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Thinking like a City: Grounding Social-Ecological Resilience in an Urban Land Ethic

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THINKING LIKE A CITY: GROUNDING SOCIAL-ECOLOGICAL RESILIENCE IN AN URBAN LAND ETHIC

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I. INTRODUCTION

"Under the seeming disorder of the old city, wherever the old city is working successfully, is a marvelous order for maintaining the safety of the streets and the freedom of the city. It is a complex order."[2]

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1. Visiting Associate Professor of Law, University of Missouri School of Law. I wish to thank the *Idaho Law Review* and all of the participants in the April 2014 Symposium *Resilient Cities: Environment, Economics and Equity*. I am grateful for the useful comments I received from Steve Berry, Dennis Crouch, Keith Hirokawa, and the faculties at the University of Missouri School of Law, the University of North Dakota School of Law, and the University of Florida A & M School of Law. I want to recognize the valuable research assistance provided by Matt Dallavis, Molly Ritzheimer, and law librarian Cindy Shearrer, as well as the University of Missouri School of Law for supporting this research.

2. JANE JACOBS, THE DEATH AND LIFE OF GREAT AMERICAN CITIES (1961) [hereinafter THE DEATH AND LIFE OF GREAT AMERICAN CITIES]

"Ecological thinking is a kind of vision across boundaries."[3]

Americans have made a fundamental shift in the places they live. In 1850, less than 20% of the population of the United States lived in towns and cities.[4] Today, this percentage is more than 80%.[5] This shift to urban areas "brings a threat of being place-less."[6] A sense of place contributes to our wellbeing and links us to the world in which we live. If sense of place is lost, people can lose their sense of connection to the natural world, even though they are part of it.[7] We must reframe the relationship between people, land, and cities in this rapidly changing world.

The loss of sense of place is troubling because a connection to the natural world is essential to our existence. Through history and "[i]n every world-view, there is an understanding that everything is connected to everything else, that nothing exists in isolation or alone. People have always understood that we are deeply embedded in and dependent upon the natural world."[8] America's literary heritage has long recognized the essential connection between man and his environment through the writings of Walt Whitman, Mark Twain, Cooper, Emerson, Henry David Thoreau and others.[9]

This connection is not simply a romantic notion. Research supports that direct experience in unstructured natural environments as children has positive effects on cognitive and moral development, including adaptive and problem-solving skills, as well as broader wellbeing as adults.[10] Peter Kahn's research demonstrates the very real effect of a lack of con-

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3. HOLMES ROLSTON III, A NEW ENVIRONMENTAL ETHICS: THE NEXT MILLENNIUM FOR LIFE ON EARTH 189 (2012).

4. *Id.* at 48.

5. *Id.*

6. *Id.*; *see also* JAMES HOWARD KUNSTLER, THE GEOGRAPHY OF NOWHERE: THE RISE AND DECLINE OF AMERICAN'S MAN-MADE LANDSCAPES 180–86 (1993) (connecting the loss of community and the lack of a sense of permanence to the decline in quality housing poor land-use planning policies, and Americans' inclination for mobility); *see also* Interview of Jesse Wolf Hardin by Derrick Jensen (July 8, 2000), *in* HOW SHALL I LIVE MY LIFE?: ON LIBERATING THE EARTH FROM CIVILIZATION 277 (2008) (explaining that "[t]o 'lose our place' is to lose our way home. Home is the heart in deep relationship with the land.").

7. ROLSTON III, *supra* note 3, at 48. For discussions about the importance of place, see TIMOTHY BEATLEY & KRISTY MANNING, THE ECOLOGY OF PLACE: PLANNING FOR ENVIRONMENT, ECONOMY, AND COMMUNITY (1997); PETER DREIER, JOHN MOLLENKOPF, & TODD SWANSTROM, PLACE MATTERS: METROPOLITICS FOR THE 21ST CENTURY (2001).

