

# THE GREEN ALTERNATIVE TO CLASSICAL LIBERAL PROPERTY THEORY

Terry W. Frazier\*

To every student of history, government, economics, or sociology it is a commonplace that law . . . molds, while it fixes and preserves, society . . . . As for the property law, to say that social life creates it is a very great understatement of the intimacy of their relation. A biological mutualism, indeed an intimacy greater than that term strictly connotes, exists between them. Each gives form and life to the other.<sup>1</sup>

## INTRODUCTION

When Francis Philbrick wrote about the "biological mutualism" between property law and society, he was addressing what he saw as one of the great social problems of his time. He was concerned about the increasingly great concentrations of property, wealth, and power in corporations and in a relative handful of industrialist families. The concentrations of property, wealth, and power were made possible by the government's laissez-faire approach to property rights. Philbrick lamented the way that property law had evolved in the late nineteenth century and the early twentieth century, because he thought that it put too much emphasis on individual autonomy at the expense of community interests.<sup>2</sup> He emphasized the dynamism of property law and the symbiotic relationship between property law and society as he argued for reform of property law to reflect greater consideration of society's interests.<sup>3</sup>

How might Philbrick the reformer address some of the salient social problems of our time? How might the biological mutualism between property law and society help us address issues such as global warming, the hole in the Earth's ozone layer, acid rain, shrinking wetlands, the alarming rate of loss of biodiversity, and consumption of fossil fuels at unsustainable rates?<sup>4</sup> In a world with finite resources and a rapidly

---

\* Assistant Professor of Law, Mississippi College School of Law. I thank Michael Blumm, Craig Callen, Eric Freyfogle, Scott Norberg, Bill Page, Matt Steffey, Carol West, and especially Sid Moller for their useful comments on earlier drafts of this essay. I also thank Dean Richard Hurt and Mississippi College School of Law for financial support during my research for this essay. Finally, I thank Cynthia Morrison and Derrick Jones for research assistance on portions of this project.

1. Francis S. Philbrick, *Changing Conceptions of Property in Law*, 86 U. PA. L. REV. 691, 694-95 (1938).

2. *Id.* at 727-28.

3. *Id.* at 730.

4. Environmental law is a subset of general property law. Most environmental law problems involve conflicts between the expectations of a private property owner versus the expectations of common property owners. See *infra* note 75.

growing population, what role can property law play in the effort to find a sustainable balance between humans and their environment?

The answers to these questions depend to a great extent on how we, as a society, view the appropriate balance between individual autonomy and community interests. The inherent tension between protecting individual autonomy and community interests at the same time is central to the concept of property ownership, if not the definition of property itself.<sup>5</sup> A property law regime that gives primacy to individual autonomy, such as classical liberal property theory, would take us in one direction in the search for solutions to today's salient social problems. A property law regime that gives primacy to community interests would take us in a different direction. This essay is about a Green alternative to classical liberal property theory—one that gives primacy to the interests of land communities in the effort to address the major environmental issues of today.

Many traditional doctrines of modern American property law are founded upon classical liberal property theory. The focus of classical liberal property theory is on the individual and on how society can give the individual the maximum degree of freedom to develop her fullest potential.<sup>6</sup> Classical liberal property theory suggests that a strong system of private property ownership in a free market economy can provide the answers to today's environmental problems—to the extent that classical liberalism addresses these problems at all.<sup>7</sup> In a general sense, classical liberalism depends on the aggregate impact of each individual's pursuit of her own self-interest to produce optimal solutions to environmental problems. Classical liberalism gives only limited attention to relationships

---

5. See Laura S. Underkuffler, *On Property: An Essay*, 100 YALE L.J. 127, 129 (1990) (asserting that property is the tension between individual autonomy and community interests). See also Carol M. Rose, *Mahon Reconstructed: Why the Takings Issue is Still a Muddle*, 57 S. CAL. L. REV. 561 (1984):

This tension between [protecting individual autonomy and community interests] helps explain why the takings problem is so intractable. Our traditional discourse envisions property as serving quite divergent purposes. Although these purposes frequently overlap, the two views of property ultimately suggest different characters and limits for public protection of property ownership . . . .

*Id.* at 594.

6. See discussion of classical liberalism *infra* notes 14-62 and accompanying text.

7. E.g., Terry L. Anderson & Donald R. Leal, *Free Market Versus Political Environmentalism*, 15 HARV. J.L. & PUB. POL'Y 297, 297 (1992). For various views on the subject of privatizing common property as a way to use the free market to protect the environment, see Symposium, *Free Market Environmentalism*, 15 HARV. J.L. & PUB. POL'Y 297 (1992).

that make humans dependent on each other in political communities;<sup>8</sup> it largely ignores the interdependence of humans and other components of land communities.<sup>9</sup> Classical liberalism lacks the balance that should produce the tension between individual autonomy and the interests of land communities. Property law must consider the individual's place in nature to balance against society's role in developing the individual to her fullest potential.

A theory of property, to which I will refer as "Green Property," is available as one alternative to classical liberal property theory.<sup>10</sup> Green Property recognizes not only the interdependent relationships between human neighbors in political communities, but also the vast network of interdependent relationships between human and non-human neighbors in land communities. With this balanced perspective, Green Property provides a more sound foundation for a regime of property laws than that

---

8. Classical liberals arguably recognize some limited degree of human interdependence as part of their reliance on economic analysis of property law. See *infra* notes 25-30 and accompanying text for my explanation of why the limited recognition of human interdependence in economic analysis is not equivalent to recognition of the first law of ecology. Classical liberals also recognize interdependent relationships between humans to the extent that humans create such relationships by contract, but the interdependent relationships with which ecology is concerned include many more connections than just contractual relationships between humans.

9. Land communities are defined by the late Professor Aldo Leopold in A SAND COUNTY ALMANAC 204 (spec. commemorative ed., 1987). Modern ecologists use the term "ecosystem" to mean the same thing that Leopold meant by a land community. I will use the terms ecosystem and land community interchangeably.

10. J. Peter Byrne coined the term "Green Property" in *Green Property*, 7 CONST. COMMENTARY 239 (1990). Byrne's effort to articulate a Green theory of property was motivated by many of the same concerns that motivated the development of Green thought in Western Europe and elsewhere. Thus, he took the name of Green Property from the Green social movement. Byrne acknowledged that his essay was only the beginning of "an effort to imagine legal principles that further ecological values and to criticize extant principles that embody the antithetical values of exploitation and consumption." *Id.* at 239. He offered his Green theory of property law as an alternative to the "constitutional property [theory] contained in the prominent takings opinions of Chief Justice Rehnquist and Justice Scalia." *Id.* The constitutional property theory at which Byrne directed his criticism is a variation of classical liberal property theory, which at times emphasizes the libertarian strain and at other times emphasizes the utilitarian strain of classical liberal property theory. Rehnquist's property jurisprudence leans more toward the libertarian strain. For a recent example of Rehnquist's approach to property law issues, see the emphasis that he puts on a private property owner's right to exclude other people from her land in *Dolan v. City of Tigard*, 114 S. Ct. 2309, 2316, 2320 (1994). Justice Scalia's property jurisprudence clearly tends toward the utilitarian strain of classical liberalism. See Fred Bosselman, *Four Land Ethics: Order Reform, Responsibility, Opportunity*, 24 ENVTL. L. 1439, 1490-93 (1994) [hereinafter Bosselman, *Four Land Ethics*]. For a recent example of Justice Scalia's approach to property law issues, see *Lucas v. South Carolina Coastal Council*, 112 S. Ct. 2886 (1992). For a thorough review of Justice Scalia's property jurisprudence, see Bosselman, *Four Land Ethics*, *supra*, at 1485-1506; Fred Bosselman, *Scalia on Land*, in AFTER LUCAS: LAND USE REGULATION AND THE TAKING OF PROPERTY WITHOUT COMPENSATION 82 (1993). My critique of classical liberal property theory in this article is a continuation of Byrne's effort to criticize property theories based on exploitation and consumption.

of classical liberal property theory. Green Property emphasizes the need to protect the integrity of land communities in the tension between individual autonomy and community interests. Concern for the integrity of land communities gives Green Property an important role to play in addressing today's environmental problems.

Green Property takes its name from the Green social movement.<sup>11</sup> Green thought is a critique of modern culture, particularly of modern culture's interactions with nature. The classical liberal view of property is very much a part of the established legal culture, in which Greens find many flaws. In fact, Greens often appear to be united more by their opposition to the established legal culture's exploitation of some people and all of nature than by their advocacy of a comprehensive alternative. Until now, the most explicit attempt to describe a Green approach to American property law has been Peter Byrne's suggestion that we adopt ecologically sensitive land use regulations.<sup>12</sup>

In this essay, I will synthesize many Green ideas from the broad spectrum of current property scholarship and show how those ideas can be organized to form a comprehensive theory of Green Property. Green Property includes ecologically sensitive approaches to many other property and environmental issues than just land use regulation. Before I begin to describe the strands of Green Property, I will explain in Part I of this essay why I think classical liberal property theory alone does not provide satisfactory answers to today's salient environmental problems. The discussion of classical liberal property theory in Part I also will allow me to describe the strands of Green Property in part by reference to how they contrast with classical liberalism. My description of the strands of Green Property then will follow in Part II.

As I fit the strands into the general framework of Green Property, I will provide a brief description of each such strand and provide references sufficient to enable readers to enter into the network of Green Property literature.<sup>13</sup> My primary contribution to the comprehensive theory of

---

11. Byrne, *supra* note 10, at 239.

12. Byrne suggested that we accomplish this goal by giving legal effect to Aldo Leopold's land ethic. *Id.* at 243.

13. A comprehensive description of each strand and exhaustive references to each scholarly work of Green Property is beyond the scope of this essay. If you would like to read more about Green Property, then I suggest that you start with: Richard O. Brooks, *A New Agenda for Modern Environmental Law*, 6 J. ENVTL. L. & LITIG. 1 (1991); Byrne, *supra* note 10; Eric T. Freyfogle, *Ownership and Ecology*, 43 CASE W. RES. L. REV. 1269 (1993) [hereinafter Freyfogle, *Ownership and Ecology*]; Eric T. Freyfogle, *The Ethical Strands of Environmental Law*, 1994 U. ILL. L. REV. 819 [hereinafter Freyfogle, *Ethical Strands of Environmental Law*]; David B. Hunter, *An Ecological Perspective on Property: A Call for Judicial Protection of the Public's Interest in Environmentally Critical Resources*, 12 HARV. ENVTL. L. REV. 311, 312 (1988); Donald W. Large, *This Land is Whose*

Green Property will be to find common themes in the ideas of other scholars, some of whom may have intended to contribute to an alternative theory of property and some of whom may not have realized the significance of their work to Green Property when they wrote it. I will not describe Green versions of all of the standard property rules and doctrines, but I will provide a framework for future development of Green property rules and doctrines. In my description of Green Property, I will pay special attention to the ecological principles that most directly focus attention on the interdependence of living creatures and other components of land communities. All other principles of Green Property are based on those ecological principles. The focus on ecology will lead me to conclude that the proper role of property law in addressing today's salient environmental problems is to make sure that the need to protect the integrity of land communities is reflected in the tension between individual autonomy and community interests.

In Part III of this essay, I briefly will consider the role of economic analysis in Green Property. Green Property cannot ignore economics and other social sciences, or Green Property would be as incomplete as is the ecologically challenged classical liberal property theory. Finally, I will conclude in Part IV with a review of how Green Property can provide a balanced starting point for discussion of the role of property law in today's society. Green Property will allow consideration of both individual human needs and the interests of land communities, as we explore the tension

---

*Land? Changing Concepts of Land as Property*, 1973 WIS. L. REV. 1039; Joseph L. Sax, *Property Rights and the Economy of Nature: Understanding Lucas v. South Carolina Coastal Council*, 45 STAN. L. REV. 1433 (1993). Together, those seven articles provide a core of Green ideas about property ownership. For a more detailed reading list, see Robert F. Blomquist, "Clean New World": *Toward an Intellectual History of American Environmental Law, 1961-1990*, 25 VAL. U. L. REV. 1 (1990) (generally describing the history of ideas that have been translated into the policies of environmental law in the United States).

Keep in mind that environmental law is a subset of general property law. See *supra* note 4 and *infra* note 75. For a point of entry into some background reading on environmental law, see Michael C. Blumm, *Studying Environmental Law: A Brief Overview and Readings for a Seminar*, 12 J. ENERGY NAT. RESOURCES & ENVTL. L. 309, 310 (1992). For a more complete list of background information on environmental law, see the suggested reading list in chapter VII of DAVID W. ORR, *ECOLOGICAL LITERACY: EDUCATION AND THE TRANSITION TO A POSTMODERN WORLD* 109-24 (1992).

Each one of the nine law review articles listed above provides references to other articles, books, and court opinions, all of which will help to further define Green Property. In the same way that the first law of ecology teaches us that everything in the world is connected to everything else, interested readers will find that every piece of Green literature is connected to every other piece of Green literature by a vast web of footnotes and cross-references. The relevant literature covers issues from the disciplines of economics, philosophy, political philosophy, various natural sciences (especially ecology and biology), natural history, environmental history, and law. That Green Property—based upon the first law of ecology—should have so many connections to so many other academic disciplines is somehow fitting.

between those competing sets of demands and discover how that tension—also known as property law—can help society resolve conflicts concerning the distribution and consumption of scarce common resources.

## I. AN OVERVIEW OF CLASSICAL LIBERAL PROPERTY THEORY

### A. *The Current Debate About Property Law Reform*

Differences between classical liberal property theory and Green Property are highlighted by current efforts of neo-conservative politicians and judges to reform property and environmental laws at both federal and state levels of government. The neo-conservative assault on public land use controls has been building for more than two-and-a-half decades, as a backlash against development of federal and state environmental laws during that same time period and as part of a larger battle over the proper role of government in society. The neo-conservatives who lead the effort to reform property law sometimes call their movement "the sagebrush rebellion," "the wise use movement," or "the property rights movement." Regardless of the label used to describe the movement, the essence of neo-conservative efforts is to elevate the interests of private property owners over all competing interests.<sup>14</sup> The philosophical foundation for the neo-conservative movement to reform property law is classical liberal property theory.<sup>15</sup>

---

14. The neo-conservative effort to reform property and environmental laws is typified by H.R. 925, 104th Cong., 1st Sess. (1995) [hereinafter H.R. 925], now part B of H.R. 9, 104th Cong., 1st Sess. (1995) [hereinafter H.R. 9]. This legislation (entitled "The Private Property Protection Act of 1995") is a "takings bill," which requires payment of compensation to a private landowner whenever a land use regulation reduces the value of the landowner's property by a specified percentage. As introduced, H.R. 925 would have required compensation for a reduction of 10% or more of property value. As adopted by the House of Representatives, H.R. 9 would require compensation for a reduction of 20% or more of property value. The full Senate has not acted upon H.R. 9 as of the date of this article.

The legislative definition of a taking in H.R. 9 is similar to legislation that was introduced in 39 state legislatures through June 1995. Variations of such takings bills have been adopted in Mississippi, Louisiana, Texas, Florida, and Washington in the past two years. Mara Osman, *Trend to Take Taxpayers Continues*, NATIONAL WILDLIFE ENVIROACTION, July/August 1995, at 11.

For a defense of takings bills and other efforts of the property rights movement, see Nancie G. Marzulla, *State Private Property Rights Initiatives as a Response to "Environmental Takings,"* 46 S.C. L. REV. 613, 613-15 (1995).

15. Senator Nickles helped introduce S. 239, 104th Cong., 1st Sess. (1995), a Senate version of a takings bill, as follows:

[O]f all the freedoms we enjoy in this country, the ability to own, care for, and develop private property is perhaps the most crucial to our free enterprise economy. In fact, our economy would cease to function without the incentives provided by private property. So sacred and important are these rights, that our forefathers chose to specifically protect

While neo-conservatives seek to reform American property and environmental laws for the benefit of a few private landowners, Greens seek to reform many of the same laws to advance profoundly different values. While not all of the environmentalists, communitarians, post-modernists, and others who oppose the neo-conservative push for exploitation and consumption of natural resources would identify themselves as Greens, I will use this term to describe such opponents of neo-conservatism.<sup>16</sup> Greens are less unified and less focused than the neo-conservatives, but their efforts generally are motivated by a shared sense that we are consuming resources and using land in such a way as to diminish the quality of life for us, for our descendants, and for all other living things that share our planet with us. Such concerns helped to prompt the development of the Green social movement in Western Europe during the past three decades.

The political arena in which neo-conservatives and Greens are pitted against each other with respect to property law reform in the United States provides a focal point for comparison of the philosophical foundations of these two opposing visions of the role of property in our society. I will begin the comparison with a brief overview of classical liberal property theory.

---

them in the fifth amendment to the U.S. Constitution . . . .

Unfortunately, . . . some Federal environmental, safety, and health laws are encouraging Government violation of private property rights, and it is a problem which is increasing in severity and frequency. . . .

[T]he time has come for farmers, ranchers, and other landowners to take a stand against violations of their private property rights by the Federal bureaucracy. The Private Property Owners Bill of Rights will help landowners take that stand.

141 Cong. Rec. S. 1074 (daily ed., Jan. 18, 1995) (statement of Mr. Nickles). See also Andrea Hungerford, "Custom and Culture" Ordinances: Not a Wise Move for the Wise Use Movement, 8 TUL. ENVTL. L.J. 457, 458-59 (1995). "Wise Use proponents preached the gospel of private property and self-determination, and the evils of interfering government agencies." *Id.*

16. Eric Freyfogle warns that "[t]he views of environmentalists and environmental groups are sufficiently diverse that any summary risks distortion . . . ." Freyfogle, *Ethical Strands of Environmental Law*, *supra* note 13, at 828 n.18. Despite the diversity of views, and keeping in mind the risks of distortion, I believe that common opposition to the values of exploitation and overconsumption of natural resources is sufficient justification for combining the numerous scholarly perspectives cited in this article under a single Green banner. The Green moniker is appropriate, since it allows unification of efforts to accomplish a common purpose without obligating everyone associated with the Green movement to agree with an entire agenda.

### B. Classical Liberal Property Theory

Sir Edward Coke once asked the rhetorical question, “[F]or what is land but the profits thereof?”<sup>17</sup> Justice Antonin Scalia quoted Coke’s question to make a point about the financial impact of land use regulation in *Lucas v. South Carolina Coastal Council*.<sup>18</sup> Coke’s question and Justice Scalia’s use of it in *Lucas* illustrate the classical liberal view of land as just another resource to be used or consumed by humans for the benefit of humans.<sup>19</sup> Classical liberal property theorists emphasize the importance of an individual’s autonomy over her private property, including her land, as a means of protecting her liberty, happiness, or personal security and sense of identity.<sup>20</sup>

Classical liberal property theory is seriously flawed. To support the theory that autonomous control over our property is the best guarantee of liberty, happiness, and security, classical liberal property theorists also must postulate that each one of us, as a property owner, can live more or less independently. This important principle—which celebrates the independence of a landowner—amounts to denial of interdependence between individual landowners and the other components of the land communities in which they live. Therein lies the flaw in classical liberal

---

17. *Lucas v. South Carolina Coastal Council*, 112 S. Ct. 2886, 2894 (1992) (quoting 1 E. COKE, *INSTITUTES* chapter 1, section 1 (1st Am. ed., 1812)). Compare Coke’s attitude about land with the following statement:

[I]ncluding *all* expectancy as part of value is logical only as long as land is considered a commodity, but in reality land is far more than a commodity. It is one of the resources of life. If preservation of the life-sustaining qualities of the land is to become a reality, then land must be viewed as land, not as money with trees on it.

Large, *supra* note 13, at 1081.

18. *Lucas*, 112 S. Ct. at 2894.

19. Bosselman, *Four Land Ethics*, *supra* note 10, at 1490-91. Bosselman identifies Justice Scalia’s approach to property issues as being consistent with the utilitarian strain of classical liberal property theory. *Id.* Besides the utilitarian strain, classical liberal property theory also comes in at least two other strains: libertarian theory and personality-based theory. Margaret Jane Radin, *Time, Possession, and Alienation*, 64 WASH. U. L.Q. 739, 739-42 (1986). See *infra* note 24 and accompanying text.

20. See generally Margaret Jane Radin, *The Liberal Conception of Property: Cross Currents in the Jurisprudence of Takings*, 88 COLUM. L. REV. 1667, 1668 (1988) (describing classical liberal property theory generally and criticizing a tendency of classical liberal judges to conceptually sever property rights when reviewing takings claims); Robert C. Ellickson, *Property in Land*, 102 YALE L.J. 1315, 1352-54 (1993) (describing classical liberal property theory in general terms for the purpose of comparing it to communitarian views of property rights). See also *infra* notes 21-62 and accompanying text.

property theory.<sup>21</sup> Denial of interdependence contradicts the first law of ecology, which holds that each thing in our biosphere, including each human being, is connected to every other thing.<sup>22</sup> John Locke provides us with the explanation for classical liberal property theory's ecological denial: We are biased by our self-interest and by our ignorance of the laws of nature.<sup>23</sup>

Classical liberal property theory embraces several different strains of thought. Margaret Jane Radin identifies those strains of classical liberal thought as (1) the libertarian theory of property, (2) the utilitarian theory of property, and (3) the personality-based theory of property.<sup>24</sup> As the distinctions between the three strains are both subtle and complex, an in-depth treatment of those distinctions is beyond the scope of this essay. However, I will at least summarize those distinctions, to identify the unifying theme. All three strains of classical liberal property theory emphasize freedom of control over one's property, because of the links between freedom to control property and, respectively, (1) the owner's liberty, (2) the owner's happiness (or wealth, or however one defines utility), and (3) the owner's personal security and sense of identity. In light of this common concern for human-centered values, I will treat all

21. E.g., Michael B. Metzger, *Private Property and Environmental Sanity*, 5 *ECOLOGY L. Q.* 793, 797 (1976). According to Metzger, "the cause, not only of the environmental crisis, but of many of our other economic, social, and political problems as well, can be traced to modern Western man's denial of the reality of his interdependence with his fellow man and with his environment." *Id.*

The problem with [Western Culture's] focus on the individual [as the prime measure of value] . . . is that it denies basic axioms of the natural world. In nature an individual organism cannot live in isolation. . . . Indeed, the closer we look, the more artificial it seems to talk about the individual organism as a discrete thing, rather than as an inseparable part of something larger.

Freyfogle, *Ethical Strands of Environmental Law*, *supra* note 13, at 830 (footnote omitted).

22. E.g., Hunter, *supra* note 13, at 313-14.

23. The great and chief end, therefore, of men's uniting into commonwealths and putting themselves under government is the preservation of their property. To which in the state of nature there are many things wanting: First, there wants an established, settled, known law, received and allowed by common consent to be the standard of right and wrong and the common measure to decide all controversies between them; *for though the law of nature be plain and intelligible to all rational creatures, yet men, being biased by their interest as well as ignorant for want of studying it, are not apt to allow of it as a law binding to them in the application of it to their particular cases.*

JOHN LOCKE, *TWO TREATISES OF GOVERNMENT* 184 (Hafner Press ed., 1947) (emphasis added).

