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Charm in the City: Thoughts on Urban Ecosystem Management

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Cover Page Footnote

I would like to thank Dean Nicholas P. Cafardi for supporting this article, and my colleagues Robert Taylor, Bruce Ledewitz, and Ken Gormley for reading drafts of this piece and offering insight and guidance.

CHARM IN THE CITY: THOUGHTS ON URBAN ECOSYSTEM MANAGEMENT

NANCY PERKINS SPYKE*

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From a rear window in my 75-year-old urban home, I look out on my small backyard and those of my neighbors. Some lawns are carefully tended; a few are seas of dandelions. One is adorned with gaudy plastic lawn ornaments, including a duck whose wings swing wildly in the breeze. I see native hazel nut trees and imported rose bushes. I see houses as old as mine, all built of red brick now darkened from years of exposure to industrial pollution. And I often see my neighbors, a diverse bunch, some of whom I call friends and others whose names I don't know.

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From the same window I can detect many scents, from spring rain to cooking odors, honeysuckle to bus exhaust. The sounds are numerous, too. There are screeching brakes and chirping birds, police sirens and the wind and thunder from summer storms, loud stereos and the occasional raised voices from within a neighbor's home.

A new coffee shop has opened around the corner. It has wonderful street appeal, sporting a colorful awning and leaded glass door. It's a welcoming spot both inside and out – a place where I chat with friends when happenstance brings us there at the same time, or where I mix briefly with others as I grab a morning brew.

Sights, smells, and sounds, juxtaposing the natural and the human, are experienced daily in my neighborhood, one that is far from state parks and wilderness reserves, removed from edge cities and sprawl. It's a neighborhood densely packed with humans, one that is very close to busy rivers manipulated by locks, spanned by bridges, and dotted with coal-laden barges, yet distant from the tributaries, fish-rich and pristine, that feed those rivers. It is a neighborhood that simultaneously hints at urban degradation and the richness of nature: a city neighborhood awaiting charm.¹

INTRODUCTION:

FAR FROM STATE PARKS, REMOVED FROM EDGE CITIES

Ecosystem management has become the mantra of environmental regulation in recent years. Literature abounds on the subject, but most of the commentary in the legal field deals with managing ecosystems on large expanses of public lands.² A few law review articles treat ecosystem management with a more local focus by touching on private land use issues and sprawl.³ Still, there is a dearth of scholarship devoted to ecosystem management and cities, scholarship that explores whether urban environments, whether

1. Observations of the author, who has resided in a city neighborhood for several years.

2. See, e.g., Oliver A. Houck, *On the Law of Biodiversity and Ecosystem Management*, 81 MINN. L. REV. 869 (1997); Alfred R. Light, *Ecosystem Management in the Everglades*, 14 NAT. RESOURCES & ENV'T 166 (2000).

3. See, e.g., Daniel B. Rodriguez, *The Role of Legal Innovation in Ecosystem Management: Perspectives from American Local Government Law*, 24 ECOLOGY L.Q. 745 (1997); Luther Propst et al., *Meeting the Challenge of Change in Western Communities*, 18 J. LAND RESOURCES & ENVTL. L. 63 (1998); J.B. Ruhl, *Taming the Suburban Amoeba in the Ecosystem Age: Some Do's and Don'ts*, 3 FALL WIDENER L. SYMP. J. 61 (1998).

urban environments, with all their trappings of the human condition, should be integrated into regional ecosystem management, and if so, how it should be accomplished.

The prevailing sentiment seems to be that cities represent our environmental problems at their worst.⁴ Cities are, after all, worlds apart from state and national parks with their in-your-face ecosystems; they are distant, too, from edge cities, where the gobbling up of green space continues at an alarming rate. It is possible that the ecosystem management discussion has forgotten our paved-over cities because their ecosystems are largely invisible. Perhaps there is a belief that these places where commerce, industry, and development have carried on for centuries cannot be changed. Or maybe the logic is that cities are filled with people, who are bad for ecosystems, so there is nothing we can do. The question is whether we should be lulled into accepting the notion that ecosystem management is something that is of no concern to cities.

This article answers that question in the negative, and concludes that there are great opportunities for cities to become players in the nation's move toward ecosystem management. Certainly, problems arise when humans are injected into the ecosystem equation,⁵ and ecosystem management at the city level will not be easy. Nevertheless, the history of environmental regulation has taught us that making the easy choice does not always solve the problem.⁶ Further, limiting ecosystem management to rural and wilderness areas can only further compartmentalize ecosystem management to rural and wilderness areas.

Urban ecosystem management is not an oxymoron. It can be achieved at various levels by implementing two dominant principles. The first will require cities to confront and celebrate their unique places within ecosystems. This stands in sharp contrast to the patterns of postwar urban development that have resulted in the bland, homogenous cityscapes we know today. Second, cities must acknowledge that the human species dominates their eco-regions and must accordingly make ecosystem management choices that will enhance human health and spirit. Thus, the twin concepts that should guide urban ecosystem management are celebration of place and respect for human well-being. In order to put these concepts

4. See Joel B. Eisen, *Toward a Sustainable Urbanism: Lessons from Federal Regulation of Urban Stormwater Runoff*, 48 WASH. U. J. URB. & CONTEMP. L. 1, 6 (1995).

5. Houck, *supra* note 2, at 877.

6. See Carol M. Rose, *Demystifying Ecosystem Management*, 24 ECOLOGY L.Q. 865, 868-69 (1997).

into practice city residents, planners, and elected officials need to experience their ecosystems and build upon that experience.

As used in this article, "experiencing the ecosystem" is a loaded phrase. It refers to developing a recognition of and respect for the charm, or spirit, of nature. It draws on the practices of aboriginal peoples⁷ as well as the phenomenologist school of philosophy, which has focused for over a century on experience in general, and the experience of nature in particular, in an attempt to better understand time and space.⁸

This experiential interaction with nature is not as unrealistic or impractical a concept as it may appear. Recent insights from the arts and sciences and commentary from the fields of urban design and the law suggest that the time is right to forge ahead. When taken together, these concepts lead to this article's thesis: namely, that the truest and most meaningful manifestation of ecosystem management at the urban level will arise by implementing a philosophy of urban charm. Charm, as defined below, melds these somewhat diverse fields into a useful and flexible construct that can help redefine and reinvigorate city planning to make it more ecosystem-responsive.

This article takes a number of steps to support and articulate this thesis. First, existing ecosystem management literature is surveyed to provide pertinent definitions, themes, and issues. Next, a brief discussion of the state of our cities reveals the problems and emerging city planning theories that urban ecosystem management must address. This review is followed by an excursion into the worlds of the arts and sciences, philosophy, and the law, both to provide the foundation for the experience-based charm concept and to reveal a readiness for that concept at the policymaking level. The final portion of this article offers ideas for bringing charm to our cities, ideas that not only will accommodate local ecosystems, but will also celebrate our cities' special places within the nation's ecosystems and the human species' special place within cities.

I. ECOSYSTEM MANAGEMENT: *OF BUSY RIVERS AND DISTANT TRIBUTARIES*

This section begins by setting forth definitions and principles that have gained acceptance in the relatively short history of ecosystem management and discusses management techniques that have met with success in practice. It then reviews the literature that addresses

7. See DAVID ABRAM, *THE SPELL OF THE SENSUOUS* 233-37 (Pantheon Books ed. 1996).

8. *Id.* at 33-47, 205-16.

ecosystem management at a more local level. Finally, this section concludes by addressing two issues of particular relevance to urban ecosystem management: the role of local communities in regional ecosystem planning, and the relationship of the human species to ecosystems.

A. Foundations of Ecosystem Management

What led environmental policy makers to focus on ecosystems? When was it determined that ecosystem management is a viable way to deal with natural resource problems? Many writers attribute its development to the Clinton administration's response to the Pacific northwest's spotted owl crisis.⁹ Yet the realization that ecosystems play an important role in preserving scarce natural resources can be traced even further back, to late nineteenth century fisheries science.¹⁰ Lessons learned there were used in the years following World War II in a failed attempt to save California's sardine industry.¹¹ For some time, then, ecosystem protection has been considered a positive goal. Yet it is only within the past decade that it has received a remarkable amount of attention and made steady gains in acceptance.

The rivers and tributaries that surround a rust belt city such as the one described at the outset of this article are easily conceptualized as parts of an ecosystem that can be managed in various ways. Watershed management is apparent, for example, in the locks along the rivers. But the term "ecosystem management", as conceived today, is far more comprehensive. It is recognized to be interdisciplinary, embracing fields such as ecology, sociology, and economics.¹² Its goal is to support ecosystem processes and services.¹³ It also seeks to protect species while accommodating human demands.¹⁴ Put another way, ecosystem management relies on scientific data regarding the relationships between the many

9. George Frampton, *Ecosystem Management in the Clinton Administration*, 7 DUKE ENVTL. L. & POL'Y F. 39, 39-40 (1996); Joseph Sax, *The Ecosystem Approach: New Departures for Land and Water*, 24 ECOLOGY L.Q. 883, 886 (1997).

10. Harry N. Scheiber, *From Science to Law to Politics: An Historical View of the Ecosystem Idea and Its Effect on Resource Management*, 24 ECOLOGY L.Q. 631, 635-36 (1997).

11. *Id.* at 640.

12. Sheila Lynch, *The Federal Advisory Committee Act: An Obstacle to Ecosystem Management by Federal Agencies?*, 71 WASH. L. REV. 431, 432 (1996).

13. John M. Blair et al., *Ecosystems as Functional Units in Nature*, 14 NAT. RESOURCES & ENV'T 150, 154 (2000).

14. DeAnne Parker, *Natural Community Conservation Planning: California's Emerging Ecosystem Management Alternative*, 6 U. BAL'T. J. ENVTL. L. 107, 120-21 (1997).

nonhuman organisms within ecosystems, but it also addresses human demands.¹⁵ As such, it presents a tension between the needs of ecosystems and those of humans. Resolving that tension often threatens the status quo,¹⁶ making ecosystem management both imprecise and disruptive.¹⁷

The definition of an "ecosystem" is no more concrete. It includes organisms and their surrounding environment,¹⁸ encompassing biotic as well as abiotic materials.¹⁹ An ecosystem is a complex structure where organisms interrelate through various processes to make the ecosystem an "integrated unit,"²⁰ and where a constant flow of energy, air, and water fuels these processes.²¹ Ecosystem processes in turn generate services such as climate control; the maintenance of biodiversity; and air, soil, and water purification.²² Present-day ecosystem science teaches us that ecosystems are dynamic and adaptive, have uncertain spatial boundaries,²³ and that smaller ecosystems are part of larger ones.²⁴ There are various types of ecosystems as well, such as deserts, coastal zones, and forests to name a few. Cities have been described as "human-dominated ecosystems," relying on fossil fuels to produce energy for cars, machines, and industrial processes.²⁵

A synthesis of these fluid definitions suggests that an ecosystem is a unit of biotic and abiotic material that constantly undergoes a complex series of processes, ultimately providing services within the ecosystem and beyond. The goal of ecosystem management is to allow that degree of human appropriation of ecosystem resources

15. Jory Ruggiero, *Toward a Law of the Land: The Clean Water Act as a Federal Mandate for the Implementation of an Ecosystem Approach to Land Management*, 20 PUB. LAND & RESOURCES L. REV. 31, 44 (1999).

16. Houck, *supra* note 2, at 880.

17. Or as Carol Rose would say, "messy." Rose, *supra* note 6, at 865.

18. Lynch, *supra* note 12, at 433.

19. Ruggiero, *supra* note 15, at 32. Abiotic material includes soil, water, and stored organic materials. Blair, *supra* note 13, at 151-52.

