

2003

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## Recommended Citation

Wildermuth, Amy J., "Eco-Pragmatism and Ecology: What's Leopold Got to Do with It?" (2003). *Minnesota Law Review*. 766.  
<https://scholarship.law.umn.edu/mlr/766>

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# Eco-pragmatism and Ecology: What's Leopold Got to Do with It?

Amy J. Wildermuth<sup>†</sup>

## INTRODUCTION

As we know from fairy tales, it is risky to confront a giant. It is even less wise to confront two giants at one time, particularly the giants I have in mind, Professor Dan Farber and Aldo Leopold. Knowing the dangers, I will not attempt such a feat. Instead, I intend to examine some of their work, paying particular attention to how, by drawing on both Leopold's and Farber's work in combination, we might craft better solutions to environmental problems.

Eco-pragmatism, Farber's framework for resolving environmental problems,<sup>1</sup> is an effort to reshape environmental policy by providing us with a new process for resolving environmental policy issues. As important as I think this framework is, and as much as I agree with many of its principles and aims,<sup>2</sup> I think it wise to ask whether it is sufficient for the task at hand; whether it alone provides sufficient guidance to resolve disputes well, or whether instead it needs supplementation to accomplish its goals. Might Farber's approach, helpful as it is, be improved by drawing upon ideas set forth by conservation great Aldo Leopold? In particular, might Leopold's ideas about the overall aims of conservation policy serve to better Farber's framework?

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1. See generally DANIEL A. FARBER, *ECO-PRAGMATISM* (1999) (detailing Professor Farber's eco-pragmatic framework).

2. Many have sung the praises of Farber's eco-pragmatism but perhaps none as loudly as Professor J.B. Ruhl. See, e.g., J.B. Ruhl, *Is the Endangered Species Act Eco-pragmatic?*, 87 MINN. L. REV. 885, 887 (2003).

At his death in 1948, Aldo Leopold left a substantial body of writing on nearly all aspects of conservation. At the center of that writing was his overall conservation vision, carefully pieced together after many years of development. The claim I want to make is that Leopold's overall conservation vision, as articulated in five of his late essays,<sup>3</sup> could and should be used to supplement the tools of eco-pragmatism. I begin with my understanding of Farber's eco-pragmatic framework. I then turn to Leopold's essays and to an explanation of several of Leopold's key ecological concepts, in particular, to the exceedingly important concept that he termed land-health. Having introduced Leopold's ideas, I next consider the benefits of drawing his land-health concept into eco-pragmatism. My concluding thoughts hint at some of the many ways that Leopold's vision might be similarly put to use in improving the implementation of current federal environmental regulatory regimes.

### I. ECO-PRAGMATISM: WHAT IS IT?

The pragmatic approach to environmental problems according to Farber is an effort to construct a coherent framework that will guide our environmental decision making.<sup>4</sup> The emphasis here is on the process by which decisions are made, rather than on the achievement of a particular result.<sup>5</sup> A coherent framework, in his view, renders the process of environmental decision making more uniform by using available tools "to make intelligent judgments in hard cases."<sup>6</sup> It does not, however, require the use of a mechanical technique to give simplistic and definite answers to complex problems.<sup>7</sup>

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3. See Aldo Leopold, *Biotic Land-Use*, in FOR THE HEALTH OF THE LAND 198 (J. Baird Callicott & Eric T. Freyfogle eds., 1999) [hereinafter Leopold, *Biotic Land-Use*]; Aldo Leopold, *Planning for Wildlife*, in FOR THE HEALTH OF THE LAND, *supra*, at 193 [hereinafter Leopold, *Planning for Wildlife*]; Aldo Leopold, *The Farmer as a Conservationist*, in FOR THE HEALTH OF THE LAND, *supra*, at 161 [hereinafter Leopold, *The Farmer as a Conservationist*]; Aldo Leopold, *The Land-Health Concept and Conservation*, in FOR THE HEALTH OF THE LAND, *supra*, at 218 [hereinafter Leopold, *The Land-Health Concept and Conservation*]; Aldo Leopold, *The Outlook for Farm Wildlife*, in FOR THE HEALTH OF THE LAND, *supra*, at 213 [hereinafter Leopold, *The Outlook for Farm Wildlife*].

4. See FARBER, *supra* note 1, at 11.

5. *Id.*

6. *Id.* at 70-71.

7. *Id.* at 10.

Nor does it use those tools as ends in and of themselves.<sup>8</sup> For example, under this approach, “economic analysis is useful, but not controlling.”<sup>9</sup> Likewise, we do not rely “merely on intuition,” but do keep in mind that “[h]ard policy decisions can’t be programmed into a spreadsheet.”<sup>10</sup>

Several core tools, principles, and observations supply the framework of eco-pragmatism. Cost-benefit analysis is one useful tool, particularly for “resolving certain disputes about how to allocate resources.”<sup>11</sup> But “[w]illingness to pay does not come close to capturing all environmental values, and it would be foolish to base environmental law solely on this standard.”<sup>12</sup> On the other hand, political institutions allow forums for “deliberating about collective values,” which is valuable since “markets cannot determine the appropriate level of public goods.”<sup>13</sup> Yet like markets, politics too often provides “a blurry and sometimes distorted view of our society’s judgments.”<sup>14</sup> Indeed, the use of feasibility analysis—avoiding risks whenever feasible—is a tool that allows us to give greater weight to environmental benefits, but again should not be the only method employed when making an environmental decision.<sup>15</sup> Thus, in the end, we consider both politics and economics, as reflected in environmental statutes and the market respectively, in the process of making a decision.<sup>16</sup> As for the weight to give to each method, Farber suggests a hybrid approach: apply a feasibility analysis, but use cost-benefit analysis as a benchmark for what is feasible.<sup>17</sup>

Several other ideas play important roles in this framework. First, there is what Farber refers to as the environmental baseline, which is a general presumption in favor of environmental protection.<sup>18</sup> This presumption counsels that all significant risks should be abated unless the costs of doing so far outweigh the benefits.<sup>19</sup> Following logically from this

8. *Id.*

9. *Id.* at 9.

10. *Id.* at 10.

11. *Id.* at 41.

12. *Id.* at 65.

13. *Id.* at 43.

14. *Id.* at 65.

15. *See id.* at 72-73.

16. *See id.* at 68-69.

17. *Id.* at 116.

18. *See id.* at 200.

19. *Id.* at 201.

presumption is a green canon of interpretation,<sup>20</sup> based in part on the goals provided in the National Environmental Protection Act,<sup>21</sup> as well as a requirement that judicial discretion be environmentally friendly<sup>22</sup>—for instance, favoring injunctions when parties violate environmental statutes.<sup>23</sup> Because environmental problems often extend into the future, we should use relatively low discount rates to avoid improperly favoring the present or near future over the more distant future.<sup>24</sup> Moreover, it is useful, Farber advises, to employ a stewardship ethic to illustrate our responsibility to future generations.<sup>25</sup> In addition to all of this, we need a dynamic regulatory system.<sup>26</sup> Such a system would allow us to learn from our mistakes by allowing administrative systems to be more responsive and flexible, rather than requiring a system to make its decision perfect.<sup>27</sup> We might also revise the present environmental statutes such that they are no longer as rigid and inflexible.<sup>28</sup>

In the end, the guidelines for eco-pragmatism are:

- When a reasonably ascertainable risk reaches a significant level, take all feasible steps to abate it except when the costs of doing so would clearly overwhelm any potential benefits. Meanwhile, take prudent precautions against uncharted, but potentially serious, risks.
- Take a long-range view. Use low discount rates, maintain the responsibility of the current generation to ensure a liveable future, and treat the preservation of nature as an opportunity for long-term social saving.
- Keep in mind the uncertainty surrounding many environmental problems. Adopt coping strategies such as burden-shifting rules, postponement of irreversible decisions, and (when appropriate because of new information) deregulation.

