservation programs and technical assistance, and commodity, lending, and disaster programs," and to "ensure[] the health of the land through sustainable management" by "prevent[ing] damage to natural resources and the environment, restore the resource base, and promote good land management."[84] The Agricultural Conservation Easement Program, a consolidation of three former conservation programs, is specifically designed to "protect the long-term viability of the nation's food supply by preventing conversion of productive working lands to non-agricultural uses."[85] More specifically, its goal is to "provide habitat for fish and wildlife, including threatened and endangered species, improve water quality by filtering sediments and chemicals, reduce flooding, recharge groundwater, protect biological diversity and provide opportunities for educational, scientific and limited recreational activities" through agricultural land easements and wetland reserve easements respectively.[86] The Natural Resources Conservation Service also directs the Healthy Forests Reserve Program, which protects and restores forestland on private lands by way of conservation easements.[87]

82. *Id.*

83. *Id.*

84. *Mission Areas*, U.S. DEP'T OF AGRIC., https://www.usda.gov/our-agency/about-usda/mission-areas [https://perma.cc/CVF9-VUDJ] (last visited Nov. 21, 2017).

85. U.S. DEP'T OF AGRIC., *Agriculutral Conservation Easement Progam*, NAT. RESOURCES CONSERVATION SERV., https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/acep/ [https://perma.cc/48FX-HEZ2] (last visited Dec. 5, 2017).

86. *Id.*

87. U.S. DEP'T OF AGRIC., *Easements*, NAT. RESOURCES CONSERVATION SERV., https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/ [https://perma.cc/BUT2-8ATC] (last visited Nov. 21, 2017).

The United States Fish and Wildlife Service ("USFWS") is yet another federal agency that has utilized conservation easements as a tool to protect resources, wildlife, and overall conservation values. Amongst others, USFWS advertises "Conservation Easements" as one program utilized by many private landowners.[88] USFWS conservation easements are not only used by private landowners, but by public entities to appease conservation values such as the effort to protect endangered species. For example, USFWS implemented the Conservation Easement Program in 1981 in the Sacramento Valley to protect "existing and restored wetlands for migratory birds."[89] In addition to the USFWS Migratory Bird Program, other programs include the Invasive Species, Fisheries, and Wetlands Programs.[90] Like the USDA, the USFWS has found a great need and use for conservation easements.[91]

In addition to these federal programs, many state legislatures have established tax incentives for landowners who donate their properties to conservation easement programs. At least a dozen states provide for state income tax credits, while even more allow donors to deduct the value of the easement from the assessed value of the land covered for property tax purposes. These income tax benefits and credits furnish an additional source of encouragement to those considering donating a part of their land to a conservation easement.[92] They differ from the federal tax incentive in one important way, namely in that a deduction reduces taxable income while a tax credit offsets actual tax liability.[93]

Colorado has perhaps the most ambitious tax incentive system. That state provides for reduction of state tax liability in the amount of seventy-five percent of the first $100,000 of donated value and

88. *See e.g.* U.S. FISH & WILDLIFE SERVICE, PRIVATE LAND PROGRAMS FOR RANCHERS, GRASS MANAGERS, AND WILDLIFE ENTHUSIASTS (2012) (listing USFWS programs).

89. *Conservation Easement Program*, U.S. FISH & WILDLIFE SERV., https://www.fws.gov/refuge/NorthCentralValley/Conservation/ConservationEasements.html [https://perma.cc/3JGR-7M76] (last updated May 5, 2016).

90. *See generally* Margaret Claire Osswald, *Custom-Made Conservation: Resource-Specific Conservation Easement Implementation Unpaves the Path of Tax Abuse*, 32 J. ENVTL. L. & LITIG. 1, 30 n.152 (2016) (mentioning other kinds of conservation programs).

91. *Partnerships in Conservation: FWS Programs*, U.S. FISH & WILDLIFE SERV., https://www.fws.gov/endangered/what-we-do/fws-programs.html [https://perma.cc/AW33-F2X3] (last updated Aug. 3, 2017) (listing conservation programs).

92. JAY, *supra* note 75, at 131. These state income tax benefits and credits are in addition to federal income tax benefits. *Id.*

93. *Id.*

fifty percent of value beyond that.[94] Although Colorado spent a lot on this program, the state has seen an impressive return on its investment. Jessica Sargent-Michaud, an economist with The Trust for Public Land, found that the five hundred million dollars, adjusted to five hundred ninety-five million in present dollars, that the state spent in conserving 1.41 million acres from 1994 to 2008 produced benefits to the public totaling $3.52 billion, a rate of return of nearly six hundred percent.[95] That is consistent with what the Trust for Public Land has found regarding the value of conservation more broadly.[96]

In the 1980s, New York City famously showed the potential public value of conservation easements, as well as the wisdom of considering ecological values in making policy. The city relied upon the Catskill Mountain watershed as a natural filtration system for the 1.35 billion gallons of water it consumed each day, a function that had come to be threatened by land developments in that region.[97] The city estimated that building a filtration facility to replace the watershed's function would cost the city four to six billion dollars to construct in addition to two hundred and fifty million dollars in annual operational costs.[98] Namely because of these high costs, the city ultimately decided to protect the watershed function of the Catskill Mountains through a combination of buying lands outright and purchasing conservation

94. *Conservation Easement Tax Credit Certificates*, COLO. DEP'T OF REG. AGENCIES, https://www.colorado.gov/pacific/dora/conservation-easement-tax-credit-certificates [https://perma.cc/YQL9-B8H6] (last visited Aug. 19, 2017). The tax credit is capped at $1.5 million in value per donation. *Id.*

95. *See* JESSICA SARGENT-MICHAUD, THE TR. FOR PUB. LAND, A RETURN ON INVESTMENT: THE ECONOMIC VALUE OF COLORADO'S CONSERVATION EASEMENTS 1, 5. Sargent-Michaud relied on ecosystem types and the services they provide through conservation easements in order to put a price on the benefits all the easements in Colorado provide to the public. *Id.* at 2. First, Sargent-Michaud broke down the number of acres held in conservation easements by ecosystem type. *Id.* She then aligned these ecosystem types with the ecosystem services they provide. *Id.* Using calculations and valuations made by other economists, Sargent-Michaud then calculated the value using the number of acres held by easement for each ecosystem type. *Id* at 3.

96. *See* WILL ROGERS, THE TR. FOR PUB. LAND, THE ECONOMIC BENEFITS OF PARKS AND OPEN SPACES (1999); ERICA GIES, THE TR. FOR PUB. LAND, CONSERVATION: AN INVESTMENT THAT PAYS (2009).

97. *See* STEFANO PAGIOLA ET AL., ASSESSING THE ECONOMIC VALUE OF ECOSYSTEM CONSERVATION, THE WORLD BANK ENV. DEP'T 51 (2004).

98. *See id.* This is an example of the "replacement cost" technique, which is done by calculating "either the cost of restoring the ecosystem so that it once again provides the service, or the cost of obtaining the same service in another way." *Id.* at 12 box 3.2.

easements on others.[99] The city found this alternative would cost it a mere $1.5 billion, less than half of even the initial costs of artificially replacing the region's natural water filtration services.[100] Even with an exclusive focus on just one ecosystem service, the value of conserving portions of the Catskill Mountains far exceeded the costs of ensuring their protection.[101]

Conservation easements are politically attractive for other reasons as well. Recent history has confirmed that even beneficial programs, as measured strictly in cost-benefit analyses, can be politically unpopular if seen as involving a government's heavy-handed intrusion into private property rights or the federal government's interference with state or local autonomy. For example, under a study Congress required the Environmental Protection Agency to perform, the agency found the Clean Air Act to have provided between just over five trillion dollars and just less than fifty trillion dollars in health benefits at an implementation cost of just half a trillion dollars in the twenty years following the act's enactment.[102] The median estimates of the return on investment were over four thousand percent.[103] Despite this demonstrated success, it has become almost a litmus test for American conservative politicians to oppose the Clean Air Act and other pollution-control laws, with President Trump even winning support with promises to get rid of the Environmental Protection Agency altogether.[104]

99. *See id* at 51.