8. DAVID SUZUKI, THE SACRED BALANCE: REDISCOVERING OUR PLACE IN NATURE 2 (Nancy Flight ed., 1997).

9. *See* BARRY COMMONER, THE CLOSING CIRCLE: NATURE, MAN, AND TECHNOLOGY 46–47 (1971) (hereinafter CLOSING CIRCLE) (noting these authors as developing a literary heritage of creating awareness of ecology). *See also* AMERICAN EARTH: ENVIRONMENTAL WRITING SINCE THOREAU (Bill McKibben ed., 2008) (collecting writings that reflect the development of America's attitude toward nature).

12. Sarah J. King & Ingrid Leman Stefanovic, *Children and Nature in the City*, *in* THE NATURAL CITY: RE-ENVISIONING THE BUILT ENVIRONMENT 322, 340 (Ingrid Leman Stefanovic & Stephen Bede Scharper eds., 2012) (quoting Professor Peter Kahn from the University of Washington).

nection on us individually and as a society. Kahn introduced the related concept of "Environmental Generational Amnesia" as a source of distorted environmental understanding and environmental complacency.[11] Environmental generational amnesia evolves as each generation accepts the state of nature as it is experienced—or not experienced: "'[W]e all take the natural environment we encounter during childhood as the norm against which we measure environmental degradation later in our lives. With each ensuing generation, the amount of environmental degradation increases, but each generation in its youth take that degraded condition as the nondegraded condition—as the normal experience.'"[12] This results in the condition of environmental generational amnesia, "'as we lose daily intimate positive affiliations with nature and accept negative experiences … as the norm, we suffer physically and psychologically, and hardly know it.'"[13] With children, the consequence is not only that urban children believe constructed park spaces are untouched nature; their relationship with the natural world has been highly ordered, and they lose out on unstructured play and creativity in unstructured natural surroundings.[14] Kahn and other researchers have found that this lack of unstructured free play in non-engineered, natural environments has a strong correlation with the ability to appreciate the natural world's complexities.[15] We carry our childhood experiences with and in nature into our adult lives.[16] Recently, Richard Louv brought some of these ideas into popular culture in his best-selling book *Last Child in the Woods: Saving our Children from Nature-Deficit Disorder*, in which he introduced the term "nature deficit disorder" to describe the growing disconnection between children and nature.[17]

The link between nature and humans is also biological. Thirty years ago, scientist E.O. Wilson first used the expression "biophilia" to describe "the innately emotional affiliation of human beings to other living organisms."[18] This affiliation is a psychological and hereditary phenomenon that arose from humans' long history of interaction with

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11. *Id.* at 329.
12. *Id.* at 329 (quoting Peter Kahn).
13. *Id.* at 335.0
14. *Id.* at 335–36.
15. *Id.* at 338–39 (citing work of other authors, including Robert Michael Pyle, Peter Kahn, Kellert, & Richard Louv).
16. *Id.* at 337.
17. RICHARD LOUV, LAST CHILD IN THE WOODS: SAVING OUR CHILDREN FROM NATURE-DEFICIT DISORDER 98–101 (2005). *See also* RICHARD LOUV, THE NATURE PRINCIPLE: HUMAN RESTORATION AND THE END OF NATURE-DEFICIT DISORDER (2012) [hereinafter THE NATURE PRINCIPLE]. In *The Nature Principle*, Louv identifies seven overlapping precepts to restore human connection with nature. *Id.* at 5.
18. THE BIOPHILIA HYPOTHESIS 31, 40 (Stephen R. Kellert & Edward O. Wilson eds., 1993). *See generally* EDWARD O. WILSON, BIOPHILIA (1984).

the natural environment.[19] As a hereditary part of human nature, the biophilia hypothesis is significant to society's view of nature and the complex interdependence of humans with the natural world. It invites us to look carefully at the underpinning of this view-environmental ethics.[20] Wilson has called for a robust anthropocentric ethic that is based on humans' biological basis for valuing and affiliating with the natural world.[21] Such an ethic becomes particularly critical in urban areas that experience increasingly less biodiversity. If we are to take biophilia seriously–and we should–we must recognize that maintaining a connection or reconnecting to our natural environment is not just something that is "nice" for urban dwellers, but critical to the social-ecological system that is the city.