20. Susan Bucknum, Note, *The U.S. Commitment to Agenda 21: Chapter 11 Combating Deforestation—The Ecosystem Management Approach*, 8 DUKE ENVTL. L. & POL'Y 305, 318 (1998) (referring to United States Forest Service commentary); Ruggiero, *supra* note 15, at 37; Blair, *supra* note 13, at 152.

21. Blair, *supra* note 13, at 151-52.

22. James Salzman, *Valuing Ecosystem Services*, 24 ECOLOGY L.Q. 887, 887-88 (1997); Blair, *supra* note 13, at 154.

23. Scheiber, *supra* note 10, at 643; Lee P. Breckenridge, *Reweaving the Landscape: The Institutional Challenges of Ecosystem Management for Lands in Private Ownership*, 19 VT. L. REV. 363, 372-73 (1995).

24. Bucknum, *supra* note 20, at 318 (referring to United States Forest Service commentary).

25. Blair, *supra* note 13, at 153.

that will ensure the continued vitality of ecosystem processes and their attendant services.

Beyond that goal, much uncertainty surrounds ecosystem management. Little seems clear except perhaps that it has non-binding legal status. It seems odd, then, that lawyers have been advised to take ecosystem management into account when advising clients about development plans.²⁶ Federal and state ecosystem management experiences, which have met with varying degrees of success, can provide guidance, however.²⁷ These efforts shed light on the challenges facing ecosystem managers and reveal some rudimentary principles of implementation.

By far, the most influential ecosystem management principles have been borrowed from the field of conservation biology, which dictates that the primary emphasis should be to preserve biodiversity within ecosystems.²⁸ To achieve that end, habitats should be set aside for threatened and endangered species. Experience has shown that large set-asides are better than small ones, interconnected reserves are preferable to fragmented ones, and, if possible, human access to set-asides should be prohibited.²⁹

One way to meet conservation biology's primary goal of preserving habitat is to employ a two-step method known as the "coarse filter/fine filter" approach. Adopted by agencies such as the United States Forest Service, this method uses initial "coarse filter" strategies to maintain ecosystem processes as a way to protect biodiversity.³⁰ Follow-up "fine filter" efforts act as a safety net to provide added protection for threatened or endangered species, which coarse filter techniques might not adequately protect.³¹

Other principles now familiar to environmental lawyers have emerged from ecosystem management experiences. Ecosystem science, like so many other sciences, is inexact. Ecosystem process research is still underway,³² and the reach of ecosystems and the time

26. See J.B. Ruhl, *Ecosystem Management, The ESA, and the Seven Degrees of Relevance*, 14 NAT. RESOURCES & ENV'T 156, 159-60 (2000).

27. See generally Light, *supra* note 3; Rebecca W. Watson, *Ecosystem Management in the Northwest: "Is Everybody Happy?"*, 14 NAT. RESOURCES & ENV'T 173 (2000); Chad R. Gourley, *Restoration of the Lower Truckee River Ecosystem: Challenges and Opportunities*, 18 J. LAND RESOURCES & ENVTL. L. 113 (1998).

28. Ruggiero, *supra* note 15, at 38. Ruggiero also stresses the importance of landscape ecology in the practice of ecosystem management. *Id.*

29. Houck, *supra* note 2, at 878-79; J.B. Ruhl, *supra* note 3, at 65.

30. Bucknum, *supra* note 20, at 322.

31. *Id.* at 323.

32. Salzman, *supra* note 22, at 895.

at which species health should be judged are difficult to pinpoint.³³ Science has also proven incapable of acting quickly enough to deal with the myriad organisms and processes presented by complex ecosystems.³⁴ This significant degree of uncertainty leads to calls for the commonly-invoked precautionary principle, which essentially promotes a "less is more" approach: less human exploitation yields more ecosystem protection.³⁵

Two other themes common to ecosystem management bear mentioning. The first is flexibility. Because ecosystems transcend jurisdictional boundaries,³⁶ and because they are now known to be dynamic rather than static, ecosystem managers are instructed to employ management strategies that are capable of adapting to ecosystem changes.³⁷ Second, ecosystem management entails weighing costs and benefits, which must be accounted for and which will inevitably be distributed among various interests.³⁸ The allocation of costs when ecosystem management is applied to privately-owned land³⁹ and the predictable loss of commitment when research suggests the need for tough protective measures⁴⁰ present two of ecosystem management's greatest challenges.

Just as it is possible to glean general principles from ecosystem management's early history, it is also possible to begin to determine which strategies succeed. Existing literature suggests that there are many crucial decisions ecosystem managers make. In particular, decisions regarding a plan's starting point, its participants and their roles, and its components will heavily impact a plan's effectiveness.

Whether termed a baseline,⁴¹ goal,⁴² or "hook,"⁴³ numerous commentators agree that ecosystem management needs more of a starting point than a vaguely worded "save-the-habitat" policy. Oliver Houck maintains that ecosystem management is rarely, if ever, successful unless it is tied to a species in crisis, such as one

33. Houck, *supra* note 2, at 875.

34. Robert H. Twiss, *New Tools for Building the Future of Ecosystem Management*, 24 *ECOLOGY L.Q.* 877, 877-78 (1997).

35. See Scheiber, *supra* note 10, at 648-49.

36. Lynch, *supra* note 12, at 433; Ruhl, *supra* note 3, at 78-79.

37. Frampton, *supra* note 9, at 45; Ruhl, *supra* note 3, at 78; Houck, *supra* note 2, at 876.

38. See Rose, *supra* note 6, at 869; Parker, *supra* note 14, at 137; Robert A. Kagan, *Political and Legal Obstacles to Collaborative Ecosystem Planning*, 24 *ECOLOGY L.Q.* 871, 875 (1997); Ruhl, *supra* note 3, at 85-86. See generally Salzman, *supra* note 22.

39. See Breckenridge, *supra* note 23, at 381-82.

40. See Scheiber, *supra* note 10, at 648-51.

41. Houck, *supra* note 2, at 976-77.

42. Frampton, *supra* note 9, at 43; Propst, *supra* note 3, at 70; Ruhl, *supra* note 3, at 78.

43. Rose, *supra* note 6, at 867.

listed under the Endangered Species Act.⁴⁴ Once a species becomes the beneficiary of the full range of the Act's protections, the species becomes the baseline, making ecosystem management a "species-up" effort.⁴⁵ To Professor Houck, the intentional omission of humans from the starting point is imperative, because to include them in the equation from the outset risks turning ecosystems into whatever we desire.⁴⁶ He therefore endorses a bifurcated approach, one that first defines the ecosystem—the baseline—without humans and then develops a management strategy that incorporates human concerns.⁴⁷ Professor Houck thus recognizes the importance of a clearly defined starting point and argues that it should be a species-specific baseline.

Carol Rose's "hook" thesis offers a different view of the proper starting point for an ecosystem management initiative.⁴⁸ In her view, it is important to begin by providing a hook that will get the public's attention. The hook could be Professor Houck's endangered species, but it could also be a locality such as an old growth forest. It might be a product such as a species of fish that provides food, recreation, or economic health to a community, or it could even be tribal or riparian property rights.⁴⁹ The hook concept is broader than the baseline species idea but it, too, emphasizes the importance of starting ecosystem management with a specific trigger.

Other commentators echo these views by generally suggesting that planners agree on a vision or goal before devising an ecosystem management plan. Determining the precise objective may not be easy; the decision will entail collaboration and will in all likelihood become political.⁵⁰ Yet an established goal gives management decisions a purpose,⁵¹ and a shared vision has the added advantage of solidifying partnerships which are also crucial to ecosystem management success.⁵²

The effectiveness of an ecosystem management program will also depend on who is involved and in what capacity. The spatial challenges presented by ecosystems make the collaborative demands

44. Houck, *supra* note 2, at 873, 956-59.

45. *Id.* at 976-77.

46. *Id.* at 877; see also Oliver Houck, *Are Humans Part of Ecosystems?*, 28 ENVTL. L. 1, 3 (1998).

47. Houck, *supra* note 46, at 6-8.

48. Rose, *supra* note 6, at 867.

49. *Id.* at 867-68.

50. Frampton, *supra* note 9, at 43-44.

51. Ruhl, *supra* note 3, at 78.

52. See Propst, *supra* note 3, at 70.

of any program evident. Management efforts will likely require the participation of federal, state, and local governments⁵³ in addition to private stakeholders and nongovernmental organizations.⁵⁴ Much has been written about the importance of allowing local interests to play a substantial role in ecosystem management,⁵⁵ yet we are also told that the federal government must provide input.⁵⁶ Suggestions that horizontal, rather than vertical, organizational structures are better suited to the task add to the uncertainty regarding the precise roles the various players should assume in the ecosystem management process.⁵⁷ Thus, although there is no ideal mix of players and roles in ecosystem management, the issue clearly demands attention.

Once a fixed starting point and working partnership are in place, the actual ecosystem management plan should include four characteristics. First, plans must be tied to specific standards and provide certainty for participants. Professor Houck, for example, offers indicator species to furnish the needed specificity.⁵⁸ Other plans have employed scientific advisory committees to devise clear protective standards and practices that are not necessarily tied to species.⁵⁹ Employing environmentally-attuned accounting practices can also furnish specifics.⁶⁰ Certainty can be provided by assuring private participants that nothing more will be required of them once they perform certain ecosystem protection obligations.⁶¹

Two other characteristics shared by successful plans are mandatory provisions and monitoring. Provisions that are simply aspirational weaken plans.⁶² Very specific protective standards become meaningless if presented as mere goals, or if they are intended to be implemented only to the fullest extent possible. Problems also arise if standards are determined through

53. R. Eric Smith, *The Canyon Country Partnership and Ecosystem-Based Management on the East-Central Colorado Plateau*, 19 J. LAND RESOURCES & ENVTL. L. 19, 19 (1999); Propst, *supra* note 3, at 66.

54. Propst, *supra* note 3, at 67, 73.

55. See Breckenridge, *supra* note 23, at 396-98; Timothy P. Duane, *Community Participation in Ecosystem Management*, 24 ECOLOGY L.Q. 771, 772 (1997).

56. Breckenridge, *supra* note 23, at 422; Rodriguez, *supra* note 3, at 749.

57. See Duane, *supra* note 55, at 778.

58. Houck, *supra* note 2, at 976-77.

59. Gregory A. Hicks, *Managing State Trust Land for Ecosystem Health: The Case of Washington State's Range and Agricultural Lands*, 6 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 1, 13 (1999).

60. See Salzman, *supra* note 22, at 899-90.

61. See Parker, *supra* note 14, at 130-31.

62. See Hicks, *supra* note 59, at 18.

collaboration.⁶³ In addition, the uncertainties of ecosystem science and the dynamic nature of ecosystems means that plans cannot be static; they must be flexible enough to adapt to changed circumstances. Plans must therefore include provisions for constant monitoring so managers can determine whether revisions to management practices are warranted.⁶⁴

Coming to grips with costs and benefits represents a final determinant of plan success. One way to deal efficiently with costs is to include methods that finance habitat acquisition at an early stage to avoid greenlining.⁶⁵ Another method is to include mandatory environmental justice reviews.⁶⁶ A plan might also include micro-NEPA provisions that require cost-benefit analyses to accurately account for impacts on ecosystem services.⁶⁷ In short, no ecosystem management plan can realistically expect success without dealing fully and honestly with the financial bottom line.

Ecosystem management plans that have not met expectations admit to imprecise starting points, partnership weaknesses, or a failure to include one or more of the four suggested plan components.⁶⁸ For example, problems with ecosystem protection in Colorado's canyon country have been traced to the plan's vague focus, its too-large geographic reach, and its failure to include private stakeholders.⁶⁹ Weak statutory standards that mandate neither the implementation of protective practices nor monitoring have plagued a Washington plan to bring ecosystem management to state trust lands.⁷⁰ Clearly, initiatives that are careful to include some necessary ingredients can produce mediocre results by omitting others. The Washington plan well-illustrates this phenomenon. The program has been a disappointment despite its success in establishing specific ecosystem protection standards developed by a scientific advisory committee under a remarkably tight statutory deadline.⁷¹

63. *See id.*

64. *Id.*; Parker, *supra* note 14, at 131.