The "law of nature" to which Locke made reference in the italicized portion of the quote was his term for whatever motivates humans to act as they do, not a reference to the laws of natural science. Notwithstanding this distinction, Locke's general point is important in this context: people who are biased by self-interest and ignorant of their subjugation to natural rules—including the laws of natural science—tend to deny that such rules apply to themselves.

24. Radin, *supra* note 19, at 739-42.

three strains as variations of a single classical liberal theory of property rights.

Before reviewing the three strains of classical liberalism, I need to clarify what I mean by ecological ignorance, or denial of interdependence of individuals as members of communities. Classical liberals, who rely heavily on economic analysis of law, deserve some credit for recognizing at least some limited degree of human interdependence. Ronald Coase, in his landmark essay *The Problem of Social Cost*, implicitly recognized some degree of interdependence among neighboring landowners.<sup>25</sup> To lay the foundation for the main theme of his essay, Coase demonstrated that land use conflicts are reciprocal.<sup>26</sup> For example, assume that landowner Green complains that neighboring landowner Brown's activities are interfering with Green's use and enjoyment of Green's land. If society requires Brown to cease or modify her activities to mollify Green, then Green's preferences will interfere with Brown's use and enjoyment of her own land. Each landowner's preferences have an impact on the other landowner's use and enjoyment of her own land.

The main theme of Coase's essay, which has come to be known as the Coase Theorem, is that if the parties to a property dispute resolve their conflicting preferences through a negotiated exchange in the free market, then the resolution of the conflict will result in the most efficient use of everyone's property—regardless of the liability rules that might apply to the dispute—as long as the parties need not worry about transaction costs in striking their bargain.<sup>27</sup> As long as the parties may bargain freely and without transaction costs, they will resolve the dispute in a way that allows them to collectively derive the maximum utility from their property.<sup>28</sup> Coase asserted that "if such market transactions are costless, *such a rearrangement of rights will always take place* if it would lead to an increase in the value of production."<sup>29</sup> In my example, if Green values her preference more than Brown values her preference, then Green will

---

25. R. H. Coase, *The Problem of Social Cost*, 3 J. L. & ECON. 1 (1960).

26. *Id.* at 2.

27. *Id.* at 8. Efficiency, as used here, refers to production of the greatest net social utility. "Utility" refers to wealth, happiness, or whatever else motivates people to act in the free market. See RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 12-16 (4th ed., 1992).

28. Coase recognized that transaction costs are never zero. Coase, *supra* note 25, at 15. His theorem, though, "should approximate reality whenever the transaction cost is less than the value of the transaction to the parties." POSNER, *supra* note 27, at 51. Economists assume that each person acts rationally to maximize her own utility by entering into only those transactions that do not decrease her own utility. If she thinks that she will be better off after a transaction, even after paying the transaction costs, then a rational maximizer still will enter into that transaction.

29. Coase, *supra* note 25, at 15 (emphasis added).

exchange something with Brown to keep Brown from interfering with Green's preference (if Green can offer something to induce Brown to make the exchange). If Brown values her preference more than Green values her preference, then the roles will be reversed. According to Coase, if the costs of bargaining do not influence the parties' respective preferences, then Green and Brown should strike the same bargain, whether or not society makes one liable to the other for interfering with the other's use and enjoyment of her property.

Coase thus implicitly recognizes that Green and Brown are interdependent, to the extent that one individual's preference for land use might have a negative impact on the other. To the extent that classical liberals incorporate the Coase Theorem in their economic analysis of property law, they also implicitly recognize the interdependence of people such as Green and Brown. Economic analysis, though, depends upon bargaining in the free market to resolve conflicting preferences. Thus, only the preferences of those who are capable of bargaining have any value in this free market approach to interdependence. The only interdependent relationships that have a place in economic analysis are the relationships between parties who can bargain with each other or who can find a surrogate negotiator. This analysis leaves out many humans who cannot bargain for themselves due to legal disabilities (minors or people with mental disabilities) or due to practical disabilities (those who have little or nothing to exchange in the free market). It also leaves out future generations of humans, non-human species, and non-living components of ecosystems—unless some human with the ability to bargain acts as their advocate.

Returning to the example of Green and Brown, classical liberals will not account for the interdependent relationships between Brown and the many other species of animals, birds, insects, and micro-organisms that inhabit her land, nor will they account for the interdependent relationships between Brown and the air, land, mineral, and water elements of her property, unless some other person will act as an advocate for those other components of the ecosystem. Even if an advocate steps forward, the advocate must have the ability to determine (1) the preferences of those other components of the ecosystem, and (2) how those components would value their preferences, if they could. Although some economists have made progress toward valuing environmental preferences of humans,<sup>30</sup> the free market approach to resolving land use conflicts still is limited primarily to human neighbors who have the resources to make bargaining

---

30. E.g., Douglas R. Williams, *Valuing Natural Environments: Compensation, Market Norms, and the Idea of Public Goods*, 27 CONN. L. REV. 365 (1995).

worthwhile. Recognizing the interdependence of only those humans who are able to resolve conflicts by bargaining with each other is not the same as recognizing the pre-contractual, natural interdependence of all components of land communities. Limited recognition of only some human relationships is the functional equivalent of ecological ignorance. This leaves classical liberalism as an unsatisfactory foundation for a regime of property laws.

### 1. The Libertarian Strain of Classical Liberal Property Theory

The libertarian strain of classical liberal property theory, as applied to land, is characterized by an effort to give

each landowner the maximum degree of freedom to use the land that would be consistent with each neighbor also having that same degree of freedom. Thus each landowner would have total freedom of alienation, and would be constrained in using the land only by the law of nuisance and other doctrines that constrain infliction of external harms. Whenever possible, the libertarian state would protect a landowner with . . . "property rules" . . . [i.e.,] rules [that] entitle a landowner to prevent the unconsented defeasance of rights in land, even when compensation would be forthcoming . . . . [T]he libertarian goal [is to] . . . enabl[e] a landowner to determine his own values and priorities.<sup>31</sup>

Charles Reich describes the importance of private property as giving the owner "a small but sovereign island of his own."<sup>32</sup> Robert Ellickson

---

31. Robert C. Ellickson, *Adverse Possession and Perpetuities Law: Two Dents in the Libertarian Model of Property Rights*, 64 WASH. U. L.Q. 723, 724 (1994) (footnote omitted). The "property rules" to which Ellickson makes reference were identified by Guido Calabresi and Douglas Melamed in *Property Rules, Liability Rules and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1092 (1972). According to Calabresi and Melamed, property rights that are protected by "property rules" cannot be taken from the owner with the power of eminent domain, unless the owner consents, regardless of the compensation offered or the public interest that might justify the exercise of the power of eminent domain. *Id.* These property rules are contrasted with what Calabresi and Melamed called "liability rules." *Id.* Property rights that are protected only by liability rules may be taken from the owner with the power of eminent domain, regardless of whether the owner consents, as long as the government pays the owner the due compensation for which the government is liable under the United States Constitution. *Id.*

32. Charles A. Reich, *The New Property*, 73 YALE L.J. 733, 774 (1964) [hereinafter Reich, *New Property*]. In a more recent article, Reich relies on a classical liberal reading of the Fifth Amendment of the United States Constitution to conclude that the Constitution guarantees a clean and healthy environment for each American citizen. Charles A. Reich, *Beyond the New Property: An Ecological View of Due Process*, 56 BROOK. L. REV. 731, 733 (1990) [hereinafter Reich, *Ecological Due Process*].

describes land as "a particularly potent safeguard of individual liberty," because, "[l]ike no other resource, land can provide a physical haven to which a beleaguered individual can retreat."<sup>33</sup> The late Justice Potter Stewart asserted that "a fundamental interdependence exists between the personal right to liberty and the personal right in property. Neither could have meaning without the other."<sup>34</sup>

Libertarians are willing to allow regulation of the use of private property only in the very narrow and theoretically rare instances where collective force is needed to curtail private aggression of one property owner against another.<sup>35</sup> Libertarians insist that the free market should be the primary method of protecting common interests in property, even when faced with market failures such as transaction costs, free riders, and inaccurate or incomplete information on which to base market choices.<sup>36</sup> Private property rights, including the freedom to exchange such rights in an open market, give a person the power to control her own life and to provide for her own survival.<sup>37</sup> If the government holds the absolute power to define property rights, then it also holds the power to determine an individual citizen's fate by defining away her means of support; this would be tyranny.<sup>38</sup> At its most basic level, the libertarian strain of classical liberal property theory posits that private property rights function as the barrier between individual liberty and a Leviathan state by allowing an individual, if need be, to subsist without depending upon, or owing political allegiance to, the largesse of any state or political entity.<sup>39</sup>

---

33. Ellickson, *supra* note 20, at 1353.

34. Lynch v. Household Finance Corp., 405 U.S. 538, 552 (1972).

35. E.g., RICHARD A. EPSTEIN, TAKINGS: PRIVATE PROPERTY AND THE POWER OF EMINENT DOMAIN 5 (1985).

[T]he entire system of governance presupposes that in a state of nature there are two, and only two, failures of the system of private rights. The first is the inability to control private aggression, to which the police power is the proper response. The second is that voluntary transactions cannot generate the centralized power needed to combat private aggression.

*Id.* See also Bernard H. Siegan, *Constitutional Protection of Property and Economic Rights*, 29 SAN DIEGO L. REV. 161 (1992).

To be sure, some regulation that restricts economic activity is justified under a market economy. Few will reject regulation that truly secures public health and safety, prohibits noxious uses, and maintains law and order in real emergencies. Government regulation should be limited to forbidding private activity that actually violates the rights of others.

*Id.* at 169.

36. See *supra* note 7 for references to free market environmentalism.

37. Reich, *Ecological Due Process*, *supra* note 32, at 735; Ellickson, *supra* note 20, at 1352.

38. Reich, *Ecological Due Process*, *supra* note 32, at 736.

39. *Id.* at 771; Ellickson, *supra* note 20, at 1352-54.

In the course of emphasizing the manner in which property rights guarantee an individual's political independence from the rest of society, libertarians largely deny the interdependence of individuals as members of communities. This denial of interdependence becomes even more obvious as the definition of community expands from a traditional political understanding of community to an ecological understanding of land communities and ecosystems.<sup>40</sup> Ecological ignorance undercuts the libertarian strain of classical liberal property theory as a foundation for a regime of property rights.

## 2. The Utilitarian Strain of Classical Liberal Property Theory

The utilitarian strain of classical liberal property theory posits that property laws should be arranged to maximize the aggregate of utility that all members of society receive from property. Utility might be defined in many different ways, but I will follow a Benthamite approach and define utility loosely as "happiness" for purposes of this article.<sup>41</sup> The role of property law thus becomes maximizing the happiness of the greatest number of humans.<sup>42</sup>

The utilitarian strain of classical liberal property theory comes in two versions: act utilitarianism and rule utilitarianism. The former seeks to maximize human happiness as it relates to possible courses of action at the moment a decision must be made and focuses on that point in time only. The latter version of utilitarianism seeks to maximize human happiness over time by taking into account the likely long-term effects of possible

---

40. For an extreme version of the libertarian strain of classical liberal property theory, which reacts to increasing governmental efforts to preserve and restore nature by regulating private land use, see John McClaughry, *The New Feudalism*, 5 ENVTL. L. 675, 676 (1975); Bruce Yandle, *Escaping Environmental Feudalism*, 15 HARV. J.L. & PUB. POL'Y 517, 517-18 (1992). Both articles describe land ownership under modern environmental laws as being similar to land tenure under the medieval institution of feudalism. See also Reich, *New Property*, *supra* note 32, at 768-71 (arguing that, to the extent that one recognizes government entitlements as property, continued receipt of such entitlements requires a level of loyalty to the state that is equivalent to feudal forms of fealty, and labeling this linkage as "The New Feudalism"). Richard Lazarus severely criticized the "environmental feudalism" arguments in Richard J. Lazarus, *Debunking Environmental Feudalism: Promoting the Individual Through the Collective Pursuit of Environmental Quality*, 77 IOWA L. REV. 1739, 1773-74 (1992). Lazarus observed that Yandle and McClaughry each set up a false dichotomy between individual liberty and protection of the individual through pursuit of environmental quality. *Id.* at 1752, 1773-74. Lazarus's conclusion that environmental protection may be consistent with protection of individual liberty, *id.* at 1773-74, is very similar to Reich's argument that the Fifth Amendment of the United States Constitution guarantees every citizen a clean and healthy environment. Reich, *Ecological Due Process*, *supra* note 32, at 733.

41. E.g., POSNER, *supra* note 27, at 12-16.

42. Bosselman, *Four Land Ethics*, *supra* note 10, at 1486-87. Happiness, as used in this article, refers to a "sum of pleasures." *Id.* at 1486 n.214.

courses of action.<sup>43</sup> Like libertarians, both act and rule utilitarians also seek to enable landowners to determine their own values and priorities, but the utilitarian effort is based on a belief that aggregating the rational, utility-maximizing choices made by individual landowners usually is the optimal way to maximize society's happiness. Unlike libertarians, utilitarians tend to be pragmatic insofar as they acknowledge transaction cost barriers that make utility-maximizing choices problematic in some situations.<sup>44</sup> Utilitarians are willing to relax the protections of individual property rights when "high transactions [sic] costs prevent the voluntary exchange process from reshuffling resources to more highly valued uses."<sup>45</sup> Pragmatic utilitarians even might be willing to allow land use regulation, if such regulations help control "cumulative [negative] impact [on aggregate social welfare] through reciprocal sharing of burdens," or if such regulations are "incidental to the achievement of other governmental purposes."<sup>46</sup>

However pragmatic they may be with respect to land use regulations, utilitarians are relatively rigid in their tendency to reduce all market decisions to a mathematical calculation of benefits, as offset by costs.<sup>47</sup> If potential benefits or costs are not easily quantifiable, then utilitarians tend to ignore those benefits or costs when weighing the expected utility from market choices. Unfortunately, many potential ripple effects of land use or resource consumption choices within a land community are difficult to quantify.<sup>48</sup> Utilitarians encounter even more difficulty in discounting long-term benefits or costs to present value.<sup>49</sup>

Classical liberals who deny the interdependence of humans and non-human components of land communities fail to account for all of the ripple effects of land use or resource consumption decisions. Rational decision-

---

43. Radin, *supra* note 19, at 741.

44. See discussion of transaction costs, *supra* notes 25-30 and accompanying text.

45. Ellickson, *supra* note 31, at 724-25.

46. Bosselman, *Four Land Ethics*, *supra* note 10, at 1506. Bosselman describes Justice Scalia as a pragmatic utilitarian and then provides an analysis of situations in which Justice Scalia is willing to tolerate land use controls. *Id.* at 1501-06.

47. Commentators sometimes refer to this mathematical calculation of benefits as a "felicific calculus." *Id.* at 1489 n.224.

48. See *supra* note 30.

49. The problem of discounting the future effects of resource consumption has troubled some economists, at least since A. C. Pigou wrote about the subject in the early 1920s. HERMAN E. DALY & JOHN B. COBB, JR., FOR THE COMMON GOOD: REDIRECTING THE ECONOMY TOWARD COMMUNITY, THE ENVIRONMENT, AND A SUSTAINABLE FUTURE 410-11 (1989). See also, e.g., Daniel A. Farber & Paul A. Hemmingsbaugh, *The Shadow of the Future: Discount Rates, Later Generations, and the Environment*, 46 VAND. L. REV. 267 (1993). This topic will be addressed again in the textual discussion of intergenerational equity, *infra* notes 193-212.

making requires sensitivity to interdependent relationships to avoid the costs of unintended consequences. Unintended disturbances to interdependent relationships can generate enough social costs to outweigh the private and societal benefits of a resource use or consumption choice, thereby producing a net decrease in society's collective welfare.<sup>50</sup> Recognition of the interconnectedness of all members of land communities is essential for efforts to minimize the unintended negative consequences of a resource use or consumption decision.

The tendency to ignore or gloss over the non-quantifiable benefits and costs of ripple effects within land communities is just another form of ecological ignorance. As it did with the libertarian strain, ecological ignorance undercuts the utilitarian strain of classical liberal property theory as a foundation for a regime of property rights.

### 3. The Personality-based Strain of Classical Liberal Property Theory

The third strain of classical liberal property theory might be traced to German philosopher Georg Wilhelm Friedrich Hegel's personality theory of property. Jeremy Waldron provides one of the more accessible summaries of the role of property in Hegel's personality theory:

Property-owning is said to be important to the human individual since it is only through owning and controlling property that he can embody his will in external objects and begin to transcend the subjectivity of his immediate existence. In working on an object, using it, and having control over it, an individual confers on his will a stability and a maturity that would not otherwise be possible, and enables himself to establish his place as one in a community of such wills. Of course, he must not remain forever preoccupied with his status as proprietor; there are other tasks to be undertaken before ethical development is complete. But Hegel is adamant that property is necessary; unless he can establish himself as an owner, an individual's development in other areas of ethical life will be seriously at risk.<sup>51</sup>

---

50. Cf. Arthur J. Jacobson, *Environmental Accountability Beyond Compliance: Externalities and Accounting*, 12 CARDOZO L. REV. 1333, 1333 (1991).

The reason we have an environmental problem is that many costs of activities do not show up as real costs to economic actors. . . . We still depend, for the most part, on the victims of externalities to do the accounting for cost generators, and victims will do the accounting only when the legal system gives them the incentive to do so: a legal claim. *Id.* at 1333-34.

51. JEREMY WALDRON, *THE RIGHT TO PRIVATE PROPERTY* 377-78 (1988).

Thus, according to Hegel, an owner's exercise of control over an object is a manifestation of the owner's free will. Free will means little if it cannot be exercised. Property ownership is essential to development of an individual's sense of identity.

Margaret Jane Radin has explored the connection between property and individual identity with several articles.<sup>52</sup> Radin observes that some items of property, which she calls "personal property," are so crucial to an individual's self-concept that the legal system should extend special treatment to such property. That is, property rules should be different for such personal property than they are for "fungible property," which is not crucial to an individual's self-concept.<sup>53</sup> Radin points out that her views differ significantly from Hegel's views.<sup>54</sup> She calls her approach to defining private property rights the "personhood perspective on property."<sup>55</sup> According to Radin, personal property deserves special treatment under the rules of property law, because

[i]f an object you now control is bound up in your future plans or in your anticipation of your future self, and it is partly these plans for your own continuity that make you a person, then your personhood depends on the realization of these expectations. This turn to expectations might seem to send property theory back toward Bentham, who declared that "the idea of property consists in an established expectation." But this justification for honoring expectations is far from Benthamite, because it applies only to personal property. In order to conclude that an object figuring into someone's expectations is personal, we must conclude both that the person is bound up with the object to a great enough extent, and that the relationship belongs to the class of "good" rather than "bad" object-relations.<sup>56</sup>

Radin suggests that the special treatment of personal property might take the form of applying a "property rule" to regulation of one's use of

---

52. E.g., Margaret Jane Radin, *Property and Personhood*, 34 STAN. L. REV. 957 (1982) [hereinafter Radin, *Property and Personhood*]; Margaret Jane Radin, *Market-Inalienability*, 100 HARV. L. REV. 1849 (1987); Radin, *supra* note 20.

53. Radin, *Property and Personhood*, *supra* note 52, at 960, 1005-06.

54. *Id.* at 971-78. While Hegel and Radin each explore the relationship between ownership of property and the owner's sense of identity, only Radin attaches special significance to selected items of personal property. An object had no importance to Hegel until a person asserted ownership over that object. Hegel did not distinguish between objects that were central to a person's expectations for the future and objects that were not. In essence, all objects were fungible property to Hegel.

55. *Id.* at 958.

56. *Id.* at 968 (footnote omitted). The "bad" object-relations to which Radin made reference might be described as psychologically unhealthy fetishes for objects.

personal property, while applying only a liability rule "to regulation of one's use of fungible property."<sup>57</sup> She then uses a wedding ring as an example of property that might be so bound up with a person's identity as to deserve special protection from any interruption of the person's expectations for that property. For the purposes of this essay, perhaps a family farm is a more appropriate example of personal property than a wedding ring.

If land has been farmed by a family for several generations, the owner's right to use it as she sees fit may be very much bound up in the owner's sense of self. Such a family farm may be personal property while land down the road bought just recently on speculation may be only fungible property for that same person. If we follow Radin's suggested differentiation between property and liability rules, an environmental regulation might be completely unenforceable if it amounts to a non-consensual regulatory taking when applied to the family farm, but the same regulation might be enforceable, subject to payment for a compensable taking, when applied to the fungible land down the road—unless the owner is able to convince a court that speculating in the value of land also is an important part of her concept of self. The government, in adopting a land use regulation, would have no warning of whether the individual landowners who will be subject to the regulation regard their property as personal or fungible. Thus, the government could not engage in any sort of rational behavior when evaluating whether the proposed regulation would be the best choice to maximize society's welfare.<sup>58</sup> Such uncertainty, together with the potential for inconsistency and dishonesty, would make the property law system practically unworkable.<sup>59</sup>

In contrast to the libertarian and utilitarian strains of classical liberal property theory, the personhood perspective on property has not been incorporated into the United States Supreme Court's property jurisprudence.<sup>60</sup> The neo-conservative property rights movement,

---

57. *Id.* at 1005-06. The "property rules" that would protect personal property and the "liability rules" that would protect fungible property are the same rules that were identified by Calabresi and Melamed. Calabresi & Melamed, *supra* note 31, at 1092.

58. See the brief mention of cost-benefit analysis, *infra* note 211.

59. Richard Posner reminds us that, "for people who are averse to risk, uncertainty is a source of disutility." POSNER, *supra* note 27, at 55.

60. Consider the following two excerpts, noted in JAMES E. KRIER & JESSE DUKEMINIER, PROPERTY 1162-63 (3d ed., 1993):

"[J]ust compensation" has been held to be satisfied by payment of market value. . . . Compensation in the constitutional sense is therefore not full compensation, for market value is not the value that every owner of property attaches to his property but merely the value that the marginal owner attaches to *his* property. Many owners are "intramarginal" meaning that because of relocation costs, sentimental attachments, or the

however, draws a great deal of power and momentum from populist outrage over the application of land use controls to family farms, largely because of concerns that reflect the personhood perspective on property. The neo-conservatives point to this outrage as justification for expanding the liability rules that protect individual owners of both personal and fungible land.<sup>61</sup> The purpose and practical effect of expanding the liability rules with taking legislation may be to make many forms of land use regulation too expensive for government to pursue, thereby protecting both personal and fungible property with the functional equivalent of property rules.<sup>62</sup>

---

special suitability of the property for their particular (perhaps idiosyncratic) needs, they value their property at more than its market value (i.e., it is not "for sale"). Such owners are hurt when the government takes their property and gives them just its market value in return. The taking in effect confiscates the additional (call it "personal") value that they obtain from the property, but this limited confiscation is permitted provided the taking is for a public use.

Coniston Corp. v. Village of Hoffman Estates, 844 F.2d 461, 464 (7th Cir. 1988) (Posner, J.).

Because of serious practical difficulties in assessing the worth an individual places on particular property at a given time, we have recognized the need for a relatively objective working rule. . . . The Court therefore has employed the concept of fair market value to determine the condemnee's loss. Under this standard, the owner is entitled to receive "what a willing buyer would pay in cash to a willing seller" at the time of the taking.