100. *Id.*

101. *Id.*

102. Alan H. Lockwood, *How the Clean Air Act Has Saved $22 Trillion in Health-Care Costs*, THE ATLANTIC (Sept. 7, 2012), https://www.theatlantic.com/health/archive/2012/09/how-the-clean-air-act-has-saved-22-trillion-in-health-care-costs/262071/ [https://perma.cc/RBG4-TRW5].

103. *Id.*

104. *See* Arthur Neslen, *Donald Trump 'Taking Steps to Abolish Environmental Protection Agency*,' THE GUARDIAN (Feb. 1, 2017, 8:03 PM), https://www.theguardian.com/us-news/2017/feb/02/donald-trump-plans-to-abolish-environmental-protection-agency [https://perma.cc/J2NB-8P5N]; *The Fox News GOP Debate Transcript, Annotated*, WASH. POST (Mar. 3, 2016), https://www.washingtonpost.com/news/the-fix/wp/2016/03/03/the-fox-news-gop-debate-transcript-annotated/?utm_term=.489b31ddf490 [https://perma.cc/C456-PTT4]. Fred Cheever explained the backlash against environmental regulations as follows: "The conceptual structure of burdensome regulation upon property rights has contributed to the current backlash against environmental protection because it fosters a sense of injury among landowners. Accustomed to our conceptual structure of legal rights, they perceive that they have 'rights' that they cannot exercise." Cheever, *supra* note 10, at 1086.

Conservation easements are unlike typical command-and-control environmental protection. They are thus especially attractive in that they both recognize the public values of the environment and of intact, resilient ecosystems, including those traditionally ignored in markets, while also not involving the heavy hand of government and all the inefficiencies that go along with it. Fred Cheever observed that, with these easements, the conservationist movement "achieves its goals primarily through private, voluntary land transactions, among the most ancient and settled of all means of legal interaction and among the least 'public' or controversial," thus "draw[ing] to its ranks activists distrustful of government, and politicians fond of words like 'middle.'"[105]

Conservation easements have indeed become a quite popular conservation tool. As of 2015, nonprofit land trust organizations protected roughly seventeen million acres using this instrument, more than double the acreage from just ten years earlier.[106] In total, about forty million acres are encumbered by conservation easements.[107] Though this is still just a fraction of the lands the federal government protects as wilderness areas, wildlife refuges, or national parks, the numbers do not tell the whole story. Much of the land encumbered with conservation easements is land now facing—or anticipated to face—development pressures. It is land near towns and cities. In contrast, much of the federal lands being protected are inaccessible or unusable for commercial development pressures. Still, even with their increased use, doubts linger as to their ultimate effectiveness in fulfilling their conservationist purposes in the long term. That is the subject of Part III.

105. *Id.* at 1078. Cheever further explained:

> Conservation easements avoid [the backlash against environmentalism] by creating property rights in conservation. The holders of conservation easements possess, to a greater or lesser degree, the right to prevent development on the land subject to the easement. They may prevent, just as a regulator might, such environmentally harmful activities as: the filling of wetlands, destruction of species' nesting habitat, construction of factories that might emit noxious air pollutants, and construction of additional structures. Legally, however, we do not perceive this protection as an imposition but rather an exercise of rights. The fee holder does not have rights she cannot exercise; those rights have been granted away with the conservation easement.

Id. at 1086.

106. LAND TRUST ALL., *supra* note 68, at 5.

107. Cheever & Owley, *supra* note 9, at 3.

III. CRITICISMS OF CONSERVATION EASEMENTS

The very features that make conservation easements so attractive, including especially their decentralized decision-making and their embrace of private property, also give rise to potential problems. Those include the lack of public accountability and coordinated planning, the failure of some easement holders to oversee their holdings, abuses of the tax code, and a lack of flexibility in responding to changed social or environmental conditions.[108] This Part explores those issues.

A. Lack of Coordination

The benefit of conservation easements in relying upon private initiative and its respect for the individual choices of private property owners is also, in itself, a detriment. Namely, by relying upon private trusts and individual property owners to determine which lands are protected and in what ways, conservation easement programs arguably lack the sort of coordination that most think is required for protecting the integrity of ecosystems. In particular, they can exacerbate what is already one of the central challenges facing land managers and wildlife experts as they seek to address the challenges of the Anthropocene, namely habitat fragmentation. As one ecologist once explained in layman's terms, "[f]ragmentation involves a reduction in size and an increase in isolation of habitats," processes which "will lead to lower species richness due to decreased immigration rates (in the case of isolation) and increased extinction rates (in the case of small size)."[109] In other words, it is not just the size of a species' given habitat that impacts ecosystem health, but the arrangement of that habitat within the larger system. Ensuring that proper arrangement requires some form of centralized—or at least coordinated—management of the ecosystem as a whole.[110]

108. For a summary of these criticisms, *see* Gerald Korngold, *Solving the Contentious Issues of Private Conservation Easements: Promoting Flexibility for the Future and Engaging the Public Land Use Process*, 2007 UTAH L. REV. 1039, 1039.

109. Reed F. Noss, *Some Principles of Conservation Biology, As They Apply to Environmental Law*, 69 CHI.-KENT L. REV. 893, 901 (1994).

110. *Cf.* Lee P. Brekenridge, *Reweaving the Landscape: The Institutional Challenges of Ecosystem Management for Lands in Private Ownership*, 19 VT. L. REV. 363 (1995) (using recent efforts to develop a system for managing the forest ecosystems of northern New York and New England to highlight the difficulties of implementing ecosystem management over lands with fragmented ownership and jurisdiction). Environmental legal scholars have for

The problem of fragmentation reveals the flawed assumption at the heart of Garret Hardin's proposal for privatization as one of two solutions to his famous "tragedy of the commons." In his influential 1968 essay, Hardin argued that in a competitive economy, resources to which there is open access will tend to be over-exploited and ultimately destroyed. The reason is that the only rational choice for each member of the community is not to forego economic exploitation for the good of the "common" resource, given that all other members of the community are still free to exploit it. As such, each individual becomes "locked into a system that compels him to increase his [consumption of the resource] 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."[111] Hardin proposed to solve (or really to avoid) such a tragedy through the implementation of a property regime to restrict access to the resource, an example of what he called "mutual coercion mutually agreed upon."[112]

With this solution, Hardin apparently assumed that the owner of each parcel would bear all costs arising from their exploitation

years considered the efficacy of ecosystem management to be no longer an open question, even as legal and institutional obstacles persist. *E.g.*, Robert B. Keiter, *Beyond the Boundary Line: Constructing a Law of Ecosystem Management*, 65 U. COLO. L. REV. 293, 333 (1994); J.B. Ruhl, *Ecosystem Management, the ESA, and the Seven Degrees of Relevance*, 14 NAT. RESOURCES & ENV'T 156, 157 (2000). Ruhl characterized any opposition to ecosystem management as "tantamount to proposing ecosystem *mis*management." *Id.* The problem of fragmented decision-making over activities affecting ecosystem health is not limited to land resources. Kristin Carden et. al., *Ecosystem Service Tradeoff Analysis: Quantifying the Cost of a Legal Regime*, 4 ARIZ. J. ENVTL. L. & POL'Y 39, 42–44 (2013) (discussing "society's growing recognition of and appreciation for the ecological and economic benefits that intact and functioning ecosystems can provide" in the context of President Barack Obama's 2010 Executive Order establishing a Coastal and Marine Spatial Planning approach to managing marine resources in U.S. waters); Oran R. Young et al., *Solving the Crisis in Ocean Governance: Place-Based Management of Marine Ecosystems,* ENV'T, Aug. 2010, at 20, 22 ("There is a growing awareness that the escalating crisis in marine ecosystems—from biodiversity losses to marine pollution and warming waters—is in large part a failure of governance. Problems arise from fragmentation in the governance systems used to manage specific human uses of marine resources, together with spatial and temporal mismatches between biophysical systems and the rights, rules, and decisionmaking processes created to manage human interactions with these systems.").

111. Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243, 1244 (1968). In economic terms, the "tragedy" is an example of a market failure. As Arthur McEvoy described the failure, "[i]n a competitive economy, no market mechanism ordinarily exists to reward individual forbearance in the use of shared resources." ARTHUR F. MCEVOY, THE FISHERMAN'S PROBLEM: ECOLOGY AND LAW IN CALIFORNIA FISHERIES, 1850–1980 10 (1986).

112. Hardin, *supra* note 111, at 1247–48.

(including their potential over-exploitation) of that parcel.[113] However, even when authority over land is divided and dispersed across a community via private property, the land and its community of life remains whole, with all "its interconnections and interdependencies still present and as biologically important as ever," to use Eric T. Freyfogle's words.[114] As Freyfogle once further explained what he called the "tragedy of fragmentation," with the privatization of land in discrete parcels:

> Instead of having a single management regime over a large scale, we have lots of management regimes over smaller scales. And from this many consequences could flow, some good, but some definitely not so good. One not-so-good consequence is that we have increased significantly the problem of management boundaries. If boundaries always create an incentive for managers to ignore spillover effects, a vast increase in boundaries exacerbates the problem. When the grazing commons is intact, an effect that spreads from one part of the commons to another part remains within the same commons, and those who manage the commons are affected by it. But when the commons is divided into private shares, a boundary line might intervene. Now, an effect that spills over from one place to another might well cross a boundary line. The one causing the harm can ignore it. Usefully distinguished from this problem of heightened externalities is a second problem exacerbated by fragmentation: the increased difficulty of addressing ecological challenges that require planning at the landscape level. When a sound land use plan is possible only over large spatial scales, successful planning becomes less and less likely as the land is divided into ever-smaller pieces.[115]

In short, redressing ecological degradation requires some level of ecosystem-level management, one inconsistent with a robust private property regime, including allowing for private property owners to unilaterally dictate the uses of their land in perpetuity, as is ostensibly the case with conservation easement regimes.[116] It is not just fragmentation of land and resource ownership that is the problem, but also a fragmentation of regulatory authority. In the United States, local governments have the primary power over land-

113. For an excellent summary of Hardin's "tragedy" and his flawed assumption regarding the capacity of private property to ensure proper land stewardship, *see* Eric T. Freyfogle, *The Tragedy of Fragmentation*, 36 VAL. U. L. REV. 307 (2002).

114. *Id.* at 323.

115. *Id.* at 324.

116. Korngold, *supra* note 108, at 1059–60.

use decisions, while any power at the state and federal levels is divided in a way that allows for lobbyists to exert undue influence on policy.[117]

B. Lack of Oversight and Enforcement

Conservation easements could, even in isolation, work to the detriment of the public, particularly in their effect on government revenues. In this context, the decisions of private parties can have substantial impacts on the public, both positive and negative, yet they are generally not held accountable to the public. In particular, conservation easements often decrease tax revenues in two ways: 1) by decreasing the market value of the covered property, these easements reduce state and local property tax revenues; and 2) if the easement qualifies for the federal income tax deduction or state income tax credit, it also decreases federal or state revenues. In both cases, this could lead to a cut in government services. However, the costs associated with the revenues lost as the result of a particular easement might still be justified so long as they are exceeded by the environmental benefits of that easement.

Ensuring that requires some level of enforcement of the easement's terms. Indeed, to receive the federal tax deduction, holders of conservation easements must show they have the resources to properly oversee its holdings and to ensure their conservation purposes are fulfilled. However, as Nancy A. McLaughlin and Jeff Pidot recently pointed out, "these are generalized requirements often neglected by holders, particularly because such requirements apply to the deductibility of easement donations but are not directly enforceable against easement holders."[118] As to the laws of the various states, very few require easement holders to show they have the capacity and the will to monitor their holdings. The result, according to McLaughlin and Pidot, "is that holders vary considerably in terms of their capacity and commitment to undertake monitoring, recordkeeping, and

117. Robert A. Kagan, *Political and Legal Obstacles to Collaborative Ecosystem Planning*, 24 ECOLOGY L.Q. 871, 873–75 (1997).

118. Nancy A. McLaughlin & Jeff Pidot, *Conservation Easement Enabling Statutes: Perspectives on Reform*, 33 UTAH ENVTL. L. REV. 125, 132 (2013).

other stewardship duties that they know to be essential to maintain the integrity of conservation easements."[119]

There is also strong evidence that landowners have abused the federal tax deduction program. The Internal Revenue Service ("IRS") recently reported the following:

> We have seen taxpayers, often encouraged by promoters and armed with questionable appraisals, take inappropriately large deductions for easements. In some cases, taxpayers claim deductions when they are not entitled to any deduction at all (for example, when taxpayers fail to comply with the law and regulations governing deductions for contributions of conservation easements). Also, taxpayers have sometimes used or developed these properties in a manner inconsistent with section 501(c)(3). In other cases, the charity has allowed property owners to modify the easement or develop the land in a manner inconsistent with the easement's restrictions.[120]

According to a former employee of the Treasury Department, Adam Looney, the tax deduction has indeed become "a lucrative way for real estate developers in expensive resort destinations to finance development projects—depriving the government of billions of dollars of revenue and in some cases doing little to advance environmental protection."[121] Now writing for the Brookings Institute, Looney recently explained the process:

> Some real estate developers exploit [the lack of accountability] by selling the rights to claim charitable deductions to investors and using the proceeds to finance development, which costs taxpayers hundreds of millions of dollars per year and undermines the program's conservation goals. In these transactions, developers promote arrangements structured to provide investors a "return" in the form of inflated charitable deductions, sometimes well in excess of the value of their initial investment. The developer will use the initial financing to purchase the land, make improvements or change zoning rules, and develop part of the property (like building

119. *Id.*

120. *Conservation Easements*, IRS, https://www.irs.gov/charities-non-profits/conservation-easements [https://perma.cc/Q6AY-UT2G] (last updated Aug. 17, 2017). The same seems to be true at the state level. Of the nearly three thousand tax credits Colorado audited between 2000 and 2008, it found nearly a fifth of them to be problematic. Jessica E. Jay, *When Perpetual Is Not Forever: The Challenge of Changing Conditions, Amendment, and Termination of Perpetual Conservation Easements*, 36 HARV. ENVTL. L. REV. 1, 58 (2012).

121. ADAM LOONEY, CHARITABLE CONTRIBUTIONS OF CONSERVATION EASEMENT 1, 3 (2017).

> condominiums or a club house). The improvements are then used to justify a larger appraisal on an easement on the remaining open space. Because of how some donee organizations report donations (or fail to do so) the magnitude of these abuses is hidden from public scrutiny. But at least three of the five largest donee organizations (by contribution volume) appear to participate in these arrangements.[122]

For this reason, even as Looney acknowledges the deduction's successes in conserving natural and historic values, this "obscure tax provision" is immensely difficult to administer and is one of the most litigated issues between the IRS and taxpayers.[123]

C. Lack of Adaptability to a Dynamic Nature

The modern conservation movement is rooted in conceptions of "nature" that no longer hold true. This "modernist" conception presumes "humans" to be separate from "nature," with nature alternatively being something to be exploited, something to be feared, or something to be protected if not cherished, as is the case for conservationists. The assumption of conservationists was that natural areas could be protected simply by preventing certain types of direct human disturbances. It was to protect nature by keeping humans—or at least the full panoply of things that tend to follow humans—away from it.