65. Ruhl, *supra* note 3, at 82-83, 85-86.

66. *See id.* at 85-86.

67. *See* David R. Hodas, *NEPA Ecosystem Management and Environmental Accounting*, 14 NAT. RESOURCES & ENV'T 185, 189 (2000). *See generally* Salzman, *supra* note 22.

68. Commentators also note federal regulators' belief that the Federal Advisory Committee Act stymies successful ecosystem management partnerships. *See* Smith, *supra* note 53, at 35-36. *See generally* Lynch, *supra* note 12.

69. *See* Smith, *supra* note 53, at 31-33.

70. *See* Hicks, *supra* note 59, at 18-19.

71. *See id.* at 13-15.

B. Ecosystem Management in Human Population Centers

Any ecosystem management plan should include a starting point, create a partnership, and address the quartet of plan requirements. Literature that discusses management of public lands reveals the importance of these requirements. A few writers have, however, addressed ecosystem management in locations that are more heavily populated by people, and their insights are more attuned to urban ecosystem management.

Joel Eisen concludes that federal efforts to regulate urban stormwater runoff have been inadequate and that promise can come only if state and local governments become more involved in addressing the problem.⁷² While Professor Eisen agrees that the federal government needs to play a role in this area of watershed protection, for several reasons he believes that state and local officials are better suited to make needed improvements. He notes that local governments are more likely to experiment. They can also be more aggressive and can easily coordinate their efforts with other relevant programs.⁷³ Professor Eisen emphasizes the importance of local participation by claiming that "the power of decisions increases as they are made closer to the local level."⁷⁴ He also points out that "connectedness with place" is often lacking in top-down hierarchical regulatory structures.⁷⁵

Other scholarship more fully details the unique and adaptable tools at the disposal of local governments.⁷⁶ City governments, for example, can be important participants in ecosystem protection because their laws allow them to change boundaries with relative ease, form regional governments, create regional special purpose districts, and enter into interlocal agreements to better deal with the challenges posed by ecosystem boundaries.⁷⁷ Local governments can also take advantage of various funding mechanisms to deal with cost distribution issues. Finance options include taxes, user fees, special assessments, bonds, and revenue sharing.⁷⁸ The tendency of citizens to trust local governments more than their federal counterparts is yet

72. See Eisen, *supra* note 4, at 11. Professor Eisen's article is cast in terms of sustainability rather than ecosystem management, but there is little doubt the concepts are closely related.

73. See *id.* at 73-74.

74. *Id.* at 75.

75. *Id.*

76. See generally Rodriguez, *supra* note 3.

77. See *id.* at 755-61.

78. See *id.* at 764.

another reason to pursue local involvement.⁷⁹ While these advantages are numerous and could be useful in ecosystem planning, they should not be taken as proof that ecosystem management should be left to local governments alone. The belief that the federal government must be involved at some level is fairly consistent, but that belief is sometimes accompanied by the caveat that federal involvement should be limited, perhaps to the extent of setting national biodiversity policy.⁸⁰

J.B. Ruhl touts the benefits of ecosystem management in combating suburban sprawl,⁸¹ and many of his suggestions echo those alluded to thus far. Goals,⁸² adaptive management,⁸³ caution in the face of uncertain science,⁸⁴ and consistent use of specific and clear rules⁸⁵ are part of Professor Ruhl's package. He also points to three matters that seem more directly relevant to urban areas. Perhaps acknowledging the ability of local government to act quickly and creatively, Professor Ruhl suggests a proactive management style that would address status quo problems while there is still an opportunity for maximum flexibility, rather than waiting for a species to be listed as endangered.⁸⁶ He also encourages local governments to think beyond their boundaries and recognize that positive steps taken locally can have broad ecosystem benefits.⁸⁷ And although he encourages local officials to adopt a realistic attitude and acknowledge that not everyone can be pleased,⁸⁸ he notes the importance of passing along the benefits of a plan to a broad community base, rather than allowing them to inure to the affluent individuals who usually reside closest to habitat set-asides.⁸⁹

In the face of the sizable amount of ecosystem management literature, the sparse scholarship devoted to local and urban concerns is nevertheless significant. Not only does it reinforce generic ecosystem management principles, but it also suggests that cities have an arsenal of tools that can help them bring a unique focus to ecosystem management. Such scholarship is also valuable because it

79. *See id.* at 751-52.

80. *See id.* at 749.

81. *See generally* Ruhl, *supra* note 3.

82. *See id.* at 78-80.

83. *See id.* at 70.

84. *See id.* at 80-81.

85. *See id.* at 83-84.

86. *See id.* at 82.

87. *See id.* at 78-80, 82.

88. *Id.* at 84-85.

89. *Id.* at 85-86.

brings us face to face with two thorny issues in ecosystem management: the first addresses the proper balance between regional and local interests, and the second considers the proper place for humans within ecosystems. Both issues are particularly relevant in the urban context.

C. Two Issues: Local vs. Regional, and the Human Place in Ecosystems

It is widely agreed that ecosystem management should be a collaborative process involving federal, state, and local interests. National and regional planning, which is routinely encouraged,⁹⁰ respects the reach of ecosystems. Yet large-scale planning can be unwieldy, inflexible, and costly.⁹¹ If expansive, all-encompassing ecosystem planning is the order of the day, how can it deal with those inherent problems? And how can the many arguments that either directly or indirectly favor a local focus be addressed?

The importance of communities of place in ecosystem management has been mentioned as important both when considering public participation⁹² and when establishing program starting points.⁹³ And the flexibility of local governments has been offered as a reason to deeply involve them in ecosystem management.⁹⁴ Other scholars have noted that taking small, local steps to protect an ecosystem can have valuable spillover effects due to ecosystem synergies.⁹⁵ Also, acknowledging the importance of place and focusing on local communities can help resolve the clash between private property rights and public environmental concerns.⁹⁶ Residents of local communities who derive economic benefit from ecosystem resources often support ecosystem planning,⁹⁷ a fact which further highlights the importance of local input. In fact, Professor Ruhl states outright that sustainable development, which is arguably the end result of a properly devised ecosystem management plan, will only be achieved if it is implemented at the local level.⁹⁸

90. See Parker, *supra* note 14, at 117.

91. See Breckenridge, *supra* note 23, at 390-91; see also Eisen, *supra* note 4, at 75.

92. See Duane, *supra* note 55, at 772.

93. See Rose, *supra* note 6, at 868.

94. See generally Rodriguez, *supra* note 3.

95. See Gourley, *supra* note 27, at 121.

96. See Marc R. Poirier, *Property, Environment, Community*, 12 J. ENVTL. L. & LITIG. 43, 64, 69 (1997).

97. See Breckenridge, *supra* note 23, at 397-98.

98. Ruhl, *supra* note 3, at 68-70.

These sentiments cannot be lost in the midst of the many endorsements for national or regional ecosystem planning. Taken together, they do more than stand for the proposition that local participation is needed in regional ecosystem planning. They also tell us that the contribution from local communities, including cities, must be important and that those communities must be made to feel that their contribution matters. Some authors nevertheless favor a traditional top-down approach to ecosystem planning dominated by the federal government.⁹⁹ Yet that type of structure ignores the difficulties presented by big government programs and risks giving local communities short shrift. Driven by federally-set policy and standards and federally-produced technical support, a top-down model would leave the national government responsible for all aspects of an ecosystem management plan including its overall integrity.¹⁰⁰ Even if such a plan were to give local communities some implementation authority, it could easily fail to be responsive to the importance of place and the goal of empowering local communities.

Some existing ecosystem management models are primarily top-down, such as the national-state partnership to save the Florida Everglades.¹⁰¹ That plan includes ecosystem-wide construction and operational projects, mitigation and monitoring, as well as local real estate requirements.¹⁰² Despite the breadth of the plan, some believe that the plan will succeed only if it is both "place-based [and] holistic."¹⁰³ Even within this national and state driven program, then, there appears to be a recognition that local input alone is not enough. Rather, ecosystem management plans must respect localities and their place within ecosystems by affording them a full opportunity to celebrate that sense of place.

One way to alleviate the regional-local tension is to make the top-down organization model more bottom-heavy. This approach is not meant to endorse a design in which uncoordinated local efforts proceed independently. That very kind of fragmented local planning has jeopardized the health of our ecosystems in the first place and has prevented ecosystem planning from taking hold.¹⁰⁴ Instead, the federal government should assume the role of ecosystem management overseer. This role should be limited to pronouncing

99. See Frampton, *supra* note 9, at 46.

100. *Id.*

101. See generally Light, *supra* note 2.

102. *Id.* at 169-70.

103. *Id.* at 171.

104. See Kagan, *supra* note 38, at 873-75.

national ecosystem protection goals, defining national ecosystem boundaries, and producing science-driven baseline standards that ensure the ongoing functioning of ecosystem processes. The federal government's oversight authority should also entail monitoring incoming data to determine if the baseline standards are being met. States, in turn, would coordinate ecosystem management efforts within their boundaries and would remain free to adopt more protective standards.

It should, however, be left to the localities within each ecosystem to ultimately determine how to meet the national or state imposed baselines. They should have the flexibility to determine their own place-specific goals that would take into account the baselines as well as positive peculiarities of place. The new organizational structure would invigorate local communities by allowing them to create unique ecosystem-based identities and improve their quality of place while simultaneously creating ecosystem synergies that would help restore and maintain ecosystem processes remote from them. The ability of localities to define what they want themselves to be in relation to their immediately surrounding ecosystems would add a measure of empowerment that is missing from traditional top-down models. Being given a maximum opportunity to be creative and to meet broad baselines in ways that celebrate place is a far cry from command and control ecosystem management, and acknowledges that people know their own land and resources better than those who live and work in far away locations.¹⁰⁵

For cities, this more loosely-structured hierarchy holds promise. It recognizes that cities are included within ecosystems and that their sense of place within those ecosystems, from which their cultures develop, is theirs to determine. Yet cities located within ecosystems must be free to define themselves without becoming lost in the rush to regionalize. Regional ecosystem planning carries with it the danger of de-emphasizing cities with the attendant loss of cultural specificity and diversity. Additionally, some warn that it could only deepen our environmental problems.¹⁰⁶ Eminent urban studies scholars similarly caution that, while the future of our cities may lie in metropolitan planning, cities must remain important

105. See Duane, *supra* note 55, at 795-97.

106. See Eisen, *supra* note 4, at 7-8.

centers within areas having many centers.¹⁰⁷ To put it in the concise words of Professor Eisen, "we must have cities."¹⁰⁸

If cities are to be a primary focus of ecosystem planning, then what place do humans have in urban ecosystem planning? As mentioned, Oliver Houck has cast doubts on any definition of ecosystem that includes humans, pointing out that to do so places too much importance on our over-consumptive needs.¹⁰⁹ Professor Houck's focus, however, has been on public land management, where the human drive to produce threatens untouched natural resources. In that context, a bifurcated approach to ecosystem management, which would omit humans from the definition of ecosystem while still including them in management planning, makes sense. Yet it is illogical to ignore humans as part of an ecosystem when the area to be managed includes a city, where humans are the dominant species.