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20. *See id.* at 123-27.

21. *See id.* at 125-27.

22. *Id.* at 30.

23. *See id.* at 127-30.

24. *Id.* at 150. *See generally id.* at 133-50 (exploring the use of discounting in the context of environmental cost-benefit analysis).

25. *See id.* at 160-61.

26. *See id.* at 163-98 (developing the concept of dynamic environmental regulation).

27. *See id.* at 179-80, 188.

28. *See id.* at 193-96.

- Overall, keep a sense of balance, while maintaining a firm commitment to environmentalism. Don't put economists in charge of the regulatory process, but take their views seriously as a reality check on overzealous regulation.<sup>29</sup>

## II. THE PILGRIM LEOPOLD

While Farber has laid out a comprehensive and workable framework, it would seem worthwhile to put it to the Aldo Leopold test. That is, it would seem useful to identify and study the similarities and differences between the approach of Leopold and that of Farber, asking in the process, Are there elements of Leopold's thought that might usefully be added to the eco-pragmatic framework to make it even more valuable for the work that lies ahead? To perform the task, I draw upon five of Leopold's mature essays,<sup>30</sup> selected from the more than 300 pieces by him published during his lifetime or since.

Leopold "was among the first observers to tell us in scientific detail that our seemingly robust land is ailing, and no one has told us more convincingly."<sup>31</sup> Even more importantly, Leopold left us with more than a tally of the harms—he left us with a "vision of remedies."<sup>32</sup>

Leopold began his career as a ranger in the United States Forest Service in the Southwest.<sup>33</sup> He later returned to the Midwest, the region of his birth, to work in the Forest Products Laboratory in Madison, Wisconsin.<sup>34</sup> When he quit the Forest Service in 1928, Leopold began to work as a game conservationist, which included taking surveys of game in

29. *Id.* at 201-02.

30. *See supra* note 3. I have selected these five essays for several reasons. Most importantly, these essays reflect Leopold's later, more developed thought on ecology. In addition, all five essays focus on Leopold's land-health concept, not to be confused with Leopold's well-known land ethic. I leave the explanation and defense of the land ethic to others. *See, e.g.,* J. Baird Callicott, *From the Balance of Nature to the Flux of Nature: The Land Ethic in a Time of Change*, in ALDO LEOPOLD AND THE ECOLOGICAL CONSCIENCE 91, 91-104 (Richard L. Knight & Suzanne Riedel eds., 2002); Eric T. Freyfogle, *A Sand County Almanac at 50: Leopold in the New Century*, 30 ELR 10058, 10063-64 (2000).

31. Scott Russell Sanders, *Foreword: Reading Leopold*, in FOR THE HEALTH OF THE LAND, *supra* note 3, at xv-xvi.

32. *Id.* at xviii.

33. *See* J. Baird Callicott & Eric T. Freyfogle, *Introduction*, in FOR THE HEALTH OF THE LAND, *supra* note 3, at 3, 14.

34. *See id.* at 6.

several Midwestern states.<sup>35</sup> This work led to Leopold's appointment as the nation's first Professor of Game Management in the Department of Agricultural Economics at the University of Wisconsin.<sup>36</sup> Through the lens of game management—that is, through his thinking and writing on the “restoration and management of ‘farm game’ populations”<sup>37</sup>—Leopold realized that “it was not game that required management but the habitat where game lived.”<sup>38</sup> Thus began Leopold's journey, a journey that resulted in some of the most important observations ever recorded about sick and healthy land. It was on his “worn-out eighty-acre farm”<sup>39</sup> near Madison, Wisconsin, that Leopold undertook much of the observing and experimenting that led to these ideas.

So we begin with Leopold, the “farm game” manager, and his thoughts, written in 1939, on farmers as conservationists: “Conservation means harmony between men and land.”<sup>40</sup> He asserted, “When land does well for its owner, the owner does well by his land; when both end up better by reason of their partnership, we have conservation. When one or the other grows poorer, we do not.”<sup>41</sup> In applying this wisdom, it was not enough, in Leopold's view, that farms were producing good yields of crops, for even a high-yielding farm could display signs of decline:

The fertile productive farm is regarded as a success, even though it has lost most of its native plants and animals. . . . What is the nature of the process by which men destroy land? What kind of events made it possible for that much-quoted old-timer to say: “You can't tell me about farming; I've worn out three farms already and this is my fourth?”<sup>42</sup>

Leopold, analogizing to a bank account, suggested that farmers were drawing more than the interest and, not surprisingly, the principal was dwindling—“the soil bank is tottering,”<sup>43</sup> the interest from the woodlot bank is being overdrawn, the wildlife and fish populations are being

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35. *See id.* at 8.

36. *See id.* at 9.

37. *Id.* at 4.

38. *Id.* at 23.

39. *Id.* at 7.

40. Leopold, *The Farmer as a Conservationist*, *supra* note 3, at 161.

41. *Id.*

42. *Id.* at 162.

43. *Id.* at 163.

decimated.<sup>44</sup> According to Leopold, this loss was the result of the “disordering of waters by erosion and pollution,”<sup>45</sup> which in turn was the result of “awkward land-use.”<sup>46</sup>

Leopold suggested a remedy, but it would not be easy: “Conservation, then, is keeping the resource in working order, as well as preventing overuse. Resources may get out of order before they are exhausted, sometimes while they are still abundant. Conservation, therefore, is a positive exercise of skill and insight, not merely a negative exercise of abstinence or caution.”<sup>47</sup> This kind of sensitive, attentive conservation, Leopold believed, could not be done by the Government, at least not on private lands where the Government could only act by regulation or incentive payments.<sup>48</sup> The individual farmer had to become voluntarily involved.<sup>49</sup> Leopold offered several suggestions for the farmer—leaving the creeks unstraightened, allowing the creek banks to remain wooded and ungrazed, having a good pond, keeping roadside refuges of prairie flora—but he knew that, in the end, the choice was the farmer’s to make.<sup>50</sup>

In 1941, Leopold wrote again of the need for farmers to take action and again made his case in the context of planning for restoring wildlife. He asserted,

The reasons for restoring wildlife are two: 1. It adds to the satisfactions of living [and] 2. Wild plants and animals are parts of the land-mechanism, and cannot safely be dispensed with. The land-mechanism, like any other mechanism, gets out of order. Abnormal erosion, loss of soil fertility, excessive floods and droughts, the spread of plant and animal pests, the replacement of useful by useless vegetation, and the dying out of protected species are all disorders of the land-mechanism.<sup>51</sup>

Leopold went on to say that “[s]cience, in short, has subjugated land, but it does not yet understand why some lands get out of order, others not.”<sup>52</sup> Accordingly, it is unwise to discard parts of the “land-mechanism” since we may discover later that those

44. *See id.* at 163-64.