This view of nature was essentially embodied in the classical model of ecology represented by Henry Chandler Cowles and Frederic Clements. In the late-nineteenth century, Cowles developed the notion of a succession or predictable sequence of community changes.[124] Clements built upon Cowles' insights to formulate the notion of a stable, "climax community," one in which the various organisms have reached an evolutionary "steady state," each adapted to its environmental conditions. Clements saw an ecological community as akin to an individual organism, one that "arises, grows, matures, and dies," with "each climax formation [being] able to reproduce itself, repeating with essential fidelity the stages of its development."[125] Subsequently, ecologists used

122. *Id.*

123. *Id.*

124. D.C. Glenn-Lewin, R.K. Peet, & T.T. Veblen, *Prologue* to PLANT SUCCESSION: THEORY AND PREDICTION 1, 2 (D.C. Glenn-Lewin, R.K. Peet, & T.T. Veblen eds., 1992).

125. FREDERIC R. CLEMENTS, PLANT SUCCESSION: AN ANALYSIS OF THE DEVELOPMENT OF VEGETATION 124 (1916).

Clements' "climax community" to refer to the desired set of conditions for any particular type of ecosystem, with any discrepancies between current and "climax" being due to human disturbance. Under this model, the goal of conservation is to remove disturbances and to maintain nature in its climax state, where each individual species is in equilibrium with all others and with their physical environment.[126]

Clements' classical model of a stable, closed ecosystem dominated ecology until roughly the 1960s, when new data seemingly confirmed an alternative model.[127] This other model posits that ecological communities are indeed open and are not necessarily meant to be in equilibrium. Rather, they are naturally subjected to a wide range of disturbances, including wildfires, windstorms, insect outbreaks, floods, and droughts. Moreover, an ecosystem can be influenced by events in neighboring or even distant ecosystems.[128] In this way, the chaos theory has become important to understanding ecosystems.[129] Just as a butterfly flapping its wings can theoretically influence the timing and path of a distant tornado weeks later, so too can a seemingly minor alteration in one ecosystem impact the functioning of not only that ecosystem, but others as well. For land managers and conservationists, this has meant trying to focus on determining those processes that are essential to the integrity and resilience of a given ecosystem, rather than attempting to preserve or in some cases restore a particular set of conditions.[130] That may sound good in theory, but its implementation in practice inherently invites

126. *See* Peter Manus, *Our Environmental Rebels: An Average American Law Professor's Perspective on Environmental Advocacy and the Law*, 40 NEW ENG. L. REV. 499, 507–08 (2006); Jonathan Baert Wiener, *Beyond the Balance of Nature*, 7 DUKE ENVTL. L. & POL'Y F. 1, 7–8 (1996).

127. Wiener, *supra* note 126, at 8.

128. *See, e.g.*, DANIEL E. BOTKIN, DISCORDANT HARMONIES: A NEW ECOLOGY FOR THE TWENTY-FIRST CENTURY (1990); Judy L. Meyer, *The Dance of Nature: New Concepts in Ecology*, 69 CHI.-KENT. L. REV. 875 (1994); Bryan Norton, *Change, Constancy, and Creativity: The New Ecology and Some Old Problems*, 7 DUKE ENVTL. L. & POL'Y F. 49, 50–51 (1996).

129. *See* J.B. Ruhl, *Thinking of Environmental Law as a Complex Adaptive System: How to Clean Up the Environment by Making a Mess of Environmental Law*, 34 HOUS. L. REV. 933, 945–47 (1997); *see also* Gerald Andrews Emison, *The Potential for Unconventional Progress: Complex Adaptive Systems and Environmental Quality Policy*, 7 DUKE ENVTL L. & POL'Y F. 167 (1996).

130. NAT'L PARK SERV., MANAGEMENT. POLICIES 2006 36 (2006); David J. Tongway & John A. Ludwig, *Planning and Implementing Successful Landscape-Scale Restoration, in* RESTORATION ECOLOGY: THE NEW FRONTIER 30, 32 (Jelte van Andel & James Aronson eds., 2nd ed. 2012); Gordon Steinhoff, *Restoring Nature in Protected Areas*, 5 ARIZ. J. ENVTL. L. & POL'Y 302, 308 (2015).

controversy. After all, what does it mean to conserve chaos? How does one protect processes that can be influenced by distant decisions beyond their control or even their knowledge?

The growing recognition of the complexity and, to some degree, the inherent unpredictability of ecological systems has made the task of managing land for conservation purposes more difficult—and more controversial.[131] It is perhaps even more difficult for the drafters of conservation easements to anticipate environmental conditions decades, centuries, or millennia into the future. There is arguably a disconnect between an instrument that limits a land's development in perpetuity, based on environmental conditions or values as they exist at that time, and a nature that promises those conditions or values are sure to change. This will only be exacerbated as we leave the notably stable epoch of the Holocene and enter the Anthropocene, one which will likely come to be defined by dramatic shifts in climate and other earth processes.

Indeed, scientists and land managers have noticed numerous vegetation and wildlife species whose ranges are already migrating northward or, in some cases, upward. This is why one ecologist recently predicted that "[i]f climate change continues unabated and as rapidly as a few models predict, saving at least some species will require solutions more radical than creating parks and shielding endangered species from bullets, bulldozers, and oil spills: It will require moving them."[132] Similarly, the Managed Relocation Working Group warned, "[t]he magnitude of projected climate change . . . suggests that humans may be forced to choose between the unfortunate alternatives of witnessing extinctions and intentionally manipulating species' distributions in efforts to prevent extinction and maintain biodiversity."[133]

131. *See, e.g.*, David N. Cole & William E. Hammitt, *Wilderness Management Dilemmas: Fertile Ground for Wilderness Management Research*, *in* 1 WILDERNESS SCIENCE IN A TIME OF CHANGE CONFERENCE—CHANGING PERSPECTIVES AND FUTURE DIRECTIONS 58 (David N. Cole et al. compilers, 2000); Daniel T. Spencer, *Recreating [in] Eden: Ethical Issues in Restoration in Wilderness*, *in* PLACING NATURE ON THE BORDERS OF RELIGION, PHILOSOPHY AND ETHICS 45, 63 (Forest Clingerman & Mark H. Dixon eds., 2011); Kammer, *supra* note 49; Nathan L. Stephenson & Constance I. Millar, *Climate Change: Wilderness's Greatest Challenge*, PARK SCI., Winter 2011-2012, at 34.

132. Ben A. Minteer & James P. Collins, *Move It or Lose It? The Ecological Ethics of Relocating Species Under Climate Change*, 20 ECOLOGICAL APPLICATIONS 1801, 1801 (2010).

133. Mark W. Schwartz et al., *Managed Relocation: Integrating the Scientific, Regulatory, and Ethical Challenges*, 62 BIOSCIENCE 732, 732 (2012). This has been a concern of conservationists and ecologists, but conservatives have also used it to attack conservation

Inasmuch as conservation easements are intended to protect a certain type of ecosystem, with a certain configuration of wildlife and vegetation, they seem ill-suited to protecting those values. They are fixed to the ground, while the things they are meant to protect might move elsewhere or even cease to exist altogether.