United States v. 564.54 Acres of Land, 441 U.S. 506, 511 (1979) (quoting United States v. Miller, 317 U.S. 369, 374 (1943) (citations omitted)).

61. On January 11, 1995, a bill entitled "The Farm, Ranch, and Homestead Protection Act of 1995" was introduced as S. 191, 104th Cong., 1st Sess. (1995). The bill, if enacted into law, would impose moratoria on: (1) new listings of endangered or threatened species; (2) designation of critical habitat; and (3) inter-agency consultation with the United States Fish and Wildlife Service concerning potential effects on endangered and threatened species of proposed federal actions, all until the Endangered Species Act can be reauthorized (and amended). Senator Hutchinson, one of the co-sponsors of the bill, introduced it with the following remarks:

[F]or generations American farmers have worked to provide food, clothing, and shelter to their families. Farmers and ranchers in Texas and throughout the United States have tilled the soil and cleared the rangeland—and, if they had a good year, they might try to put any money left over back into the land to buy more property.

This land is their wealth—their property, which our government was formed to protect.

141 Cong. Rec. S. 790 (daily ed., Jan. 11, 1995) (statement of Sen. Hutchinson). See also *supra* note 15.

62. Cf. Carol M. Rose, *Property Rights, Regulatory Regimes and the New Takings Jurisprudence—An Evolutionary Approach*, 57 TENN. L. REV. 577, 581 (1990) (pointing out that more frequent adjudications of takings, coupled with significant damage awards, might intimidate regulators and "frighten[ ] [them] away from [exercising] their just and proper authority in regulating the use of property").

## II. GREEN PROPERTY

The world wide Green social movement is concerned with many issues besides property law reform, yet public perception of Green political efforts usually focuses on the environmental policies of Greens. Although Green Property takes its name from the Green social movement,<sup>63</sup> the social movement alone did not inspire progressive efforts to reform property law. Many of the scholars, legislators, regulators, and judges who have contributed to the development of Green Property may not have realized at the time of their contributions that they were part of the larger Green movement. But, in a general sense, both the Green social movement and the Green property law reform movement were inspired by the same social conditions.<sup>64</sup> The broader Green social movement and the more narrow Green property law reform movement have evolved on parallel tracks, without very much in the way of conscious cooperative efforts up to this time. Only the passage of time and the clarity of hindsight allow us now to see the framework of the theory that connects the components of the Green property law reform movement to the larger Green social movement.

While Green Property may not be precisely equivalent to Green political views on private property,<sup>65</sup> some important similarities provide the framework for my description of Green Property. Green political views are built around what Greens call their "four pillars."<sup>66</sup> Those four pillars are ecology, social responsibility, grassroots participation in the political process, and nonviolence.<sup>67</sup> Many Greens think that there should

---

63. Byrne, *supra* note 10, at 239.

64. For a representative history of the environmental movement in the United States, see PHILIP SHABECOFF, *A FIERCE GREEN FIRE: THE AMERICAN ENVIRONMENTAL MOVEMENT* (1993).

65. Members of The Greens/Green Party USA have a statement of policy positions, entitled "The Green Program: An Evolving Vision." The Program includes chapters on biological diversity and animal liberation, economics, energy, indigenous people, land use, materials and waste management, and water and air, all of which are relevant to the subject of this article, in varying degrees. I do not speak on behalf of The Greens/Green Party USA in this essay. A comparison of Green Property and the positions of The Greens/Green Party USA will reveal many similarities, but also will reveal that the Green Program covers much wider concerns than just property law issues. American Greens' positions on some property rights issues might be somewhat different than the positions that I am including in my description of Green Property.

66. CHARLENE SPRETNAK & FRITJOF CAPRA, *GREEN POLITICS: THE GLOBAL PROMISE* 29-43 (1986). I will discuss the influence of ecological principles on Green Property in considerable depth in this portion of this essay, because the ecological base of Green Property supports the other principles. Such an in-depth discussion of the other three pillars of Green politics and their Green Property counterparts is beyond the scope of this essay, so I merely will summarize the Green Property positions on social responsibility, grassroots community involvement, and non-violence.

67. *Id.*

be a fifth pillar as an organizing principle of Green political thought: decentralization of decision-making.<sup>68</sup> I will describe Green Property by reference to the parallels between Green Property and the pillars of Green political thought.

The Greens' four pillars are linked by their relation to ecology. Ecology's emphasis on interdependence provides a scientific and moral basis for defining our responsibility to society with respect to property ownership. As a matter of human nature, some individuals will not observe their social responsibility when using their private property. The free market sometimes will provide a means by which other members of society might correct the problems.<sup>69</sup> But, when the free market fails to correct for an individual's ignorance or denial of social responsibility, the rest of society must act collectively through government to regulate the use and enjoyment of private property.<sup>70</sup> A regulation produced by the political process is most likely to reflect an equitable vision of social responsibility if all citizens who will be affected by the regulation have access to the political process through grassroots participation. Effective political participation by diverse groups of citizens also minimizes the risk that the property laws will be oppressive with respect to one or more groups of citizens, which in turn minimizes the risk of violence in society generally. All of these related principles of Green Property spring from ecology's emphasis on interdependence.

Green Property thus provides one possible answer to my question about the role of property law in addressing today's salient environmental problems: The role of property law in the effort to find a sustainable balance between humans and their environment is to reflect the need to protect the integrity of land communities in the tension between individual

---

68. *Id.* at 47-48. Greens' emphasis on decentralization of decision-making parallels Green Property theorists' approach of (1) recognizing the existence of land communities, and (2) trying to make value choices at the level of political communities that most closely correlate to the boundaries of the land communities through use of ecosystem-based management of resources. The decentralization principle flows from Green Property's focus on ecology and ecosystems so I will discuss the decentralization principle as part of the in-depth discussion of Green Property and ecology.

69. *Cf., e.g.,* Robert C. Ellickson, *Alternatives to Zoning: Covenants, Nuisance Rules, and Fines as Land Use Controls*, 40 U. CHI. L. REV. 681, 711-19 (1973) (evaluating privately negotiated agreements as possible alternatives to zoning, as a means to address negative externalities in land development). *See also* the discussion of the Coase Theorem, *supra* notes 25-30 and accompanying text.

70. The view that regulation is an appropriate response to free market imperfection is a classic Pigouvian approach to welfare economics. The standard neo-conservative reply is that regulation sometimes creates more problems than it solves. *E.g.,* Coase, *supra* note 25, at 28-29. *See also* POSNER, *supra* note 27, at 369 (considering the relative advantages and disadvantages of direct regulation and regulation through common law liability schemes).

autonomy and community interests. The Green view of property law, described below, illustrates how property law can fill that role.

### A. Ecology: The First Green Pillar (and the Cornerstone)

The Greens' first pillar—ecology—is the principle that most clearly distinguishes Green Property from classical liberal property theory. The “first law of ecology,” and the most fundamental ecological principle for purposes of a property rights regime, is that each thing in our biosphere is connected to every other thing.<sup>71</sup> Most of the other important principles of Green Property flow from this first principle. Ecological principles are recognized and incorporated in Green Property in at least the following four areas of scholarship: (1) environmental ethics; (2) decentralized, ecosystem-based resource management; (3) integrated environmental policies and pollution controls; and (4) the precautionary principle. The first of the four areas deals with the theoretical side of ecological principles. The last three areas of scholarship explore ways to put ecological principles into practice within our legal system.

#### 1. Basing a Property Law Regime Upon Ecology

Green Property embraces the notion that while land is permanent we humans are just passing through the world as temporary stewards of the land.<sup>72</sup> In our role as stewards, we become members of land communities.

---

71. See *supra* note 22 and accompanying text.

72. See, e.g., Lynton K. Caldwell, *Land and the Law: Problems in Legal Philosophy*, 1986 U. ILL. L. REV. 319, 325-35 [hereinafter Caldwell, *Problems in Legal Philosophy*]; Lynton K. Caldwell, *Rights of Ownership or Rights of Use?—The Need for a New Conceptual Basis for Land Use Policy*, 15 WM. & MARY L. REV. 759, 766 (1974); Freyfogle, *Ownership and Ecology*, *supra* note 13, at 1290; Hunter, *supra* note 13, at 319. But see STEPHEN JAY GOULD, EIGHT LITTLE PIGGIES: REFLECTIONS IN NATURAL HISTORY 48-49 (1993).

I don't know that paleontology has a great deal to offer, but I would advance one geological insight to combat a well-meaning, but seriously flawed (and all too common), position and to focus attention on the right issue at the proper scale. Two linked arguments are often promoted as a basis for an environmental ethic: 1. We live on a fragile planet now subject to permanent derailment and disruption by human intervention; 2. Humans must learn to act as stewards for this threatened world. Such views, however well intentioned, are rooted in the old sin of pride and exaggerated self-importance. We are one among millions of species, stewards of nothing. By what argument could we, arising just a geological microsecond ago, become responsible for the affairs of a world 4.5 billion years old, teeming with life that has been evolving and diversifying for at least three-quarters of this immense span. Nature does not exist for us, had no idea we were coming, and doesn't give a damn about us. . . . We can surely destroy ourselves, and take many other species with us, but we can barely dent bacterial diversity and will surely not remove many million species of insects and mites. On geological scales, our

We also become members of various political communities by virtue of our title to or presence on the land.<sup>73</sup> The privileges and duties of our stewardship are defined in large part by the natural laws of the land communities and by the then-prevailing rules of the political communities in which we become members.<sup>74</sup> The rules of each political community will reflect the expectations that the community considers reasonable and worthy of protection under the community's legal system, for common property as well as private property.<sup>75</sup>

The rules of the land communities do not change over time because they are laws of nature.<sup>76</sup> Our understanding of nature's laws may improve over time but the basic rules of nature are fixed and unchanging.<sup>77</sup>

---

planet will take good care of itself and let time clear the impact of any human malfeasance.

*Id.* Gould's point illustrates a difference in perspectives between (1) ecologists who think of humans as just another species in the biosphere, and (2) ecologists who think of humans as having special rights and responsibilities, as a consequence of humans' unique ability to consciously control their own impact on their surroundings, within limits. See discussion of the distinction between deep ecology and social ecology, *infra* notes 98-101 and accompanying text.

73. We become members of several political communities, ranging outward from our nuclear family to the neighborhood in which we live, to the municipality in which we live, and so on. *E.g.*, RODERICK FRAZIER NASH, *THE RIGHTS OF NATURE* 4-5 (1989). Each of these levels of community will have its own rules for protecting reasonable expectations of property owners and for resolving disputes between parties with conflicting expectations.

74. *E.g.*, Caldwell, *Problems in Legal Philosophy*, *supra* note 72, at 320-23.

75. See *infra* notes 182-92 and accompanying text for a discussion of the community's role in defining property rights according to the reasonableness of expectations.

Harold Demsetz described the distinctions between public, common, and private property. Harold Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347, 354-57 (1967). Demsetz used the terms state ownership, communal ownership, and private ownership to denote the three forms of property. *Id.* at 354. Carol Rose notes that "the goods that we consider environmental usually belong to a kind of natural commons." Carol M. Rose, *Given-ness and Gift: Property and the Quest for Environmental Ethics*, 24 ENVTL. L. 1, 5 (1994) (footnote omitted). Current American environmental law is just the subset of general property law that deals primarily with conflicts between (1) the expectations of private property owners, and (2) the expectations of other citizens for common property that might be affected by use of the private property. Our approaches to resolving those conflicts are grounded in the principles of general property law. This is why we must shift from a classical liberal view of general property law to a Green view. The responsibilities of common and private property owners to the rest of society are explored in the discussions of social responsibility and grassroots politics, *infra* notes 181-246 and accompanying text.

76. Hunter, *supra* note 13, at 314-16. *But see* Byrne, *supra* note 10, at 244 n.8. Byrne questions Hunter's assertion that natural laws provide an objective guide for land use laws because the process of land use control involves the prioritizing and ranking of human values. Byrne's concern and Hunter's original assertion can be reconciled if one notes that the human value choices about which Byrne wrote must account for nature's constraints when those value choices are made and by whatever process they are made.

77. Fred P. Bosselman and A. Dan Tarlock provide an excellent description of how our understanding of nature's laws may improve over time in *The Influence of Ecological Science on American Law: An Introduction*, 69 CHI.-KENT L. REV. 847 (1994). Bosselman and Tarlock describe

Robert Hazen and James Trefil, authors of *Science Matters: Achieving Scientific Literacy*,<sup>78</sup> reflect upon these laws of nature as follows:

[W]e are confronted daily with issues that involve science and technology . . . . In the coming decades every American is going to need a basic grounding in science if he or she expects to come to informed opinions about all sorts of national issues. . . .

The idea that there is such a thing as scientific literacy . . . implies that there is a body of knowledge that can, in principle, be written down, the mastery of which guarantees the literacy of the learner. For the last several years we have been devoting a lot of time to thinking about precisely what this body of knowledge is—what every citizen really needs to know about science. What we have found is that . . . [e]very fact about the natural world can, ultimately, be traced back to a small number of general principles. Call them Laws of Nature, if you like, or Great Ideas, as we do. We count 18 of them . . . . [W]e think of nature as being something like a spider web, with these ideas at the center. No matter where you start on the web, no matter what aspect of nature you examine, sooner or later you will find yourself back at the center, dealing with one or more of the great organizing principles of science. . . .

[T]he entire biosphere is interconnected . . . . [W]e can't change one thing without changing another. This, in our view, is the central Great Idea of ecology.<sup>79</sup>

Judy Meyer describes "five current ecological concepts that are relevant to the field of environmental law" in her recent article, *The Dance of Nature: New Concepts in Ecology*.<sup>80</sup> One of those concepts is that:

Linkages are extensive in the landscape . . . . Ecosystem processes are affected by events in other ecosystems . . . . Species populations in

---

the historical development of the science of ecology, including the recent paradigmatic shift from a belief that ecosystems tend toward a balanced "climax" state to a belief that ecosystems are always dynamic and always changing. *Id.* at 869. See *infra* notes 110-14 and accompanying text for more discussion of this paradigmatic shift.

78. ROBERT M. HAZEN & JAMES TREFIL, *SCIENCE MATTERS: ACHIEVING SCIENTIFIC LITERACY* (1991).

79. Robert M. Hazen & James Trefil, *Ecological Literacy: Exploring the Web of Knowledge*, NATURE CONSERVANCY, July-August 1991, at 26. The other Great Ideas that Hazen and Trefil have identified as being relevant to issues of natural resource consumption are that: (1) the geological features of the Earth's surface are not permanent; (2) materials cycle through the Earth's systems, with individual atoms of elements remaining on the Earth in some form, or some combination with other elements, forever; and (3) life forms evolve through the mechanism of natural selection. *Id.*

80. Judy Meyer, *The Dance of Nature: New Concepts in Ecology*, 69 CHI.-KENT L. REV. 875 (1994).

different habitats are connected . . . . Our history . . . has taught us that activities in one part of the landscape greatly influence other parts. . . . [I]t is critical to assess the strength of connections between ecosystems and to understand the linkages and processes controlling those connections. . . . *Our laws need to recognize these natural connections in the landscape.*<sup>81</sup>

Hazen's and Trefil's "Great Ideas of Science," also known as the laws of nature, are laws that we cannot change by legislative, executive, or judicial action. The laws of nature do not reflect any human value choices. Whether we like them or not, we must live within the constraints imposed by nature.<sup>82</sup> Due to the immutability of natural laws, we must structure our system of property laws in ways that account for the laws of nature.<sup>83</sup> Donald Elliott, voicing a common opinion among scholars who are dissatisfied with current approaches to environmental regulation, has written that we need a new ecological approach to regulation—an approach that will recognize how phenomena evolve together in markets and that will use regulatory methodologies that take advantage of the process of co-evolution.<sup>84</sup> The rest of our property law system needs to be more

---

81. *Id.* at 883 (emphasis added). The other four major ecological concepts that Meyer identifies as being relevant to environmental law are: (1) "natural systems are open and continuously changing; they are not at equilibrium"; (2) "indirect effects can be as significant as direct effects in natural systems"; (3) "populations [of individual species] usually show the first sign of environmental stress"; and (4) "organisms not only adapt to the environment, they modify it." *Id.* at 875-85.

82. Hunter, *supra* note 13, at 314-16.

83. For example, Margaret Jane Radin criticizes the classical liberal regulatory takings doctrine because it relies too much on conceptual severance of property rights (i.e. conceptually separating the right to use property in a certain way from the right to exclude others from possession of that property, the right to profit from use of that property, the right to dispose of one's interest in that property, and so on). Radin, *supra* note 20 at 1676-78. A focus on a single severed property right will produce a different dynamic in regulatory taking analysis than if the focus remains on the entire bundle of property rights, as affected by regulation of only one strand in the bundle. *Id.* If the institution of property law recognizes and incorporates the first law of ecology, then our regulatory taking doctrine would make sparing, if any, use of conceptual severance. See also John G. Sprankling, *An Environmental Critique of Adverse Possession*, 79 CORNELL L. REV. 816, 816 (1994) (observing that adverse possession laws, currently based on classical liberal principles, encourage development and exploitation of "wild" land and discourage preservation of such land in its natural condition).

84. E. Donald Elliott, *Foreword: A New Style of Ecological Thinking in Environmental Law*, 26 WAKE FOREST L. REV. 1, 8 (1991) ("The 'ecological approach' counsels strongly in favor of relying on information and market-based economic incentives as methods of achieving environmental protection where possible.") (footnote omitted). See also Freyfogle, *Ethical Strands of Environmental Law*, *supra* note 13, at 837.

ecologically conscious, too, so that it can co-evolve with our understanding of the laws of nature.<sup>85</sup>

The change to a more ecological, co-evolutionary system of property law should start with the philosophy that underlies the system.<sup>86</sup> The evolution of property law has reached a point where we must re-examine the ethics that provide the foundation of our attitudes about property.<sup>87</sup> Examination of our sense of right and wrong, with respect to our relationship to the world in which we live, is the first step toward gaining an ecological perspective on property law issues.

## 2. Environmental Ethics

The most well-known description of an environmental ethic, at least in the American property law tradition, comes from Aldo Leopold's essay, *The Land Ethic*. In 1947, Leopold wrote:

An ethic may be regarded as a mode of guidance for meeting ecological situations so new or intricate, or involving such deferred reactions, that the path of social expediency is not discernible to the average individual. . . . All ethics so far evolved rest upon a single premise: that the individual is a member of a community of interdependent parts.

---

85. Daniel Farber suggests that our regulatory machinery needs to be retooled, in order to build in a dynamic learning process. Daniel A. Farber, *Environmental Protection as a Learning Experience*, 27 LOY. L.A. L. REV. 791, 801-06 (1994). Dan Tarlock refers to the proposed new regulatory style as "adaptive management," which involves cyclical processes of trials, monitoring, and feedback. A. Dan Tarlock, *The Nonequilibrium Paradigm in Ecology and the Partial Unraveling of Environmental Law*, 27 LOY. L.A. L. REV. 1121, 1139-40 (1994). "All resource management is an ongoing experiment," according to Tarlock. *Id.* at 1139. See also Lee P. Breckenridge, *Reweaving the Landscape: The Institutional Challenges of Ecosystem Management for Lands in Private Ownership*, 19 VT. L. REV. 363, 373 (1995) (advocates the use of adaptive management to address problems of scientific uncertainty). Farber, Tarlock, and Breckenridge appreciate the need for our property law system to be flexible enough to change as our understanding of scientific principles grows.

86. *E.g.*, Brooks, *supra* note 13, at 14-16; David J. Willis, *Ecophilosophy and Natural Law*, 12 J. ENERGY NAT. RESOURCES & ENVTL. L. 419, 422-23 (1992). See generally Donald A. Brown, *After the Earth Summit: The Need to Integrate Environmental Ethics Into Environmental Science and Law*, 2 DICK. J. ENVTL. L. & POL'Y 1 (1992).

87. See, *e.g.*, Large, *supra* note 13, at 1081-82; Hunter, *supra* note 13, at 317-19; Byrne, *supra* note 10, at 244-45; Brooks, *supra* note 13, at 14-15; Freyfogle, *Ownership and Ecology*, *supra* note 13, at 1270-71; Sax, *supra* note 13, at 1451; Willis, *supra* note 86, at 427-29. But see Tarlock, *supra* note 85, at 1123, 1136-37:

Science, not ethics, is the ultimate source of environmental law's legitimacy given its continuing contingent state and the need to harmonize its objectives with the individualistic Western legal tradition that promoted radically different values from those of environmentalism.

*Id.* at 1123 (footnote omitted).

. . . The land ethic simply enlarges the boundaries of community to include soils, waters, plants, and animals, or collectively, the land.<sup>88</sup>

The Land Ethic was the product of over a quarter of a century of thinking and writing about environmental ethics by Leopold.<sup>89</sup> Many other scholars undoubtedly considered some of the same ideas as Leopold before he articulated his land ethic, but no one articulated such a unified perspective prior to *A Sand County Almanac*.<sup>90</sup> Scholars in the field of environmental ethics have recognized Leopold as "a prophet in the evolution of a new relationship between man and land . . ." <sup>91</sup> Property scholars, too, appear to regard Leopold as an important figure in the search for a proper description of the relationship between humans and other members of land communities.<sup>92</sup>

The rules that we choose for guidance when we meet new or intricate ecological situations will be influenced greatly by how we see our place in the world around us. We might view ourselves as the dominant species and conquerors of the rest of Creation, or we might view ourselves as just one of many species that inhabit the planet. Such issues of orientation are of critical importance, so I will consider them first before I return to Leopold and his effort to articulate a rational mode of guidance for meeting new ecological situations.

---

88. LEOPOLD, *supra* note 9, at 203-04.

89. NASH, *supra* note 73, at 66-69.

90. *Id.* at 68-69.

91. Susan L. Flader, *Aldo Leopold's Sand Country*, in COMPANION TO A SAND COUNTY ALMANAC: INTERPRETIVE & CRITICAL ESSAYS 40 (J. Baird Callicott ed., 1987).

92. Byrne, *supra* note 10, at 243; Caldwell, *Problems in Legal Philosophy*, *supra* note 72, at 329; Eric T. Freyfogle, *The Land Ethic and Pilgrim Leopold*, 61 U. COLO. L. REV. 217 (1990) [hereinafter Freyfogle, *Land Ethic and Pilgrim Leopold*]; Eric T. Freyfogle, *On the Trail of the Land Ethic*, 1992 U. ILL. L. REV. 913 (book review); Hunter, *supra* note 13, at 317; James P. Karp, *Aldo Leopold's Land Ethic: Is An Ecological Conscience Evolving in Land Development Law?*, 19 ENVTL. L. 737 (1989); Charles E. Little, *Has the Land Ethic Failed in America? An Essay on the Legacy of Aldo Leopold*, 1986 U. ILL. L. REV. 313; Gary D. Meyers, *Old-Growth Forests, The Owl, and Yew: Environmental Ethics Versus Traditional Dispute Resolution Under the Endangered Species Act and Other Public Lands and Resource Laws*, 18 ENVTL. AFF. L. REV. 623 (1991). Fred Bosselman recently concluded that Leopold's hope for consensus on a single land ethic has not been realized and probably never will be, because of the pluralistic nature of the American political landscape. The search for Leopold's land ethic "may be futile," according to Bosselman. Bosselman, *supra* note 10, at 1440-41. Instead of a single land ethic, as envisioned by Leopold, Bosselman identifies four ethics of order, reform, responsibility, and opportunity that influence every land use decision in the United States. *Id.* at 1441.

a. Anthropocentrism, Biocentrism, Physiocentrism, and Holism

In a recently published analysis of international efforts to preserve and restore nature,<sup>93</sup> Susan Emmenegger and Axel Tschentscher identify three distinct stages of development in the history of international environmental law—stages that correlate roughly with the incremental expansion of ethics to broader and broader circles, as described by philosophers.<sup>94</sup> The three stages of development also illustrate issues of human orientation toward nature, for ethical purposes.