45. *Id.* at 164.

46. *Id.* at 163.

47. *Id.* at 164.

48. *Id.* at 165.

49. *See id.* at 168.

50. *See id.* at 171-75.

51. Leopold, *Planning for Wildlife*, *supra* note 3, at 193-94.

52. *Id.* at 194.



parts “contribute to the stability of the land.”<sup>53</sup> Leopold told us again that the farmer is responsible for caring for the land, that he “must be willing to use odds and ends of land for special kinds of food and cover, and for water-retention.”<sup>54</sup> He noted, “Two or three per cent of the farm acreage thus devoted to wildlife, plus the waste corners present on most farms, and crop residues present on all farms, often spells the difference between wildlife riches and poverty.”<sup>55</sup> Importantly, Leopold laid this responsibility at the feet of individual farmers, not the government or the public at large, since in Leopold’s view, the public “always abuses common property.”<sup>56</sup> Nevertheless, government had a key role to play because “[t]he function of government is to teach, lead, and encourage.”<sup>57</sup> To stimulate the needed changes in how private landowners would treat their land, Leopold urged rethinking and reteaching: “We must *undo* the propoganda, brought to bear on landowners for the last century, which teaches that the land is a factory to be operated solely for profit. The land is a factory, but it is also a place to live, and wildlife helps make it a good place.”<sup>58</sup>

Based on this work, Leopold drew together his ecological and ethical understandings into the overall conservation vision that he referred to as land-health.<sup>59</sup> He defined “land” to include “soils, water systems, and wild and tame plants and animals.”<sup>60</sup> And he again defined conservation as “the attempt to understand the interactions of these components of land, and to guide their collective behavior under human dominance.”<sup>61</sup> Leopold told us that conservation requires “the technologies [to] accept as their common purpose the health of the land as a whole” in order to stop canceling each other out.<sup>62</sup> It also requires the use of yardsticks to appraise land-health.<sup>63</sup> For this purpose, he offered soil fertility as well as the diversity of

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53. *Id.*

54. *Id.* at 195.

55. *Id.*

56. *Id.* at 196; see also Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243, 1246 (1968).

57. Leopold, *Planning for Wildlife*, *supra* note 3, at 195.

58. *Id.* at 197.

59. Leopold, *The Land-Health Concept and Conservation*, *supra* note 3, at 219.

60. Leopold, *Biotic Land-Use*, *supra* note 3, at 199.

61. *Id.*

62. *Id.* at 202.

63. *Id.* at 202-03.

flora and fauna.<sup>64</sup> He also told us that “[l]and is stable when its food chains are so organized as to be able to circulate the same food an indefinite number of times.”<sup>65</sup> Leopold acknowledged, however, that science may never be able to write a formula that will tell us whether land is or is not stable (that is, in his terminology, healthy).<sup>66</sup> The best we can hope for from science is “to recognize and cultivate the general conditions which seem to be conducive to” stability.<sup>67</sup>

Closer to his death, Leopold penned a relatively somber appraisal of the prospects for achieving land-health. In “The Outlook for Farm Wildlife,” he explained that wildlife habitat was being destroyed, in part by poor farming techniques,<sup>68</sup> and that populations of both pest and native species were getting out of hand.<sup>69</sup> The response to this destruction was not to nurture the land’s natural systems but instead to turn to “[m]odern chemistry [which was] developing controls which may be as dangerous as the pests themselves ([e]xample: DDT).”<sup>70</sup> Leopold also warned that the industrialization of farming would lead to a situation that was “humanly desolate and economically unstable.”<sup>71</sup> The path to land-health, he realized, would not be easy, if indeed it could be followed at all.

In one of the last essays written before his death, Leopold not only fully explained his notion of land-health but also provided a rough plan of how best to pursue it.<sup>72</sup> With respect to land health, he wrote,

The symptoms of disorganization, or land sickness, are well known. They include abnormal erosion, abnormal intensity of floods, decline of yields in crops and forests, decline of carrying capacity in pastures and ranges, outbreak of some species as pests and the disappearance of others without visible cause, a general tendency toward the shortening of species lists and of food chains, and a world-wide dominance of plant and animal weeds. With hardly a single exception, these phenomena of disorganization are only superficially understood.<sup>73</sup>

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64. *Id.*

65. *Id.* at 205.

66. *Id.* at 203.

67. *See id.*

68. *See Leopold, The Outlook for Farm Wildlife, supra* note 3, at 214-15.

69. *Id.* at 215.

70. *Id.* at 216.

71. *Id.* at 218.

72. *See infra* notes 73-88 and accompanying text.

73. Leopold, *The Land-Health Concept and Conservation, supra* note 3, at 219.

As for Leopold's plan of action, it was, in his words, at bottom "a plea for ecological prediction by ecologists, whether or not the time is ripe."<sup>74</sup> Leopold was convinced that if we waited until we had all the information, there would be no healthy land left.<sup>75</sup> Drawing upon his own vast knowledge, Leopold took the lead by providing his own best guesses as to the "probable conditions requisite for the perpetuation of the biotic self-renewal or land-health."<sup>76</sup> He recommended that we "[c]ease throwing away its parts," "[h]andle it gently," "[r]ecognize that its importance transcends economics," and not "let too many people tinker with it."<sup>77</sup>

As to the first of his recommendations, that we stop throwing away the parts, Leopold argued that chain reactions of unknown length can occur when a part is removed.<sup>78</sup> He noted that "human predation by rifle is [not] the biotic equivalent of wolf predation"<sup>79</sup> and that "extirpation is never reversible."<sup>80</sup>

On handling the land gently, Leopold encouraged less violent conversions of land.<sup>81</sup> Violent conversion of land, to Leopold, included things like dams and lake outlet controls.<sup>82</sup> It also included a "violence . . . beyond water management" found in the "reckless use of new poisons."<sup>83</sup> Leopold thus implored us to use the land wisely, in a sustainable way.

On aesthetics, Leopold commented that "[t]he true problem of agriculture, and all other land-use, is to achieve both utility and beauty, and thus permanence."<sup>84</sup> Unfortunately, beauty was not valued and thus not conserved by the farmer—it was relegated to the state.<sup>85</sup> Leopold stated, "We can thank this subterfuge for our national parks, forests, and a sprinkling of wilderness areas, but we can also thank it for a million farmers who year-by-year grow richer at the bank, poorer in soil, and

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74. *Id.* at 220.

75. *See id.*

76. *Id.*

77. *Id.* at 220-21.

78. *Id.* at 220.

79. *Id.* at 222.

80. *Id.*

81. *See id.* at 223.

82. *Id.*

83. *Id.*

84. *Id.* at 225.

85. *Id.* at 224.

bankrupt in spiritual relationships to things of the land.”<sup>86</sup>

Finally, with respect to the problem of too many people tinkering with the land, Leopold alluded to the dangers of excessive human density and argued that “it is unthinkable that we shall stabilize our land without a corresponding stabilization of our density.”<sup>87</sup> In other words, human population must stay within the land’s carrying capacity; if it does not, both land and people will suffer.<sup>88</sup>

### III. IS THERE ROOM FOR LEOPOLD IN ECO-PRAGMATISM? SHOULD THERE BE?

What, then, does Leopold’s vision have to do with eco-pragmatism?