Climate change and other large-scale environmental, economic, and social issues are raising awareness of our connection (or lack of) to "a new level of collective responsibility."[22] Current scientific understanding of ecology, expressed through resilience theory, offers a different way of understanding connections between people, land, and cities. .[23] Resilience theory is based on a systems approach, in which "no systems, human or natural, are free from change for very long."[24] Rather than cultivating a connection between humans and our natural environments, however, the existing environmental and natural resources law regime in the United States is largely grounded in an ideology that people are not part of "nature" and that their activities are not natural because human action is deleterious to other species.[25] Likewise, the current environmental laws in the United States are grounded in an outdated assumption that, absent human intervention, stasis is the standard condition for nature.[26]

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19. *See supra* THE BIOPHILIA HYPOTHESIS, note 19, at 40.

20. *Id.* at 38.

21. *Id.* at 38. Stephen Kellert has created a taxonomy of values derived from the nine fundamental aspects of the biophilia tendency in humans to value and affiliate with the natural world: utilitarian, naturalistic, ecologistic-scientific, aesthetic, symbolic, humanistic, moralistic, dominionistic, and negativistic. *Id.* at 42–66. He urges a broader conservation ethic that recognizes our basic human evolutionary dependence on nature. *Id.* at 64-66.

22. *See* CLOSING CIRCLE, *supra* note 9, at 3. *See also generally* Dale Jameison, *Climate Change, Consequentialism, and the Road Ahead*, 13 CHI. J. INT'L L. 439 (2013); Alice Kaswan, *Domestic Climate Adaption and Equity*, 42 ENVTL. L. REP. NEWS & ANALYSIS 11125 (2012); J.B. Ruhl & James Salzman, *Climate Change Meets the Law of the Horse,* 62 DUKE L.J. 975 (2013).

23. BRIAN WALKER & DAVID SALT, RESILIENCE THINKING: SUSTAINING ECOSYSTEMS AND PEOPLE IN A CHANGING WORLD xii (2006). *See also* Lia Helena Monteiro de Lima Demange, *The Principle of Resilience*, 30 PACE ENVTL. L. REV 695 (2013).

24. Alex Garvin, *Creating Sustainable Cities*, *in* TOWARD A MORE LIVABLE WORLD: SOCIAL DIMENSIONS OF SUSTAINABILITY 123 (Jerry Williams & William Forbes eds., 2012); *see also* WALKER & SALT, *supra* note 23, at xiii.

25. *Id.*

26. *Id.*

The dualistic thinking reflected in current environmental law is grounded in the dominating societal view.[27] This dualism similarly pervades our cultural view of cities: town versus country, urban versus rural, natural versus human built.[28] This dualistic thinking creates artificial boundaries.[29] Urban life and the natural environment are inextricably linked; urban spaces and dwellers are part of their environment.[30] This article seeks to push us to envision what urban life could be if we accepted these links between ecological and human systems as a unified social-ecological system. Some commentators have persuasively argued that cities are greener than suburban, exurban, and even rural areas.[31] New technologies promise to provide renewable energy sources and "greener" designs, but fundamental values, attitudes, and perceptions are the drivers for policy decisions.[32] Accordingly, we must the myth that humans stand apart from nature.

Because together they constitute a social-ecological system, changes in human systems and ecological systems affect each other.[33] Given the scale, intensity and nature of our activities, our modern environ-

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27. Stephen Bede Scharper, *From Community to Communion: The Natural City in Biotic and Cosmological Perspective*, *in* THE NATURAL CITY: RE-ENVISIONING THE BUILT ENVIRONMENT 93 (Ingrid Leman Stefanovic & Stephen Bede Scharper eds., 2012).