Not surprisingly, a number of scholars believe that all aspects of ecosystem management must include humans. Among them is J.B. Ruhl, whose pro-human argument is made in the context of ecosystem management in suburbia.¹¹⁰ Others see humans and the human economy as part of nature's economy and therefore believe that human needs must be considered in all phases of ecosystem management.¹¹¹ The breadth of the latter view clearly conflicts with Professor Houck's bifurcated analysis and poses precisely the dangers that concern him. What is argued here is not that all ecosystems should be viewed as having a human component; rather that the definition of ecosystem cannot exclude humans when urban ecosystem planning is at hand. Humans do not merely use a city's resources, as is the case with public land use. They live in cities. Human-dominated subregions of ecosystems need to be recognized for what they are: eco-regions where humans are the dominant species whose habitat must be protected and preserved with their well-being in mind. In the urban environment, human needs must be considered along with all the other components of the ecosystem.

It would be tempting to resolve this issue by drawing urban ecosystem boundaries to match those of individual cities and thus restrict consideration of human interests to those areas. However,

107. WITOLD RYBCZYNSKI, *CITY LIFE: URBAN EXPECTATIONS IN A NEW WORLD* 228 (1995).

108. Eisen, *supra* note 4, at 8.

109. See Houck, *supra* note 2, at 876-77. See generally Houck, *supra* note 46.

110. See Ruhl, *supra* note 3, at 78, where he states "that the human factor must play a large role at every stage of sustainable development policies."

111. See Breckenridge, *supra* note 23, at 375-77.

the error of that kind of manipulation is apparent. Further, giving urban areas their own artificially-defined ecosystems would remove cities from their natural context and invite them to ignore the important task of integrating their ecosystem planning with that of the ecosystem at large.

To accept the idea that cities must play an important role in ecosystem planning and that urban eco-regions must recognize their human inhabitants is to understand the basis of the two urban ecosystem principles endorsed in this article. The dual emphasis on cities and humans means that ecosystem management in a river city such as the one described at the beginning of this article should reflect concerns not only for the distant tributaries and upriver portions of the city's waterways, but also for the busy river corridors near the heart of the city. Additionally, it must strive to protect the habitat and living conditions of city residents, who represent an important component of the biomass of that ecosystem.

II. URBAN WOES:

OF PLASTIC DUCKS, BURGLAR ALARMS, AND BUS EXHAUST

Stating that cities must be partners in ecosystem management is easy. Conceptualizing it is another thing. Cities have, after all, been described as "tool[s]," and as "the only possible ideal machine[s]."¹¹² These are not descriptions that spring to mind for rich biotic and abiotic communities; they sadly lack any hint at the human, sociological aspect of cities. How can cities, with all their noise, pollution, and visual blight, be considered parts of ecosystems? We might begin by recognizing that cities, despite their problems, are working systems just like ecosystems. That similarity is important, but obvious and significant differences exist between cities and other eco-regions. Before discussing how ecosystem planning can meaningfully include cities, it is helpful to explore the environmental and sociological problems that plague cities, since it is primarily those problems that differentiate cities from other eco-regions.

Pollution is perhaps the most obvious problem. Cities are dirty and noisy; the quality of their air, water, and soil is compromised to varying degrees.¹¹³ They are unsustainable places where nature has

112. JOHN K. GRANDE, *BALANCE: ART AND NATURE* 73 (1994) (referring to the city descriptions of Le Corbusier and Frank Lloyd Wright).

113. See Jerry Frug, *The Geography of Community*, 48 STAN. L. REV. 1047, 1055-56; Eisen, *supra* note 4, at 7.

been forgotten.¹¹⁴ Yet this has not always been the case. During colonial times natural landscape techniques were purposely employed in ways that dominated architecture. For example, it was a common practice to use trees to shade city streets in hot and humid climates.¹¹⁵ And in Williamsburg, shallow trenches were required to be left in their natural state in order to separate residential lots from one another.¹¹⁶ Efforts to "naturaliz[e]" American cities¹¹⁷ fell by the wayside, however, as cities grew into industrial centers.

The enormous industry-fed growth experienced by American cities in the twentieth century left them urbanized and in a dismal state that many fear is worsening.¹¹⁸ Cars are often singled out as a major source of urban decline. Their noise and hazardous emissions have brought health problems and visual blight to cities. In addition, cars have changed the face of urban design.¹¹⁹ In the last fifty years, cities have been built for cars and suburbs have become more accessible and appealing places to live.¹²⁰ This evolution caused many cities to deteriorate in the years following World War II even when urban industry remained strong.¹²¹

Other culprits have contributed to urban decline. Even before automobiles became commonplace, skyscrapers had a negative impact on cities. Soon after their introduction, skyscrapers were recognized as the most profitable type of structure to build on high-priced city property. Row houses and other human-sized buildings were built less frequently¹²² as urban developers increasingly favored function and profit over beauty.¹²³ The combination of the car and skyscraper makes today's cities places to work, shop, and recreate, but not places in which to live.¹²⁴

Post-war federal highway funding has both hastened and facilitated this state of affairs. New infrastructure has brought unsightly elevated roadways into cities, often robbing residents of views and easy access to waterfronts.¹²⁵ Urban renewal efforts have further contributed to this trend by confining people to pedestrian

114. See Eisen, *supra* note 4, at 7-8.

115. RYBCZYNSKI, *supra* note 107, at 81.

116. *Id.* at 71.

117. *Id.* at 80.

118. See JAMES HOWARD KUNSTLER, HOME FROM NOWHERE 35 (1996).

119. *Id.* at 64-66.

120. *Id.*

121. RYBCZYNSKI, *supra* note 107, at 200.

122. See *id.* at 119, 153.

123. KUNSTLER, *supra* note 118, at 88.

124. RYBCZYNSKI, *supra* note 107, at 120.

125. *Id.* at 161.

mall and plazas, leaving streets for cars alone.¹²⁶ Redevelopment efforts have also left cities with even bigger buildings, including stark public housing towers that have replaced entire neighborhoods and isolated individuals from city life.¹²⁷ Thus, highway and urban renewal subsidies have also aided the rebuilding of American cities for cars and colossal buildings.¹²⁸

The decline of American cities can also be traced to single-use zoning, which has increased our reliance on cars by making it necessary to travel significant distances from home to work.¹²⁹ Property tax structures also contribute by encouraging urban landowners to either hold on to vacant city property or build structures that will not endure.¹³⁰ These practices combine to make decent city housing more scarce, which in turn results in high rents that prevent middle and lower-income people from living in the city.¹³¹ James Kunstler, an urban studies scholar who is particularly critical of these forces, frankly states that it has become illegal to build real and traditional city structures.¹³² He believes that whenever such a structure is built, it is the likely result of "cultural agreement" rather than the law.¹³³

Our cities are ugly, polluted, car-dominated and are designed for workers, not residents. Those who do live in them are packed into unsightly towers that are out of scale to humans. Jerry Frug argues that the dominant pattern in urban land use, which treats cities as places for economic growth rather than community building, has divided people based on race and income level.¹³⁴ Traditionally, urban living has been viewed as diverse, even erotic, arising from the heterogeneous make-up of city residents and their many subcultures;¹³⁵ yet the lure of the city has been largely lost. Government programs at all levels have prompted many individuals to reject cities as places to live and to instead choose the isolation of

126. *Id.* at 162.

127. *Id.* at 164-65.

128. *Id.*

129. KUNSTLER, *supra* note 118, at 94.

130. *Id.* at 196-97. As Kunstler puts it, "Our system of property taxes punishes anyone who puts up a decent building made of durable materials. It rewards those who let existing buildings go to hell. It favors speculators who sit on vacant or underutilized land in the hearts of our cities and towns." *Id.*

131. *Id.* at 196-200.

132. *Id.* at 109-10.

133. *Id.*

134. See generally Frug, *supra* note 113.

135. *Id.* at 1051, 1060.

the suburbs.¹³⁶ As a result, we have become a more fragmented society and along the way have fueled sprawl by creating an endemic suburbanite fear of the "others" who live in the city.¹³⁷

More often than not, those "others" are the minority poor,¹³⁸ who live almost entirely among people like themselves despite the Fair Housing Act's promise to ensure racial integration.¹³⁹ Urban ghetto dwellers are as isolated as suburbanites and the United States, despite its many efforts, is increasingly divided by race and economic class.¹⁴⁰ We no longer embrace diversity as an asset of the city, but instead fear it and flee in our cars. And as Professor Frug points out, all of us pay a heavy sociological cost for this pattern of isolation and fragmentation: urban humans have evolved to a point where they interact neither with their environment nor with many of their own species.¹⁴¹

At this point, it is fair to ask whether there is anything at all redeeming about America's cities. Apart from their obvious contribution to industry and commerce, one might argue that many American cities are wellsprings of the best in the visual and performing arts. This positive attribute is hard to ignore and arguably softens the otherwise harsh image of cities described thus far. Yet a view of the city as a cultural Mecca is hardly universal. Some critics believe that the media and the influence of big business have made today's art increasingly bland, incomplete, and homogenous.¹⁴² Art critic John Grande, for example, points to the current belief that art is something to consume rather than appreciate,¹⁴³ making today's artists little more than manufacturers whose success depends on their work fitting the universal mold of the international art world.¹⁴⁴ Artists create without looking to their surroundings for inspiration; instead, internationalism and

136. *Id.* at 1052, 1074-75. Professor Frug cites the federal government's housing subsidies and public housing efforts, state laws allowing suburbs to become autonomous and engage in exclusionary zoning, and unwise city urban renewal programs and transportation projects as some of the sources of urban decline. *Id.* at 1069-72.

137. *Id.* at 1074.

138. *Id.* at 1064.

139. See James A. Kushner, *A Comparative Vision of the Convergence of Ecology, Empowerment, and the Quest for a Just Society*, 52 U. MIAMI L. REV. 931, 937-39 (1998).

140. See Frug, *supra* note 113, at 1067.

141. *Id.* at 1107-08.

142. See generally GRANDE, *supra* note 112. John Grande is an award-winning art critic and prolific writer whose work has been described as both "controversial" and "thought-provoking." *Black Rose Books Authors*, at <http://www.web.net/blackrosebooks/grande.htm> (last visited Mar. 2, 2001).

143. GRANDE, *supra* note 112, at 15.

144. *Id.* at 19.

modernism have made today's art "interchangeable" and less place-specific,¹⁴⁵ leaving us a cultural climate that is "aesthetic[ally] depriv[ed]."¹⁴⁶ Even the city's reputation as a haven for the arts is thus less than sterling.

Cities, these entities that need to be included within ecosystems, appear to be quite dysfunctional. They are dirty, uncivilized, and shackled by zoning and tax laws that cater to cars and commerce. Their cultural attributes are less and less satisfying. Their residents are largely poor, underprivileged, and shunned by the majority who choose to live elsewhere. These problems, while largely the result of failed urban policies and laws at all levels, are slowly being addressed by a new generation of urban designers and artists who have taken up the dual principles of celebration of place and respect for human kind.

Some of today's urban scholars and designers, including James Kunstler and groups such as the Congress for the New Urbanism,¹⁴⁷ are proponents of "Traditional Neighborhood Development" (TND), a movement that attempts to restore a pedestrian focus to cities.¹⁴⁸ TND uses neighborhoods as building blocks,¹⁴⁹ promoting the design of small scale urban areas to create communities.¹⁵⁰ Moreover, TND adheres to "principles of civic art," reflected in small neighborhoods with focused centers that can be reached easily on foot from any other part of the neighborhood.¹⁵¹ Each TND neighborhood has a public transit stop, its civic buildings are built in focused places such as squares, and moving from one neighborhood to another is encouraged and facilitated by pedestrian corridors. TND neighborhoods are also mixed-use; apartments are built over shops and job sites of all sorts are a walk away.¹⁵² Because TND streets are envisioned as spaces that pedestrians commonly use, they are treated as outdoor rooms, embellished by landscaping and buildings.¹⁵³

TND responds to the present state of urban decay by focusing on the basic human desire to be happy where one lives and to be surrounded by beauty.¹⁵⁴ It recognizes that our aesthetic sense arises

145. *Id.*

146. *Id.* at 13.