According to Emmenegger and Tschentscher, the first stage of development in international efforts to preserve and restore nature was motivated by utilitarian recognition that such preservation might be in the best interest of the present generation of humans, so it was anthropocentric, or human-centered, in character.<sup>95</sup> The second stage of development, also anthropocentric, was characterized by recognition that future generations of humans might benefit from the preservation and restoration of nature, too.<sup>96</sup> Emmenegger and Tschentscher assert that international environmental law already has entered a third stage of development. The third stage, which recognizes the intrinsic rights of other living animals and plants as an adequate reason for protecting and restoring nature, regardless of their potential to provide benefits to humans, is biocentric in character.<sup>97</sup> Emmenegger and Tschentscher predict that the next stage of development of international environmental law will include recognition of the intrinsic rights of non-living elements of nature, to which they refer as physiocentrism.<sup>98</sup> Christopher Stone's well known assertion that trees and other natural objects should have standing, for purposes of court challenges to potentially damaging land use proposals, is an example of a physiocentric outlook on the relationship between humans and other components of land communities.<sup>99</sup>

The developmental stages described by Emmenegger and Tschentscher correspond with anthropocentrist, biocentrist, and physiocentrist ethics. In Emmenegger's and Tschentscher's hierarchy of ethical foundations for

---

93. Susan Emmenegger & Axel Tschentscher, *Taking Nature's Rights Seriously: The Long Way to Biocentrism in Environmental Law*, 6 GEO. INT'L ENVTL. L. REV. 545 (1994).

94. Such broadening circles of ethics are addressed in NASH, *supra* note 73, at 4-6.

95. Emmenegger & Tschentscher, *supra* note 93, at 552.

96. *Id.* at 562-63.

97. *Id.* at 568-69. See, e.g., Rose, *supra* note 75, at 19-23, and Freyfogle, *Land Ethic and Pilgrim Leopold*, *supra* note 92, at 243-47 for general discussions of biocentrism.

98. Emmenegger & Tschentscher, *supra* note 93, at 551-52.

99. Christopher D. Stone, *Should Trees Have Standing?—Toward Legal Rights for Natural Objects*, 45 S. CAL. L. REV. 450 (1972).

international protection and restoration of nature, Leopold's land ethic might be regarded as an example of a fourth category: a holistic ethic.<sup>100</sup> Leopold's land ethic anticipates physiocentric concerns and incorporates them with anthropocentric and biocentric concerns, in order to take a holistic approach to land communities.

Anthropocentrism, biocentrism, physiocentrism, and holism provide examples of how our property rules can be motivated by different ethical concerns. If we are motivated to conserve resources primarily because those resources might be useful to us or to future generations of humans, then we are working from an anthropocentric perspective. If, for example, we choose to preserve biodiversity because we think that some genetic material in the global gene pool might be used to cure human suffering or prolong human life someday, then our environmentalism is human-centered, or anthropocentric.<sup>101</sup> The environmental ethic that would drive biodiversity preservation in such a case would be an ethic that grows from a societal sense of duty or responsibility to ourselves and to other humans of present and future generations. Because classical liberal property theorists value land and non-human species for the sake of their contributions to protection of human liberty, happiness, and security, classical liberal property theory is one example of an anthropocentric approach to land and resources.

If, however, we choose to preserve biodiversity because we think that every living component of a land community has intrinsic value and a right to exist, then our environmentalism is biosphere-centered, or biocentric. Scholars often divide biocentrists into "social ecologists," who focus on "changing society in order to change our relationship to nature," and "deep ecologists," who "concentrate on the direct relationship between the individual and nature unmediated by society."<sup>102</sup> Animal welfare issues

---

100. Emmenegger & Tschentscher, *supra* note 93, at 550-51; Freyfogle, *Ethical Strands of Environmental Law*, *supra* note 13, at 831.

101. Concern for future generations of humans is less self-centered than concern only for ourselves, but it still is anthropocentric. Emmenegger and Tschentscher, *supra* note 93, at 563. See *infra* notes 193-212 and accompanying text for a brief discussion of the topic of intergenerational equity.

102. E.g., PETER MARSHALL, *NATURE'S WEB: AN EXPLORATION OF ECOLOGICAL THINKING* 403-04 (1992). Murray Bookchin describes social ecology as

the conviction that the very concept of dominating nature stems from the domination of human by human, indeed, of women by men, of the young by their elders, of one ethnic group by another, of society by the state, of the individual by bureaucracy, as well as of one economic class by another or a colonized people by a colonial power. . . . [A]s long as hierarchy persists, as long as domination organizes humanity around a system of elites, the project of dominating nature will continue to exist and inevitably lead our planet to ecological extinction.

Murray Bookchin, *Open Letter to the Ecology Movement*, in *TOWARD ECOLOGICAL SOCIETY* 76-78,

illustrate the difference between social ecologists and deep ecologists. Social ecologists concern themselves with protecting entire species of animals through protection of habitat and similar measures, while deep ecologists focus on protecting each individual member of a species.<sup>103</sup>

One need not be a social ecologist or a deep ecologist to understand and appreciate the science of ecology. An anthropocentrist can appreciate the connections between all of Earth's inhabitants or the finiteness of Earth's resources, without believing that fire ants have the same ethical claim to occupancy of a yard as does a human. A Green understanding of property requires only acknowledgement and incorporation of the laws of nature in our property laws—it does not require a biocentric perspective.<sup>104</sup> My primary complaint against classical liberal property theory is not that it is anthropocentric in character, nor that it puts a higher value on human liberty, happiness, and security than on the rights of nature, but that it denies the interdependence of all components of a land community.

Returning to the biodiversity example, we could be motivated to preserve biodiversity primarily by anthropocentric concerns, or we could be motivated primarily by biocentric concerns. The important point from a Green Property perspective is: if our ethics guide us to pursue a specific goal, such as preserving biodiversity, then we must do so with property laws that recognize and incorporate the laws of nature, i.e., we must take an approach to property law that will allow property law and ecology to

---

82-83 (1980), reprinted in *THE GREEN READER* 59-60 (Andrew Dobson ed., 1991). The differences between social ecologists and deep ecologists are the source of friction within the Green movement. "[S]ocial ecologists criticize deep ecologists for failing to appreciate that ecological problems have their ultimate roots in human society." MARSHALL, *supra*, at 424.

103. Animal rights advocates often are deep ecologists. Douglas O. Lindner, "Are All Species Created Equal?" *And Other Questions Shaping Wildlife Law*, 12 *HARV. ENVTL. L. REV.* 157, 167 (1988). See also *infra* note 117.

104. There is a whole spectrum of perspectives between the different views of anthropocentrism and holism. Green Property needs to make room for people whose "centrism" falls somewhere on that spectrum. If Green Property is viewed as the domain of only the most zealous biocentrists, then it can be dismissed by mainstream property scholars as a lunatic fringe movement of ecofreaks, monkeywrenchers, and treehuggers. The tendency of society to view environmental activists as subversives creates the risk that Green efforts to reform property law can be marginalized. *E.g.*, NASH, *supra* note 73, at 10-12.

Our attitudes about ethics pass through evolutionary stages over time. Stone, *supra* note 99, at 450-56. I would be happy if the institution of American property law would discard classical liberal property theory's ecological ignorance and adopt an anthropocentrically motivated appreciation of ecology for now. Eric Freyfogle observes that a person with anthropocentric, utilitarian views might appreciate the ecological importance of land communities, as long as she adopts a long-term perspective on the meaning of utility. Freyfogle, *Land Ethic and Pilgrim Leopold*, *supra* note 92, at 245. I suspect that intellectual evolution eventually will lead us along the spectrum toward a more holistic perspective on property law, but we never will begin that journey unless we first shed the ecological ignorance of classical liberal property theory.

co-evolve.<sup>105</sup> Such an approach must start with an appreciation of the interdependent relationships between the members of land communities. This appreciation can be found in the science of ecology.

Our views of the role of humans in land communities may be anthropocentric, biocentric, physiocentric, holistic, or somewhere between those benchmarks on the ethical spectrum. Those ethical orientations then will influence our sense of what is right and what is wrong with respect to use and consumption of land and other natural resources. Our collective sense of right and wrong, in turn, will begin to influence American property law when we translate our collective ethical orientation into specific rules to guide our conduct in particular situations. I will turn now to the specific rule that Aldo Leopold proposed to guide our actions within land communities and to an updated version of his rule.

#### b. Updating a Classic: The Land Ethic and Biodiversity

Having explained the purpose of an environmental ethic and having identified himself as coming from a holistic perspective, Leopold suggested his preferred mode of guidance for meeting new and intricate ecological situations: "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise."<sup>106</sup> As simple and elegant as Leopold's land ethic might be, it is based on a somewhat incorrect understanding of biotic communities. When he wrote *The Land Ethic* in 1947, Leopold correctly understood that all members of a land community are connected by a web of interdependent relationships, but he incorrectly assumed that each land community evolves toward a steady state of equilibrium.<sup>107</sup> Influential biologists and ecologists of Leopold's generation theorized that, if undisturbed by external forces, all ecosystems evolve through successive stages until they reach a climax stage, in which every component of an ecosystem is in perfect balance with the rest of the components, and in

---

105. See Meyer, *supra* note 80, at 883.

106. LEOPOLD, *supra* note 9, at 224-25. *But see* MARSHALL, *supra* note 102, at 354-55. Marshall points out that Leopold's statement of a land ethic is full of difficulties, including the artificial conservatism inherent in using standards such as integrity and stability to measure the "rightness" of a land use decision, and also including the subjectivity of using beauty as a standard to measure rightness. *Id.* Marshall's criticism of the integrity and stability standards suggested by Leopold is especially interesting given the shift in the ecological paradigm, as described in Bosselman & Tarlock, *supra* note 77, at 869.

107. Leopold's reliance on the succession theory of ecology in *The Land Ethic* is illustrated by his assertion that "the plant succession steered the course of history; the pioneer simply demonstrated, for good or ill, what successions inhered in the land." LEOPOLD, *supra* note 9, at 207.

which the ecosystem remains until the balance of nature is disrupted by an external stimulus.<sup>108</sup> This "succession theory of ecology" dominated the role of ecology in other disciplines, such as law, for most of the Twentieth Century. Most of the first generation of environmental laws and regulations were created by reference to the succession theory of ecology.<sup>109</sup>

In recent years, ecologists have replaced the succession theory of ecology with a non-equilibrium paradigm, which recognizes that ecosystems are inherently dynamic and unstable. Scientists now theorize that ecosystems never reach a state of climax. Ecosystems actually depend upon periodic and random natural disturbances as they evolve, instead of completely abhorring disturbances.<sup>110</sup> Not all disturbances are healthy for ecosystems. For example, disturbances initiated by humans tend to be different in both qualitative and quantitative dimensions than natural disturbances, making human-initiated disturbances more likely to overwhelm an ecosystem's ability to adapt to change.<sup>111</sup> According to Judy Meyer, "[o]ne important role for [modern] ecological science is to determine natural rates of change . . . ."<sup>112</sup> Knowing something about natural rates of change will allow us to (a) compare human-initiated disturbances to natural disturbances and (b) assess the probable effects of the human-initiated changes on ecosystems. The human-initiated changes then can be managed, as appropriate.<sup>113</sup> The focus in modern ecology thus is on the process of change in an ecosystem, rather than on the mythical climactic end-stage of an ecosystem's evolution.<sup>114</sup>

The paradigm shift in ecology should prompt some rethinking among Green Property proponents. Leopold's land ethic needs to be updated in light of current scientific knowledge. The new ecological paradigm should transform the land ethic from a focus on the stability and beauty of a naturally balanced ecosystem to a focus on an ecosystem's ability to adapt to a natural disturbance. Instead of evaluating land uses and other

---

108. Bosselman & Tarlock, *supra* note 77, at 854-56.

109. *Id.* at 856, 863-68.

110. Meyer, *supra* note 80, at 877. In fairness to Leopold, and in recognition of his brilliance, we should note that he understood that natural disturbances play a role in the evolution of land communities, although he did not articulate the non-equilibrium paradigm as succinctly as Meyer does. Leopold looked mostly at human-induced disturbances in land communities and concluded that "the less violent the man-made changes, the greater the probability of successful readjustment in the [land] pyramid." LEOPOLD, *supra* note 9, at 218-20.

111. Meyer, *supra* note 80, at 882.

112. *Id.* at 883.

113. *Id.* at 882-83.

114. *Id.* at 877.

resource consumption decisions as being either right or wrong, depending upon whether such actions "preserve the integrity, *stability*, and *beauty* of the biotic community,"<sup>115</sup> we should evaluate such resource consumption decisions by reference to whether they preserve the integrity of the processes by which the land community supports itself, as it evolves. Borrowing from both Leopold and Meyer, we could restate the land ethic as follows:

An action is right when it tends to preserve the integrity of a biotic community. An action is wrong when it tends otherwise. An action tends to preserve the integrity of a biotic community when it tends to maintain the ability of each species within that community, as well as the community as a whole, to evolve and change in response to, and to recover from, the necessary and inevitable disturbances that will occur naturally over time.<sup>116</sup>

As measured by this updated land ethic, even some of the most well-intentioned efforts to preserve individual members of species or land communities might be inappropriate.<sup>117</sup> An example of how the updated land ethic might be put into practice is fire suppression on public lands. Many ecosystems, such as longleaf pine forests, evolved as they did only because periodic fires suppressed certain types of competing vegetation. Human efforts to manage such ecosystems by fighting fires may preserve the short-term beauty and stability of such ecosystems, but fire suppression efforts have a negative impact on the long-term integrity of such ecosystems.<sup>118</sup>

---

115. LEOPOLD, *supra* note 9, at 224-25.

116. Meyer, *supra* note 80, at 881; LEOPOLD, *supra* note 9, at 224-25.

117. For example, an unusually harsh winter is one of the inevitable and necessary natural disturbances that forces a regional population of white-tailed deer to co-evolve with the other members of their land community. Compassionate humans, who provide supplemental food to keep individual animals from starving, disrupt the deer's ability to change in response to the disturbance. The supplemental feeding is inappropriate, not because it disturbs the balance of nature by pushing deer population levels out of equilibrium with the habitat's carrying capacity (i.e., wrong as measured by Leopold's land ethic), but because it interferes with the process by which the entire land community and all of its component species—including deer—adapt to the weather-related natural disturbance. Starved and starving deer are not beautiful, and allowing deer to starve may not promote short-term stability in the deer population, but allowing some deer to starve tends to maintain the deer population's long-term stability, and also to maintain the land community's ability to evolve and change in response to the disturbance of the unusually harsh winter. This same example illustrates the difference between deep ecologists, who would feed the starving whitetails, and social ecologists, who would allow deer to starve, if that was the proper way to preserve the integrity of the land community.

118. Meyer, *supra* note 80, at 878; Norah Deakin Davis, *The Elusive Ecosystem*, 45 NATURE CONSERVANCY, March/April 1995, at 8, 8-9 (describing the use of fire as an ecosystem management tool for longleaf pine forests at Eglin Air Force Base in Florida). See also U.S. Department of

The more genetically diverse an ecosystem is, the more resilient it will be when disturbed.<sup>119</sup> Preserving biological diversity will tend to maintain the ability of a land community to evolve and change in response to natural disturbances and to recover from natural disturbances.<sup>120</sup> Thus, preservation of biological diversity is a logical extension of the updated land ethic.<sup>121</sup> A branch of biology, called conservation biology, has been built around the goal of preserving biological diversity.<sup>122</sup> One method of achieving the goal of conservation biology is to manage human-initiated changes to ecosystems "based on some understanding of ecosystems and aimed at protecting whole [land] communities or habitat mosaics . . ."<sup>123</sup>

Interior and U.S. Department of Agriculture Interagency Steering Group, Draft Report on Federal Wildland Fire Management Policy and Program Review, 60 Fed. Reg. 32,485 (1995) (recognizing, among other things, that fire plays a natural role in maintaining healthy ecosystems). Cf. Dennis H. Knight, *The Yellowstone Fire Controversy*, in *THE GREATER YELLOWSTONE ECOSYSTEM: REDEFINING AMERICA'S WILDERNESS HERITAGE* 87-103 (Robert B. Keiter & Mark S. Boyce, eds., 1991) (describing the debate about whether to suppress naturally occurring forest fires in Yellowstone National Park, following the extensive fires that burned in the Park in the summer of 1988).

Ironically, Aldo Leopold died in 1948 while trying to help a neighbor suppress a brush fire. His essay, *The Land Ethic*, was published after his death as part of *A Sand County Almanac*, under the supervision of his son, Luna Leopold. *COMPANION TO A SAND COUNTY ALMANAC: INTERPRETIVE & CRITICAL ESSAYS* 3 (J. Baird Callicott ed., 1987).

119. Meyer, *supra* note 80, at 881.

120. Breckenridge, *supra* note 85, at 371-72.

121. The last word in ignorance is the man who says of an animal or plant: "What good is it?" If the land mechanism as a whole is good, then every part is good, whether we understand it or not. If the biota, in the course of aeons, has built something we like but do not understand, then who but a fool would discard seemingly useless parts? To keep every cog and wheel is the first precaution of intelligent tinkering.

Aldo Leopold, *The Round River*, in *A SAND COUNTY ALMANAC AND ESSAYS ON CONSERVATION FROM ROUND RIVER* 190 (Sierra Club/Ballantine ed., 1970). Note that preservation of biological diversity serves anthropocentric, biocentric, physiocentric, and holistic purposes. No matter where one's ethical orientation falls on the spectrum of "-centrisms," preservation of biodiversity through preservation of land communities should be an important goal of property and environmental laws.

122. Conservation biology is an applied science. Conservation biologists do not study flora and fauna purely for the sake of gaining knowledge about the natural world. Conservation biologists start with a goal—preserving biological diversity—and then seek ways to accomplish that goal. Reed F. Noss, *Some Principles of Conservation Biology, As They Apply to Environmental Law*, 69 *CHI.-KENT L. REV.* 893, 895 (1994). Noss provides a list of general principles of conservation biology, a list of bioserve design principles that flow from conservation biology, and a list of management principles taken from conservation biology to guide the implementation of ecosystem management policies. *Id.* at 898-907. Noss's principles illustrate both the conceptual foundation and the potential role of conservation biology.

123. *Id.* at 904; Mike Bader, *The Need for an Ecosystem Approach for Endangered Species Protection*, 13 *PUB. LAND L. REV.* 137, 142-43 (1992).

This approach to resource management has acquired the label of "ecosystem management."<sup>124</sup>

### 3. Bioregionalism and Decentralized, Ecosystem-based Resource Management

Consideration of environmental ethics illuminates and informs the ecological theory underlying Green Property. Decentralized management of human activities within ecosystems represents one application of that theory.<sup>125</sup> Decentralized management of the economy and the environment is a central theme in Green politics. An extreme version of decentralization is known as "bioregionalism," in which zealous Greens advocate redrawing political borders along the boundaries of ecosystems to create small, self-sustaining communities.<sup>126</sup> One idea behind decentralization and bioregionalism is a belief that people in smaller communities are more likely to know and respect each other, leading Greens to predict that those people also are more likely to observe their social responsibilities in the use of private property, more likely to participate in policy-making functions of the community at a grassroots level, and less likely to be violent to each other.<sup>127</sup> All of these public virtues arise from a shared sense of interdependence, which Greens view

124. The brief discussion of ecosystem management that follows is not meant to be a thorough treatment of the subject. For more detailed explanations of the principles of ecosystem management, see Robert B. Keiter, *An Introduction to Ecosystem Management*, in THE GREATER YELLOWSTONE ECOSYSTEM: REDEFINING AMERICA'S WILDERNESS HERITAGE 3 (Robert B. Keiter & Mark S. Boyce, eds., 1991); George Francis, *Ecosystem Management*, 33 NAT. RESOURCES J. 315 (1993); R. Edward Grumbine, *What is Ecosystem Management?*, 8 CONSERVATION BIOLOGY 27 (1994); William M. Lewis, Jr., *The Ecological Sciences and the Public Domain*, 65 U. COLO. L. REV. 279 (1994); Robert B. Keiter, *Beyond the Boundary Line: Constructing a Law of Ecosystem Management*, 65 U. COLO. L. REV. 293 (1994); Robert B. Keiter, *Conservation Biology and the Law: Assessing the Challenges Ahead*, 69 CHI.-KENT L. REV. 911 (1994) [hereinafter Keiter, *Conservation Biology and the Law*]; Breckenridge, *supra* note 85.

125. See, e.g., Daniel A. Farber, *Environmental Protection as a Learning Experience*, 27 LOY. L.A. L. REV. 791, 798-801 (1994) (decentralizing environmental decision-making and structuring federal regulatory agencies as dynamic, rather than static, centers of environmental learning are the two best ways to improve environmental regulation; two possible forms of decentralization are partial reliance on markets and partial reliance on environmental federalism).

126. Kirkpatrick Sale, *Mother of All*, in SATISH KUMAR, THE SCHUMACHER LECTURES 224-34, 245-48 (1974), reprinted in THE GREEN READER 77-83 (Andrew Dobson ed., 1991).

127. For a discussion of the link between land ownership and social responsibility, noting the breakdown in social responsibility that occurs when absentee ownership becomes common, see Eric T. Freyfogle, *Land Use and the Study of Early American History*, 94 YALE L.J. 717, 734-35 (1985) (reviewing JAMES CRONON, CHANGES IN THE LAND: INDIANS, COLONISTS, AND THE ECOLOGY OF NEW ENGLAND (1983)).

as being more apparent in small, self-sustaining communities.<sup>128</sup> Other Green justifications for decentralization include: (1) small communities can rely upon sustainable agriculture, making factory-style farming—along with its ruinous effects on the environment—obsolete; (2) small communities give citizens meaningful opportunities to exercise individual liberties by actually participating in community life; and (3) small communities use less energy for transportation and other public services.<sup>129</sup>

#### a. Community-Based Federalism

Richard Brooks uses the term “community-based federalism” to describe another form of decentralized management of environmental policy.<sup>130</sup> Brooks suggests that we transfer regulatory power from a national level to state and local levels by making our legal system “responsive rather than repressive.”<sup>131</sup> The advantages of a responsive legal system, according to Brooks, include an increased emphasis on purpose in legal reasoning.