In many respects, the concepts laid out by Farber resemble Leopold’s views. Both are of the opinion that we are saving too little for the future and that we should take better care of the land for future generations.<sup>89</sup> Both are humbled by our ignorance.<sup>90</sup> Both think it is important to have a vision of healthy environments that includes humans.<sup>91</sup> And both would rely less, rather than more, on economics for the answers to our environmental problems.<sup>92</sup> Along with these similarities, there are important differences. For example, Leopold is skeptical of government as the solution to environmental problems except on publicly owned lands; Farber is more optimistic.<sup>93</sup>

86. *Id.*

87. *Id.* at 226.

88. See Stanley A. Temple, *Afterword*, in FOR THE HEALTH OF THE LAND, *supra* note 3, at 227, 236-38.

89. FARBER, *supra* note 1, at 133-62; Leopold, *The Land-Health Concept and Conservation*, *supra* note 3, at 219-20.

90. FARBER, *supra* note 1, at 165; Leopold, *The Land-Health Concept and Conservation*, *supra* note 3, at 203.

91. FARBER, *supra* note 1, at 205; Leopold, *The Farmer as a Conservationist*, *supra* note 3, at 172-75.

92. FARBER, *supra* note 1, at 122 (“[I]t seems to me, relying strictly on cost-benefit analysis would not do justice to our community’s values and would to some degree trivialize our national commitment to the environment.”); Leopold, *The Land-Health Concept and Conservation*, *supra* note 3, at 220-21 (“The biotic clock may continue ticking if we . . . [r]ecognize that its importance transcends economics.”).

93. Compare Leopold, *Planning for Wildlife*, *supra* note 3, at 195 (“The plan-wise adjustment is not primarily a matter of laws, appropriations, or administrative devices, but rather of modifying land-use so as to provide the habitat needed by each species. Hence the execution of a plan rests with farmers and landowners, rather than with government.”), with FARBER, *supra* note 1, at 19 (“The premise of this book is that environmental law is here to

But rather than catalog all the similarities and differences, it might prove more useful to ask what, if anything, could be added to the eco-pragmatic framework from Leopold's work?

The place to turn, in Farber's work, is to the point that seems the most important and yet is perhaps the least fully developed: his important concept of an environmental baseline.<sup>94</sup> With this baseline, Farber makes clear that we should favor the environment in our decisions, and he tells us to do this by employing a "presumption in favor of protecting the environment."<sup>95</sup> His proposals, from using cost-benefit analyses only as a check on unreasonable regulation rather than as the sole decision-making device, to employing a green canon of statutory interpretation,<sup>96</sup> are all well taken. But aside from specific recommendations, what exactly does it mean to say we should entertain a presumption in favor of the environment? What do we mean when we talk about "the environment," and how do we measure whether it is in good shape or not? And don't we need to know the state of the environment that we are to protect in order to protect it? In other words, how do we know what we are to protect? Ecology, presumably, plays a role in thinking about the environment, but is there some particular ecological model upon which we ought to draw? And what do we make of the vast disagreements within the ecological literature itself, including the rather fundamental divide between those who would have us sustain ecological functions as such and those who would have us focus instead on "keeping all the parts," as Leopold phrased it, or maintaining as much if not all of the native life forms that would inhabit a landscape if humans had left it alone?

It might be helpful at this point to take a small detour. At one point in his book, Farber suggests the use of his hybrid

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stay. . . . It is now time to consider how to shape our regulatory system to implement this commitment most effectively for the indefinite future.").

94. See *supra* notes 18-19 and accompanying text. Professor Farber suggested in his keynote address at this Symposium that "eco-pragmatists clearly do need some affirmative vision of what the world should look like, considering the needs of humans as well as the rest of the biosphere." Daniel A. Farber, *Building Bridges over Troubled Waters: Eco-pragmatism and the Environmental Prospect*, 87 MINN. L. REV. 851, 880 (2003).

95. See *supra* notes 18-19 and accompanying text.

96. See *supra* notes 11-17 and accompanying text (discussing cost-benefit analyses' role in eco-pragmatism); *supra* note 20 and accompanying text (noting Farber's suggested green canon of interpretation).

approach—a combination of feasibility and cost-benefit approaches that employs a “high value of life, conservative risk estimates, and a low discount rate for future benefits”—in conventional regulations or “at the industry or even global level to determine the appropriate level of environmental quality.”<sup>97</sup> He then suggests using “marketable permits and other nonregulatory measures to implement that level of control.”<sup>98</sup> It is a provocative suggestion, and one that invites comparison with the important work on conservation done by another great in this field, the economist Herman Daly.

According to Daly, the mistake made by those advocating cost-benefit analysis as the sole method for resolving environmental problems is a misunderstanding of scale and allocation.<sup>99</sup> As he explains,

The micro allocation problem is analogous to allocating optimally a given amount of weight in a boat. But once the best relative location of weight has been determined, there is still the question of the absolute amount of weight the boat should carry. This absolute optimal scale of load is recognized in the maritime institution of the Plimsoll line. When the watermark hits the Plimsoll line the boat is full, it has reached its safe *carrying capacity*. Of course, if the weight is badly allocated, the water line will touch the Plimsoll mark sooner. But eventually as the absolute load is increased, the watermark will reach the Plimsoll line even for a boat whose load is optimally allocated. Optimally loaded boats will still sink under too much weight—even though they may sink optimally! It should be clear that optimal allocation and optimal scale are quite distinct problems. The major task of environmental macroeconomics is to design an economic institution analogous to the Plimsoll mark—to keep the weight, the absolute scale, of the economy from sinking our biospheric ark.<sup>100</sup>

Daly suggests here that economics is not the only game in town because the market simply does not see scale. And because the market does not see scale, we need to use some other method to determine scale or, using his metaphor, to find the Plimsoll line.

Daly's point is helpful in seeing how Leopold's work might usefully augment Farber's eco-pragmatic framework and its central concept of an environmental baseline. If we are going to think seriously about environmental problems and possible solutions, it simply is not enough to talk vaguely about a presumption in favor of the environment. Far more needs to be

97. *Id.* at 116.

98. *Id.* at 119.

99. HERMAN E. DALY, *BEYOND GROWTH* 50 (1996).

100. *Id.*

said. To provide guidance, the presumption needs to be linked with a more detailed vision of the environment, a vision of an environment that is healthy in ways that sustain humans and the rest of the land community. Although eco-pragmatism is focused on process, not results,<sup>101</sup> that does not mean we should abandon all notions of what makes for a good environment. Indeed, the presumption in favor of the environment is not supposed to be neutral.<sup>102</sup> It needs more teeth.

And so we return to Leopold. Leopold offers us a way to think about ecological limits and environmental quality in terms of a concept called land-health.<sup>103</sup> In Leopold's ecological vision, land-health serves as the Plimsoll line. Land-health provides the polestar for conservation work—and could usefully serve as a guide to making ecologically pragmatic decisions.