147. See KUNSTLER, *supra* note 118, at 19-20.

148. RYBCZYNSKI, *supra* note 107, at 230-31.

149. KUNSTLER, *supra* note 118, at 160-63.

150. *Id.*

151. *Id.* at 115-18.

152. *Id.*

153. *Id.* at 127.

154. *Id.* at 122.

in part from our ability to recognize intersecting patterns, many of which we observe in nature.¹⁵⁵ TND's principles of civic art strive to integrate the various functions of human cultures,¹⁵⁶ connect with the past,¹⁵⁷ and recapture the charm that existed in villages and towns.¹⁵⁸ TND practitioners believe the degradation of city life is caused by the deterioration of the city's "public realm," which refers to "[t]he connective tissue of our everyday world."¹⁵⁹ It is this deterioration that TND seeks to reverse.¹⁶⁰

On another front, a new breed of artists is spearheading an effort that addresses the shortcomings of urban art. They embrace styles of art that are more directly tied to place¹⁶¹ and reinvigorate their work by focusing on the connections between people and their immediate natural surroundings. They see a value in their "bio-regional culture" and believe that by using that creative fodder and communicating its value to a new audience they will help all people reconnect with nature.¹⁶² Their art is also rich in mythical and spiritual connections which are often lacking in postmodern art.¹⁶³ These connections force artists to pay attention to their "direct intuitive experience" and require them to get closer to and more fully appreciate nature.¹⁶⁴ These artists do more than use nature as a design source; rather, they "reintegrat[e] the natural world into the urban centres of the twenty-first century"¹⁶⁵ by focusing on cultural permanence and identity.¹⁶⁶

This new approach to art not only merges the economy of culture with the environment,¹⁶⁷ it also subtly changes an observer's sense of aesthetics, making it more attuned to the natural environment. Its promotion of place-specific works also responds to Grande's lament that our art is bland and homogenous. It is an art that both preserves and celebrates local cultures without threatening goals of cultural integration.¹⁶⁸

155. *Id.* at 82-83.

156. *Id.* at 125.

157. *Id.* at 88-89.

158. *Id.* at 78.

159. *Id.* at 35-36.

160. *Id.* at 36-38.

161. *See generally* GRANDE, *supra* note 112.

162. *Id.* at 35-36.

163. *See id.* at 43-44.

164. *See id.* at 73.

165. *Id.* at 65.

166. *Id.* at 79.

167. *Id.* at 96.

168. *Id.* at 122.

The TND and new art movements address weaknesses in the human portion of the connective tissue that holds our urban ecosystems together. Together they suggest that current urban maladies can be cured by thinking locally, in a small scale, and by fostering diversity. Both initiatives show a willingness to deal with urban problems and provide actual alternatives that are being implemented to address those problems. The question becomes whether these new design and cultural models are at all relevant to ecosystem planning and the law. This article concludes that, to the extent they endorse a recognition of place, including a respect for environmental and human diversity, they are very relevant. This conclusion is supported by theories from the arts and sciences, philosophy, and the law that ultimately point toward a new paradigm for urban ecosystem management.

III. INTERDISCIPLINARY PERSPECTIVES: HINTS OF DEGRADATION AND RICHNESS

Recent scholarship in the arts and sciences, teachings from the philosophical school of phenomenology, and current trends in legal theory all buttress the argument that cities, the human-dense subregions within ecosystems, should be included in and can contribute to ecosystem management. The literature also hints at ways to accomplish this improvement. Writers whose thoughts contribute to the discussion in the arts and sciences represent the seemingly diverse fields of evolutionary biology, astronomy, math, and music. Surprisingly, their work reveals some common insights.

A. Arts and Sciences

Over-emphasizing the importance of patterns in science would be difficult; patterns are, as one scientist has stated, "the very stuff of science."¹⁶⁹ Another scholar has similarly noted that "[t]he laws of Nature are based upon the existence of a pattern, linking one state of affairs to another; and where there is pattern, there is symmetry."¹⁷⁰ It was, after all, patterns in the fossil record and elsewhere that led Darwin to theorize about evolution,¹⁷¹ and patterns in the earth's

169. NILES ELDREDGE, *THE PATTERN OF EVOLUTION* 23 (1999).

170. JOHN D. BARROW, *THE ARTFUL UNIVERSE* 36 (1995).

171. ELDREDGE, *supra* note 169, at 75, 80.

geologic structure encouraged Wegener to promote the theory of continental drift.¹⁷²

Niles Eldredge, an expert in evolutionary theory and biodiversity, criticizes the reluctance of evolutionary biologists to look beyond a reductionist Darwinian approach to evolution¹⁷³ and in particular their failure to consider other larger patterns reflected in the earth's physical history. He notes that this narrow focus persists even in the face of growing evidence that major events in the earth's history have played an important role in the history of life on earth.¹⁷⁴ Eldredge believes that the earth and life are linked in a "lawlike" progression¹⁷⁵ and that to make Darwin's theory consistent with the earth's historical patterns, scientists must "connect evolution with the rest of the physical realm."¹⁷⁶

A full exploration of this linkage is at the heart of Eldredge's argument for a more complete and accurate theory of evolution.¹⁷⁷ He points to various patterns that suggest the earth and species are equally important in evolutionary theory, including one that indicates evolutionary changes occur when ecosystems become degraded and rebuilt.¹⁷⁸ The interrelationship between species and ecosystems culminates in a theory Eldredge refers to as "punctuated equilibria" or "coordinated stasis," which posits that ecosystem disruption results in sometimes abrupt changes in species amid otherwise long periods of stasis.¹⁷⁹ Eldredge's desire is that others who work in both his and other related scientific disciplines reject reductionism and reach across disciplines to focus on a broader array of patterns.

Similarly, astronomer John Barrow argues that the arts could benefit by studying patterns as the sciences do.¹⁸⁰ The art-science

172. *Id.* at 101, 104. Wegener's theory was not well received due to flawed measurements and to the fact that he was an outsider to the field; however, by 1960 plate tectonic theory had gained acceptance. *Id.* at 101, 107.

173. *Id.* at 94-95. Niles Eldredge is the curator of the American Museum of Natural History's Department of Invertebrates. His other works include two 1998 books, *Life in the Balance: Humanity and the Biodiversity Crisis* and *Dominion*. Niles Eldredge, at <http://research.amnh.org/biodiversity/Climate/bioeldredge.html> (last visited July 12, 2000).

174. ELDREDGE, *supra* note 169, at 115-17.

175. *Id.* at 147.

176. *Id.* at 145.

177. *Id.* at 151.

178. *Id.* at 159-61.

179. *Id.* at 157-58, 160-61. Eldredge also suggests that connections between endogenous energy and evolution need more full exploration. *Id.* at 173.

180. BARROW, *supra* note 170, at vii. John Barrow is a Professor of Astronomy and Director of the Astronomy Center at the University of Sussex, England. He is a prolific writer and

link should come as no surprise; our capacity for both scientific thought and aesthetic appreciation is the probable result of evolutionary adaptations that allowed us to recognize and appreciate patterns in nature.¹⁸¹ His premise is that the universe has shaped both biological evolution and our cultural development.¹⁸²

Barrow notes, for example, that we enjoy looking at paintings of pastoral landscapes and often design open spaces such as parks with savannah-like features.¹⁸³ He demonstrates that our aesthetic attraction to these settings can be traced to a distant past when savannahs were ideal habitats for human survival.¹⁸⁴ Aesthetic responses that have evolved from early adaptations to environmental conditions establish the scientific underpinnings of the visual arts.¹⁸⁵ Barrow regrets that urban planners ignore this link, and he believes that because aesthetics are "a fusion of instinct and experience," we should both study and make use of the aesthetic-environment connection.¹⁸⁶

Barrow strongly promotes the role of the environment and adaptation in the development of our aesthetic instincts in the visual arts and also sees, to a lesser extent, similar patterns in the development of music.¹⁸⁷ While music is clearly pattern-based,¹⁸⁸ its development as an adaptive mechanism is unclear. It may have developed as a way to contact the spirits, or it may have reflected emotions or natural rhythms such as the human heartbeat.¹⁸⁹ Darwin believed that nature inspired music,¹⁹⁰ and Plato felt it was a "pale reflection" of celestial harmony.¹⁹¹ Others believe that music, like all of the arts, reflects a human response to the environment and that patterns in early music were intended to create images of actions and feelings in listeners.¹⁹²

international lecturer. *Science and the Spiritual Quest Conference*, at <http://www.ssq.net/html/bios.html> (last visited Mar. 2, 2001).

181. BARROW, *supra* note 170, at 30. Barrow claims that recognizing certain patterns were likely needed at one time for survival and that adaptive mechanism has resulted in our enjoyment of creating and discovering order in things. *Id.*

182. *Id.* at 34.

183. *Id.* at 91-92.

184. *Id.*

185. *Id.* at 100-01.

186. *Id.* at 95.

187. *Id.* at 187.

188. *Id.* at 230-31.

189. *Id.* at 189.

190. *Id.* at 190-91.

191. *Id.* at 202.

192. SIDNEY FINKELSTEIN, *HOW MUSIC EXPRESSES IDEAS* 9, 17 (2d ed. 1970).

Barrow does, however, provide some proof that musical taste is related to adaptive properties. He points out that the music people tend to enjoy exhibits similarities in pitch, volume, and intervals, and he surmises that at one time our survival may have depended on an ability to detect and react to similar features of natural noises.¹⁹³ As is the case with visual aesthetics, there likely is a common denominator of sorts in the field of auditory aesthetics, which leads to a linkage with the sciences and, in particular, environmental sciences. Barrow's point, like Eldredge's, is that aesthetic theoreticians can benefit by focusing on patterns from other disciplines.

At one point Barrow notes that complex environmental patterns led to the development of math as well as aesthetics.¹⁹⁴ Edward Rothstein agrees, noting that math ultimately seeks to put the universe in order.¹⁹⁵ Rothstein exposes the similarities between math and music, primarily their reliance on patterns¹⁹⁶ and "mapping," which refers to the process of comparing objects to define similarities.¹⁹⁷ While early developments in both disciplines resulted from the exploration of basic patterns, more current efforts have dealt with increasing levels of abstraction.¹⁹⁸ By carefully detailing the connections between the evolution of math and music and their reliance on mapping in a quest for truth, Rothstein provides yet another example of the value of interdisciplinary exploration.¹⁹⁹

These glimpses at scientific and aesthetic critiques and commentary, while admittedly selective, are nevertheless remarkable in their common themes. First, they all stress pattern, in particular the foundational importance of nature's primordial patterns. Second, they show that humans, throughout their evolution, have used patterns from their world, mapping them in diverse ways that have led to advancements in the arts and sciences. Third, they show the need for scholars to be creative and broad minded: Eldredge argues that the sciences should look at historical patterns in related fields, Barrow maintains that the arts should look at scientific and

193. BARROW, *supra* note 170, at 240.

194. *See id.* at 112.

195. EDWARD ROTHSTEIN, EMBLEMS OF MIND 42 (1995). Mr. Rothstein is the mathematically and musically trained cultural critic at large for the New York Times. *Diary by Edward Rothstein, Cultural Critic*, at <http://www.slate.lycos.com/Diary2/98-03-03/Diary.asp> (last visited Mar. 2, 2001).

196. ROTHSTEIN, *supra* note 195, at 48, 57.

197. *Id.* at 47.

198. *Id.* at 43, 119-20.

199. *Id.* at 242.

historical patterns, and Rothstein shows us that looking at patterns in related fields can yield new insights and levels of understanding.

How do these themes relate to urban ecosystem management? First, they suggest that city planners and designers should become more conscious of ecological patterns and of ecosystem science and that ecosystem scientists should become more conscious of sociological patterns in cities. They would arguably reject as impoverished any narrowly-focused approach to ecosystem management, hinting instead at the richness to be gained from exploring the linkages between patterns in city life and those in the natural environment. Second, the themes suggest an undeniable potential for mapping related patterns into urban ecosystem management strategies.