Purpose makes legal obligation more problematic, thereby relaxing law's claim to obedience and opening the possibility of a less rigid and more civil conception of public order . . . . As law gains openness and flexibility, legal advocacy takes on a political dimension, generating forces that help correct and change legal institutions . . . .<sup>132</sup>

A move to a responsive system of environmental management would lead us away from rigid adherence to, and enforcement of, centrally promulgated regulations. A responsive system would move us toward “establishing a regime of cooperative regulations, indirect incentives for compliance, and the creation, within other organizations, of the willingness and capacity to be environmentally responsible.”<sup>133</sup> The “other organizations” would include state and local governments, newly created bio-regional units, corporations, labor unions, universities, land trusts, watershed councils, and other mediating, “non-governmental institutions

---

128. Sale, *supra* note 126, at 81.

129. Edward Goldsmith et al., *A Blueprint for Survival*, in *THE GREEN READER* 73 (Andrew Dobson ed., 1991).

130. Brooks, *supra* note 13, at 21.

131. *Id.*

132. *Id.* at 22.

133. *Id.*

[that] can better implement national policies than government regulation bearing directly upon the individual."<sup>134</sup>

Brooks' vision of community-based federalism, in which power is shared by the national government with state and local governments and with private, mediating institutions, is not as revolutionary as the radical Greens' vision of bioregionalism, but it shares some common elements with bioregionalism. The first shared characteristic is that the legal system would draw a large measure of its legitimacy from more careful consideration of the purposes of environmental law. The purposes would flow from our understanding of ecological principles and the ethic that we adopt for guidance in meeting new ecological situations. A second shared characteristic is that the legal system would continue to draw authority and legitimacy from grassroots participation of citizens in the process by which environmental policies are implemented, monitored, evaluated, and adjusted over time. With both bioregionalism and community-based federalism, mediating institutions would play important roles as conduits for citizen participation in the governing process. A third shared characteristic is the emphasis on social responsibility. The Greens' second pillar corresponds to what Brooks calls a "willingness and capacity [within non-governmental organizations] to be environmentally responsible."<sup>135</sup>

#### b. Ecosystem Management

Bioregionalism's emphasis on using ecosystems to define communities is reflected to some degree in the newly emerging discipline of ecosystem management. As mentioned earlier, ecosystem management is a tool of conservation biologists, used to preserve biodiversity. Ecosystem management is a responsive, rather than repressive, form of land use management. As with Brooks' formula for a responsive system of land use management, the purpose—preserving biodiversity—provides the legitimacy for ecosystem management policies. To the extent that discrete ecosystems can be identified, the updated version of Leopold's land ethic could be the guiding principle of land use regulation within an ecosystem management plan.<sup>136</sup> If a land use tends to maintain the ability of each species within the ecosystem in which the land is located, together with that ecosystem as a whole, to evolve and change in response to, and to recover from, natural disturbances, then we will permit (and maybe

---

134. *Id.* at 24. The full list of "other organizations" is culled from *id.* at 18-24.

135. *Id.* at 22.

136. *Cf. Byrne, supra* note 10, at 243 (advocating adoption of Leopold's original land ethic for this purpose).

encourage) that land use. A land use will not be permitted if it tends otherwise.

We need to be able to identify the potential ripple effects of a proposed land use, in order to determine whether it will be permitted under the updated land ethic. In utilitarian terms, we need to be able to measure the potential social costs of a proposed land use. Accounting for those costs will require us to consider the effects of the proposed land use on the entire land community, including the effects on non-human components of the land community. This, in turn, requires us to be able to identify the boundaries of the relevant land community.

An ecosystem-based approach to land use regulation may not work well, unless we can identify at least the rough boundaries of the relevant ecosystem for each land use. The task of identifying the boundaries of ecosystems is made difficult by the reality that ecosystems overlap, and some ecosystems are nested within others.<sup>137</sup> Allan Fitzsimmons is extremely critical of the concept of ecosystem management, largely due to the inherent difficulties of defining ecosystem boundaries.<sup>138</sup> The difficulties are not insurmountable, however, as Lee Breckenridge explains:

Ecosystem management requires selecting a relevant scale of analysis, without overlooking the interconnections with phenomena at other scales . . . . [S]ome goals, such as saving an endangered species peculiar to one location . . . require detailed management of a small area, while other aims, such as forestalling changes in climate or weather patterns, might require a consideration of continental or global phenomena.<sup>139</sup>

Identification of relevant ecosystems thus involves making value choices.<sup>140</sup> In order to select a relevant scale of analysis, we need to choose the values that are to be served by the ecosystem management plan. Preserving biodiversity—the overall goal of conservation biology—is such a broadly stated value that it provides little practical guidance for the design of

---

137. Breckenridge, *supra* note 85, at 374.

138. ALLAN K. FITZSIMMONS, *FEDERAL ECOSYSTEM MANAGEMENT: A "TRAIN WRECK" IN THE MAKING* (Cato Institute, 1994).

139. Breckenridge, *supra* note 85, at 374-75 (footnotes omitted); Duncan T. Patten, *Defining the Greater Yellowstone Ecosystem*, in *THE GREATER YELLOWSTONE ECOSYSTEM: REDEFINING AMERICA'S WILDERNESS HERITAGE* 19 (Robert B. Keiter & Mark S. Boyce, eds., 1991).

140. The role of government in making value choices is addressed in the discussions of social responsibility and grassroots participation later in this article. See *infra* notes 181-246 and accompanying text.

ecosystem management plans. In any given situation, the broad goal of preserving biodiversity must be restated in more specific terms, in order for us to first select a relevant scale of analysis and then design an ecosystem management plan. This contextual perspective will help us choose appropriate ecosystem boundaries for management purposes.

As further evidence that choosing ecosystem boundaries is not an insurmountable problem, one might note that ecosystem-based management is not an entirely new idea in the regulation of human interaction with nature. The common law doctrine of riparian rights in surface water and various common law doctrines regarding the use of groundwater are examples of ecosystem-based common law property rules.<sup>141</sup> The use of air quality control regions in the National Ambient Air Quality Standards of the Clean Air Act is an example of an existing regulatory program that recognizes ecosystem boundaries.<sup>142</sup> A feature of each of these doctrines or programs is that they factor humans and human economic activity into the ecosystem. This is an important principle of ecosystem management: management plans should assume that humans are present and active in the ecosystem, just like any other species.<sup>143</sup> Ecosystem management should allow humans to make a living and otherwise perpetuate our species, subject to the constraint that our activities must not threaten the integrity of the entire ecosystem. We must balance human needs with the needs of the rest of the ecosystem, in the process of making value choices for the ecosystem management plan.<sup>144</sup>

Our processes for making environmental value and policy choices need to (1) recognize the existence of land communities, and (2) make those choices at a governmental level for which the political boundaries

---

141. In each case, society identified values—protecting access to certain quantities of water, of a certain quality in some cases, to be taken from bodies of surface water or from underground aquifers—that allowed selection of a relevant scale of analysis (watersheds or aquifers) and, in turn, allowed selection of appropriate boundaries for judicially created resource management plans. The natural flow version of the riparian rights doctrine, as applied to any specific case, is an example of such a judicially created resource management plan.

142. The ecosystems, for Clean Air Act purposes, are defined by reference to airsheds (air quality control regions, in administrative parlance). 42 U.S.C. §§ 7401-7671 (1988 & Supp. 1993). We, acting through Congress, identified a value—protection of air quality for the sake of human health—that allowed the Environmental Protection Agency (EPA) to select a relevant scale of analysis (airsheds) and, in turn, allowed EPA to select appropriate boundaries within which states may develop management plans. For a review of other national and international efforts to implement ecosystem management principles, see Breckenridge, *supra* note 85, at 380-82.

143. Breckenridge, *supra* note 85, at 376-77.

144. Here is an example of how Green Property provides an answer to the rhetorical question about the role of property law, with which I began this essay. Ecosystem management plans reflect the need to protect the integrity of land communities in the tension between individual autonomy and community interests.

most closely correlate with the boundaries of the land communities that will be affected by the choices. Sometimes, Greens might suggest that new political communities, such as water quality protection districts or sanitary sewer districts, be organized. Or, Greens might suggest that existing political boundaries be redrawn. The realignment of existing political boundaries even might take the form of new styles of governance, such as public/private partnerships, rather than actual redistricting.

The potential advantages and disadvantages of a shift to ecosystem management are illustrated with a brief look at one federal regulatory initiative.<sup>145</sup> In March, 1994, the Directorate of the United States Fish and Wildlife Service (FWS) notified all FWS employees that the Service was adopting an ecosystem approach to fish and wildlife conservation decisions.<sup>146</sup> In a fourteen page policy statement that accompanied the notice to FWS employees, the Directorate explained that "[a]n ecosystem approach to fish and wildlife conservation means protecting or restoring the function, structure, and species composition of an ecosystem while providing for its sustainable socioeconomic use."<sup>147</sup> As of the time of the notice, FWS anticipated using fifty-two watersheds to delineate the boundaries of relevant ecosystems.<sup>148</sup> Forty of those watersheds are found in the lower forty-eight states, ten watersheds are found in Alaska, and Hawaii and Puerto Rico each are treated as a watershed/ecosystem for these purposes.<sup>149</sup> The Directorate of FWS provided a good example of what decentralized control of decision-making will mean when it emphasized the need to work with other parties in each of the ecosystem management units:

Effectively implementing an ecosystem approach means recognizing that the Service is just one member of a very diverse management

---

145. Interior Secretary Bruce Babbitt favors an ecosystem management approach for at least some of the environmental issues faced by his Department. Babbitt argues that the National Biological Survey is needed to acquire the base of information that will be needed "to protect whole ecosystems, rather than just single species or pieces of habitat." Bruce Babbitt, *Protecting Biodiversity*, 44 NATURE CONSERVANCY 16, 20 (1994). Molly Beattie, the Director of the U.S. Fish and Wildlife Service, also favors adoption of ecosystem management practices. Molly Beattie, "The Missing Connection," 29 LAND & WATER L. REV. 407, 411 (1994); Breckenridge, *supra* note 85, at 365.

146. Memorandum from the Directorate of the Fish and Wildlife Service, United States Department of the Interior, to "All Service Employees" at 1 (Mar. 8, 1994) (on file with author).

147. FISH AND WILDLIFE SERVICE, AN ECOSYSTEM APPROACH TO FISH AND WILDLIFE CONSERVATION: AN APPROACH TO MORE EFFECTIVELY CONSERVE THE NATION'S BIODIVERSITY 1, U.S. DEPARTMENT OF THE INTERIOR (March, 1994). Pages 11-14 of the report include an extensive bibliography of sources on the topic of ecosystem management.

148. *Id.* at 7-8.

149. *Id.*

team. We must work consistently and closely as partners with all who share responsibility for ecosystem health: other Federal agencies, the States, the Tribes, communities, corporate and individual landowners, and various organizations. We must advocate for fish and wildlife resources and the Service's mission while accommodating our partners' interests and concerns whenever appropriate and possible. Our partners include our critics, and we welcome the opportunity to communicate and work with them. The recurrent partnership theme throughout this document is intentional and critically important.<sup>150</sup>

The FWS initiative appears to be a promising approach to regulation of human interaction with nature. Its promise lies in the appearance that it will recognize both economics and ecology, as it shapes—and is shaped by—our understanding of property ownership.<sup>151</sup>

The FWS initiative illustrates implementation of ecosystem management principles, but not at a decentralized local level. The FWS initiative will be administered by a federal bureaucracy, apparently based in part on notices and lengthy policy statements to the field offices from the Directorate. Pronouncements from officials in Washington, no matter how well-meaning and sensible, may not be consistent with the Greens' justifications for decentralized management of communities and ecosystems, as outlined above. What role will small, self-sustaining communities and civic virtue play in the FWS initiative? Should ecosystem management plans be implemented by local governments, instead of by the federal government? What level of government is optimal for implementation of ecosystem management plans? Does the answer depend on the goals of each management plan and the size of the ecosystem chosen to carry out the plan?

Most land use regulation takes place at a local government level, yet local governments are the most poorly equipped of all governmental agencies to protect biodiversity through ecosystem management.<sup>152</sup> Local concerns may cause local officials to give priority to economic development, instead of biodiversity protection. Assigning the task of ecosystem management to local governments might well result in a race to

---

150. *Id.* at 1. For a detailed consideration of the concept of public/private partnerships for resource management, see Breckenridge, *supra* note 85, at 404-05.

151. For a general assessment of the prospects of using ecosystem management principles in federal land management in the future, see Keiter, *Conservation Biology and The Law*, *supra* note 124, at 923-27.

152. A. Dan Tarlock, *Local Government Protection of Biodiversity: What Is Its Niche?*, 60 U. CHI. L. REV. 555, 556-57 (1993) (noting that local governments have primary responsibility for land use regulation, but biodiversity protection requires action on a much larger geographic scale).

laxity, in which communities competing for economic development try to outbid each other by relaxing environmental regulations.<sup>153</sup> Local control over ecosystem management also would ignore the fact that every person in the world has an interest in global biodiversity.<sup>154</sup> Clearly, the federal government must play at least a standard-setting role in protection of biodiversity through ecosystem management. However, we also must find a way to realize some of the societal benefits of decentralized decision-making, as envisioned by the Greens.

The concept of public/private partnerships, as reflected in the FWS policy statement quoted above, may be the key to making ecosystem management work, as long as the public element of the concept is understood to include all levels of federal, state, and local governments. The mediating institutions that are so important in Brooks' vision of community-based federalism can be private partners in the public/private partnerships. Those mediating institutions, together with local governments, can provide avenues by which citizens (other than large landowners, who typically become directly involved to protect their own financial interests) can become involved in environmental policy-making at a grassroots level, thereby giving the legal system more authority and legitimacy. People who know and respect each other—and who share a common environmental ethic and a sense of social responsibility—are more likely to create a cooperative, adaptive, responsive system for governing the use and consumption of property. Whether we call such a legal system bioregionalism, community-based federalism, or ecosystem management will matter less than whether the system effectively implements our shared environmental ethic and sense of social responsibility.

#### 4. Integrated Environmental Policies and Pollution Controls

Despite the current trend toward conceptual severance in classical liberal property theory,<sup>155</sup> the common law long has recognized the futility of artificial boundaries between bundles of rights in land—at least in some circumstances. The riparian rights doctrine, where followed, recognizes that water in watercourses cannot be separated into discrete packages.<sup>156</sup>

---

153. Breckenridge, *supra* note 85, at 395.

154. This interest even may be described as a share of ownership in common property. Ralph W. Johnson & William C. Galloway, *Protection of Biodiversity Under the Public Trust Doctrine*, 8 TUL. ENVTL. L.J. 21, 31 (1994).

155. Radin, *supra* note 20, at 1676-78.

156. For a general description of the riparian rights doctrine, see RICHARD R. POWELL, *POWELL ON REAL PROPERTY* § 65.06 (1995).

Natural physical connections between neighboring parcels of land are recognized in the doctrines of nuisance and lateral and subjacent support.<sup>157</sup>

In the same way that artificial dividing lines between parcels of land do not reflect reality, artificial division of pollution control regulations into air regulations, water regulations, and land regulations does not reflect reality, either. A land community includes air, land, and water, together with all of the organisms that live in those media, subject to all of the complex relationships that contribute to the web of life. Integrating the regulation of human interactions with nature, as those interactions affect different media, could be another logical step in the direction of fine-tuning our regulatory approach with rules that recognize ecological principles, as well as economic principles.

Integrated pollution control could be another application of the ecological theories that underlie Green Property. Several environmental law scholars advocate integration of our regulatory efforts to control pollution.<sup>158</sup> A model statute for integrated pollution control has been proposed by The Conservation Foundation, as a step toward achieving integrated control of polluting activities.<sup>159</sup> However, James Krier and Mark Brownstein have observed that the federal government has tried to implement integrated pollution control before and failed.<sup>160</sup> According to Krier and Brownstein, there is little reason to believe that another attempt will succeed.

They predict that overcoming the inertia created by current fragmented approaches to pollution control simply may be too great of a task for regulators. The most imposing obstacle to integrated pollution control, though, is the sheer complexity of the concept. Krier and Brownstein argue that if an ecological understanding of the interconnectedness of resources motivates the push for integrated pollution control, then that same ecological understanding should alert us to the sobering reality that

---

157. For a general description of nuisance doctrine, see 5 RICHARD R. POWELL, *POWELL ON REAL PROPERTY* § 704 (1994). For a general description of lateral and subjacent support doctrines, see 5 RICHARD R. POWELL, *POWELL ON REAL PROPERTY* § 699 (1994).

158. Lakshman Guruswamy, *Integrating Thoughtways: Re-Opening The Environmental Mind?*, 1989 WIS. L. REV. 463, 471; Symposium, *Integrated Environmental Management*, 40 DEPAUL L. REV. 933 (1991); Symposium, *Integrated Pollution Control*, 22 ENVTL. L. 1 (1992).

159. See Robert F. Blomquist, *The Conservation Foundation's Proposed "Environmental Protection Act": Prospects and Problems for an Integrated Pollution Control Code for the United States*, 40 DEPAUL L. REV. 937, 979 (1991) (evaluating The Conservation Foundation's proposal).

160. James E. Krier & Mark Brownstein, *On Integrated Pollution Control*, 22 ENVTL. L. 119, 120-22 (1991).

we currently do not possess the capacity to rationally integrate all pollution controls.<sup>161</sup>

Despite the pessimism of Krier and Brownstein, it might be possible to realize the promise of the integrated pollution control efforts in small increments, rather than in sweeping changes. For example, water quality management policies that recognize the hydrological cycle would be an important incremental improvement over current policies, which treat groundwater, water in watercourses, and diffuse surface water according to different sets of rules.

Another seemingly logical stage in the evolution of our regulatory approach should be to recognize not only the connections between air, land, and water pollution regulations, but also the connections between pollution controls, population controls, resource conservation, and energy policies.<sup>162</sup> Pollution controls alone will not resolve common resource allocation problems of the kind that Garrett Hardin described in his well-known essay, *Tragedy of the Commons*.<sup>163</sup>

We, acting collectively through our governmental units, must appreciate the need to integrate our regulatory efforts in all of these other areas, too. As is the case with integrated pollution control, though, the task of fully integrating all environmental policies has the potential to overwhelm our

---

161. *Id.* at 125-26.

162. *See, e.g.*, Arnold W. Reitze Jr., *Environmental Policy—It Is Time for a New Beginning*, 14 COLUM. J. ENVTL. L. 111 (1989). For more insight on the link between population growth and other environmental issues, see Anne Ketover, *Fouling Our Own Nest: Rapid Population Growth and Its Effect on the Environment*, 7 TUL. ENVTL. L.J. 431 (1994).

163. Hardin used economic principles to explain why, in the absence of external restraints, a rational market participant will seek to maximize her own utility by taking as much as she can of a scarce common resource, even though she realizes that she (and others with access to the common resource) will deplete the resource completely in the process. Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243 (1968). The commons about which Hardin wrote can be any resource shared in common with others, with no one having a specific share of the resource allocated to her. Access to the commons is gained by virtue of having an interest in land to which the commons is appurtenant.

Each party with access to the commons may consume as much of the common resource as she can appropriate. No one party has any economic incentive to conserve the resource, since that will only mean that what party *A* does not consume will be consumed by party *B*, or by someone else with access to the commons. Thus, the aggregate effect of every party looking out for her own best economic interest (in the short term) will be the "tragedy" of the resource being completely depleted over time. To add to the tragedy of the situation, the process of depletion of the commons accelerates as the population with access to the commons grows over time. *Id.* at 1248.

Hardin began his description of the tragedy of the commons by asserting that the problem is within what he calls "[t]he class of 'No technical solution problems'," which is to say that there is no mechanical or scientific way to prevent the tragedy. *Id.* at 1243. Hardin suggested that a "change in human values or ideas of morality" would be the best way to avoid the tragedy of the commons. *Id.* Until those values or ideas change, Hardin notes that we will have to rely upon "mutual coercion, mutually agreed upon" to limit consumption of the commons. *Id.*

collective technical and logistical capacities, unless we undertake that task in incremental steps.

### 5. The Precautionary Principle: Institutional Prudence

Recognition of ecological principles might prompt us to make more use of the precautionary principle in American property law. According to the precautionary principle, which already is used widely in international environmental law,<sup>164</sup> any activity, or the use of any substance, that might have a negative impact on the function and integrity of an ecosystem should be curtailed—even if the scientific proof of potential harm is not conclusive.<sup>165</sup> In essence, the precautionary principle resolves doubts about possibly harmful activities in favor of not risking harm to the integrity of land communities—especially where we do not fully understand all of the potential ripple effects of a land use decision or a resource consumption decision. The precautionary principle recognizes the interdependence and interconnectedness of all components of land communities and then protects those components from unintended negative consequences of resource use or consumption.<sup>166</sup>

Use of the precautionary principle already has had a major impact on federal statutes that restrict market access in the United States, such as the Toxic Substances Control Act,<sup>167</sup> the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA),<sup>168</sup> and the “Delaney Clause” of the Food, Drug, and Cosmetic Act.<sup>169</sup> The “ample margin of safety” requirements of the Clean Air Act and the Clean Water Act also are examples of implementation of the precautionary principle in United States environmental laws.<sup>170</sup> Best available technology (BAT) standards in

---

164. E.g., HARALD HOHMANN, PRECAUTIONARY LEGAL DUTIES AND PRINCIPLES OF MODERN INTERNATIONAL ENVIRONMENTAL LAW (1994); INTERPRETING THE PRECAUTIONARY PRINCIPLE (Tim O’Riordan & James Cameron, eds., 1994); Naomi Roht-Arriaza, *Precaution, Participation, and the “Greening” of International Trade Law*, 7 J. ENVTL. L. & LITIG. 57, 57 (1992).

165. James Cameron & Juli Abouchar, *The Precautionary Principle: A Fundamental Principle of Law and Policy for the Protection of the Global Environment*, 14 B.C. INT’L & COMP. L. REV. 1, 2 (1991).

166. Freyfogle, *Land Ethic and Pilgrim Leopold*, *supra* note 92, at 235.

167. 15 U.S.C. §§ 2601-2692.

168. 7 U.S.C. §§ 136-136y.

169. 21 U.S.C. § 348(c)(3)(A). Legislation pending in both the House and the Senate at the time of this essay would relax the zero tolerance standard of the Delaney Clause and amend the tolerance standards of FIFRA. See H.R. 1627, 104th Cong., 1st Sess. (1995) and S. 1166, 104th Cong., 1st Sess. (1995) (mirror images of the “Food Quality Protection Act of 1995”).

170. Daniel Bodansky, *The Precautionary Principle in U.S. Environmental Law*, in INTERPRETING THE PRECAUTIONARY PRINCIPLE 219-21 (Tim O’Riordan and James Cameron, eds., 1994).

environmental regulations represent another implementation of the precautionary principle.<sup>171</sup> Another variation of the precautionary principle might be used to shift the burden of proof for parties involved in environmental litigation. Keeping ecosystem integrity in mind, courts could require that a party who allegedly threatens the integrity of an ecosystem must bear the burden of proving that the proposed action will *not* be ecologically harmful.<sup>172</sup>

The precautionary principle rejects the assumptions of technological optimism that appear to underlie many of our current environmental laws.<sup>173</sup> More specifically, the precautionary principle rejects the assumptions that (1) scientists always are able to accurately measure the environment's capacity to absorb some degree of human-initiated contamination without significantly decreasing the quality of life for humans, and (2) we will have sufficient time and technology to curtail contamination to acceptable levels, after scientists determine the assimilative capacity of the environment.<sup>174</sup> The accuracy or inaccuracy of the former assumption has important implications in the debate about the role of cost-benefit analysis in land use regulation.<sup>175</sup> The latter assumption implies that we can wait for conclusive proof of environmental

---

171. *Id.* at 221-22. Bodansky observes that use of BAT standards in U.S. environmental regulations has met with many objections, because a BAT standard does not involve consideration of any possible need for risk reduction, nor does it involve any cost-benefit analysis. *Id.* Use of a BAT standard simply requires risk reduction whenever it is technologically possible. On the other hand, BAT standards create opportunities for an industry to discourage production of new technology, thereby making the status quo the best available technology and allowing pollution to continue at existing levels. Bruce A. Ackerman & Richard B. Stewart, *Reforming Environmental Law*, 37 STAN. L. REV. 1333, 1336 (1985).