28. *Id.*

29. *Id.* at 94.

30. *Id.* at 92–95.

31. Edward Glaeser, American economist, can be credited with popularizing the idea of cities being "green" through his best-selling book. *See* EDWARD GLAESER, TRIUMPH OF THE CITY: HOW OUR GREATEST INVENTION MAKES US RICHER, SMARTER, GREENER, HEALTHIER, AND HAPPIER 200–202 (2011) [hereinafter TRIUMPH]. Glaeser has authored important technical work as well, but it is his work for the general public that has drawn significant attention to the upside of urban living. *See, e.g.*, EDWARD L. GLAESER, CITIES, AGGLOMERATION AND SPATIAL EQUILIBRIUM (2008). In another popular book, David Owen challenges conventional perceptions by arguing that New York City is the greenest city in the United States. DAVID OWEN, GREEN METROPOLIS: WHY LIVING SMALLER, LIVING CLOSER, AND DRIVING LESS ARE THE KEYS TO SUSTAINABILITY (2009). For other works on the general theme of green cities, see generally JEB BRUGMANN, WELCOME TO THE URBAN REVOLUTION: HOW CITIES ARE CHANGING THE WORLD (2009); MATTHEW E. KAHN, CLIMATOPOLIS: HOW OUR CITIES WILL THRIVE IN THE HOTTER FUTURE 189–92 (2010); WILLIAM B. MEYER, THE ENVIRONMENTAL ADVANTAGES OF CITIES: COUNTERING COMMONSENSE ANTIURBANISM (2013); DOUG SAUNDERS, ARRIVAL CITY: HOW THE LARGEST MIGRATION IN HISTORY IS RESHAPING OUR WORLD (2010). Academics have also focused on urban sustainability. *See, e.g.*, DIMENSIONS OF THE SUSTAINABLE CITY Vol. 2 33 (Mike Jenks & Colin Jones eds., 2010) (presenting an empirical multi-disciplinary study addressing urban sustainability from CityForm consortium, a multi-disciplinary group of researchers from five universities in the United Kingdom); PETER NEWMAN & ISABELLA JENNINGS, CITIES AS SUSTAINABLE ECOSYSTEMS: PRINCIPLES AND PRACTICES (2008); ELLEN van BUEREN ET AL., SUSTAINABLE URBAN ENVIRONMENTS: AN ECOSYSTEM APPROACH 1–4 (2012) (approaching sustainability for built urban environments in industrialized countries from an ecosystems perspective).

32. TRIUMPH, *supra* note 31, at 202–206. *See also* HARRY WILAND & DALE BELL, EDENS LOST & FOUND: HOW ORDINARY CITIZENS ARE RESTORING OUR GREAT CITIES X (2006) (noting the connection between private and volunteer eco-efforts and the marketplace).

33. *See infra* Section III.

mental challenges – particularly climate change—create a sense of urgency for the future wellbeing of humans.[34] The purpose of this article is not to address the type and scale of activities or to give dire predictions for the future. Rather, its aim is modest: to urge an alignment of our understanding of cities as social-ecological systems and, in turn, to encourage a relational ethics approach to our existence in those systems and this world that sustains us. To do so, we must move beyond the urban-nature divide, a divide that perpetuates the myths that environmental issues relate only to nature and cities are solely the province of humans.

By cultivating a genuine connection between humans, the natural environment, and the built environment we can overcome this divide and, in turn, make cities more resilient in an ever-changing world:

> The best hope for the future lies in a rapid transition to a society that is truly in tune with, sensitive to and respectful of the processes of life that underpin our existence. This is referred to as a biosensitive society. However, there will be no transition to biosensitivity unless there come about profound changes in the world-view, assumptions and priorities of our society's dominant culture.[35]

This article urges the paradigmatic shift needed for this transition by including the concept of the city as a social-ecological system in the definition of a "resilient city." It further proposes grounding resilience in an urban land ethic that connects urban dwellers with their social-ecological identity.[36] In Section II, the article draws upon ecology to ex-

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34. Neil Pearce & Anthony J. McMichael, *Interactions of Environmental Change and Human Health*, *in* OUR FRAGILE WORLD: CHALLENGES AND OPPORTUNITIES FOR SUSTAINABLE DEVELOPMENT 795, 795–804 (2001).