Encouraging the cross examination of patterns by urban planners and ecosystem scientists may be a useful step in developing a framework for urban ecosystem management, but it is a limited one. A search for meaningful patterns would entail a complex but basically mechanical exercise, the outcome of which would be more interdisciplinary and informed urban ecosystem planning. Although that result would be a significant improvement over current practice, it would likely face strong resistance from some sectors as yet another over-zealous regulatory imposition on urban development. City residents might be reluctant to embrace more expansive regulation, even if in the interest of their health, if they believed the new standards would force business interests to move out of town. Cities need a further underpinning for urban ecosystem management to make it more appealing. In this regard it is helpful to turn to philosophical theories that reinforce the human-environment connection in illuminating ways.

B. Philosophy

In his book, *The Spell of the Sensuous*, David Abram describes how ancient humans were slowly pulled away from their close relationship with nature by the development of language and the written word.²⁰⁰ Drawing on the writings of prominent members of the philosophical school of phenomenology, Abram argues in favor of a deeply philosophical ecology and sees a need for humans to

200. See ABRAM, *supra* note 7.

recapture an immediate experience with the natural environment in order to address the global ecological crisis.²⁰¹

Phenomenology differs from science in that it does not attempt to explain the world; instead, it seeks "to describe as closely as possible the way the world makes itself evident to awareness, the way things first arise in our direct, sensorial experience."²⁰² By promoting a subjective experience of our surroundings as a way to explore the patterns of experience,²⁰³ phenomenology rejects the Cartesian separation of mind and objects.²⁰⁴ Abram traces the development of this branch of philosophy, which first developed as a way to address science's failure to pay attention to the experiential world.²⁰⁵

Abram ultimately arrives at a nature-based model of phenomenology, which suggests that it is our bodies, or humans as living organisms, that experience the world.²⁰⁶ It is a view that places humans directly within their organism-packed environments rather than seeing them as separate from their surroundings.²⁰⁷ He points out that a true experience of nature is reciprocal because it entails a response not only from us, but also from other organisms in the environment who must adjust to us.²⁰⁸ Such an experience is participatory and synaesthetic, simultaneously involving multiple senses.²⁰⁹

The result of this mode of experience is heightened awareness of the vitality of living things and a corresponding decline in interest for inanimate objects. The experience leaves us energized by the patterns that nature exposes to us and leaves us bored by the built environment.²¹⁰ Abram points out repeatedly that this nature-based experience is common to indigenous peoples who share a sense of the sacredness of place.²¹¹ This "magic of place" recognizes the uniqueness of the earth's many ecosystems even to the extent of

201. *Id.* at 31-32. Abram relies on the writings of Edmund Husserl, Maurice Merleau-Ponty, and Martin Heidegger.

202. *Id.* at 35.

203. *Id.* at 33.

204. *Id.* at 31-32.

205. *Id.* at 41-42.

206. *Id.* at 45. Here Abram relies heavily on the writings of Merleau-Ponty, in particular his work, *Phenomenology of Perception*. Abram admits, however, that his own views move beyond those of Merleau-Ponty. *Id.* at 277 nn.11, 13.

207. *Id.* at 46-47.

208. *Id.* at 52.

209. *Id.* at 57-60.

210. *Id.* at 63-65.

211. See *id.* at 161 (referring to the Apache), 167 (referring to the Australian Aborigine).

imposing personalities upon them.²¹² Civilized cultures have moved far away from an experience-based closeness to the earth. To the extent we experience the environment at all it is abrupt and one-sided, not meaningful and reciprocal.²¹³

City life perhaps best exemplifies the ultimate degradation of the spiritual connection between humans and their natural surroundings. In Abram's words, we have "forgotten" the air and no longer recognize that special connection between the life-giving environment and ourselves.²¹⁴ It is no surprise to him that urban air is polluted; that condition, along with other ecological problems, suggests that we no longer know how to experience nature.²¹⁵ To rectify this incapacity we need to experience our physical place on earth and realize that each place has its own mind, what Abram describes as "a place-specific intelligence shared by all the humans that dwell therein"²¹⁶

A wide-scale implementation of a phenomenology of nature is, of course, improbable. Discovering a place-specific spirit, however it may be done, would take a good deal of time and in any event is at odds with today's global agenda.²¹⁷ Yet it is difficult to dismiss Abram out of hand. He is insistent on rediscovering a reciprocal experience with nature: "[I]t is only at the scale of our direct, sensory interactions with the land around us that we can appropriately notice and respond to the immediate needs of the living world."²¹⁸ Abram endorses much more than the science and arts scholars who stress an interdisciplinary branching out and examination of nature's patterns. He instead sees a need for fostering a place-centered ideal that can arise only from individual, reciprocal experiences with the environment.

John Grande's arts argument bears another mention here. His belief is that today's woeful arts climate is the result of artists who ignore their internal, nature-based creative forces.²¹⁹ He suggests bringing artists closer to nature, forcing them to rely on their intuitive creativity rather than the many external distractions of today's society.²²⁰ This suggestion is a feminist, creative innovation

212. *Id.* at 182.

213. *Id.* at 71.

214. *Id.* at 258-60.

215. *Id.* at 260.

216. *Id.* at 262.

217. *Id.* at 266-67.

218. *Id.* at 268.

219. See GRANDE, *supra* note 112, at 66.

220. *Id.* at 73.

that stands in sharp contrast to the entrenched, appropriative creative process.²²¹ But even more importantly, Grande seems to endorse something very similar to Abram's reciprocal experience with the spirit of nature as a way to reinvigorate the creative process.

This article does not suggest that city residents should become avid ecological phenomenologists. It does, however, submit that working with the nature-experience concept can assist in bringing ecosystem management to cities in a meaningful way.

C. Charm

The place-based, reciprocal experiential philosophy that builds upon the spirit of nature can be described as a philosophy of charm. Charm provides an urban-ecosystem construct that accommodates arts' and sciences' current emphases on broad, interdisciplinary exposure to nature's patterns as well as phenomenology's quest for a heightened experience of nature. Charm can take a city's hints at richness and use them to address its underlying degradation.

Charm is not to be confused with beauty, and the difference is pivotal. We all know beautiful people whom we would never describe as charming, and the opposite is also true. Beauty is a quality that pleases our sense of aesthetics, often arising from an object's line, color, or design.²²² It is something public that leaves us with a sense of harmony.²²³ Charm, on the other hand, touches us in a much deeper way. It is a quality that pleases in an irresistible way; it allures us and pulls at our hearts.²²⁴ It is magical and enchanting.²²⁵ Charm accomplishes something that beauty does not; it invites us to a greater experience, it holds promise.

Rothstein suggests that there is a quality that transcends charm, a sort of ultimate experience that he labels the "sublime."²²⁶ "The sublime is tremendous, awful, and humbling, yet also elevating ... [it] subvert[s] our judgment," leaving us nearly ecstatic.²²⁷ The sublime is part of our inner life, and to Rothstein it is something sought by both math and music.²²⁸ To Rothstein, charm might be defined as a quality that suggests and invites us to the sublime.

221. *Id.* at 76-77.

222. WEBSTER'S NEW UNIVERSAL UNABRIDGED DICTIONARY 164 (2d ed. 1983).

223. See ROTHSTEIN, *supra* note 195, at 186.

224. WEBSTER'S, *supra* note 222, at 305.

225. *Id.*

226. ROTHSTEIN, *supra* note 195, at 187.

227. *Id.*

228. See *id.* It is no coincidence that charm is also defined as a song or melody. WEBSTER'S, *supra* note 222, at 305.

James Kunstler tellingly describes the charm of villages and towns as "the quality of inviting us to participate in another pattern, ... to glimpse the pattern of another personality through the veil of manners, customs, pretense."²²⁹ He also notes that a charming person "makes himself permeable, and ... invites you to do likewise, so that the two patterns of your personalities may intersect for awhile."²³⁰ To Kunstler, the many intersecting patterns in our environment provide an "aliveness" by drawing us to them.²³¹ They create charm and grace, as do connections and patterns from our past.²³²

Beauty is very much one-sided; it is a pleasing quality that appeals to our sense of aesthetics. Charm elicits much more. It invites, engages, and attracts us. Charm puts us under its spell and draws us out. A charming person or thing invites us to respond in some way. Charm is two-way and reciprocal, unlike beauty. Perhaps it is the hint or suggestion of the sublime that leads us to respond, but whatever it is, it is more than a pleasing line, form, or color.

Abram's "spell of the sensuous" is essentially the charm of nature. It is more than nature's beauty; it is the spiritual quality of nature that beckons toward the sublime. Kunstler's charm of the village is similar; it is both spiritual and welcoming and is what today's cities and sprawling suburbs lack. He urges us, as does Abram, to revive charm by developing a new appreciation for our environment.²³³ Kunstler's endorsement of traditional neighborhood development makes sense because its principles are charm-based, from its focus on local communities and its celebration of and respect for place to its goal of creating engaging neighborhoods that invite residents to walk about and interact with one another.²³⁴

Abram's phenomenological premise reiterates themes from the arts and sciences, but it does more. It stresses the importance of locality and natural elements and also focuses on pattern. But its encouragement of a new, focused, experiential way of being moves beyond those disciplines by demanding more than an appreciation of nature. It seeks an interaction with nature that will allow us to be

229. KUNSTLER, *supra* note 118, at 82.

230. *Id.* at 82-83.

231. *Id.* at 83.

232. *Id.* at 89.

233. *See id.* at 107.

234. *Id.* at 115-18.

charmed by it. It is this charm, arising from nature's place-specific and unique patterns, that cities should attempt to capture.

Bringing charm to the city is a key to urban ecosystem management. It has the potential to both protect the surrounding ecosystem and improve the lives of those human beings who live in the city. It is fair, however, to ask whether the law can realistically respond to all this stuff of pattern, experience, and charm. Current legal scholarship reveals a slow awakening to broader perspectives that could provide some inroads.

D. The Law

A full characterization of the current legal climate is not the purpose of this section. Instead, the goal is to present threads from selective legal perspectives and philosophies to suggest that charm is not as strange a legal bedfellow as it may first appear. After all, pattern, which is at the very foundation of the charm concept, is no less loved by the law than it is by science.²³⁵ Any lawyer knows the law is replete with taxonomies, formulas, and multipart tests.²³⁶ Just as scientists, mathematicians, and artists are drawn to patterns and mapping, so too are lawyers. Some legal commentators are even willing to look beyond the law for patterns, suggesting, for example, that extralegal patterns provide a backdrop that aids in statutory interpretation.²³⁷

The legal backdrop idea is anathema to classical formalism, however, which champions clear-cut, all-answering rules.²³⁸ Even today, neo-formalists who embrace "a purposeful rule-following"²³⁹ assert that legal analysis cannot be informed by "moral knowledge" because it does not exist.²⁴⁰ In a related vein, the positivist tradition admonishes against mingling morality with law and instead relishes pure, enlightened laws that promote the values of power and choice.²⁴¹ Formalists and positivists promote ideals of beauty, not charm. They are uncomfortable with legal perspectives that suggest, hint, or invite further exploration of extralegal considerations. Their beauty lies in their simplicity; they strive for a level of certainty,

235. See Louise Harmon, *Law, Art, and the Killing Jar*, 79 IOWA L. REV. 367, 393 (1994).

236. See, e.g., Ugo Mattei, *Three Patterns of Law: Taxonomy and Change in the World's Legal Systems*, 45 AM. J. COMP. L. 5, 5-7 (1997) (outlining taxonomical approach to understand and analyze dynamic nature of the world's major legal systems).