172. *E.g.*, James M. Olson, *Shifting the Burden of Proof: How the Common Law Can Safeguard Nature and Promote an Earth Ethic*, 20 ENVTL. L. 891, 895 (1990).

In his dissenting opinion in *Dolan*, Justice John Paul Stevens explained why a shift in the burden of proof might be appropriate in some property rights cases:

In our changing world one thing is certain: uncertainty will characterize predictions about the impact of new urban developments on the risks of floods, earthquakes, traffic congestion, or environmental harms. When there is doubt concerning the magnitude of those impacts, the public interest in averting them must outweigh the private interest of the commercial entrepreneur.

*Dolan v. City of Tigard*, 114 S. Ct. 2309, 2329 (1994) (Stevens, J., dissenting).

Short of actually shifting burdens of proof, lawmakers and judges can move closer to implementation of the precautionary principle by relaxing evidentiary standards in some situations or by adopting more conservative evidentiary presumptions in other situations. Bodansky, *supra* note 170, at 213-17.

173. The precautionary principle reflects a new-found respect for natural processes as being beyond our control to manipulate. Tarlock, *supra* note 85, at 1137.

174. Ellen Hey, *The Precautionary Concept in Environmental Policy and Law: Institutionalizing Caution*, 4 GEO. INT'L ENVTL. L. REV. 303, 305 (1992); Rohr-Arriaza, *supra* note 164, at 60-61.

175. See reference to cost-benefit analysis *infra* note 211.

degradation, before curtailing pollution-causing activities. The precautionary principle directly attacks this latter assumption, with the precautionary principle's emphasis on curtailing a *potentially* harmful activity, before it takes place, "even if there is no conclusive scientific proof linking that particular . . . activity to environmental damage."<sup>176</sup> The latter assumption of technological optimism reflects a classical liberal view of property, in the sense that it gives the benefit of a doubt to human wealth-producing activities whenever human interest might conflict with the integrity of ecosystems. Use of the precautionary principle would signal a shift in the ethical underpinnings of property law, by reversing the priorities assigned to human economic interests and ecosystem integrity.<sup>177</sup>

The precautionary principle is not a panacea for land use and other environmental regulations. The potential harshness of the principle's mandate to regulators may cause them to disregard it.<sup>178</sup> In addition, the potential harshness of the principle often provokes a backlash of anti-regulatory sentiment, which can shift the focus of policy-making away from the shortcomings of technological optimism.<sup>179</sup> Without careful attention to the details of implementation, adoption of the precautionary principle as part of a regulatory scheme might prevent us from addressing such important policy questions as:

Should we always take a precautionary approach, no matter how small the likelihood of harm? And, if not, what level of harm must be shown, and with what degree of certainty? Moreover, how much should we err in favor of the environment? For example, should we reduce environmental risks, even if that means shutting down entire industries?<sup>180</sup>

That these questions are difficult, if not impossible, to answer with generally applicable rules is no excuse for avoiding them. Any shift from a classical liberal to a Green, ecologically conscious foundation for American property law must include a shift from technological optimism to broader use of the precautionary principle. Addressing the hard

---

176. Cameron & Abouchar, *supra* note 165, at 2.

177. Olson, *supra* note 172, at 892-95.

178. Bodansky, *supra* note 170, at 204 (citing the example of the EPA's long avoidance of implementing the "ample margin of safety" requirement for air quality standards for criteria pollutants under the 1970 Clean Air Act).

179. *Id.* at 205 (noting that emphasis on risk assessment and cost-benefit analysis are the most common forms of backlash). See also *supra* notes 14-16 and accompanying text for a brief discussion of the current political debate about property law reform.

180. Bodansky, *supra* note 170, at 223.

questions through the political process—with broad grassroots participation in the debate and an emphasis on social responsibility—may be the most desirable way to avoid the problems of reluctant regulators and widespread anti-regulatory backlash. Thorough political debate could clarify the mandate for otherwise reluctant regulators. Such a debate also should illuminate the potential advantages and disadvantages of regulation more completely, so fewer citizens will have reason to feel as though they have been ambushed by new land use regulations.

### *B. Social Responsibility: The Second Green Pillar*

The Greens' second pillar—social responsibility—is akin to Green Property's recognition of a community's interest in the way that many forms of property, whether private, public, or common, are used within that community.<sup>181</sup> The community's interest in the use of even private property, in some circumstances, stems from the ecological view that all property is connected to everyone and everything else in some way, so that everyone and everything will be affected to some degree by any use of one's property. According to Green Property principles, a private property owner has a duty to use her property responsibly, with respect to the rest of society. This duty to observe her social responsibility inherently limits her right to use and enjoy her private property. Green Property theorists examine principles of social responsibility in three major areas of scholarship: (1) the role of political communities in defining reasonable expectations for the responsible use and enjoyment of property, as explored in the political philosophy of communitarianism; (2) the expansion of our sense of community to include future generations of humans, as explored in issues of intergenerational equity; and (3) the role of government as a trustee of public and common property for future generations, as explored in the public trust doctrine. Each person's obligation to use private property responsibly, society's reasonable expectations for the responsible use of common property, the interests of future generations in access to good-quality resources, and respect for government's role as trustee of some elements of public and common property combine to supply the essence of social responsibility in Green Property.

---

181. See *supra* note 75.

## 1. The Community's Role in Defining Reasonable Expectations for Land Use

Green Property emphasizes the role of political communities in defining reasonable expectations for property owners, as a means of creating reciprocal benefits and distributing reciprocal burdens for all human members of land and political communities. Property scholars since David Hume and Jeremy Bentham have recognized that property rights are defined by what a political community considers to be reasonable expectations of the property owner and, therefore, worthy of protection, using the community's monopoly on the legitimate use of force.<sup>182</sup> According to the Benthamite approach, property rights at any given time are those expectations that we, as a society acting collectively, are willing to recognize as reasonable and, therefore, worthy of protection under the legal system.<sup>183</sup> We call reasonable expectations "property"; unreasonable expectations are "not property." Implicit in this approach to defining property is the idea that the boundaries of protected expectations may change over time—what appears to be a reasonable use of land one day may not appear to be so reasonable the next day, in light of new information about the external effects of such a land use.<sup>184</sup> Green

---

182. *E.g.*, James E. Krier, *The Tragedy of the Commons, Part Two*, 15 HARV. J. L. & PUB. POL'Y 325, 342 (1992).

183. JEREMY BENTHAM, *THE THEORY OF LEGISLATION* 68-69 (1975). For example: In the absence of any privately contracted land use restrictions or public zoning regulations, we might think that it is reasonable to expect to use an empty lot in a suburban subdivision, surrounded by single-family homes on all adjacent lots, to build another single-family home. If a majority of the citizens of the political unit, within which the land is located, agree that such an expectation is reasonable, then we would include the right to use that land for a single-family home as one of the component interests in the bundle of property rights that are represented by fee simple ownership of title to the lot. Assume, however, that the landowner expects to use that same land for a fireworks factory, instead of for another single-family home. If, as seems likely, a majority of the citizens of the political unit within which the land is located agree that such an expectation is not reasonable, then use of the lot as a fireworks factory will not be included within the landowner's property rights. If the landowner then tries to use the lot as a fireworks factory, the neighbors will be able to use the legal system to stop such a use. The legal system will not protect the lot owner's unreasonable expectations. Instead, the legal system will protect the neighbors' reasonable expectations that they should not have to live with the inherent dangers of a fireworks factory in their midst.

184. *See, e.g.*, Lynda L. Butler, *Private Land Use, Changing Public Values, and Notions of Relativity*, 1992 B.Y.U. L. REV. 629, 631-32. Butler observes that:

Private economic value cannot be the sole determinant of the legal validity of a governmental land use regulation. Other factors, including public preferences and political and scientific concerns, must play a role in determining whether private land use expectations merit protection as fundamental property rights. Constitutionally protected property rights, in other words, should be relative, varying over time in response to the totality of facts and circumstances surrounding use of resources.

Property emphasizes the element of social responsibility in the Benthamite approach to collectively defining reasonableness.

The communitarian branch of Green Property scholarship emphasizes the role of community interest in limiting the protected expectations of each private landowner.<sup>185</sup> Communitarians assume that we implicitly agree to surrender some degree of autonomy over our possessions when we seek the protection of society. The trade-off for security in our

Joseph Sax asserts that:

Anyone today who holds, or wishes to buy, historical properties, wetlands, or coastal lands, or who plans developments in developing suburbs . . . knows or should know that his opportunities for old-fashioned development are far from clear. . . . Surely, canny owners must be learning to hedge their bets; the whole structure of expectations is in the process of change.

Joseph L. Sax, *Some Thoughts on the Decline of Private Property*, 58 WASH. L. REV. 481, 495 (1983). See also *Lucas v. South Carolina Coastal Council*, 112 S. Ct. 2886, 2899 (1992), in which even Justice Scalia, writing for the majority, admits that:

A property owner necessarily expects the uses of his property to be restricted, from time to time, by various measures newly enacted by the State in legitimate exercise of its police powers; "[a]s long recognized, some values are enjoyed under an implied limitation and must yield to the police power." . . . And in the case of personal property, by reason of the State's traditionally high degree of control over commercial dealings, he ought to be aware of the possibility that new regulation might even render his property economically worthless . . . .

*Id.* (quoting *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 413 (1922)).

185. Gregory S. Alexander, *Takings and the Post-Modern Dialectic of Property*, 9 CONST. COMMENTARY 259, 269 (1992) ("[T]he central communitarian insight [is] that property ownership is inevitably social and that the social context within which property exists is itself the source of responsibilities, as well as rights, of ownership."); Jerry L. Anderson, *Takings and Expectations: Toward a "Broader Vision" of Property Rights*, 37 KAN. L. REV. 529, 530 (1989) ("[L]and ultimately is a public resource."); John A. Humbach, *Law and a New Land Ethic*, 74 MINN. L. REV. 339, 345-46 (1989) ("The legislative and common law delimiters of private owners' autonomy, taken together, are a social obligation of property that legally qualifies the private property right."); Rose, *supra* note 75, at 10 ("In a sense, environmentalism is only a particularly pointed example of a recurring problem in free and democratic governments: the importance of self-imposed citizen restraints for the sake of a common good.").

German Greens have achieved more notoriety for their political activism than Greens in any other nation. Perhaps the German Green activity reflects the deep roots of communitarian thought in German intellectual tradition. "There is no absolute property, *i.e.*, property that is freed from taking into consideration the interest of the community, and history has taken care to inculcate this truth into all peoples." R. VON JHERING, *DER GEIST DES ROMISCHEN RECHTS AUF DEN VERSCHIEDENEN STUFEN SEINER ENTWICKLUNG* 7 (4th ed., 1878) (as quoted in John E. Cribbet, *Concepts in Transition: The Search for a New Definition of Property*, 1986 U. ILL. L. REV. 1, 41) (emphasis in original); "One German scholar states that ownership should be 'merely the right, and the duty, to control and to use a thing in accordance with socially approved [sittliche] purposes.'" John E. Cribbet, *Changing Concepts in the Law of Land Use*, 50 IOWA L. REV. 245, 246 n.7 (1965) (citing SCHMIDT, *DER PRINZIPIELLE UNTERSCHIED ZWISCHEN DEM ROMISCHEN UND GERMANISCHEN RECHTE* 225 (1853)).

The one-on-one adversarial nature of our litigation system often obscures society's interest in the manner in which private property is used. Butler, *supra* note 184, at 640. In fact, the adversarial system often "ignores the interrelatedness of land and [other] natural resources and of users and nonusers." *Id.* at 641.

we seek the protection of society. The trade-off for security in our expectations is that each one of us must agree to be subject to the same rules.<sup>186</sup> The most important of those generally applicable property rules is that no one's property may be used in a way that endangers public health, safety, or welfare.<sup>187</sup> Communitarians do not state this principle merely in the form of a negative servitude. They assert that privately owned real property should be "used consistently with the public good."<sup>188</sup> Members of the community not only make collective judgments about the reasonable expectations of private landowners, they also have their own expectations for public and common property. The community's expectations for public and common property, in turn, will have an impact on judgments about the reasonableness of private landowners' expectations for private property.<sup>189</sup>

The concept of public good—as used by communitarians—has an ecological dimension, as well as economic and political dimensions.<sup>190</sup> Our understanding of ecology must both limit and inform our collective judgments about the reasonableness of private landowners' expectations. When reflecting upon the role of political communities in defining

186. John Locke admitted that

it would be a direct contradiction for any one to enter into society with others for the securing and regulating of property, and yet to suppose his land, whose property is to be regulated by the laws of the society, should be exempt from the jurisdiction of that government. . . .

JOHN LOCKE, *TWO TREATISES OF GOVERNMENT* 182 (Hafner Press ed., 1947).

187. *E.g.*, Anderson, *supra* note 185, at 530.

188. *E.g.*, *id.* at 562; Humbach, *supra* note 185, at 347-48.

189. Carol Rose observes that

some of Bentham's successors may have been thinking about property too narrowly, as individual property exclusively at the disposal of the individual owner. That is only one of our forms of property, and while it is important, forms of common property are important as well. There are great bodies of law about common property, and they revolve around an ethic of moderation, proportionality, prudence, and responsibility to the others who are entitled to share in the common resource. Indeed, even individual property revolves around these normative characteristics. The individual property-holder relies in great part on the recognition and acquiescence of others, and individual property law assumes a large measure of neighborliness and attentiveness to the needs of others in the use of one's own "exclusive" property. . . . The norms that lurk in property . . . include as well the qualities of restraint and responsibility that characterize common or shared property. Property law is most visible when it deals with breakdowns of these norms of restraint and responsibility, but on the whole, property law assumes that these norms do exist and predominate in our behavior. . . . Modern environmentalism needs to build on the normative metaphors of property.

Rose, *supra* note 75, at 27-28 (footnotes omitted).

190. Butler, *supra* note 184, at 648-57.

reasonable expectations, we must remember that political communities cannot legislate changes in the laws of nature.<sup>191</sup> We also must remember that any geographical boundaries that we try to draw between parcels of land, for legal or political purposes, will not be respected by nature and natural forces.<sup>192</sup> Finally and most importantly, we must remember that all things are connected to all other things in our biosphere, as we evaluate our personal responsibility to all other members of the political and natural communities to which we belong. Such an ecological approach to defining the reasonableness of land use expectations is essential to filling the role of property law in making sure that the need to protect the integrity of land communities is reflected in the tension between individual autonomy and community interests.

## 2. Intergenerational Equity

The community whose interest restricts an owner's autonomy may have a temporal dimension, as well as geographical, political, and economic dimensions. The law of future interests illustrates how our ancestors can shape reasonable expectations for the use of real property by the present generation. Should our descendants also be considered when defining reasonable expectations?<sup>193</sup> A.C. Pigou answered this question in the affirmative:

There is wide agreement that the state should protect the interests of the future in some degree against the effects of our irrational discounting, and of our preference for ourselves over our descendants. The whole movement for "conservation" in the United States is based upon this conviction. It is the clear duty of government which is the trustee for unborn generations as well as for its present citizens, to watch over and if need be, by legislative enactment, to defend exhaustible natural resources of the country from rash and reckless spoliation.<sup>194</sup>

---

191. *E.g.*, Hunter, *supra* note 13, at 314-16.

192. *E.g.*, Large, *supra* note 13, at 1045. ("[W]hatever the state of its title, one parcel of land is inextricably intertwined with other parcels . . . . [C]auses and effects flow across artificially imposed divisions in the land without regard for legal boundaries. The land simply cannot be neatly divided into mine and yours.")

193. The law of future interests also illustrates an affirmative answer to this question. A life tenant may not commit waste with respect to the subject property, even if the remainder interest that follows the life estate is contingent. The life tenant's duty to not commit waste runs to whomever will take possession upon expiration of the life estate, even if that successor's exact identity is not known. *E.g.*, Moore v. Phillips, 627 P.2d 831, 834 (1981).

194. HERMAN E. DALY & JOHN B. COBB, JR., FOR THE COMMON GOOD 411 (1989) (quoting Pigou (1924)).

Several centuries before Pigou wrote about intergenerational equity, and in a completely different cultural setting, the Iroquois articulated this same idea in a slightly different manner:

In all of your deliberations in the Confederate Council, in your efforts at law making, in all your official acts, . . . have always in view not only the present but also the coming generations, even those whose faces are yet beneath the surface of the ground—the unborn of the future Nation.<sup>195</sup>

In current legal scholarship concerning intergenerational equity, Edith Brown Weiss leads the advocates for future generations. Drawing heavily from the law of trusts, Weiss argues that each generation of humans has a fiduciary duty “to preserve the diversity of the resource base and to pass the planet to future generations in no worse condition than it receives it.”<sup>196</sup> Weiss describes the duties of the present generation by reference to three principles of intergenerational equity: (1) we must conserve *options* for the use of natural resources, by avoiding complete depletion of nonrenewable resources; (2) we must conserve the *quality* of the natural environment in at least as good condition as it was received by the present generation; and (3) we must conserve *access* to consumption of natural resources for all members of the present as well as future generations.<sup>197</sup>

The duty of maintaining intergenerational equity arises from humans’ unique capacity to control our species’ impact upon the biosphere.<sup>198</sup> According to Weiss, intergenerational equity provides “a solid normative underpinning for the idea of environmentally sustainable development.”<sup>199</sup>

---

195. These words are from the chant with which a new lord was installed as a member of the Council of the Lords of the Five [Iroquois] Nations Confederacy, as translated in ARTHUR C. PARKER, *THE CONSTITUTION OF THE FIVE NATIONS* 38, reprinted in PARKER ON THE IROQUOIS (Wm. N. Fenton ed., 1968). Many popular modern translations of this portion of the Great Law of the People of the Longhouse refer to looking seven generations into the future when deciding how to use the Nation’s resources. Perhaps this is because the time horizon for many indigenous cultures is seven generations. Simon Brascoupe, *Indigenous Perspectives on International Development*, 9 AKWE:KON JOURNAL 14 (1992).

196. Edith Brown Weiss, *The Planetary Trust: Conservation and Intergenerational Equity*, 11 *ECOLOGY L. Q.* 495, 498-99 (1984).

197. Edith Brown Weiss, *Our Rights and Obligations to Future Generations for the Environment*, 84 *AM. J. INT’L L.* 198, 201-02 (1990).

198. Weiss, *supra* note 196, at 498-99.

199. Edith Brown Weiss, *Environmentally Sustainable Competitiveness: A Comment*, 102 *YALE L.J.* 2123, 2124 (1993). Sustainable development may be a myth to some, our last hope for salvation to others, and a mere oxymoron to still others. While the general principle of sustainable economic activity is central to a complete understanding of Green politics, a full discussion of the topic is beyond the scope of this article. For general information on this topic, see Robert W. Collin & Robin Morris

The duty also might be rationalized in sociobiological terms. One's inclination to preserve assets for future generations may be a trait that has evolved as part of our instinctual preservation of our species. Or, we may feel that we transcend the temporal limits of our mortality when we act for the benefit of future generations, thereby satisfying an important psychological need.<sup>200</sup> Regardless of how we justify the assertion of a fiduciary duty, giving the duty practical effect is a complex task.<sup>201</sup>

To the extent that the fiduciary duty is shaped by the law of trusts, skeptics assert that the law requires us to know the identity of the beneficiaries of a trust in order for the fiduciary obligations to be effective. According to such skeptics, if we attempt to discharge our duty by intervening somehow in the consumption or preservation of resources by our own generation, then we alter the ecosphere—including the conditions under which future generations of humans will be conceived.<sup>202</sup> This line of criticism, known as "Parfit's paradox," relies on Chaos Theory to conclude that the individuals who benefit from our performance of our fiduciary duty will not be the same individuals who would have been born, had we not altered the ecosystem and influenced human conception by performing our fiduciary duty. To state the paradox in a slightly different way: by discharging our duty as trustees for future generations, we wipe out the individuals to whom we allegedly owed that duty and instead provide benefits to a completely different set of individuals.<sup>203</sup> The law of trusts generally frowns on a trustee who wipes out the beneficiaries of a trust and provides the benefits to a different group of people. Weiss responds that generations, not individuals, are the beneficiaries of the intergenerational planetary trust, so the fact that specific individuals cannot be identified as beneficiaries is not fatal to the concept of an

---

Collin, *Equity as the Basis of Implementing Sustainability: An Exploratory Essay*, 96 W. VA. L. REV. 1173 (1994) (linking the concept of environmental justice/equity with the development of a sustainable economy).

200. Weiss, *supra* note 196, at 500-01.

201. The common law and statutory approaches to environmental preservation may be inadequate to protect biodiversity for future generations. A constitutional amendment may be needed to accomplish the task. E.g., Rodger Schlickeisen, *Protecting Biodiversity for Future Generations: An Argument for a Constitutional Amendment*, 8 TUL. ENVTL. L.J. 181, 197 (1994).

202. Anthony D'Amato, *Do We Owe a Duty to Future Generations to Preserve the Global Environment?*, 84 AM. J. INT'L L. 190, 190-92 (1990) (noting that the alteration of the ecosphere means that different eggs will be fertilized by different sperm, with slightly different DNA codes, thereby producing different people than would have been conceived without the alteration in the ecosphere); Farber & Hemmersbaugh, *supra* note 49, at 291 n.95 (explaining the same phenomenon).

203. D'Amato, *supra* note 202, at 191.

intergenerational trust.<sup>204</sup> In whatever way philosophers resolve this clash between Chaos Theory and the law of Trusts, "it is probably safe to assume that most people agree we have at least some responsibilities to consider and provide for the welfare of future generations."<sup>205</sup>

Daniel Farber and Paul Hemmersbaugh observe that the language of rights and duties may be an inappropriate context in which to explore the relationship between generations.<sup>206</sup> They suggest that the discussion might be more productive if we merely characterize consumptive choices as being relatively responsible or irresponsible, with respect to future generations. Future generations may not be entitled to rights as beneficiaries of a formal trust, but they are entitled to expect us to act responsibly toward their future welfare.<sup>207</sup> Farber and Hemmersbaugh also observe that "as a practical matter, members of the current generation probably are unwilling to make greater sacrifices for anonymous members of future generations than they are for their own personal descendants."<sup>208</sup> Thus, they imply, we may be able to reduce the concept of intergenerational equity, for most practical purposes, to a moral obligation to act responsibly with respect to our children and grandchildren.<sup>209</sup> Farber and Hemmersbaugh conclude that issues of intergenerational equity undermine the reliability of cost-benefit analysis with respect to environmental regulation.<sup>210</sup>

The greatest value of Farber and Hemmersbaugh's work on intergenerational equity for Green Property may be to remind us of the practical limits of cost-benefit analysis in evaluating environmental regulations.<sup>211</sup> Their work effectively links concerns about

---

204. Weiss, *supra* note 197, at 204-06. Derek Parfit, who first raised questions about the paradox, concedes that his questions have little practical relevance. Derek Parfit, *Comments*, 96 ETHICS 832, 855 (1986). See also *supra* note 193.