35. Stephen Boyden, *Human Biohistory*, *in* LONG TERM SOCIO-ECOLOGICAL RESEARCH 139, 139 (Simron Jit Singh et al. eds., 2013).

36. This article makes a very modest contribution to the rapidly-growing field of environmental ethics. For more comprehensive discussions of environmental ethics in America, see RICHARD SYLVAN & DAVID BENNET, THE GREENING OF ETHICS (1994); RODERICK FRAZIER NASH, THE RIGHTS OF NATURE: A HISTORY OF ENVIRONMENTAL ETHICS (1989); Keith Hirokawa, *Some Pragmatic Observations About Radical Critique in Environmental Law*, 21 STAN. ENVT'L L. J 225 (2002); Alyson C. Flournoy, *In Search of an Environmental Ethic*, 28 COLUM. J ENVTL. L. 63 (2003); Alyson C. Flournoy, *Building an Environmental Ethic from the Ground Up*, 37 U.C. DAVIS L. REV. 53 (2003), *simultaneously published* in 27 ENVIRONS ENVTL L. & POL'Y J. 52 (2003); Leslie Paul Thiele, *Limiting Risks: Environmental Ethics as a Policy Primer*, 28 POL'Y STUD. J. 540 (2000); Peter Manus, *One Hundred Years of Green: A Legal Perspective on Three Twentieth Century Nature Philosophers*, 59 U. PITT. L. REV. 557 (1998); Mark Sagoff, *Ethics, Ecology, and the Environment: Integrating Science and Law*, 56 TENN. L. REV. 77 (1988); Craig Anthony (Tony) Arnold, *Working Out an Environmental Ethic: Anniversary Lessons From Mono Lake,* 4 WYOMING L. REV. 1 (2004); A. Dan Tarlock, *Earth and Other Ethics: The Institutional Issues*, 56 TENN. L. REV. 43 (1988); Christopher D. Stone, *Should Trees have Standing? Revisited: How Far Will Law and Morals Reach? A Pluralist Perspective*, 59 S. CAL. L. REV. 1 (1985); O. Douglas Schwarz, *Indian Rights and Environmental Ethics: Changing Perspectives, and a Modest Proposal*, 9 ENVT'L ETHICS 4,

plain the fundamentals of resilience theory. Section III applies resilience theory to cities as social-ecological systems. Section IV identifies Aldo Leopold's land ethic and Jane Jacobs' urbanism as the foundation upon which an urban land ethic can be built. Section V puts forward an urban land ethic that knits together ecology and ethics.[37] An urban land ethic can serve as a touchstone for policy and legal decision-making that builds resilience in cities from the ground up as well as the top down.

II. THE RISE OF RESILIENCE

The environmental law regime in the United States has incorporated a number of concepts imported from ecological science.[38] These concepts, however, generally reflect an outdated understanding of a balance of nature premised on an equilibrium approach: that ecological systems operate near an equilibrium; they may be unbalanced by some disruption but eventually will be returned to a state of near-equilibrium.[39] An alternative approach that is grounded in current ecological science would more accurately represent reality. This approach is resilience theory.

291(1987); Holly Doremus, *Environmental Ethics and Environmental Law: Harmony, Dissonance, Cacophony, or Irrelevance?*, 27 ENVIRONS ENVTL. L. & POL'Y J. 1 (2003).