237. See Richard H. Pildes, *Forms of Formalism*, 66 U. CHI. L. REV. 607, 615 (1999).

238. *Id.*

239. *Id.* at 612 (referring to the views of Larry Alexander).

240. *Id.* at 615.

241. Robin West, *Three Positivismisms*, 78 B.U. L. REV. 791, 799-800 (1998).

believing the law cannot be informed by nonexistent morals or community-imposed duties.²⁴² A legal culture that is so closed and predisposed to clarity and certainty would not seem hospitable to the introduction of the charm concept. This seems especially true in the already spongy world of ecosystem management.

Yet dissatisfaction with the positivistic, pseudoscientific model of law abounds. Natural law proponents challenge positivism, pointing to the negative impact science has had on the law.²⁴³ While they admit that science has given the legal profession accessible theories that can be readily relied upon by the courts,²⁴⁴ natural law proponents argue that the resulting relativistic and pseudoscientific rules wrongly elevate pattern over other significant principles.²⁴⁵ Other scholars point out that the scientific application of the law "turns away from the self; it does not engage in the business of introspection or revelation."²⁴⁶ Especially when applied to disputes involving areas of expression and the human inner world, positivistic principles prove wanting and can even lead to incorrect decisions.²⁴⁷ Feminist legal scholars also attack the law's limitations, which they believe arise from the law's genesis and evolution within the masculine cultural tradition.²⁴⁸ To them, the patriarchal workings of the law perpetuate an image of the law as "apolitical, neutral, and objective."²⁴⁹ In addition, they believe the law's discomfort with and usual rejection of the invisible realm poses a problem for justice.²⁵⁰ All these critiques target the law's traditional resistance to philosophies whose "[u]nderstanding may elude and transcend language,"²⁵¹ a resistance that would arguably disregard a philosophy of charm.

Yet the law has, at times, retreated from pseudoscientific, unbending models and settled on more flexible and inclusive paradigms, and a number of those instances have occurred in response to environmental problems. Since the 1970's,

242. *See id.*

243. *See generally* Stanley L. Jaki, *Patterns Over Principles: The Pseudoscientific Roots of Law's Debacle*, 38 AM. J. JURIS. 135 (1993).

244. *See id.* at 140.

245. *Id.* at 157.

246. Harmon, *supra* note 235, at 367.

247. *See id.* at 405. Harmon demonstrates this thesis in the context of a dispute involving copyright infringement in the art world.

248. Alda Facio, *The Law: An Art or a Science?*, 7 AM. U. J. GENDER SOC. POL'Y & L. 355, 358 (1999).

249. *Id.* at 361.

250. *See id.*

251. Harmon, *supra* note 235, at 410.

environmentalism has forged a new understanding of the relationship between humans and the environment, and the law has changed dramatically. Not only has this engendered the development of an entirely new field of law, but it has transformed established areas of law as well. Developments in property law, for example, illustrate how environmental concerns have revised the context within which individual property rights can be exercised.²⁵²

Yet even more creative and aggressive approaches have been called for, and some of the alternatives demonstrate an increased respect for localities, custom, and nature as well as a willingness to borrow from other disciplines. Carol Rose has recently addressed the "propertization" of environmental law²⁵³ and concluded that there are limits to this trend.²⁵⁴ In its place, she sees opportunities for limited common property arrangements where property could be "held as a commons among the members of a group, but exclusively vis-à-vis the outside world."²⁵⁵ The restriction of common property principles to small groups not only addresses the problems inherent in large-scale commons schemes, but also reflects a belief in the ability of small, local groups to self-govern.

Limited common property entities are also an example of decentralization, which is touted as a more broad-based cure for the law's ills.²⁵⁶ Decentralization arguably has advantages over federally-dominated regulation, but it nevertheless conflicts with newer global perspectives. Resolving this tension will not be easy, and it is at this point that more radical changes in the law might be necessary. Some believe that nothing less than a legal renaissance is in order,²⁵⁷ one characterized by a redesigned legal architecture that reflects the "intense connectivity between humans and nature, humans and the spirit ... and humans and humans all over the globe."²⁵⁸ Under this view, decentralization would not only empower local communities, but it would also lead to a shift in legal

252. See Richard J. Lazarus, *Debunking Environmental Feudalism: Promoting the Individual Through the Collective Pursuit of Environmental Quality*, 77 IOWA L. REV. 1739, 1756 (1992).

253. See Carol M. Rose, *The Several Futures of Property: Of Cyberspace and Folk Tales, Emission Trades and Ecosystems*, 83 MINN. L. REV. 129, 167-69 (1998).

254. See *id.* at 132.

255. *Id.*

256. See Lazarus, *supra* note 252, at 1771-72.

257. See James M. Cooper, *Towards a New Architecture: Creative Problem Solving and the Evolution of Law*, 34 CAL. W. L. REV. 297, 307 (1998).

258. See *id.* at 301 (quoting Jon Spayde, *The New Renaissance*, UTNE READER, Feb. 1998, at 42-43).

thought that would tie it more closely to nature and the human spirit.

Other proposed responses to the law's intransigence borrow from the arts or promote feminist principles. Modernism, for example, would allow deconstruction of entrenched legal rules. Once their abstract essentials are revealed, laws could then be rebuilt using new compositional principles dictated by changed norms.²⁵⁹ A feminist approach would, in contrast, turn to nature-based traditions to reinvent the law.²⁶⁰ Like radical decentralization, these models require a creative style of lawmaking that would allow the exploration of spiritual and natural connections.

The legal perspectives that focus on local interests are both contextual and instrumental, and as such they arguably fall within the realm of modern legal pragmatism, which has enjoyed increased attention over the past twenty years.²⁶¹ Pragmatism's melding of context and purpose is eclectic;²⁶² it is an inclusive approach that embraces diverse legal theories "as perspectives, each of which can add to the understanding of law."²⁶³ Thus, the repeatedly emphasized local and nature-based underpinnings that appear in Rose's new property paradigms, decentralization, and feminism might also be viewed as no more than differing perspectives within a more enlightened pragmatic mold.

These critiques and suggestions are a few among many,²⁶⁴ but they nevertheless demonstrate the law's capacity for adaptation and flexibility. Their novelty also reflects the creativity that is fundamental to democracy itself.²⁶⁵ The strong belief in "the irreducibility of individuality within participatory communities" not only protects individuals from majority abuse, but it is likewise true that as the law seeks justice it adapts in creative ways.²⁶⁶ The law's

259. See Laura S. Fitzgerald, *Towards a Modern Art of Law*, 96 YALE L.J. 2051, 2055-57, 2060 (1987).

260. See Facio, *supra* note 248, at 358.

261. See, e.g., Craig Anthony Arnold, *How Do Law Students Really Learn? Problem-Solving, Modern Pragmatism, and Property Law*, 22 SEATTLE U. L. REV. 891, 903-04 (1999) (reviewing EDWARD H. RABIN & ROBERTA ROSENTHAL KUALL, *FUNDAMENTALS OF MODERN REAL PROPERTY LAW* (3d ed. 1992)).

262. Thomas C. Grey, *Freestanding Legal Pragmatism*, 18 CARDOZO L. REV. 21, 25 (1996).

263. *Id.* at 26.

264. See *id.* at 25-26 (mentioning numerous theoretical approaches, including law and economics, critical legal studies, and natural law).

265. See Erin Rahne Kidwell, *The Paths of the Law: Historical Consciousness, Creative Democracy, and Judicial Review*, 62 ALB. L. REV. 91, 110-11 (1998).

266. *Id.* at 111.

evolution is thus an ongoing search for harmony, balance and diversity, making it essentially an aesthetic undertaking.²⁶⁷

Environmental law has repeatedly demonstrated that creativity and the law go hand in hand.²⁶⁸ The paradigm shift that occurred with the acceptance of ecosystem management is just one example.²⁶⁹ Other examples might not have gone as far as restructuring paradigms, but are no less creative. They include the Clean Water Act's mimicking of the Refuse Act of 1899 and the risk-taking toxic tort litigation tactics of Jan Schlichtman.²⁷⁰ Still other creative environmental lawmaking has occurred at the hands of "subversive attorneys,"²⁷¹ as well as through the use of symbolism and pattern to fashion clever acronyms.²⁷²

The law is thus inherently creative, and environmental law is no exception. Nothing prevents environmental lawyers from relying on renewed natural law principles, feminism, decentralization, modernism, or other pragmatic perspectives to deal with any number of current or future ecological challenges. It also seems clear that lawyering in general is increasingly requiring attorneys to employ more holistic, interdisciplinary techniques.²⁷³ More and more, lawyers are reaching out to fields as diverse as sociology, anthropology, and psychology,²⁷⁴ requiring them to "think outside the box."²⁷⁵ The practice of law is thus becoming a broader and more exhilarating undertaking, what some describe as "a pure creation of the spirit."²⁷⁶

While the law's ability, or even readiness, to take up charm as a way to bring ecosystem management to cities can be fairly questioned, it should not be quickly rejected. The belief that a legal renaissance is at hand, characterized as it may be by any one or more of the foregoing perspectives, at the very least points toward a more

267. Gordon A. Christenson, *Looking Back "In Pursuit of the Art of Law,"* 45 AM. U. L. REV. 1015, 1020 (1996).

268. See generally William H. Rodgers, Jr., *The Most Creative Moments in the History of Environmental Law: The Who's*, 39 WASHBURN L.J. 1 (1999).

269. *Id.* at 22-24.

270. *Id.* at 5.

271. *Id.* at 15-16 (mentioning the scientist-lawyers who founded the Environmental Defense Fund).

272. *Id.* at 9-10 (mentioning the attorneys who have invented some of environmental law's most clever acronyms).

273. See Cooper, *supra* note 257, at 307, 312 (arguing that lawyers in this new age will require new skills, chief among them problem solving).

274. *Id.* at 312.

275. *Id.* at 317.

276. *Id.* at 323 (quoting Le Corbusier).

broad minded approach to dealing with environmental problems. Charm, with its emphasis on the local environment and the well-being of the human species, seems compatible with the new legal culture. Adopting a community focus would reflect a respect for localities and foster decentralization; focusing on human living conditions and well-being within the local environment would merge principles from many disciplines including science, sociology, and the design arts; and attempting to reconstruct urban planning to realize charm, defined as a quality that arises from the human environmental experience, would be an exercise in philosophy, modernism, and feminism. Bringing charm to the city would also require lawyers to "think outside the box" in ways that have been acknowledged to be part of the law's future.

IV. THE BEGINNINGS OF URBAN ECOSYSTEM MANAGEMENT: *OF HAZEL NUT TREES AND COFFEE SHOPS*

Suggestions for implementing charm as a guiding concept for urban ecosystem management are in order. The conclusions reached thus far include the need to include cities within ecosystems and to give them an important role in ecosystem-wide planning; to address the needs of city residents as members of the dominant species living within the urban regions of ecosystems; and to devise urban ecosystem management principles by striving for charm, a quality which arises from the unique environmental features within and surrounding the urban area. These conclusions, when applied to ecosystem management strategies that have proved successful, provide the beginnings of a framework that cities can follow.

Urban ecosystem planning first needs a starting point, such as a hook or bottom line, to capture people's attention. The starting point needs to be positive; it cannot be a directive from the federal or state government mandating that those who live or conduct business within city boundaries must do more to protect remote ecosystem resources. A logical place to look for a starting point is a city's ecosystem. Planners should begin by simply recognizing that their city is part of an ecosystem. They should then carefully consider all of the amenities provided by that ecosystem, including aesthetic benefits plus other ecosystem services such as biodiversity and water and air purification. The first step thus includes determining not only what ecosystem the city is dealing with, but also what that ecosystem means to the city. To make that determination, city planners need to fully experience and reflect on their surrounding environment.