In addition to any policy issues, the prospect of changing conditions raises legal issues regarding the viability of conservation easements once there have already been substantial changes. In particular, the equitable doctrine of changed conditions allows a court to amend or terminate restrictions on land whenever the restrictions no longer serve their original purposes.[134] Although the doctrine has yet to be applied to terminate a conservation easement, some legal scholars believe it could in the future.[135] That said, according to interviews Fred Cheever and Jessica Owley conducted with members of the land trust community, most believe their conservation easements to be flexible enough to survive in the face of changing environmental conditions, even as less than one

easements altogether. Writing for the National Center, for instance, Gattuso wrote the following:

> In addition to gains in scientific knowledge, nature constantly affects changes that aren't predictable. The very notion that easements in perpetuity are ecologically beneficial contradicts modern views in ecology which hold that the environment is "in a process of constant change rather than in search of a stable end-state." For example, a conservation easement intended to protect the habitat of salmon would likely designate an area along a river for spawning and limit development. But rivers change their course over time. If the area under easement is defined geographically, it will be deemed useless when, inevitably, the river shifts. Another example would be a situation where a conservation easement covering a wetland to protect habitat dries up, deeming the wetland useless for conservation purposes. In still another situation, an easement created and written to protect an endangered species could become useless if the species becomes plentiful or extinct.

Dana Joel Gattuso, *Conservation Easements: The Good, the Bad, and the Ugly*, NAT'L POL'Y ANALYSIS (May 2008), http://www.nationalcenter.org/NPA569.html [https://perma.cc/W9J9-7VAL]. While the National Center's motives may be less than pure, it does have a point, one with which land trusts and conservationists must grapple. *Id.*

134. RESTATEMENT (THIRD) OF PROP.: SERVITUDES § 7.11(2) (AM. LAW INST. 2000).

135. *See, e.g.*, Cheever, *supra* note 10, at 1096; Daniel P. Harvey, *Conservation Easements and the Doctrine of Changed Conditions: A Comparative Analysis of the New York and Arkansas Statutes*, 18 BUFF. ENVTL. L.J. 267, 281 (2011) (also clarifying that "'changes in the value of the servient estate for development purposes" would not constitute "'changed conditions'") (citations omitted). The drafters of the UCEA did not explicitly weigh in on the issue of the doctrine's applicability to conservation easements, instead calling the issue "'problematic'" and leaving it for individual states to determine. Jeffrey A. Blackie, Note, *Conservation Easements and the Doctrine of Changed Conditions*, 40 HASTINGS L.J. 1187, 1189 (1989).

in ten said their organizations had specifically changed their conservation easement language to address climate change.[136]

In any event, each of these issues threatens to undermine confidence in conservation easements at a time when we need more of them. The following Part outlines some of the proposed solutions, some aimed at shoring up these weaknesses and some seemingly aimed at exploiting them to undermine the conservationist agenda altogether.

IV. PROPOSALS FOR REFORM

In recent years, conservationists, policymakers, and business interests have proposed various reforms, some of which some states have already adopted. Some are aimed at the inefficiencies arising from the lack of coordinated planning, oversight, and accountability in the formation and maintenance of conservation easements. Others are aimed at the threat of changing social and economic conditions rendering perpetual conservation easements counterproductive to their purpose. While some of these proposals have real merit, this Part demonstrates that policymakers must be wary of any measure that involves the regulatory power of the government, since the private aspect of conservation easements is one of its primary draws. Ultimately, this Part advances a new argument for expanding public subsidies to landowners and land trust organizations to expand the use of conservation easements.

A. What to Do about the Lack of Coordination, Oversight, and Enforcement?

There are several simple measures states can enact to increase oversight of conservation easements and to reign in abuses of the tax code. Colorado, for instance, responded to abuses in its state by requiring holders of easements to be certified and by mandating that appraisers be educated and licensed with the state.[137] Other states place additional requirements on the conservation easement acquisition process in hopes of avoiding future monitoring, amending, and termination issues. These requirements can be something as simple as Montana's requirement that a conservation

136. *See* Cheever & Owley, *supra* note 9, at 9–10.
137. Jay, *supra* note 120, at 58.

easement must be granted for a term of no less than fifteen years,[138] and can be as complex as requiring an additional state government approval process.[139] Massachusetts is the only state that "requires approval of [each and every] easement's public benefits at both state and local government levels," meaning it does not simply leave conservation easement creation up to land trusts' interpretation of the state enabling statutes.[140] For a conservation easement to be valid, it must first be reviewed and approved by Massachusetts's Secretary of Environmental Affairs, which follows guidelines printed in The Massachusetts Conservation Restriction Handbook.[141] This is considered to be a public review, which "assists the land trust community by providing comments and recommendations from an agency with considerable statewide experience."[142] The argument in favor of the review and approval process is that "it ensures community involvement and consistency with local land use plans."[143] One way this consistency is achieved is through use of a geographic information system, one that applies innovative mapping technologies to the state's paper registry system that covers all conservation easements dating to the 1960s.[144] This also permits local communities to see where conservation easements exist and where the public benefits arise and may be experienced.

Other states have developed additional means for ensuring the integrity of their conservation easement programs. Some, for

138. MONT. CODE ANN. § 76-6-202 (West 2017).

139. MASS. GEN. LAWS ANN. ch. 184, § 32 (West 2017).

140. JEFF PIDOT, LINCOLN INST. OF LAND POL'Y, REINVENTING CONSERVATION EASEMENTS: A CRITICAL EXAMINATION AND IDEAS FOR REFORM 1, 15 (2005).

141. *See id.* at 17; *see also* COMMONWEALTH OF MASS. EXEC. OFF. OF ENERGY AND ENVTL. AFFAIRS DIV. OF CONSERVATION SERV., THE MASSACHUSETTS CONSERVATION RESTRICTION HANDBOOK: A SAMPLER & GUIDELINES FOR RECEIVING APPROVAL BY THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS (1991). It is important to note that government approval, such as Massachusetts's government approval process, was specifically rejected by the drafters of the Uniform Conservation Easement Acy ("UCEA"). Korngold, *supra* note 108, at 1069 n. 142 (citing Uniform Conservation Easement Act, 12 U.L.A. 165, prefatory note (1996)).

142. Pidot, *supra* note 140, at 11.

143. *Id.* In 2007, 0.9% of Massachusetts land was controlled by conservation easements, which is a high number compared to "other states that do not have [] an approval requirement . . . [such as] New York (0.4%), Arizona (0.04%), and Iowa (0.01%)." Korngold, *supra* note 108, at 1069; *see also* Amy Wilson Morris & Adena R. Rissman, *Public Access to Information on Private Land Conservation: Tracking Conservation Easements*, 2009 WIS. L. REV. 1237, 1244 (arguing for state tracking of conservation easements as a way to improve transparency, to inform public policy decision-making, and to ensure the terms of conservation easements are properly enforced).

144. Pidot, *supra* note 140, at 12.

instance, have provided conservation easement forms in an attempt to promote uniformity and avoid legal issues. Vermont has such a standard easement form. Developed by the Vermont Housing and Conservation Board, the form must be followed in order to receive public financing, absent a showing of "good reason" to deviate from its terms.[145] Certain other states require the acquisition of conservation easements to be in conformity with local land-use comprehensive plans, thereby ensuring that individualized decisions as to particular parcels make sense within the larger ecological and economic necessities and goals of the community.[146]

Some have proposed though that what is really needed is for conservation easements to be entirely federalized. This would arguably not only improve oversight and enforcement as it comes to the federal tax implications, but also provide for a single agency to coordinate conservation programs to ensure proper ecosystem management across state lines, without any of the difficulties arising from the fragmentation of regulatory authority. Roger Colinvaux, for example, proposed a direct spending program, overseen by the federal government, as an alternative to the current program where private land trusts make the decisions as to whether a proposed conservation easement qualifies for federal tax benefits.[147] More specifically, he proposed that a federal agency with conservation expertise, such as the Bureau of Land Management, determine whether and when a conservation easement is proper and to "use appropriated funds to acquire . . . conservation easements" instead of "funding private donations to private land trusts."[148] Broadly speaking, Colinvaux argued that his

145. *Id.* at 11. In addition, the largest land trust organization in Vermont demands use of the standard form in transactions to which it is a party. *Id.*

146. A comprehensive plan is "known as a master or general plan" and "is a collection of information and materials designed to guide the future development of a city or county." UNIVERSITY EXTENSION, LAND USE SERIES: THE COMPREHENSIVE PLAN, IOWA STATE U. 1 (2011). For example, Albemarle County in Virginia notes that its comprehensive plan is "the basis for land development regulations and decisions . . . , environmental and historic resource protection initiatives, new county programs and decisions on the distribution of county budget dollars to a multitude of programs and agencies." *Community Development: Comprehensive Plan Update 2012-2015*, ALBEMARLE CTY., https://www.albemarle.org/department.asp?department=cdd&relpage=3969 [https://perma.cc/JGW5-S5C3] (last visited Apr. 9, 2017).