205. Farber & Hemmersbaugh, *supra* note 49, at 291.

206. *Id.* at 294-95.

207. *Id.* This is an example of how Green Property injects the element of personal responsibility to society into the notion of reasonableness.

208. *Id.* at 293.

209. Whatever obligation we might have to "avoid substantial risks of future disaster to remote descendants" can be satisfied by acting responsibly with respect to our children, because those same risks "will pose dangers to [our children] as well, so our concern for [our children] will usually subsume these very long-term effects." *Id.* at 296.

210. Farber and Hemmersbaugh end their work by suggesting several principles to be followed in order to minimize the unreliability of cost-benefit analysis, in light of concerns about intergenerational equity. *Id.* at 302-04.

211. The general topic of cost-benefit analysis and the related topic of risk assessment deserve much more attention than I am able to give them in this article. For general information on these topics, see, e.g., Symposium, *Risk Assessment in the Federal Government*, 3 N.Y.U. ENVTL. L.J. 251 (1995); THE CARNEGIE COMMISSION ON SCIENCE, TECHNOLOGY, AND GOVERNMENT, RISK AND THE

intergenerational equity with greater use of the precautionary principle in American property law.

Intergenerational equity also serves the purpose of reminding us that the bonds that connect us to all other things in the biosphere have a temporal dimension, as well as biological and spatial dimensions. In the words of Edith Brown Weiss:

As members of the present generation, we are both trustees of the environment with obligations to care for it for future generations, and beneficiaries entitled to use it for our own economic and social well-being. In brief, each generation has both rights and obligations in relation to the environment.<sup>212</sup>

Recognition of the temporal dimension of our interdependence with all other elements of our biosphere can give us a completely different perspective on the tension between individual autonomy and community interests in many important issues of resource use and consumption.

### 3. The Public Trust Doctrine

The planetary trust about which Edith Brown Weiss has written is, for the most part, still just a goal of Green Property.<sup>213</sup> However, a common law doctrine—also based on the law of Trusts and known as the “public trust doctrine”—already is available for protection and preservation of resources in limited circumstances. The public trust doctrine is based on ancient Roman laws that recognized the manner in which certain resources (such as air, water, and the sea) were so important to the entire society as to deserve perpetual protection from private exploitation.<sup>214</sup> The history of the public trust doctrine in the United States is the subject of a number

---

ENVIRONMENT: IMPROVING REGULATORY DECISION MAKING (1993). For now, I simply wish to observe that recognition of the interdependence of successive generations of humans leads us to consideration of public policy issues—such as the use of cost-benefit analysis in environmental regulation—that have a profound impact upon our daily lives.

212. Weiss, *supra* note 199, at 212-13.

213. The concept of intergenerational equity is mentioned in the National Environmental Policy Act at 42 U.S.C. § 4331(b)(1) (1988). *But see* Freyfogle, *Ethical Strands of Environmental Law*, *supra* note 13, at 834 (“If indeed humans stand as trustees for the future, what are our duties, and where do we find a copy of the trust agreement? Neither NEPA nor its legislative history offered any answers.”).

214. *E.g.*, Jan S. Stevens, *The Public Trust: A Sovereign's Ancient Prerogative Becomes the People's Environmental Right*, 14 U. CAL. DAVIS L. REV. 195, 196-97 (1980).

of well-written articles, so I will not attempt to repeat it here.<sup>215</sup> In most states, the public trust doctrine at least protects public access to (1) coastal tidelands, (2) the beds of inland lakes, streams, and rivers, and (3) public streets, roads, and alleys.<sup>216</sup>

Joseph Sax suggested in 1970 that the public trust doctrine might be a useful "tool of general application for citizens seeking to develop a comprehensive legal approach to resource management problems."<sup>217</sup> Activist citizens and judges used the public trust doctrine to prevent private exploitation of coastal areas in numerous lawsuits during the next two decades.<sup>218</sup> Not surprisingly, the public trust doctrine is criticized by those who believe that privatization of public trust resources would be a more effective way to preserve and protect natural resources.<sup>219</sup> Scholars also have criticized the public trust doctrine for: (1) obscuring the hard choices that we must make with respect to patterns of consumption, by shifting attention to what government, as trustee, might do and away from what we, as citizens, must do to protect and preserve natural resources;<sup>220</sup> (2) providing a path of least resistance for property law reform, thereby diverting attention and resources away from other promising reform efforts;<sup>221</sup> and (3) failing to provide more than vague references to

215. E.g., Richard J. Lazarus, *Changing Conceptions of Property and Sovereignty in Natural Resources: Questioning the Public Trust Doctrine*, 71 IOWA L. REV. 631, 698-701 (1986); Molly Selvin, *The Public Trust Doctrine in American Law and Economic Policy, 1789-1920*, 1980 WIS. L. REV. 1403, 1405-40; Joseph L. Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 MICH. L. REV. 471 (1970).

216. Carol Rose, *The Comedy of the Commons: Custom, Commerce, and Inherently Public Property*, 53 U. CHI. L. REV. 711, 714 (1986).

217. Sax, *supra* note 215, at 474.

218. E.g., *Mathews v. Bay Head Improvement Ass'n*, 471 A.2d 355 (1984).

219. E.g., R. Prescott Jaunich, *The Environment, The Free Market, and Property Rights: Post-Lucas Privatization of the Public Trust*, 15 PUB. LAND L. REV. 167, 195-197 (1994); Lazarus, *supra* note 215, at 698-701.

220. Richard F. Babcock & Duane A. Feurer, *Land as a Commodity "Affected with a Public Interest"*, 52 WASH. L. REV. 289, 289-90 (1977).

221. Richard Delgado, *Our Better Natures: A Revisionist View of Joseph Sax's Public Trust Theory of Environmental Protection, and Some Dark Thoughts on the Possibility of Law Reform*, 44 VAND. L. REV. 1209, 1211 (1991). According to Delgado, most people who were interested in law reform to address environmental problems in the 1970s and the early 1980s were attracted to the public trust doctrine as the path of least resistance to reform. *Id.* at 1211, 1225-26. The public trust doctrine was an opiate for the environmental reformers of the past two decades, Delgado asserts, because it does not require the same degree of revolutionary change as would have been required by alternatives that other reformers were advocating at the time. *Id.* at 1225. Delgado claims that the acceptability of the public trust doctrine stifled or slowed progress on other fronts of environmental law reform, including: (1) the incorporation of a biocentric environmental ethic into environmental law; (2) the reflection of Native American religious and cultural beliefs in environmental law; and (3) the reflection of ecofeminist theories in environmental law. *Id.* at 1218-23. Delgado goes on to observe that what happened with the environmental law reform movement and the public trust doctrine is a natural

historical customs as justification for the doctrine.<sup>222</sup> Despite these criticisms of modern use of the public trust doctrine for resource protection, other scholars have proposed expanding the doctrine to protect water quality<sup>223</sup> and wildlife.<sup>224</sup>

From a Green Property perspective, the most relevant proposal with respect to expanding use of the public trust doctrine is Harry Bader's suggestion that courts reinterpret the public trust doctrine's fundamental purpose. Since public access to a despoiled resource is pointless, Bader suggests that we interpret traditional public access requirements as implying that the public should have access to healthy, functioning natural ecosystems.<sup>225</sup> Such a new interpretation of the public trust doctrine would allow use of the doctrine to protect entire ecosystems. Another way to view such a reinterpretation of the doctrine is as an assertion that "[b]iodiversity . . . should be considered as a part of the common property law of the state."<sup>226</sup>

Such a reinterpretation of the public trust doctrine might have some serious limitations, though. In a 1991 article about biological diversity, Holly Doremus described the following shortcomings of the public trust doctrine as a mechanism for the protection of biological diversity: (1) as judge-made law, the particulars of the public trust doctrine vary widely from state to state; (2) the public trust doctrine is developed in a piecemeal fashion, as a result of the vagaries of litigation, without the unifying structure of a statute or a constitutional provision; (3) the public trust doctrine, in its present form, is not well suited for the protection of plants;

---

phenomenon in any law reform movement. He concludes that the human tendency to resist change almost always will result in society choosing the reform with the lowest social cost. *Id.* at 1223-26.

222. Rose, *supra* note 216, at 715.

223. Ralph W. Johnson, *Water Pollution and the Public Trust Doctrine*, 19 ENVTL. L. 485, 485 (1989). Cf. Douglas L. Grant, *Western Water Rights and the Public Trust Doctrines: Some Realism About the Takings Issue*, 27 ARIZ. ST. L.J. 423, 425 (1995) (warning about possible takings implications of using public trust doctrine to disrupt settled expectations under some proprietary water rights systems).

224. Gary D. Meyers, *Variation on a Theme: Expanding the Public Trust Doctrine to Include Protection of Wildlife*, 19 ENVTL. L. 723 (1989). See also *Geer v. Connecticut*, 161 U.S. 519, 529 (1896) (noting that the power to regulate wildlife is lodged in the state, to be exercised as a trust for the people).

225. Harry R. Bader, *Antaeus and the Public Trust Doctrine: A New Approach to Substantive Environmental Protection in the Common Law*, 19 B.C. ENVTL. AFF. L. REV. 749, 750 (1992). See also Alison Rieser, *Ecological Preservation as a Public Property Right: An Emerging Doctrine in Search of a Theory*, 15 HARV. ENVTL. L. REV. 393, 418-21 (1991); Johnson & Galloway, *supra* note 154, at 30-33. Bader followed the succession theory of ecology when he proposed reinterpretation of the public trust doctrine. Bader, *supra*, at 756. His basic idea makes even more sense with the recent paradigmatic shift in ecology.

226. Johnson & Galloway, *supra* note 154, at 31.

and (4) courts currently use the public trust doctrine to protect public use of a resource, not to protect the resource itself.<sup>227</sup>

A new interpretation of the public trust doctrine, consistent with Bader's ideas, would address Doremus' last two concerns, but not the first two. Still, Bader's proposal is an idea for Green Property scholars to explore further. Such an interpretation of the public trust doctrine could be an effective way to reflect the need to protect the integrity of land communities in the tension between individual autonomy and community interests.

### C. Grassroots Political Participation: The Third Green Pillar

The Greens' third pillar—grassroots political participation—has a counterpart in Green Property: certain land use choices and other regulatory decisions should be made through the political process, by reference to public values, rather than solely by reference to economic analysis of costs and benefits.<sup>228</sup> Green Property recognizes that our economy must allocate scarce resources by reference to certain value choices, under conditions where economists often find it difficult to account for all externalities in dollars and cents. The marketplace might work well for allocation of scarce resources in some situations, but the marketplace is not the best place to make all of those value choices.<sup>229</sup>

The market might be the appropriate mechanism for making value choices with respect to resource allocation and consumption, if: (1) all

227. Holly Doremus, *Patching the Ark: Improving Legal Protection of Biological Diversity*, 18 *ECOLOGY L.Q.* 265, 325 (1991).

228. See, e.g., Daniel A. Farber, *Environmentalism, Economics, and the Public Interest*, 41 *STAN. L. REV.* 1021, 1023-28 (1989) (reviewing MARK SAGOFF, *THE ECONOMY OF THE EARTH: PHILOSOPHY, LAW, AND THE ENVIRONMENT* (1988)) (observing that analysis of costs and benefits is not the best way to make some resource allocations); Cass Sunstein observes that

[p]rivate preferences are an inadequate basis for environmental policy insofar as these are adaptive to an environmentally inadequate status quo. At least under ideal conditions (met rarely in the real world), democratic choices about the environment are probably to be preferred over private consumption decisions, even if free-rider and informational problems could be solved.

Cass R. Sunstein, *Endogenous Preferences*, *Environmental Law*, 22 *J. LEGAL STUD.* 217, 254 (1993).

229. Joseph Sax explains that sometimes the utility of property is exclusive and sometimes it is nonexclusive (i.e., people other than the landowner benefit in some way from the land as it is used). Sax, *supra* note 184, at 485-87. Aesthetic values are examples of nonexclusive utility. Markets work reasonably well to reallocate what Sax calls "exclusive property," but not to reallocate what Sax calls "nonexclusive property." *Id.* In fact, markets work progressively worse as the nonexclusive value of property increases, relative to the exclusive value of property. *Id.* Multiple beneficiaries of nonexclusive values cannot practically join together and bid in the market to protect their collective interest. *Id.* They are represented instead by government and regulation is, in effect, their collective bid. *Id.*

externalities of a proposed use of property can be both identified and quantified in dollars and cents; (2) the parties upon whom such costs will be externalized can be identified; (3) all such parties have full, free access to whatever information about common interests and externalities they need to make rational choices in the market; (4) no barriers, such as transaction costs, free riders, or holdouts, will prevent parties with common interests from acting jointly to protect their interests; and (5) the proposed use of property either will not have any impact upon future generations of humans or will have a measurable impact that can be accurately discounted to present value by a party or parties acting as trustee(s) for the future generations. If the market fails in any one or more of these variables, then the political process could be a better mechanism for making collective judgments about reasonable expectations for the use and enjoyment of one's possessions. Only if the market functions properly with respect to each one of these variables can it protect against a lapse in a property owner's observation of her duty to use her property responsibly, with respect to the rest of society.

The political community must make some value choices through the political process. The value choices that should be made through the political process, rather than the marketplace, are those choices that involve some dimension of social responsibility that is not or cannot be protected in market transactions. These choices include: (1) judgments concerning the reasonableness of one's expectations for the use and enjoyment of one's possessions, as balanced against the reasonable expectations of society, in situations where the market does not allow society to make such judgments rationally through exchanges of goods; (2) resource allocations that will impede our collective ability to conserve options for, quality of, and access to those resources for future generations;<sup>230</sup> and (3) consumption of resources that are held in trust for members of the public.<sup>231</sup>

As an essential corollary to the principle that some value choices should be made through the political process, Green Property seeks to maximize the number of different voices who participate in the process of defining public values and choosing which values are to be implemented in resource allocation decisions. The full range of connections between a resource and the rest of the land community to which it belongs, and the full range of potential ripple effects of a resource allocation, are more likely to be anticipated if the decision makers have the benefit of many different perspectives on the use of the resource. Disproportionate

---

230. See *supra* notes 193-212 and accompanying text.

231. See *supra* notes 213-227 and accompanying text.

negative consequences of resource allocations or consumption choices on identifiable segments of the populace, as documented in environmental justice/equity scholarship,<sup>232</sup> are examples of what happens when the political decision making process does not reflect the views of everyone who will be affected by the polity's decisions. Green Property theorists draw from the environmental justice/equity and ecofeminism<sup>233</sup> movements, from the study of indigenous peoples' attitudes toward property,<sup>234</sup> and from civic republicanism, among other movements, for

232. The basic theme of environmental justice/equity scholarship is that negative externalities from public decisions about the siting of locally undesirable land uses (such as hazardous waste disposal facilities) have fallen disproportionately heavily upon poor communities and upon communities of color. The explanations for the disproportionate impact range from accusations of racism to observations that the negatively impacted segments of the populace do not have the same access to influence in the decision-making process as do other segments of the populace. For background reading on this topic, see, e.g., ROBERT D. BULLARD, DUMPING IN DIXIE: RACE, CLASS, AND ENVIRONMENTAL QUALITY (1990); Regina Austin & Michael Schill, *Black, Brown, Poor and Poisoned: Minority Grassroots Environmentalism and the Quest for Eco-Justice*, 1 KAN. J.L. & PUB. POL'Y 69 (1991); Vicki Been, *Locally Undesirable Land Uses in Minority Neighborhoods: Disproportionate Siting or Market Dynamics?*, 103 YALE L.J. 1383 (1994) (finding that more research is needed to determine whether poor neighborhoods attract locally undesirable land uses, or whether locally undesirable land uses depress property values and attract poor people to surrounding neighborhoods); Robert D. Bullard, *Race and Environmental Justice in the United States*, 18 YALE J. INT'L L. 319 (1993) (noting that government should lead the effort to remediate the problems caused by disproportionate siting of undesirable land uses in low-income and minority communities); Luke W. Cole, *Remedies for Environmental Racism: A View from the Field*, 90 MICH. L. REV. 1991 (1992); Kelly M. Colquette & Elizabeth A. Henry Robertson, *Environmental Racism: The Causes, Consequences, and Recommendations*, 5 TUL. ENVTL. L.J. 153 (1991); Richard J. Lazarus, *Pursuing "Environmental Justice": The Distributional Effects of Environmental Protection*, 87 NW. U. L. REV. 787 (1993) (noting that environmental justice studies confirm that problems exist with respect to distribution of environmental goods and that these problems have a racial origin); Rachel D. Godsil, Note, *Remediating Environmental Racism*, 90 MICH. L. REV. 394 (1991); Symposium, *Environmental Justice: The Merging of Civil Rights and Environmental Activism*, 9 ST. JOHN'S J. LEGAL COMMENT 437 (1994); Symposium, *Essays on Environmental Justice*, 96 W. VA. L. REV. 1017 (1994); Symposium, *Race, Class, and Environmental Regulation*, 63 U. COLO. L. REV. 839 (1992); Symposium, *Urban Environmental Justice*, 21 FORDHAM URB. L.J. 425 (1994).

233. For general background reading on ecofeminism, see IRENE DIAMOND & GLORIA FEMAN ORENSTEIN, *REWEAVING THE WORLD: THE EMERGENCE OF ECOFEMINISM* (1990); YNESTRA KING, *WHAT IS ECOFEMINISM?* (1990); JUDITH PLANT, *HEALING THE WOUNDS: THE PROMISE OF ECOFEMINISM* (1989); MARIA MIES & VANDANA SHIVA, *ECOFEMINISM* (1993); JONI SEAGER, *EARTH FOLLIES: COMING TO FEMINIST TERMS WITH THE GLOBAL ENVIRONMENTAL CRISIS* (1993).

234. For general background reading on indigenous peoples' attitudes toward property ownership, see DAVID SUZUKI & PETER KNUDTSON, *WISDOM OF THE ELDERS: HONORING SACRED NATIVE VISIONS OF NATURE* (1992); CHRISTOPHER VECSEY & ROBERT W. VENABLES, *AMERICAN INDIAN ENVIRONMENTS: ECOLOGICAL ISSUES IN NATIVE AMERICAN HISTORY* (1980); Robin Paul Malloy, *Letters from the Longhouse: Law, Economics, and Native American Values*, 1992 WIS. L. REV. 1569; D. Bruce Johnson, *The Formation and Protection of Property Rights Among the Southern Kwakiutl Indians*, 15 J. LEGAL STUD. 41 (1986); Jean West & Wynell Burroughs Schamel, *Those Waterless, Sandy Valleys: Petition of the Moqui Women*, 5 MAG. OF HISTORY 46 (1991) (includes a copy of an 1894 letter from the women of the Moqui tribe in Arizona, explaining why their people observed a form of communal ownership of land and requesting that the "Washington chiefs" not force them to

Green Property's emphasis upon grassroots political participation in resource allocation decisions.

The ecofeminism movement has been closely allied with development of many Green ideas. One way to understand ecofeminism is to focus on the assertion that women see nature through different eyes than men see nature—women are more sensitive to the interdependence of all forms of life, while men are aggressors who seek to dominate their surroundings.<sup>235</sup> This view of inherent spiritual and psychological distinctions between genders has led some feminists to assert that men's oppression of nature runs parallel to men's oppression of women and children, to wealthy men's oppression of poor people, and to white men's oppression of indigenous and minority peoples.<sup>236</sup> According to ecofeminists, we cannot hope to stop society's domination and exploitation of nature until wealthy, white men stop dominating and exploiting women, children, poor people, indigenous people, and minority people. In other words, ecofeminists attribute many of our global and local environmental problems to the oppressive, domineering, exploitative environmental policies followed by the wealthy, white men who rule the upper echelons of government and business—the same wealthy, white men who also oppress, dominate, and exploit women, children, poor people, indigenous people, and minority people. To remediate this problem, ecofeminists believe that women, poor people, indigenous people, and minority people must have a stronger voice in making environmental policies through the political process. Ecofeminists assert that different perspectives on the use and consumption of natural resources will come with (1) greater diversity of participation

---

subdivide reservation land into privately owned parcels).

Professor Carol Rose examines some attitudes of indigenous peoples toward nature in Rose, *supra* note 75, at 14-19. Rose asserts that some indigenous peoples' beliefs about the relationship between humans and nature might distract us from focusing on our own responsibility for environmental harm. She focuses on indigenous peoples' beliefs that game animals consciously allow themselves to be captured, and that scarcity of game reflects the animals' decision to avoid capture by hiding. She then asserts, however, that indigenous peoples' beliefs also serve the important purpose of making us think harder about the ethical foundations of our view of nature—hopefully leading to a greater appreciation and respect for nature, which might be called an "ethic of kinship." *Id.* at 19.

To guard against overly romanticized accounts of Native Americans' relationship to nature, see James L. Huffman, *An Exploratory Essay on Native Americans and Environmentalism*, 63 U. COLO. L. REV. 901 (1992).

235. In a recent monologue on his "Prairie Home Companion" radio show, humorist Garrison Keillor referred to this male condition as "testosterone poisoning." On a more serious and controversial note, researchers at the University of Pennsylvania School of Medicine recently published the results of a study that suggests there may be a neurological reason that men react differently to emotional stimuli than women react to the same stimuli. Ruben C. Gur et al., *Sex Differences in Regional Cerebral Glucose Metabolism During a Resting State*, 267 SCIENCE 528 (1995).

236. E.g., PETRA K. KELLY, THINKING GREEN! 12-13 (1994).

at the grassroots level of politics, and (2) greater diversity in positions of authority.<sup>237</sup> According to ecofeminists, women, poor people, indigenous people, and minority people are likely to give greater consideration to social responsibility when determining which expectations for the use of resources will be regarded as reasonable and protected as property. They conclude that society will be less violent when it shifts from an ethic of domination and exploitation to an ethic of cooperation and social responsibility.<sup>238</sup>

Widespread, diverse, grassroots participation in the political process is the Green answer to the question of how to involve more women, poor people, indigenous people, and minority people in positions of authority in government and business—where “property” is differentiated from “not property.”

The process by which environmental policies are made in the political arena is a matter of great interest to Green Property scholars. Public choice theory, which applies economic analysis of human behavior to the conduct of legislators and regulators, is a currently popular means for examining of the manner in which environmental policies are made.<sup>239</sup> One branch of public choice theory regards the influence of special interest groups over legislators as being determinative of environmental policy outcomes.<sup>240</sup> Another branch of public choice theory regards environmental policy outcomes as almost random results of the serendipitous circumstances in which legislators consider environmental

---

237. See, e.g., Robert F. Housman, *The Muted Voice: The Role of Women in Sustainable Development*, 4 GEO. INT'L ENVTL. L. REV. 361, 364 (1992) (“The failure to incorporate women in development processes has deprived developers of women’s knowledge and experience with small-scale, long-term, resource-efficient development, which could be a valuable tool for achieving sustainable development.”) (footnote omitted).