Leopold summed up land-health as “the capacity for self-renewal in the biota.”<sup>104</sup> Healthy land, or stable land,<sup>105</sup> was found where “food chains are so organized as to be able to circulate the same food an indefinite number of times.”<sup>106</sup> Humans had modified prevailing food chains so vastly as to bring about significant readjustments in the land mechanism.<sup>107</sup> More often than not, these modifications were unstable because the same food could not be recycled an indefinite number of times.<sup>108</sup> The all-important fund of fertility—the soil—was on the decline, and with it was going the health of the entire land community: “Erosion, floods, loss of species, and other land-troubles without visible cause are the expressions of this instability.”<sup>109</sup>

Leopold did not think that all land was fragile: “The whole history of civilization shows land to be tough. Lands differ in their toughness, but even the most sensitive took generations of

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101. See *supra* note 5 and accompanying text.

102. See *supra* note 19 and accompanying text.

103. See *supra* note 59 and accompanying text.

104. Leopold, *The Land-Health Concept and Conservation*, *supra* note 3, at 219.

105. Leopold did not use the term stability to mean static. Rather Leopold “knew that nature was dynamic and flexible,” just as modern day ecologists would tell us. Freyfogle, *supra* note 30, at 10064; see also *infra* notes 116-21 and accompanying text.

106. *Supra* note 65 and accompanying text.

107. Leopold, *Biotic Land-Use*, *supra* note 3, at 206.

108. *Id.*

109. *Id.*

violence to spoil.”<sup>110</sup> But he was convinced that the changes then taking place were happening too quickly and on too big a scale.<sup>111</sup> In response, Leopold suggested that we make less violent changes in our lands, such as fewer changes in the hydrology of a place and less use of poisons.<sup>112</sup>

What is most important is that Leopold gave us a way to envision our place on earth. Leopold does not merely offer a view as to the right ecological limit in a particular setting; instead, he gives us a vision of ecosystem health that can be used in any place and at any time. Employing Leopold's concept, we can measure our progress. Are there frequent floods and droughts? Is there a dominance of pest species? And all the while, in this vision, Leopold sees people, in particular, farmers, on this land.

But some have asked, why Leopold? Why should we seek guidance from a man who wrote over fifty years ago? Science, particularly ecological science, has changed dramatically in that time. Is Leopold still relevant today when we know so much more?

My answer, like the answer of many others, is yes.<sup>113</sup> Today's ecologists tell us that nature is in a constant state of flux.<sup>114</sup> And some have concluded that Leopold embraced a static vision of ecology because he penned the now-famous lines, “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>115</sup> These naysayers then assume that because we know that nature is not static, Leopold cannot be of any help in our endeavors.

I challenge this conclusion on two fronts. First, one familiar with Leopold's body of work understands that “Leopold knew that nature was dynamic and flexible.”<sup>116</sup> In fact, in many writings, including his “The Land Ethic,” Leopold “expressly rejects the balance-of-nature idea and embraces

110. *Id.* at 207.

111. See Leopold, *The Land-Health Concept and Conservation*, *supra* note 3, at 221.

112. *Id.* at 223.

113. See generally Callicott, *supra* note 30 (discussing the currency of Leopold's vision); Freyfogle, *supra* note 30 (same).

114. See Callicott, *supra* note 30, at 95.

115. ALDO LEOPOLD, *A SAND COUNTY ALMANAC AND SKETCHES HERE AND THERE* 224-25 (1949).

116. Freyfogle, *supra* note 30, at 10064.



natural change."<sup>117</sup>

Of course, this is not to say that Leopold was always right. As Dr. J. Baird Callicott points out, "Leopold acknowledged the existence and land-ethical significance of natural environmental change, but he seems to have thought of it primarily on a very slow, evolutionary temporal scale."<sup>118</sup> Dr. Stanley A. Temple, a wildlife ecologist, has further explained,

Leopold's skills as a naturalist were such that few errors of fact crept into his *descriptions* of farm wildlife. . . . Ecology, though, was still a young science when Leopold wrote, and it is thus not surprising that some of his *interpretations* of natural phenomena have been supplanted by later ecological research.<sup>119</sup>

Indeed, Leopold "guessed wrong" in a few cases.<sup>120</sup> But, according to Temple, "His guesses for the most part were remarkably correct (sometimes even prescient), and they have withstood the test of time."<sup>121</sup> In other words, Leopold was right far more often than he was wrong when it came to his basic ecological understanding.

Second, and more importantly, Leopold's thought evolved over time. His concept of land-health—the concept I suggest ought to be incorporated into the eco-pragmatic framework—was his "foundational idea" and "he talked often and at length" during the last decade of his life about this concept.<sup>122</sup> It is this key concept from which we have much to learn. Indeed, Temple has explained,

[Leopold's] prescription for healthy land is simple and straightforward: maintain the biological diversity of the land; use the land in a sustainable, "less violent" way; recognize the land for its beauty as well as its utility; and keep the human population within the land's carrying capacity. Today, this prescription sounds a lot like the "new" approach conservationists have been fostering under the banner of ecosystem management. Perhaps its time may finally have arrived, more than half a century after Leopold first proposed it.<sup>123</sup>

Leopold is thus not only still relevant; he still has much to teach us. That is because we have yet to master what Leopold was most concerned with, what he called "'the oldest task in human history,' living on a piece of land without despoiling

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117. Callicott, *supra* note 30, at 99; see also Freyfogle, *supra* note 30, at 10063-64.

118. Callicott, *supra* note 30, at 104.

119. Temple, *supra* note 88, at 231.

120. *Id.* at 232.

121. *Id.*

122. Freyfogle, *supra* note 30, at 10064.

123. Temple, *supra* note 88, at 238.

it.”<sup>124</sup> With respect to this task, it does not matter that Leopold was not perfect in his science; it matters that he offered a way to master the task that, despite our many scientific advances over the past fifty years, we have thus far failed to follow.<sup>125</sup> As Professor Eric T. Freyfogle has suggested, “Were Leopold alive, he would doubtless comment that ‘land health’ is simply one of many phrases that conservationists might employ. He would be troubled, not because his favored phrase has failed to catch on, but because the underlying ideas largely have not, at least in public discourse.”<sup>126</sup>

#### IV. AN ECO-PRAGMATIC EXAMPLE

An example might help to illustrate the role land-health could play in the eco-pragmatic framework—an example drawn from farming, which seems appropriate given Leopold’s intended audience when writing his essays.

As Professor J.B. Ruhl has catalogued in detail, farming is the source of much environmental harm.<sup>127</sup> These harms include habitat loss and degradation, soil erosion, water resources depletion, soil salinization, chemical releases, animal waste disposal, water pollution, and air pollution.<sup>128</sup> With respect to water pollution, farms are major contributors of nonpoint source<sup>129</sup> water pollution nationally,<sup>130</sup> and agriculture is the most significant source of pollution affecting the nation’s impaired rivers, streams, and lakes.<sup>131</sup>

Most revealing for the task at hand is the specific problem of nonpoint source pollution caused by farms. Following the

124. *Id.* at 236.

125. *See* Freyfogle, *supra* note 30, at 10067.

126. *Id.*

127. *See* J.B. Ruhl, *Farms, Their Environmental Harms, and Environmental Law*, 27 *ECOLOGICAL L.Q.* 263, 274 (2000).

128. *See id.* at 274-92.