147. Roger Colinvaux, *Conservation Easements: Design Flaws, Enforcement Challenges, and Reform*, 2013 UTAH L. REV. 755, 769–70. Colinvaux's article is directed toward addressing land trust's (and no other category of holder's) weaknesses in creating and enforcing conservation easements.

148. *Id.*

proposal would reduce abuses of the system and ensure that easement language does not allow grantors flexibility to later transfer, modify, or terminate an easement.[149]

Others argue that governments should hold conservation easements themselves rather than relying upon the private actions of non-profit land trusts. Gerald Korngold, a long-time critic of conservation easements, has argued that conservation easements would be better off in the hands of a government entity, mainly because "[i]ts decision would be made in public view, likely through open hearings, with due consideration of local issues and values by officials accountable to voters for their decisions."[150] He is indeed quite optimistic "that the democratic process will serve as a check" on conservation easement modification requests.[151] Korngold has also emphasized how a government program would better account for a community-wide preservation plan, rather than potentially having a patchwork of conservation easements.[152]

Each of these recommendations would undoubtedly improve transparency and help to ensure these instruments meet their stated purposes. However, each would also come with a trade-off, namely in involving the very "heavy hand" of the government conservation easements were meant to avoid. Even the widely popular Massachusetts local-approval program has been criticized for its vulnerability to political influence.[153] The drafters of the UCEA recognized these potential negatives in the preface to their uniform law:

> If it is the intention to facilitate private grants that serve the ends of land conservation and historic preservation, moreover, the requirement of public agency approval adds a layer of complexity which may discourage private actions. Organizations and property owners may be reluctant to become involved in the bureaucratic, and sometimes political, process which public agency participation entails. Placing such a requirement in the Act may dissuade a state

149. *Id.*

150. Gerald Korngold, *Governmental Conservation Easements: A Means to Advance Efficiency, Freedom from Coercion, Flexibility, and Democracy*, 78 BROOK. L. REV. 467, 488 (2013).

151. *Id.*

152. Korngold, *supra* note 108, at 1061. Korngold cited to the government's past successes in "major infrastructure and public projects." *Id.* at 1061–62.

153. Pidot, *supra* note 140, at 11, 15.

> from enacting it for the reason that the state does not wish to accept the administrative and fiscal responsibilities of such a program.[154]

States must strike a balance between ensuring oversight and not discouraging landowners from entering into these transactions in the first place. Any method that states or the conservation community find to increase the integrity of their programs without employing a "heavy hand" should be preferred.

B. What to Do about the Lack of Adaptability?

Some anti-conservation interests have exploited the legitimate concern about changing environmental and social conditions to attack perpetual conservation easements altogether. In North Dakota, these interests succeeded in convincing the state legislature, in 2014, to pass a law limiting conservation easements generally to ninety-nine years, while also limiting easements purchased by the federal government for the production of waterfowl to fifty years and for the protection of wetlands to thirty years.[155] North Dakota thus became the first state to limit the duration of these instruments. In addition, although not prohibiting perpetual easements, Kansas established a default rule that they are limited to the lifetime of the grantor, while also giving grantors the authority to revoke them.[156] Other states have not been spared from the debate. In South Dakota, conservative legislators have repeatedly (almost perennially) introduced legislation limiting the duration of conservation easements. Although such a measure explicitly limits the liberties of current landowners to provide for the conservation of their land, some conservative groups support limiting the duration of easements based on the liberty of future property owners to determine for themselves how to use their land. As a spokesperson for South Dakota Liberty explained, "[s]uch an easement is saying that nobody in the future can best determine how to use land."[157] Writing for the National Center for Public Policy Research, Dana Joel Gattuso has expanded upon that critique to emphasize how it

154. UNIF. CONSERVATION EASEMENT ACT prefatory note 7 (UNIF. LAW COMM'N 2007).

155. N.D. CENT. CODE ANN. § 47-05-02.1.2 (West 2017).

156. KAN. STAT. ANN. § 58-3811(d) (West 2017).

157. Ken Santema, *Bills on the SD House Floor for Weds Feb 17*, SODAKLIBERTY (Feb. 16, 2016), http://sodakliberty.com/2016/02/16/bills-on-the-sd-house-floor-for-weds-feb-17/ [https://perma.cc/LT4K-T6NF].

might limit the public's liberty in determining the best uses for land in the future: "While the permanency may hold appeal to those property owners who see value in shielding their land from developers forever, particularly when sweetened with a significant tax deduction," that group has argued, "it could prove to be detrimental to the public over the long-term as economic and ecological factors change our definitions of what should be preserved and why."[158]

These groups of course ignore the benefits of perpetual conservation easements in regards to the freedom of future generations. They ignore the degree to which conservation of land can indeed enhance economic opportunities in the future. As the National Academy of Sciences has concluded, "'the conversion of land from its natural state to human use is the most permanent and often irreversible effect that humans can have on the natural landscape.'"[159] This is true both as to future owners of particular land parcels and to society as a whole. For example, the decision of a land owner in the present to convert a pristine pasture into a parking lot impedes the ability of future owners of that land to use it for a wildlife preserve or for certain aesthetic or recreational values, while the public loses the ecosystem services that land would have provided. Indeed, one of the predominant motivations for conservationists is to preserve the full panoply of opportunities and freedoms for future generations that people enjoy today. Doing so requires the physical economy to stay within certain ecological parameters, something it is already failing to do, even as it continues to grow. Perpetual conservation easements, far from constraining liberties in the future, are part of a broader conservation program that is essential to preserving them.

The perpetual nature of conservation easements is also essential to attracting many landowners into entering into them. In their 2009 law review article, *In Defense of Conservation Easements: A Response to the End of Perpetuity*, Nancy A. McLaughlin and W. William Weeks made a compelling case that land trust organizations indeed use the perpetuity of easements as a key

158. Gattuso, *supra* note 133.

159. Duncan M. Greene, Comment, *Dynamic Conservation Easements: Facing the Problem of Perpetuity in Land Conservation*, 28 SEATTLE U. L. REV. 883, 902 (2005) (quoting NAT'L ACAD. OF SCIS., GROWING POPULATIONS, CHANGING LANDSCAPES: STUDIES FROM INDIA, CHINA, & THE UNITED STATES 2 (2001)).

selling point to landowners.[160] For instance, the Land Trust Alliance, they noted, lists the "promise of permanent protection" as one of "'Four Key Selling Points'" while also encouraging program administrators not to forget the "main reason why people grant them: to protect *their* property forever."[161] Further, the Nature Conservancy uses as a selling point the attractiveness of conservation easements due to the fact the instrument "'reaches beyond their own lifetimes to ensure the conservation purposes are met forever.'"[162] In another article, McLaughlin cited to survey evidence showing that "for most easement donors, a strong personal attachment to and concern about the long-term stewardship of their land is the primary factor motivating their donations."[163] On a more practical level, of course, limiting the terms of conservation easements at the state level prevents landowners from federal tax benefits, which require them to be perpetual, but McLaughlin found that motivation to be merely a secondary motivation.[164]

That is not to say that changing social and environmental conditions are not serious issues for the drafting and maintenance of conservation easements. However, rather than greatly impeding their effectiveness in meeting the conservationist challenges of the twenty-first century and beyond, one simple way to address these challenges is to allow for and to encourage the drafting of "dynamic" easements that are adaptable to a changing world so that they are less likely to be terminated and more likely to fulfill their broad conservationist purposes.[165]

Changes in the laws or regulations regarding conservation easements, short of limiting their duration, can also help. For example, Jessica Jay has proposed amendments to the IRS's regulations to allow for easements to be amended or terminated so

160. Nancy A. McLaughlin and W. William Weeks, *In Defense of Conservation Easements: A Response to the End of Perpetuity*, 9 Wyo. L. Rev. 1 (2009).