A second step in devising a starting point will require a city to recognize that its residents, as the dominant species within its region of the ecosystem, are to be protected and nurtured. Ecosystem protection for the human species should aim beyond existing, health-based environmental regulations and strive to improve the quality of life within the city. It is here that the concept of charm can further inform and enrich the ecosystem management starting point. City planners must view ecosystem services, including the unique make-up and diversity of the city's human population, as things not merely to be protected, but celebrated. A starting point that simply describes the surrounding ecosystem will have little impact on a city's populace. Research has shown that people understand basic ecosystem concepts but do not understand them in a specific manner.²⁷⁷ City planners need to emphasize the novelty of a city's natural setting and tie city residents and their neighborhood habitats into that ecosystem while at the same time making them aware of the full array of ecosystem services. In this way, city ecosystem planning will become more immediate and meaningful to the people.

The starting point, then, should be connected to the ecosystem at large and the services that beneficially impact a city in both a general and unique way. It should be one of creating, maintaining, and augmenting a citified charm derived from ecosystem amenities. It should include respect for the ecosystem, including people, and should seek to attain diversity among city residents in terms of race, ethnicity and income levels. Working with a starting point tied to charm would be far more palatable than implementing a baseline made up of mandatory protective standards below which a city could not fall. The latter type of directive, cast in the negative, smacks of command and control, suggests the infringement of private property rights, and at best would produce public apathy.

With a charm-based starting point in place, players in the urban ecosystem management plan and their respective roles would require attention. Depending on the boundaries of the ecosystem at issue, the players might include officials from all levels of government. The addition of private interest groups representing community, business, and environmental interests would help further define the needed partnership. As already mentioned, a bottom-heavy organizational structure is needed to make cities and local residents feel they play important roles in such a collaboration.

277. Jeffrey K. Lazo et al., *Expert and Lay Mental Models of Ecosystems: Inferences for Risk Communication*, 10 RISK 45, 62 (1999).

A hierarchy would still be in place, but it would reflect the uniquely local nature of charm and its position as the linchpin in any urban ecosystem management scheme. As a result, the higher up a player sits in the collaborative chain, the less hands-on would be the involvement.

The ideal organizational structure would limit the role of the federal government to setting national ecosystem policy, defining ecosystem boundaries throughout the country, providing scientific data regarding ecosystem processes and services, establishing the broadest possible minimum standards or baselines to ensure the continued health of the nation's ecosystems, and monitoring the overall functioning of ecosystems to determine if adaptive management strategies are in order. States, in turn, would apply the national information and baselines within their own boundaries and would be free to adopt more protective baseline standards.

Cities would then use the data and baseline standards in their self-defining efforts to devise their concepts of charm. Because this process would involve the participation of many interests, cities should seek the assistance of nongovernmental organizations to coordinate lateral networks to facilitate efficiency and inclusiveness.²⁷⁸ Additionally, cities must elicit the participation of all neighborhoods and interest sectors and endeavor to make participants understand that the undertaking will improve both their health and the quality of life within the city. Urban ecosystem planning would thus become a positive, though challenging, initiative that would leave residents believing that they are beneficiaries of the plan, rather than pawns who are powerless in the face of mandatory federal or state directives.

Once a city gives careful attention to a starting point and partnership, it could then turn its attention to the ecosystem management plan itself. To recap, a successful plan must at the very least include specifics, deal honestly with costs and benefits, provide for monitoring and flexibility, and contain mandatory provisions. It also seems clear that a fifth component—one targeting public education—would prove beneficial. It is in devising the plan that the law can become particularly creative by devising flexible mechanisms to help a city realize its vision of charm.

The national ecosystem baseline standards, as modified by the state, will offer an important level of specificity for the city. Still, as

278. See Lee P. Breckenridge, *Nonprofit Environmental Organizations and the Restructuring of Institutions for Ecosystem Management*, 25 *ECOLOGY L.Q.* 692, 695-701 (1999).

mentioned, those standards should merely reflect what is necessary, at a minimum, to assure the functioning of ecosystem processes. The city must accept those standards, but should use them to define its charm-based starting point. Baseline standards thus represent a crucial level of specificity, but are really no more than a foundation upon which a city will build its starting point. For urban ecosystem management plans to work in a way that will truly make a change in the lives of city residents, the specificity must be furnished by the city's ultimate starting point, which should be a charm-based vision of itself into which the baselines are subsumed.

The methods chosen to implement charm must also contain specifics. The adoption of traditional neighborhood development strategies would promote charm in a meaningful and specific way. TND's focus on neighborhood design, decreased car use, connective corridors between city sectors, diversity, and increased human interaction embodies the human-environment connection that is the basis of charm. City development at all levels should reflect these principles in striving for charm. This could be accomplished by recycling land and materials, designing structures to limit energy use, and making use of locally-obtainable renewable resources. The result would be conservation biology at the urban level aimed at the protection and enhancement of habitat for the sustainable well-being of the human species. Environmentally conscious design that would encourage the renovation of unoccupied buildings into welcoming commercial enterprises—such as a neighborhood coffee shop—and urban landscaping that relies on native plant species—such as my area's hazel nut trees—should be part of a mix of strategies that would not only meet the ecosystem baseline standards set by the federal or state government, but would also, when taken together, make the city a uniquely attractive and very livable habitat for the human species.

City governments will have to work with, integrate, and possibly revise numerous laws to accommodate charm-based ecosystem management. They will have to consider the wisdom of existing single-use zoning and property tax laws. Brownfield laws and local government laws governing special districts, regional coordination, and project funding must also be used. It is crucial that cities take advantage of the current climate of legal decentralization, interdisciplinary research, and creative lawyering to devise specific means to reach their stated goals.

Ecosystem management carries a price tag, and cities will have to address the distribution of costs and benefits. At the outset,

however, efforts such as the decentralized model of urban ecosystem planning endorsed here are more equitable than are centralized models. Environmental policymakers often overlook this reality.²⁷⁹ But additional steps can be taken to deal fairly with costs and benefits. Cities should explore innovative funding mechanisms and place a priority on using incentives to encourage pro-environment behavior. For example, cities that meet or exceed the federal or state-imposed ecosystem baselines might be entitled to additional government funding for related programs, which could include everything from tourism to eco-friendly infrastructure and public transportation projects.

Other cost-benefit distribution techniques could mandate environmental justice reviews for all ecosystem planning projects as well as cost-benefit analyses that accurately value losses and gains in ecosystem services. It is clear, however, that the best results require a mix of market-based approaches and collective response.²⁸⁰

Monitoring is a third component that cities cannot overlook. While the federal government should be the ultimate monitor of ecosystem health, cities have many opportunities to participate in a comprehensive monitoring program. Cities should be directly responsible for routine monitoring. This type of hands-on assessment is preferable to the indirect involvement that would arise if federal or state agencies conducted all testing. City monitoring would impose additional costs, but a city could defray these costs by enlisting volunteers such as individual city residents, local environmental groups, seniors organizations, and school groups. A city's reliance on residents and local groups would have an added advantage, because their experience of the ecosystem while monitoring would help them understand and appreciate their city's concept of charm.²⁸¹

Finally, plans should contain mandatory provisions. There is little good in devising specific provisions if they serve as goals rather than requirements. In addition, optional compliance weakens monitoring provisions. Mandatory provisions will increase a plan's costs, however, since enforcement mechanisms are necessary. But

279. Lazarus, *supra* note 252, at 1772.

280. See *id.* at 1756; Rose, *supra* note 253, at 132.

281. An example of a very successful volunteer monitoring network is Dickinson College's Alliance for Aquatic Resource Monitoring (ALLARM), which relies on college students to recruit and train volunteers to gather data on the pH and alkalinity of Pennsylvania's streams. See generally *STREAM OF CONSCIOUSNESS* (The Newsletter of the Alliance for Aquatic Resource Monitoring, Dickinson College), Spring/Summer 2000 (on file with the author).

enforcement could largely be handled at the state level where enforcement structures are already in place. In addition, the benefits that a mandatory plan would bring to the ecosystem in general and the city in particular would likely outweigh any incremental enforcement costs a state would incur.

Bringing the concept of charm home to its people is one hurdle facing any city that approaches urban ecosystem management in the proposed manner. Many city residents, when asked, might quickly respond that they would favor enhancing the charm of their city. But when asked what charm means, they would likely have difficulty responding. They might even remark that charm, like beauty, is in the eye of the beholder. Yet the ecosystem-based concept of charm, while certainly flexible and capable of being achieved in many ways, is clearly derived from some fixed principles that need to be reinforced with the public.

Some previously mentioned components will address this need. For example, volunteers who assist in monitoring activities will begin to understand charm, as will individuals who are fortunate enough to live in TND neighborhoods. But charm should not be confined to a handful of residents and residential areas throughout the city. Cities will have a broader impact if, in addition, their own structures and those of major institutions are designed in furtherance of charm. In this way hundreds, if not thousands, of building workers and visitors will experience charm on a daily basis. Cities could also provide incentives for private developers to look to their ecosystems for design, building material, and landscaping ideas. Remembering that ties to the past are also a component of charm, cities should also encourage the use of old, vacant buildings as resources to use in efficient and charmed ways.²⁸² Finally, cities should treat their streets as outdoor rooms to be enjoyed by people, not merely used by cars.

Still other opportunities exist for more direct public exposure to charm. In particular, urban ecosystem management plans could be enhanced by including a separate public education component, which might require city school districts to include local ecosystem science in their curricula. Field trips that help school children experience their urban world and local ecosystem should be encouraged. Billboard, public transportation, and radio and

282. In Pittsburgh, developers are discovering that rehabilitating old buildings can be more efficient than building new ones. Dan Fitzpatrick, *Back to Life; Developers Find Restoration Beats Building Anew*, PITTSBURGH POST-GAZETTE, June 30, 2000, at C1.

television advertising can make the general population aware of what is being undertaken. Citywide signage programs can also be developed to inform people about everything from native plant species and ecosystem services to structures that have been built or remodeled with charm in mind. Cities can further educate their citizens and expose them to charm by instituting public art programs that require artists to incorporate the concept of charm in their work. An additional, subtle technique would be to require every deed and other real estate document to include the name of the region's ecosystem in its legal description. Also, since planning is an ongoing process, citizens will have repeated opportunities to learn from public meetings and news reports as charm is refined over the years.

These are but a few ideas for cities to consider. What is of paramount importance, however, is that a city's ecosystem management plan include mandatory charm-based specifics, deal as fully as possible with costs and benefits, and provide for monitoring. Beyond that, efforts to educate city residents should be pursued.

CONCLUSION: *AWAITING THE CHARM*

We cannot deny that our urban eco-regions are stressed and densely populated with people who suffer from several sociological ills. These maladies have fed the related problems of sprawl and racial and class fragmentation. In short, urban policies have put our species at risk in significant portions of our nation's ecosystems. Allowing ecosystem management to operate to the exclusion of our cities will only perpetuate our cities' ills and further fragment national environmental policy. Instead, ecosystem management must be implemented in ways that include cities and recognize that humans are the dominant species for whose survival and well-being the urban habitat should be designed and preserved.

Ecosystem management offers a satisfactory vehicle to help confront the city-sprawl conundrum, but before it is imposed on cities it must be retooled to incorporate a conceptual framework that will accommodate ecosystem protection as well as human well-being. One way to achieve this result is through the concept of charm, which has been defined to be tied to both nature and the betterment of the human spirit. Charm promises to make cities willing, rather than reluctant, players in ecosystem management by allowing them the flexibility to define themselves in unique ways that will offer protection not only for natural resources, but for their citizens as well.

By recognizing our undeniable affinity for nature's patterns and encouraging the personal experience of our ecosystems, we can meaningfully expand ecosystem management into our urban centers. This expansion will result in charmed American cities, unique and environmentally conscious in their design and inhabited by increasing numbers of people with a heightened environmental consciousness and sense of well-being.