129. Nonpoint source water pollution is often defined in the negative. That is, it is defined as that water pollution that does not result from point sources or, more generally, water pollution that “does not result from a discharge at a specific, single location.” THOMAS J. SCHOENBAUM ET AL., *ENVIRONMENTAL POLICY LAW: PROBLEMS, CASES AND READINGS* 912 (4th ed. 2002). Nonpoint source pollution is generally runoff from land as the result of precipitation or snowmelt. *See id.* Common examples of big contributors to nonpoint source pollution are runoff from agricultural fields and runoff from paved surfaces such as parking lots and streets.

130. Ruhl, *supra* note 127, at 288.

131. OLIVER A. HOUCK, *THE CLEAN WATER ACT TMDL PROGRAM: LAW, POLICY, AND IMPLEMENTATION* 85-86 (1999).

eco-pragmatic framework, we would begin by determining whether there is a “reasonably ascertainable risk” that has “reache[d] a significant level.”<sup>132</sup> According to Ruhl, the harms from agricultural nonpoint source pollution include a major contribution to the hypoxic “dead zone,” excessive plankton production, the demise of submerged aquatic vegetation, massive fish kills, and contamination of drinking water supplies.<sup>133</sup> This appears to qualify as a risk that has reached a significant level. So what do we do? According to Farber, we should “take all feasible steps to abate it except when costs clearly would overwhelm any potential benefits.”<sup>134</sup> Ruhl has offered several excellent suggestions in this area, including requiring industrial farms to get permits similar to those required of other industries, that would require the use of “best management practices.”<sup>135</sup> But we are still left with the problem of determining which of the feasible options to choose.

A simple example can highlight the uncertainty here. Suppose there are two ways to stop agricultural runoff caused by twenty farmers whose lands abut a particular stream. One option is to require the twenty farmers to take a sizable strip of land along the stream out of production and return it to a more natural state, such as a wetland. These wetland buffer strips will remove nutrients and sediments from the runoff that eventually enters the stream from each farmer’s property. The second option is to set up a system whereby all the farmers construct a mini-treatment system, similar to a sewage treatment plant, downstream from the farms to remove the excess nutrients and sediments. Finally, let’s assume, and this is a big assumption, that the cost-benefit analysis comes out roughly the same for both choices and that each reduces pollution by about the same amount. Which should we pick?

This is a problem that the eco-pragmatic framework does not seem to address. But Leopold does. Leopold tells us that a farm’s creek bank should be “wooded and ungrazed.”<sup>136</sup> Why? Because maintaining vegetative cover keeps land resources

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132. FARBER, *supra* note 1, at 201; *see also supra* note 19 and accompanying text.

133. Ruhl, *supra* note 127, at 288-91.

134. FARBER, *supra* note 1, at 201; *see also supra* note 19 and accompanying text.

135. Ruhl, *supra* note 127, at 336-37.

136. Leopold, *The Farmer as a Conservationist*, *supra* note 3, at 172.

from getting out of order and disappearing or deteriorating.<sup>137</sup> It helps keep the food chains in order,<sup>138</sup> or, as we might talk about it in modern terms, it protects “the land’s ability to recycle nutrients efficiently and endlessly.”<sup>139</sup> At bottom, Leopold was concerned about ecological function. And ecological function is best protected by wetlands, not mini-treatment plants.

Leopold also tells us that this is right because it is more aesthetically pleasing. He believed that, although preserving beauty may not make money, only where there is beauty will there be permanence.<sup>140</sup> As he explained in a slightly different context, “The reasons for restoring wildlife are two: 1. It adds to the satisfactions of living [and] 2. Wild plants and animals are parts of the land-mechanism, and cannot safely be dispensed with.”<sup>141</sup>

Finally, Leopold would pick the wetland option because he wanted solutions that would involve the health of the land as a whole.<sup>142</sup> He wrote, “Until the technologies accept as their common purpose the health of the land as a whole, ‘coordination’ is mere window-dressing, and each will continue in part to cancel the other.”<sup>143</sup>

Embedded within this simple example is a bigger point: If we follow Leopold’s advice, we will begin to see that all solutions to environmental problems are not equal. Indeed, even treatment technologies that cost the same and remove the same pollutants are not the same. And we know this because some will positively contribute to land-health—improve ecological function—and others will, at best, keep the land in its ailing state, or even cause further decline. The two choices here are not the same. We should not treat them as if they are.

But isn’t that just an argument that we should be more careful in how we pick the technology to be employed in abating pollution? In other words, in Daly’s boat example, aren’t we simply trying a different seating arrangement? In part, no doubt, we are. But we are doing more than that: We’re also

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137. *See id.* at 162.

138. Leopold, *Biotic Land-Use*, *supra* note 3, at 206.

139. Freyfogle, *supra* note 30, at 10065.

140. *Supra* note 84 and accompanying text.

141. *Supra* note 51 and accompanying text.

142. *See* Leopold, *Biotic Land-Use*, *supra* note 3, at 202.

143. *Id.* This is not unlike the modern day calls for a multi-media approach to environmental law. *See* Ruhl, *supra* note 127, at 336 nn.409-10.

suggesting that the Plimsoll line should be determined and respected in a different way than has been done before.

Leopold's ideas do more than tell us which treatment technology to use. They also encourage us to step back from how we normally set the Plimsoll line—the point at which we are going to sink<sup>144</sup>—and look carefully at the whole. Instead of looking at discrete pollutants and focusing on the harm that may flow from a certain concentration of a pollutant, we need to take a broader view. If our goal is land-health or some ecological variant of it, we begin to think in terms of a Plimsoll line that is not a particular concentration of a given pollutant, but rather in terms of ecological function. And once we see the goal in terms of ecological function, the control technology or pollution prevention method that is selected will reflect a desire to reach that ecological goal, rather than merely to keep concentrations of particular pollutants below prescribed numeric limits.

To be sure, Farber's framework gets us far by giving us a new and valuable way to work through environmental problems.<sup>145</sup> But it needs more ecology. It needs a clearer, more ecologically informed vision of a healthy environment. And to fill that need there is perhaps no better vision to draw upon than Leopold's concept of land-health, with its focus on ecological function.<sup>146</sup> Borrowing from Leopold, Farber's eco-pragmatism could include a principle of preserving ecological function, which would stretch how we think about and select the appropriate solutions to environmental problems.

But perhaps adding preservation of ecological function to eco-pragmatism is not the end of the story. Professors Douglas Kysar and James Salzman argue that "the environmental debate generally takes place in the context of questions requiring empirical investigation."<sup>147</sup> They claim that this feature makes the environmental debate different than the debate over capital punishment and abortion: "[I]f both bean counter and tree hugger tribes could agree on the substance of and confidence limits surrounding relevant physical and social scientific knowledge, then in theory a significant amount of

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144. See *supra* note 100 and accompanying text (outlining Daly's Plimsoll line analogy).