161. *Id.* at 9–10 (emphasis in original).

162. *Id.* at 11.

163. Nancy A. McLaughlin, *Increasing the Tax Incentives for Conservation Easement Donations—A Responsible Approach*, 31 ECOLOGY L.Q. 1, 45 (2004).

164. *Id.*

165. When Jessica Owley argued for the "end of perpetual conservation easements" in 2001, she was really arguing against the use of perpetual *static* easements, not in favor of states artificially limiting the duration of these instruments. Jessica Owley, *Changing Property in A Changing World: A Call for the End of Perpetual Conservation Easements*, 30 STAN. ENVTL. L.J. 121 (2011).

long as certain conditions are met. Specifically, those conditions are meant to ensure that the original or—if that is no longer feasible—*another* conservation purpose is met in perpetuity.[166]

Additionally, Cheever and his colleague Jessica Owley recently advocated for certain state statutory changes in regards to "options to purchase conservation easements" ("OPCEs"). An OPCE is a legal instrument that allows the purchaser to have the option to buy a particular conservation easement for the duration of the specified option period. According to the authors, OPCEs have long played a small but important role in the conservation movement, their primary benefits being that they "allow conservation organizations time to marshal funding or arrange government acquisition," a "function [that] may become much more important in the age of climate change."[167] OPCEs are a sort of win-win for land trust organizations. They protect against future threats of development while also allowing for land trust organizations to back out of the deal if the development threat never emerges or if the land's conservation value diminishes.[168] Accordingly, Cheever and Owley argue that state legislatures should explicitly recognize OPCEs, should insulate them from various common law challenges, and should integrate them into the wider body of conservation law.[169] Unlike the calls for ending perpetual easements, these are all wise proposals.

C. What to Do to Promote Conservation?

We argue that these proposals all miss something fundamental to the problem. Namely, that the subsidies that currently exist do not

166. Jay, *supra* note 120, at 72–75.

167. Cheever & Owley, *supra* note 9, at 21; *see also* Irma S. Russell, *The Use and Preservation of Grasslands: The Logic of Hard Lessons*, 26 KAN. J.L. & PUB. POL'Y 359, 373 (2017) ("The uncertainty of climate change in a particular area makes the OPCE an attractive option since the agreement can expand protection without committing a conservation organization to a particular parcel of land.").

168. Cheever & Owley, *supra* note 9, at 22–23. *Cf.* Roger McCoy, Comment, *Comment on Enhancing Conservation Options: An Argument for Statutory Recognition of Options to Purchase Conservation Easements*, 47 ENVTL. L. REP. NEWS & ANALYSIS 10661 (2017) (arguing that while the idea of expanding OPCEs has merit, its efficacy will be limited, at least as it comes to conservation issues in Tennessee).

169. Cheever & Owley, *supra* note 9, at 37–42. In an interesting argument, Michael Allan Wolf has shown that even a change in the name of this instrument—from "easement" to something else—could help secure them as against subsequent legal challenges in light of changed circumstances. Michael Allan Wolf, *Conservation Easements and the "Term Creep" Problem*, 33 UTAH ENVTL. L. REV. 101, 101–03 (2013).

align with the benefits derived from conservation easements, whether at the collective or the individual level. This may be in part due to the general political unpopularity of subsidies. To the director of tax policy studies at Cato Institute, for instance, they represent "top-down visions [that] ignore marketplace realities and consumer preferences" and "can steer . . . private resources in the wrong direction, away from the most efficient."[170] In the context of farm subsidies, Cato argues against them based on the reasoning that, "[i]n most industries, market prices balance supply and demand and encourage efficient production."[171] Similarly, Michael R. Strain, of the American Enterprise Institute, argued that "if . . . businesses can't survive without the promise of government funding then they haven't passed the market test, and it's not in the economy's long-term interest for the government to continue to prop them up."[172] "This," he further explained, "is the cold reality of capitalism that non-government-favored businesses face every day."[173] Capitalism requires that businesses—and even whole industries—be allowed to fail.

Those arguing against tax incentives or other subsidies for the establishment of conservation easements have it backwards. Markets may do a fine job of allocating resources as it comes to "most industries," as the Cato Institute insists, but that very statement begs the question of the goods and services not falling into the category of "most." The production and consumption of the conservation resource seems to fall squarely outside the category of "most."[174]

Indeed, the immense rates of return for the public's investment in these instruments demonstrates the very degree to which the

170. Chris Edwards, *Energy Subsidies*, DOWNSIZING FED. GOV'T. (Dec. 15, 2016), https://www.downsizinggovernment.org/energy/energy-subsidies [https://perma.cc/V5GZ-M9CC].

171. Chris Edwards, *Ten Reasons to Cut Farm Subsidies*, CATO INST. (June 28, 2007), https://www.cato.org/publications/commentary/ten-reasons-cut-farm-subsidies [https://perma.cc/8YNG-2T58].

172. Michael R. Strain, *Conservatives Against Corporate Welfare: It's Time to Put This Agency Out of Its Misery*, WASH. POST (June 30, 2014), https://www.washingtonpost.com/posteverything/wp/2014/06/30/conservatives-against-corporate-welfare-its-time-to-put-this-agency-out-of-its-misery/?utm_term=.92b1595afd7e [https://perma.cc/Z2DY-BJRV].

173. *Id.* The National Center specifically argued to get rid of all subsidies or grants to land trust organizations. Gattuso, *supra* note 133.

174. *See* Jan G. Laitos & Catherine M. H. Keske, *The Right of Nonuse*, 25 J. ENVTL. L. & LITIG. 303 (2010) (showing how even with the rise of property and markets as predominant allocation mechanisms, individuals continued to overexploit resources to the detriment of the community as a whole).

"market" is incapable of determining the most "efficient" (or beneficial) allocation of that resource. That rate of return not only justifies the existing tax deductions or credits, but also supports a much more robust public subsidy program. That rate of return means the bulk of the benefits flowing from conservation easement programs are enjoyed by the public as a whole rather than by the landowners or holders of the easements. In economic terms, this is known as a positive externality or positive "spillover" effect.[175] Although a "positive externality" might sound like a good thing, it is in fact an example of a "market failure"—meaning an inefficiency or failure of the market to maximize social welfare. The reason is that where there are benefits (or costs for that matter) experienced by third parties who are outside of—or external to—the market transaction, goods or services will not be produced at their socially optimal level, since those parties' preferences (though relevant to the well-being of the community) have no bearing on the market.[176]

Now, the typical economic solution to externalities of all kinds is simply to "internalize the externalities"—to make it so that the full social costs and benefits are considered by parties to any given market transaction. At that point, each party's incentive to maximize their own satisfactions will align with society's interest in doing the same for itself. In the case of negative externalities (such as pollution), American governments internalize the externality by providing for common law or statutory liability, by regulating conduct to force participants either to pay to avoid imposing the

175. For a brief discussion of "positive externalities" in the context of renewable energy development, *see* George M. Padis, Note, *Overcoming the "Energy Paradox" in the Built Environment*, 42 TEX. ENVTL. L.J. 85, 90 (2011).