238. See Karen J. Warren, *The Power and Promise of Ecological Feminism*, 12 ENVTL. ETHICS 125 (1990). But see Christine J. Cuomo, *Unravelling the Problems in Ecofeminism*, 14 ENVTL. ETHICS 351 (1992).

239. See, e.g., James E. Krier & Clayton P. Gillette, *The Un-Easy Case for Technological Optimism*, 84 MICH. L. REV. 405, 422-27 (1985) (arguing that large, loosely organized groups of citizens seeking diffuse collective benefits will be less likely to influence legislators than small, tightly controlled private interest groups seeking specific benefits); Michael C. Blumm, *Public Choice Theory and the Public Lands: Why “Multiple Use” Failed*, 18 HARV. ENVTL. L. REV. 405, 407-08 (1994) (arguing that small, well-organized groups of local irrigators, ranchers, miners, and timber companies historically have been able to “capture” administrative agencies with jurisdiction over the public lands, to the disadvantage of disorganized, distant public owners whose primary interest may be simply the maintenance of sustainable ecosystems on the public lands).

240. E.g., Daniel A. Farber, *Politics and Procedure in Environmental Law*, 8 J.L. ECON. & ORGANIZATION 59, 78-9 (1992) (lawmakers, rather than being passive exploiters of existing opportunities for re-election, play opposing interest groups against each other in order to create new opportunities for re-election; public environmental groups serve to balance the influence of private special interest groups over legislators); Blumm, *supra* note 239, at 415-16.

issues, because of the impossibility of satisfying all individual preferences with a single social preference rule.<sup>241</sup>

A complement to the interest group branch of public choice theory explains environmental policy-making by reference to citizens' abilities to put the greater good of the whole community ahead of their own interests in the political process. This focus on civic virtue, known as civic republicanism, is rooted in the political philosophy of Thomas Jefferson. Jefferson believed that ownership of property (especially ownership and occupancy of land) fostered private virtue in citizens, which in turn fostered the public virtue needed to subvert personal interests to the best interests of the community as a whole.<sup>242</sup> Although James Madison's classical liberalism may have eclipsed Jefferson's civic republicanism as the dominant political philosophy at the end of the Eighteenth Century, civic republicanism never disappeared completely from the American political scene.<sup>243</sup> The environmental awakening of the 1970s may have been a revival of civic republican approaches to property, in which citizens showed their willingness to elevate public interests in environmental protection over their own economic self-interests.<sup>244</sup>

The Green Property principle of social responsibility is tied closely to a civic republican view of the political process. Proposed laws that would require intransigent private property owners to use their property responsibly, with respect to the rest of society, are not likely to fare well in the political arena, unless (1) legislators are able to elevate the community's best interest over their own self-interest, or (2) legislators see the elevation of the community's best interest as being in their own best interest. The former condition assumes that legislators and the citizens who elect them can be motivated by a civic republican version of public virtue. Ecological awareness, reinforced by widespread grassroots

---

241. E.g., Daniel A. Farber, *From Plastic Trees to Arrow's Theorem*, 1986 U. ILL. L. REV. 337, 352-54 (Arrow's theorem, as this branch of public choice theory is known, applies to the market, as well as to the political arena, thereby undercutting the legitimacy of the market as a mechanism for making environmental policy by aggregating individual preferences.); Blumm, *supra* note 239, at 416 (briefly describing Arrow's Theorem and comparing it to interest group analysis).

242. E.g., Stanley N. Katz, *Thomas Jefferson and the Right to Property in Revolutionary America*, 19 J.L. & ECON. 467 (1976). For a discussion of the link between land ownership and social responsibility, noting the breakdown in social responsibility that occurs when absentee ownership becomes common, see Freyfogle, *supra* note 127, at 734-35.

243. Gregory S. Alexander, *Time and Property in the American Republican Legal Culture*, 66 N.Y.U. L. REV. 273 (1991).

244. Farber, *supra* note 240, at 66-7. Farber draws heavily from the work of James G. Pope in *Republican Moments: The Role of Direct Popular Power in the American Constitutional Order*, 139 U. PA. L. REV. 287 (1990). Pope refers to uprisings of public virtue, such as the 1970s groundswell of support for environmental protection, as "republican moments." *Id.* at 310-11.

participation, could foster the public virtue needed to realize this Green vision.<sup>245</sup> The latter condition requires that environmental issues be so critical as to be salient on the voting public's agenda (and thus critical to chances of re-election),<sup>246</sup> or that environmental interest groups be large enough and well enough organized to outweigh the influence of the private special interest groups that represent the intransigent landowners. Grassroots participation in the political process can make environmental issues salient on the public's agenda, or can give environmental interest groups the strength needed to influence legislators.

Greens who participate in environmental policy-making at a grassroots level may be motivated by ecological awareness or by a sense of duty that grows out of public virtue, or by some combination of both. The important point is for Greens to participate in the institutions where "property" is differentiated from "not property," so that the need to protect the integrity of land communities is reflected in the tension between individual autonomy and community interests.

#### *D. Nonviolence: The Fourth Green Pillar*

The Greens' fourth pillar—nonviolence—also has a counterpart in Green Property. As Charlene Spretnak and Fritjof Capra note in their book, *Green Politics*, "an economy that is ecologically balanced and socially just will naturally be nonviolent."<sup>247</sup> Greens, such as the late Petra K. Kelly, also are quick to point out that military aggression is a natural consequence of "a consumer lifestyle and manufacturing methods that are based on the steady flow of natural resources recklessly squandered . . . ."<sup>248</sup> Patterns of consumption and methods of manufacturing are affected to some degree by property laws, so Greens see a connection between property rights and "the violent appropriation of foreign raw materials" through military aggression, to support continuation of such consumption and manufacturing patterns.<sup>249</sup> Greens warn that "[i]n this light, the Gulf War was a harbinger of future conflicts that will arise in the global struggle for increasingly scarce natural resources."<sup>250</sup>

245. *But see* Freyfogle, *Ethical Strands of Environmental Law*, *supra* note 13, at 842 (finding that "public education is a slow process, and even the best ecologists know only a small part of the story").

246. Krier & Gillette, *supra* note 239, at 427.

247. SPRETNAK & CAPRA, *supra* note 66, at 89.

248. KELLY, *supra* note 236, at 121.

249. *Id.*

250. *Id.* The reference to the Gulf War implies that the conflict centered around efforts to control access to the oil fields in and around Kuwait. Greens believe that the United States' leadership of the coalition forces against Iraq was less about principled defense of a threatened ally and more about

Green scholarship in the area of nonviolence and the environment generally falls into one of four categories: (1) international legal approaches to preventing the proliferation of environmentally destructive weapons;<sup>251</sup> (2) domestic environmental law, as it affects American obligations to disarm and dispose of weapons pursuant to international disarmament treaties;<sup>252</sup> (3) international law governing the infliction of environmental damage during times of war;<sup>253</sup> or (4) international environmental cooperation to avoid conflict over resources.<sup>254</sup>

The most relevant category of Green articles on nonviolence, for purposes of this general description of Green Property, is the fourth category listed above. In his 1992 article, Alan Button theorizes that international cooperation concerning environmental matters may help nations avoid armed conflicts over resources.<sup>255</sup> In order to achieve peaceful cooperation, nations need to share an environmental ethos. A common international environmental ethos allows nations to address international environmental problems with a combination of hortatory, goal-setting declarations,<sup>256</sup> binding international compacts that use trade as an enforcement or implementation mechanism for environmental protection,<sup>257</sup> and unilateral actions by nations to address global

---

protecting the United States' access to Middle Eastern oil.

251. E.g., Barry Kellman, *Bridling the International Trade of Catastrophic Weaponry*, 43 AM. U. L. REV. 755 (1994); Richard L. Williamson, Jr., *Law and the H-Bomb: Strengthening the Nonproliferation Regime to Impede Advanced Proliferation*, 28 CORNELL INT'L L.J. 71 (1995); Elizabeth A. Smith, Note, *International Regulation of Chemical and Biological Weapons: "Yellow Rain" and Arms Control*, 1984 U. ILL. L. REV. 1011; Burns H. Weston, *Book Review: Preventing a Biological Arms Race*, 86 AM. J. INT'L L. 849 (1992).

252. E.g., David A. Koplow, *How Do We Get Rid of These Things?: Dismantling Excess Weapons While Protecting the Environment*, 89 NW. U. L. REV. 445 (1995); Van S. Katzman, Note, *The Waste of War: Government CERCLA Liability at World War II Facilities*, 79 VA. L. REV. 1191 (1993).

253. See, e.g., Andronico O. Adede, *Protection of the Environment in Times of Armed Conflict: Reflections on the Existing and Future Treaty Law*, 1 ANN. SURV. OF INT'L & COMP. L. 161 (1994); Betsy Baker, *Legal Protections for the Environment in Times of Armed Conflict*, 33 VA. J. INT'L L. 351 (1993); Michael D. Diederich, Jr., "Law of War" and Ecology—A Proposal for a Workable Approach to Protecting the Environment Through the Law of War, 136 MIL. L. REV. 137 (1992); Nicholas A. Robinson, *International Law and the Destruction of Nature in the Gulf War*, 21 ENVTL. POL'Y & L. 216 (1991).

254. E.g., Alan L. Button, *Prerequisite to Peace: An International Environmental Ethos*, 59 TENN. L. REV. 681 (1992).

255. *Id.* at 682.

256. The Stockholm Declaration is an example of such a hortatory declaration. *Id.* at 684-90.

257. International conventions on wildlife are a common example of such trade agreements. *Id.* at 690-96.

environmental problems.<sup>258</sup> Button suggests that the basic framework of such an ethos already exists in most cultures of the world.<sup>259</sup>

The connection that Button highlights between peaceful cooperation on transnational environmental problems and the avoidance of violent conflict over resources ultimately is rooted in the first law of ecology. Appreciation for the interconnectedness of different nations and their resources can lead to greater appreciation for their interdependence, which in turn can lead to greater economic and social cooperation and a reduction in belligerence. A common environmental ethos—one that recognizes the futility of political boundaries, with respect to problems of global environmental degradation and biodiversity preservation—indeed may provide the ethical and moral foundation for the international equivalent of a standard of social responsibility against which the conduct of all nations could be measured.

### III. GREEN PROPERTY, ECOLOGY, AND ECONOMICS

Greens reject classical liberal property theory, because it consciously denies the interdependence of humans and other components of land communities. Rejection of classical liberal property theory, however, need not include rejection of all of the positive contributions that classical liberalism has made to our legal system. Among many other positive contributions, classical liberalism encouraged consideration of other social sciences, such as economics, in property law scholarship. Proponents of Green Property must recognize the science of economics, as well as the science of ecology, or Green Property would be as flawed as is classical liberal property theory.<sup>260</sup> Free markets and rational maximizers have

---

258. Button illustrates this point by reference to H.R. Cong. Rec. 248, 101st Cong., 2d Sess. (1990), concerning the use of foreign aid to address consequences of desertification. *Id.* at 681-82.

259. Button asserts that the common environmental ethos is built around the following nine elements: (1) Creation stories, common to all cultures, that recognize a supreme being as the source of all life; (2) human responsibilities for stewardship of the rest of Creation; (3) human instincts to protect human health and, ultimately, ensure human survival; (4) human obligations to posterity, or what Edith Brown Weiss calls intergenerational equity; (5) human attention to material comfort; (6) appreciation of natural beauty; (7) altruism; (8) a common quest for justice; and (9) a common desire for peace. *Id.* at 707-16.

260. Devotees of Leopold's land ethic might accuse me of treason for suggesting that microeconomic analysis has a role to play in Green Property. Leopold was not a fan of economics, which he equated with human-centered selfishness and greed. I agree with him, to the extent that he meant that land use decisions involve value choices and not just cost-benefit calculations. However, it would be just as wrong for Green Property to ignore economics as it is for classical liberal property theory to ignore ecology.

places in Green Property. Market failures and intervention by our collective self to correct those failures also have places in Green Property.

Joseph Sax admonishes us to work toward developing an "economy of nature," which recognizes and works within the laws of nature, instead of continuing to develop our existing "transformative economy," which denies the truth of the laws of nature and treats natural resources as discrete, inert, and passive goods—waiting to be transformed into something useful for humans.<sup>261</sup> This is an important principle of Green Property: from a utilitarian perspective, the optimal property law regime is one that seeks to maximize our collective social welfare *within the constraints imposed upon our consumption of resources by the laws of nature*. Crucial to this view is the principle that we must define our collective social welfare by reference to the constraints imposed by the natural world and by reference to the social responsibility dimension of property ownership.

In some respects, the difference between classical liberal and Green approaches to economic models can be described in terms of utility. The classical liberal approach to utility assumes that each market participant will look out for her own best interest with each choice that she makes in the market, with protection of her own liberty, happiness, and personal security as the value that most strongly influences her self-interested concept of utility. The Green approach to utility also assumes that market participants will seek to maximize their own utility with market choices, but that each such market participant must: (1) recognize her place in various land and political communities; (2) acknowledge that each component of the land and political communities is linked to other components by a complicated web of interdependent relationships; and (3) consider the possible ripple effects of potential choices on those communities, when she makes such market choices. Green market participants consider how their choices will sustain the integrity of the land communities to which they belong, in addition to considering how their choices will affect their own individual places within those communities, because they understand that the relative health of their land communities will have a centrally important impact on the quality of life for humans in those communities.

The weaknesses of this Green economic model of property law are that not all market participants recognize or understand their places in various land and political communities, nor do they all understand how each market choice will have ripple effects within those communities, nor

---

261. Sax, *supra* note 13, at 1442-46.

will all participants who recognize the concepts of interdependence and ripple effects be willing to define personal utility partially according to the integrity of their communities. The first two problems are examples of the information deficiency malfunction of free markets. We can take collective action through public education or through mandatory stop-and-think decision-making requirements in order to correct these market malfunctions to the best of our ability. Public education about ecology will bring about the "change in human values or ideas of morality" that Garrett Hardin described as the ultimate solution to commons problems.<sup>262</sup>

Public education about ecology may help with the first two problems but it will not help with the third problem which is the same private aggression with which the classical liberal version of economics must reckon.<sup>263</sup> As with the classical liberal version of economic analysis, the

262. See *supra* note 163. In an interview with the editors of Nature Conservancy, Edward O. Wilson was asked how he deals with the attitudes of "anti-environmentalists," whom he described as posing a bigger threat to the long-term outlook for conservation activism than does public apathy. Wilson's response was "Educate, educate, educate." *A Conversation with E. O. Wilson*, NATURE CONSERVANCY, July-August 1994, at 24, 29. See also Meyers, *supra* note 92, at 661 ("Only public education that produces public acceptance of an ethic that places humans in nature rather than as her conquerors will lead to preservation of our common biological heritage."). But see Freyfogle, *Ethical Strands of Environmental Law*, *supra* note 13, at 842 ("[P]ublic education is a slow process, and even the best ecologists know only a small part of the story.").

263. Karl Sigmund uses game theory—specifically, the Iterated Prisoner's Dilemma game—to analyze strategies for controlling private aggression in GAMES OF LIFE: EXPLORATIONS IN ECOLOGY, EVOLUTION, AND BEHAVIOUR 180-206 (1993). Players in the game have a choice of acting cooperatively or aggressively in each round. If both players act aggressively, then each earns one point. If both act cooperatively, then each earns three points. If one acts aggressively while the other acts cooperatively, then the aggressor earns five points and the cooperator earns nothing. In the one-on-one version of the game, a retaliatory strategy known as "Tit-for-Tat" is an effective way to control aggression and maximize aggregate scores over the long term. *Id.* at 185-186. When one player acts aggressively in one round, the Tit-for-Tat strategist responds by acting aggressively in the next round. Eventually, the first aggressor learns to cooperate and both players prosper. However, when the game is expanded to multiple players to simulate access to a common resource, the Tit-for-Tat strategy no longer is effective. The negative effects of retaliation against aggression are diffused among all players, instead of having a concentrated effect on the aggressor, so retaliation is not an effective disincentive for future aggression. Another problem surfaces with multiple players: some players are quite willing to always let someone else be the retaliator (economists call these players "free riders"). Sigmund concludes that there does not appear to be an effective individual strategy to control aggression with multiple players in a simulated commons. Indeed, if many users of a common resource are compared to parasites on a host, Sigmund gloomily predicts that evolution will result in the extinction of the parasites who do not learn to restrain their exploitation of their host. *Id.* at 204-06.

Sigmund's sobering conclusion about parasites and hosts calls to mind Aldo Leopold's warning about potato bugs:

[I]f we fail to preserve wilderness areas that ha[ve] helped build the race for such innumerable centuries that we may logically suppose [they] will help preserve it in the centuries to come . . . , [then] it seems to me we fail in the ultimate test of our vaunted superiority—the self-control of environment. We fall back into the biological category

Green approach to private aggression must rely upon intervention by our collective self to control private aggression in the consumption of common resources.<sup>264</sup>

Green Property also must deal with other market failures. Transaction costs and free riders still will be problems with a Green understanding of property, but the occasions on which neighbors need to act collectively to negotiate the end of an undesirable land use should be fewer. The fine-tuning of our regulatory machinery can be geared toward influencing market choices by taking advantage of a Green approach to defining utility. Then, a Green understanding of property should result in fewer negative externalities that require internalization through market transactions or a regulatory system, because more ecologically conscious market participants should think about those ripple effects in advance and should make choices that seek to minimize the negative ripple effects. Green Property includes consideration of our place in land communities and of our responsibilities to future generations of humans, so adoption of a Green perspective on property issues should address the tendency of free markets to overly discount or ignore these values—even if it does not completely alleviate the need for government to sometimes play the role of trustee or guardian ad litem. Green Property encourages a change in human values or ideas of morality, to help prevent the depletion of common resources. Green Property also can provide the framework for the “mutual coercion, mutually agreed upon” that is needed to control private aggressors who refuse to adopt new values or ideas of morality.

#### IV. CONCLUSION

Green Property is built upon the laws of nature as we understand those laws through the science of ecology. The two most important principles of ecology, for purposes of property law, are that Earth's resources are finite and that everything on Earth is connected to everything else. The latter point highlights the primary distinction between classical liberal property theory, which protects individual human liberty, happiness, and personal security by emphasizing independence, and Green Property, which protects the integrity of life-sustaining natural land communities by emphasizing interdependence.

---

of the potato bug which exterminated the potato, and thereby exterminated itself. ALDO LEOPOLD, *The River of the Mother of God*, in *THE RIVER OF THE MOTHER OF GOD AND OTHER ESSAYS* BY ALDO LEOPOLD 127 (Susan L. Flader & J. Baird Callicott eds., 1991).

264. See *supra* note 35.

Protection of individual liberty, happiness, and personal security is the ultimate goal of classical liberal property theory. Classical liberals assume that the world in which an individual enjoys liberty, happiness, and personal security is safe and aesthetically pleasing enough to make the enjoyment of those benefits worthwhile. Classical liberals rely on the free market to allocate resources—primarily to protect individual liberty, happiness, and personal security and, only secondarily, to protect against degradation of humans' environment so that people can enjoy their liberty, happiness, and personal security.

Greens do not make the same assumption that classical liberals make. Greens do not take the health and aesthetic integrity of the human environment for granted. Greens, motivated by a whole spectrum of ethical creeds, recognize that the interconnectedness of each thing in our biosphere makes our human environment a very fragile thing. A solid foundation in ecology and other natural sciences allows Greens to appreciate the need to protect the integrity of land communities through property law.

Greens understand that, as citizens of land communities and with a uniquely profound capacity to disturb the natural evolutionary processes of those communities, humans have a special responsibility to society to minimize our negative impacts on the land communities in which we live. Our social responsibility could be described in ecological terms as a duty to maintain the ability of our land communities to continue evolving and recovering from natural disturbances to the evolutionary process. Greens acknowledge that we owe this duty to at least human neighbors of the present generation and to our descendants—and possibly to other living creatures, too.

The duty to use resources in a socially responsible manner may not be observed by all citizens at all times, so Greens are prepared to resort to collective action to regulate the use of land and other resources. However, Greens are very conscious of the need for all segments of society to participate actively in the collective action at a grassroots level. Grassroots participation in collective action ensures, as best we can, that (1) the collective action is not oppressive with respect to any one or more segments of society, and (2) society as a whole benefits from the unique gifts and perspectives of its different members. Widespread grassroots participation in the collective act of defining social responsibility will increase our chances of settling conflicts peacefully—on a global level as well as a neighborhood level—and will minimize violent disruptions of our land communities. In the Green, utopian world of peaceful cooperation, individuals truly can enjoy their liberty, happiness, and personal security.

Green Property synthesizes all of the natural, physical, and social sciences into one integrated foundation for a property rights regime. By combining ecological awareness and microeconomic analysis, Green Property accounts for the ripple effects of land use or resource consumption decisions within an ecosystem. Ecological awareness and the institutional mechanisms for incorporating such awareness in the policy-making process combine to make Green Property more sound than a property regime based upon classical liberal property theory. A Green perspective on property law helps focus attention on the role that property law can play in addressing today's salient environmental problems. Green Property reflects the need to protect the integrity of land communities in the tension between individual autonomy and community interests.

Opportunities for regulators and legislators to embrace Green Property are almost boundless as Congress debates national environmental policy and state legislatures face many of the same issues on more localized levels. Opportunities for judges to embrace Green Property principles are less obvious but still significant. Judges can participate in Green efforts to reform property law by: (1) using the language of social responsibility to explain existing common law limitations on the use of land and other resources; (2) using written opinions as opportunities to explore the relationships that link property owners to all other components of land communities, thereby providing guidance for future litigants and for society at large on issues of land use and resource consumption; (3) alerting legislators and regulators to possibilities for clarification in statutes and regulations, while also providing the court's own clarification of how such statutory or regulatory changes might be structured to comply with constitutional protections for private property; (4) identifying common property interests that might be affected by proposed uses of land and other resources, and giving more consideration to those common property interests—especially when addressing the tension between individual control over property and community interests in how property is used; and (5) allowing advocates more opportunities to assert common property ownership interests and other community interests in disputes about the use of land and other resources.<sup>265</sup>

A shift toward Green Property, though, is not a responsibility of any branch of government—we cannot wait idly for government to make the changes needed to protect the integrity of our biosphere. As individual

---

265. This list is based on a similar effort by Eric Freyfogle in *Water Justice*, 1986 U. ILL. L. REV. 481, 518-19. The classic example of a court using the common law to advance Green efforts to reform property law is *Just v. Marinette County*, 201 N.W.2d 761 (1972) (holding that a landowner has no inherent right to alter the natural character of his land).

citizens of land and political communities, each one of us must begin to define our own utility by reference to our social responsibility. We must value public virtue and participate in the political process at a grassroots level. Only then can we move the institution of property law away from ecological ignorance and toward a healthy respect for the naturally interdependent relationships that bind us together as neighbors in land communities. Only then will the need to protect the integrity of land communities be reflected in the tension between individual freedom and community interests.