145. See *supra* Part I.

146. See *supra* Part II.

147. Douglas A. Kysar & James Salzman, *Environmental Tribalism*, 87 MINN. L. REV. 1099, 1118 (2003).

disagreement over the necessity and desirability of environmental regulation would disappear.”<sup>148</sup> But Kysar and Salzman doubt, for good reason, that a fact-driven consensus will be reached between the warring factions in the environmental debate.<sup>149</sup> Indeed, they offer several reasons why the two sides of the environmental debate are unlikely to agree, such as the ability to manipulate scientific information in multiple directions,<sup>150</sup> the tendency of individuals to interpret information in a way that reinforces their prior beliefs,<sup>151</sup> and the debate over the proper source for information regarding the environment.<sup>152</sup> The most important of these, however, is that “disputes over empirical knowledge can serve as proxies for more fundamental disputes over values.”<sup>153</sup> That is, “environmental policies will never *just* be driven by the facts,”<sup>154</sup> and “reaching full agreement on factual issues may require full agreement on the deeper, submerged moral and cultural divides.”<sup>155</sup>

As Kysar and Salzman point out, there are those who would disagree and argue that better science and better understanding of science will lead to less friction between the bean counters and the tree huggers.<sup>156</sup> But if Kysar and Salzman are right, where does this leave the eco-pragmatic framework even with a goal of preserving ecological function? Given this predicament, Kysar and Salzman suggest that the place for eco-pragmatism “is primarily where the rubber meets the road—the actual implementation of environmental policy.”<sup>157</sup> That may be so. But perhaps eco-pragmatism can do more than just work on a policy implementation level. Perhaps the problem is that, knowing the fundamental divide that exists as to how people view environmental issues, we have failed to engage and involve large numbers of people in this dialogue, thus continuing the existing standoff.<sup>158</sup> In order for

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148. *Id.*

149. *See id.* at 1119.

150. *See id.* at 1120, 1125.

151. *See id.* at 1120-21, 1125.

152. *See id.* at 1126-28.

153. *Id.* at 1128.

154. *Id.*

155. *Id.* at 1129.

156. *See id.* at 1118 (citing Professor Dan Esty’s argument that the divide in environmental politics will lessen with better science).

157. *Id.* at 1135.

158. *See* Christopher H. Schroeder, *Prophets, Priests, and Pragmatists*, 87

anything to change, however, it may be that we must begin to challenge everyone to be involved and engaged in thinking about the environment.<sup>159</sup> Eco-pragmatism, it seems, could furnish just that opportunity.<sup>160</sup> Again, I return to Leopold.

What is most important about Leopold is not simply the sound ecological principles he endorsed. Indeed, the debate over the precise contours of ecological function and how we are to evaluate the “whole” will continue far into the future. It is instead Leopold’s ability to take these principles, integrate them, and challenge us to imagine a better place for us that makes his approach so appealing. As Freyfogle has argued,

Leopold’s peculiar talent lay less in his detailed knowledge than in his unmatched ability to integrate, to bring together, to nourish and heal, to imagine that long-term path toward fusion. As people skilled in the opposite, in tearing down, fragmenting, discarding, degrading, and criticizing, we need Leopold as much as ever.<sup>161</sup>

It is Leopold’s dare to be better that is the strength of his message:

Leopold understood what a radical claim [he was making] in a society that sees land purely as real estate. He knew that neither fear nor scolding would move us to make such a profound change in our views of land and our ways of living, nor would logic, nor would law. We would be moved only by affection, by wonder, by joy in the presence of wildness . . . .<sup>162</sup>

And Leopold saw this as a task for everyone, everywhere:

Aldo Leopold had a dream, and it remains as inspiring as ever. It was

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MINN. L. REV. 1065, 1068 (2003).

159. My suggestion is not that we rely on the fact that pragmatism tends to be more consistent with beliefs and values that are widely shared in our society. See *id.* at 1094. Instead, I am suggesting that we engage and involve more voices in the debate.

160. Professor Lisa Heinzerling has argued that, in her view, “[a] pragmatic environmentalism would be a transformative environmentalism, one that would not shrink from encouraging adjustments, even radical adjustments, in human attitudes, habits, and behavior.” Lisa Heinzerling, *Pragmatists and Environmentalists*, 113 HARV. L. REV. 1421, 1446 (2000) (book review). She concludes, however, by stating, “[Pragmatism] is just too calculating, too timid a word for the experiential, contextual, skeptical, and most of all transformative attitude I have in mind.” *Id.* at 1447. Although Heinzerling’s argument is persuasive, I am not yet ready to give up on pragmatism. Indeed, my sense is that the inclusion of some of Leopold’s guidance may do to pragmatism what Heinzerling thought was not possible. My approach to eco-pragmatism therefore seems to mirror what Professor Christopher H. Schroeder has described as “a way for the [environmentalists] who wish to engage in policy debates to navigate the political pluralism of our modern society.” Schroeder, *supra* note 158, at 1073.

161. Freyfogle, *supra* note 30, at 10067.

162. Sanders, *supra* note 31, at xix.

a dream in which conservation—the conservation of the entire land community—was fostered not just in national parks, wilderness areas, and other public domains but in every corner of every landscape. It was a dream in which conservation became a down-to-earth endeavor for all users of the land—for all farmers, as he called them; an endeavor pursued in every watershed, in every forest and field, on the back forty, even in the backyard—in every place where people lived on the land and helped guide its unfolding self-renewal.<sup>163</sup>

One fear, however, is that by including Leopold's bold vision of land-health and his imagination in eco-pragmatism, the best of eco-pragmatism is lost. That is, if eco-pragmatism is a pluralistic approach that seeks to have a myriad of viewpoints and values expressed, including land-health in the equation has put a thumb on the scale in favor of Farber's tree-huggers. There are two responses to this. First, as Farber explains, eco-pragmatism needs an environmental baseline.<sup>164</sup> Although one could argue that leaving the baseline without definition has some advantages, such a choice would seem to make the debate over any solution to a problem difficult. Indeed, if we cannot agree on a desirable environmental goal, it is tricky to argue that there is any environmental problem that needs solving. One could likewise argue for some other measure to serve as the baseline.<sup>165</sup> As I have argued above, however, Leopold's land-health concept makes sense because it is ecologically sound—more ecological function is better than less; looking to the whole is better than assessing individual parts.<sup>166</sup>

Second, the land-health concept is flexible. Just as Leopold does not dictate a particular means to the desired end of healthy, functioning land, inclusion of land-health in the eco-pragmatic framework does not require any particular means to be employed to solve a particular environmental problem. Accordingly, setting land-health as the baseline does not fundamentally alter the eco-pragmatic framework; it merely gives meaning to a term in need of definition.

163. Callicott & Freyfogle, *supra* note 33, at 25-26.

164. See FARBER, *supra* note 1, at 94.

165. See, e.g., A. Dan Tarlock, *Slouching Toward Eden: The Eco-pragmatic Challenges of Ecosystem Revival*, 87 MINN. L. REV. 1173, 1191 n.80, 1191-94 (2003) (arguing in favor of "simulated naturalness" for ecosystem revival projects).