176. In neoclassical economics, markets theoretically maximize social welfare by apportioning market share to those sellers who can produce a good or service at the lowest cost, by allocating a good or service to those who value it the most (as measured by their willingness to pay), and by producing just the quantity of a good or service whereby both the seller and buyer benefit from the last one produced and consumed, with neither being harmed and without leaving potential benefits unrealized. However, where there are social costs or benefits experienced by third parties who are outside of—or external to—the market transaction, goods or services will not be produced at their socially optimal level. Where a good or service's net externality is negative, parties will produce and consume that product beyond the point at which social welfare is maximized—they will enter into transactions where society as a whole loses. In contrast, where there are net positive externalities, the marginal benefit curve for the individual is less than the marginal benefit curve for society, the difference being considered "deadweight losses." For an accessible overview of these economic principles, *see, e.g.,* NATURAL RESOURCES LAW 1–65 (Jan G. Laitos et al. eds., 2d ed. 2012).

cost or to pay a fine for doing so, or by taxing the conduct giving rise to the cost.[177] In the case of positive externalities, they can be internalized either by the government providing the good or service itself, as is the case with public parks, public safety, public infrastructure, and national defense, or by subsidizing the private provision of that good or service.[178]

Current policies do not fully account for the positive externalities flowing from the creation and maintenance of conservation easements. Indeed, because conservation provides so much value that cannot be captured by landowners or even the conservation groups that purchase conservation easements (as well as land outright), this system inevitably results in conservation being under-supplied. And we desperately need a full supply, now more than ever.

The tax incentives at both the federal and state level are largely based in changes in the productive value of the servient estate, with landowners receiving a portion of that lost value. Under federal tax law, for instance, the amount of the deduction is determined by the "fair market value"[179] The fair market value is either based on the sales prices of "comparable easements" (where there is a "substantial record" of such sales) or equals "the difference between the fair market value of the property it encumbers before the granting of the restriction and the fair market value of the encumbered property after the granting of the restriction."[180] In

177. Generally, whatever costs are "internalized" by any combination of these approaches will be shared by producers and consumers based upon the relative elasticity of the supply and demand for a given good or service. *See id.*

178. For analyses of positive externalities and the appropriate governmental responses in other contexts, *see* Julie Aslaksen et al., *The Effect of Child Care Subsidies: A Critique of the Rosen Model*, 6 FEMINIST ECON. 95 (2000) (child care); Christopher J. Coyne & Peter T. Leeson, *Who's to Protect Cyberspace?*, 1 J.L. ECON. & POL'Y 473 (2005) (cybersecurity); Alina Ng, *Copyright's Empire: Why the Law Matters*, 11 MARQ. INTELL. PROP. L. REV. 337 (2007) (creative expression); Simone A. Rose, *On Purple Pills, Stem Cells, and Other Market Failures: A Case for A Limited Compulsory Licensing Scheme for Patent Property*, 48 HOW. L.J. 579 (2005) (research); Erika K. Wilson, *Blurred Lines: Public School Reforms and the Privatization of Public Education*, 51 WASH. U. J.L. & POL'Y 189, 190–96 (2016) (education). In one sense, positive externalities and negative externalities are in fact two sides of the same coin, or "mirror images" of each other, in that for any action that produces negative spillover effects, the decision not to take that action can be seen as producing an equal amount of positive spillover effects, and vice versa. *See generally* Lisa Grow Sun & Brigham Daniels, *Mirrored Externalities*, 90 NOTRE DAME L. REV. 135 (2014).

179. 26 C.F.R. § 1.170A-14(h)(3)(i) (2009).

180. *Id.*

conducting the "before and after" valuation, as it has come to be known, appraisers are required to account for:

> [N]ot only the current use of the property but also an objective assessment of how immediate or remote the likelihood is that the property, absent the restriction, would in fact be developed, as well as any effect from zoning, conservation, or historic preservation laws that already restrict the property's potential highest and best use.[181]

With that as a framework, the IRS recognizes "there may be instances where the grant of a conservation restriction may have no material effect on the value of the property or may in fact serve to enhance, rather than reduce, the value of property."[182] In those cases, landowners receive no deduction at all. The same is true at the state level as well.[183]

To truly optimize the supply of ecological and environmental goods and services that conservation easements provide, the public's subsidies meant to incentivize landowners to enter into the deals must equal the full value the public derives from them. To do this, we must incorporate insights from ecological economics into our tax incentive programs for landowners. We must reject the "market" as a sole determinant of the "value" of conservation easements. We must instead incorporate the degree to which the conservation of a particular parcel stems the flow of wide-scale resource depletion, pollution, and long-term environmental damage and guarantees the provision of certain invaluable ecosystem services. We must value conservation easements according to their true conservation value, as measured using any number of the methodologies ecological economists have proposed and already utilized.

Our policymakers have options in deciding how to do so. Our federal and state governments can simply use a per-acre standardized valuation for each type of ecosystem similar to the methods Costanza and his group used in quantifying the total value

181. *Id.* at § 1.170A-14(h)(3)(ii).

182. *Id.*

183. *E.g.*, COLO. REV. STAT. ANN. § 38-30.5-109 (West 2017) ("The valuation for assessment of a conservation easement which is subject to assessment and taxation, plus the valuation for assessment of lands subject to such easement, shall equal the valuation for assessment which would have been determined as to such lands if there were no conservation easement.").

of the global ecosystem.[184] Or, where appropriate, they can use a replacement-cost valuation just as New York City did in deciding to reserve portions of the Catskill Mountains watershed so as to save it in water treatment costs.[185] That method measures the value of conservation as either the cost of restoring an area, if developed, to its natural state so as to again provide its full panoply of ecosystem services or, more often, the cost of artificially replicating the ecosystem services that would be lost to development.[186] They could even use the per-acre standardized valuation as a default, while also allowing landowners and land trust organizations to petition for a higher valuation based on replacement costs. Deciding on a particular methodology of valuing conservation easements for their actual contribution to the conservation resource is not vital at this point. It is only important we recognize the need to so. So often, the first step is the most difficult one to take.

V. CONCLUSION

If the Earth is indeed a spaceship, it is on a perilous course, its inhabitants forced to confront an uncertain future. Despite valid concerns about the efficacy of conservation easements in meeting the substantial challenges facing us, they undoubtedly remain important instruments in addressing our conservation needs. Even as the primary appeal of conservation easements is their reliance upon private initiative in a way that promotes, rather than impedes upon, the institution of private property, these new challenges require new ways of thinking about this instrument. As to issues regarding the inflexibility of conservations easements to changing social and environmental conditions, there is merit to the proposals for encouraging the use of dynamic easements capable of adapting to new circumstances and for expanding the use of OPCEs. As to the lack of coordination, oversight, and enforcement, proposals for governments to be more actively involved at all stages of the process may well solve that problem, albeit at the expense of detracting from one of the primary attractions of this instrument's use as a conservation tool—namely,

184. *See supra* notes 29–43 and accompanying text.
185. *See supra* notes 97–101 and accompanying text.
186. PAGIOLA ET AL., *supra* note 97, at 51.

its reliance on private initiative and the lack of government intrusion.

Beyond consideration of each of those proposals, however, we must most importantly unmoor ourselves from the misguided notions that markets are reliable measures of social value, especially as it comes to environmental or ecological values, and that markets will adjust in due time. Ecological economists have shown us how wrong we have been. We should instead base any policy as it comes to conservation easements on their full value to society both in the present and, perhaps more importantly, in the future. This is especially the case as it comes to designing subsidies for landowners and land trust organizations to incentivize the formation, maintenance, and enforcement of conservation easements. Ecological economists have already developed the tools for doing so. We just have to use them. And we have to *pay* for them. The time to do so is now.