166. See *supra* text accompanying note 145.



## V. BEYOND THE ECO-PRAGMATIC FRAMEWORK

Not only should Leopold's land-health concept be included in the eco-pragmatic framework, it could usefully inform the interpretation and administration of most federal environmental statutes.<sup>167</sup> For example, under the Clean Water Act (CWA),<sup>168</sup> the Environmental Protection Agency (EPA) is vested with the authority to determine the effluent limitations that must be met by point sources, based on appropriate pollution control technology.<sup>169</sup> These limitations are determined in accordance with section 304 of the CWA,<sup>170</sup> which requires the EPA to promulgate regulations after considering several factors, including the characteristics of particular pollutants and the degree of effluent reduction that can be achieved by control measures and practices.<sup>171</sup> In selecting a particular measure or practice, the EPA must provide guidance as to how it picks the best from the potential options available. The statute requires that the EPA consider such things as "the age of the equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, [and] the cost of achieving such effluent reduction."<sup>172</sup> The EPA must also consider "non-water quality environmental impact (including energy require-

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167. Cf. ERIC T. FREYFOGLE, *BOUNDED PEOPLE, BOUNDLESS LAND: ENVISIONING A NEW LAND ETHIC* 39-48 (1998) (expressing the view that federal environmental statutes and the implementation of them is not grounded in an ecological vision); Eric T. Freyfogle, *The Ethical Strands of Environmental Law*, 1994 U. ILL. L. REV. 819, 840. But cf. A. Dan Tarlock, *Environmental Law: Ethics or Science?*, 7 DUKE ENVTL. L. & POL'Y F. 193, 197 (1996) (arguing that Leopold's land ethic is the "ur-text" for the current environmental regime); Tarlock, *supra* note 165, 1177-78. Freyfogle stated,

Congress has tried hard to contain pollution as if pollution were an independent problem rather than a symptom of something more deep-seated. It has sought to preserve wild species and wild places, not grasping that the more urgent need is for ecologically healthy landscapes where people live, not places that people must leave untouched. Congress has embraced cost-benefit analysis, as if our past mistakes were matters, not of underlying values and visions, but of simple errors in addition and subtraction. It has repeatedly spoken of human well-being as the primary if not sole policy goal.

Freyfogle, *supra*, at 840.

168. 33 U.S.C. §§ 1251-1387 (2000).

169. See, e.g., *id.* § 1311(b)(2)(A)(i) (requiring application of "the best available technology economically achievable" as determined by the EPA).

170. See *id.* § 1314.

171. See *id.* § 1314(b)(2)(A).

172. *Id.* § 1314(b)(2)(B).

ments).<sup>173</sup> Moreover, the EPA may consider other factors that it deems appropriate in making the decision.<sup>174</sup>

Although the writers of the CWA may not have had Leopold's ecological vision in mind,<sup>175</sup> it would seem reasonable for the EPA to take the commands of the CWA—to consider non-water quality environmental impact as well as other factors it deemed appropriate—and interpret that instruction as a directive to consider ecological function, or, in Leopold's words, land-health, when determining the best control technologies and their resulting effluent limits. Indeed, as the expert agency in this area, the EPA would be entitled to deference with respect to its interpretation of the statute it administers.<sup>176</sup> Accordingly, if the EPA began to consider as a part of its analysis of the best control methods what things cause the least disruption to the ecological cycles and systems, it would likely select differently than it has in the past. Its effluent limits would likely begin to take on a new look: less numeric and particularized and more focused on the whole (i.e., multi-media) and on the land's ability to sustain the full diversity of life.<sup>177</sup>

Incorporation of this principle is subject to many criticisms. One such criticism is that the use of land-health as a guide could lead to an increase rather than a decrease in allowable concentrations of a particular pollutant. That is, in the simple

173. *Id.*

174. *See id.*

175. *See supra* note 167.

176. *See Chevron U.S.A. Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837, 844 (1984) (holding that when statutory language is ambiguous, courts will defer to an agency's reasonable interpretation of statutes it administers); *see also Christensen v. Harris County*, 529 U.S. 576, 587 (2000) (noting that interpretations arrived at by agencies in settings that do not have the force of law—such as interpretations in policy statements or enforcement manuals—are still entitled to respect; agency interpretations that are the result of notice-and-comment rulemaking or arrived at in a formal adjudication get more deference under *Chevron*).

177. Integrating this principle into environmental law should be the goal. As Freyfogle has said,

If these guiding principles one day appear more visibly in the national tapestry, they will stand out because they have been used again and again, to repair tears and holes, to rework worn spots, to cover knots and smooth out roughness. When enough new threads have been added and we stand back for another sweeping look, perhaps then we will see that the law has come to reveal a new ecological understanding.

Freyfogle, *supra* note 167, at 846.

farm example discussed above,<sup>178</sup> the wetland choice could still be the correct one, even if the wetlands will only eliminate 70% of the nutrients and the treatment plant would eliminate 90% of the nutrients. To some environmentalists, this might be troubling. Indeed, it is hard to accept at first blush that this solution is good for the environment. But this is the correct result because of the many collateral benefits that the wetlands provide. That is, the wetlands will tend to preserve the land's health by returning many important ecological functions to that land beyond simply filtering nutrients. A treatment plant cannot do much beyond removing the offending chemical, and it certainly cannot, save in a very limited sense, restore ecological function. When we shift our goal to land-health, we realize that our current measuring sticks are no longer appropriate or necessary. Indeed, it becomes all the more clear that our current methods for dealing with environmental problems are in need of mending.

### CONCLUSION

Farber has offered a bold vision for working through environmental problems.<sup>179</sup> This framework has been praised by many, and deservedly so.<sup>180</sup> As Ruhl has said of eco-pragmatism, "the term itself may come to signify an instrument of decision making, the way people conceive of cost-benefit analysis."<sup>181</sup> But the eco-pragmatic framework, for all of its strengths, would benefit from the incorporation of Leopold's land-health concept or something like it. With land-health added, decisions about environmental problems will be made, not simply with a presumption in favor of the environment, but with a presumption in favor of a particular vision for the environment, a vision that seeks to preserve ecological function and that looks at the whole rather than the sum of discrete parts.

Leopold, like Farber,<sup>182</sup> "recognized that we have to make a living from the land, that we all need shelter and clothes and

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178. See *supra* p. 1162.

179. See *supra* Part I.

180. See Symposium, *The Pragmatic Ecologist: Environmental Protection as a Jurisdynamic Experience*, 87 MINN. L. REV. 847 (2003) (honoring Farber for his environmental legal scholarship).

181. Ruhl, *supra* note 2, at 894.

182. See FARBER, *supra* note 1, at 205 (discussing the need to see human society as a part of the vision of nature).

food.”<sup>183</sup> But we also need something more. According to Leopold,

The true problem of agriculture, and all other land-use, is to achieve both utility and beauty and thus permanence. A farmer has the same obligation to help, within reason, to preserve the biotic integrity of his community as he has, within reason, to preserve the culture which rests on it. As a member of the community, he is the ultimate beneficiary of both.<sup>184</sup>

Likewise, Farber tells us that

[w]ise decisions are not easy, but to decide wisely is of value in and of itself. To cope with environmental challenges, we will need a society that is attached to environmental norms, willing to take a long-term perspective, and institutionally capable of making wise decisions. . . . Although being pragmatic means being realistic, it does not mean abandoning our hopes for the future.<sup>185</sup>

Farber and Leopold have much in common. Most importantly, they both urge us to make better decisions with respect to our environmental problems and give us the tools to do so. It is for us to begin that process, and we will be all the better for it.

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183. Sanders, *supra* note 31, at xix.

184. Leopold, *The Land-Health Concept and Conservation*, *supra* note 3, at 225.

185. FARBER, *supra* note 1, at 206.