37. While Eric Freyfogle eloquently argued for a new land ethic in his book, *Bounded People, Boundless Lands: Envisioning a New Land Ethic*, his ethic was broader and not focused on urban settings. *See* ERIC T. FREYFOGLE, BOUNDED PEOPLE, BOUNDLESS LANDS: ENVISIONING A NEW LAND ETHIC (1998). The need for an "urban ethic" was recognized but not developed by Richard D. Lamm. *See* Richard D. Lamm, *The Heresy Trial of the Reverend Richard Lamm*, 15 ENVTL. L. 755, 764 (1985) ("What we must now face up to is the fact that human ethics cannot be separated from a realistic understanding of ecology in the broadest sense . . . We are in great need of a Land Ethic, a Wildlife Ethic, a Population Ethic, a Consumption Ethic, an Urban Ethic, an International Ethic, a Geriatric Ethic, and so on. All of these problems call for actions that are based on values and biological facts."). In a forthcoming book, Stephen Miller raises the idea of a "dwelling ethic" for the city, which incorporates Leopold's land use ethic with the theories of Martin Heidegger's notion of dwelling. We can look forward to more discussion of this intriguing concept in the future. *See* Stephen R. Miller, *Boundaries of Nature and the American City*, *in* ENVIRONMENTAL LAW AND CONTRASTING IDEAS OF NATURE: A CONSTRUCTIVIST APPROACH 161–62 (Keith Hirokawa ed., 2014).

38. *See generally* RICHARD O. BROOKS ET AL., LAW AND ECOLOGY: THE RISE OF THE ECOSYSTEM REGIME 325–27 (2002) (discussing ecological concepts in environmental law in the 1990s).

39. *See* Craig Anthony (Tony) Arnold & Lance H. Gunderson, *Adaptive Law*, *in* SOCIAL-ECOLOGICAL RESILIENCE AND LAW 317, 320–23 (Ahjond S. & Craig R. Allen eds., 2014). The legal system, particularly environmental and natural resources law, generally assumes this globally stable state of nature. *See* Robin Kundis Craig, *"Stationarity is Dead" – Long Live Transformation: Five Principles for Climate Change Adaptation Law*, 34 HARV. ENVTL. L. REV. 9, 34 (2010); J.B. Ruhl, *General Design Principles for Resilience and Adaptive Capacity in Legal Systems – with Applications to Climate Change Adaptation*, 89 N.C. L. REV. 1373, 1393–94 (2011); A. Dan Tarlock, *The Nonequilibrium Paradigm in Ecology and the Partial Unraveling of Environmental Law*, 27 LOY. L.A. L. REV. 1121 (1994).

Ecologist C.S. Holling introduced the concept of resilience in 1973. Resilience is "the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks." [40] Although relatively new in the legal realm, resilience is a term used across disciplines in the physical sciences (including engineering), social sciences, and economics. [41] Over several decades the definition has been refined to incorporate the concept of adaptability, "the capacity of actors in a system to manage resilience."[42] Resilience is thus understood as "the capacity of a sys-

40. Brian Walker et al., *Resilience, Adaptability and Transformability in Social-Ecological Systems*, 9 ECOLOGY AND SOC'Y, no. 2, 2004 [hereinafter *Resilience, Adaptability and Transformability*]. *See also* C.S. Holling, *Engineering Resilience versus Ecological Resilience*, in FOUNDATIONS OF ECOLOGICAL RESILIENCE 38 (Lance H. Gunderson et al. eds., 2009) (defining resilience as "a measure of the persistence of systems and of their ability to absorb change and disturbance and still maintain the same relationships between populations or state variables."). Holling and others distinguish ecological resilience from engineering resilience. *See, e.g., id.*

41. *See, e.g.*, WALKER & SALT, *supra* note 23; Brian Walker et al., *A Handful of Heuristics and Some Propositions for Understanding Resilience in Social-Ecological Systems*, 11 ECOLOGY & SOC'Y no. 1 (2006); *Resilience, Adaptability and Transformability*, *supra* note 40. Recent work focuses on integrating social-ecological resilience in law. *See, e.g.*, Arnold, *supra* note 36; Jonas Ebbesson & Ellen Hey, *Introduction: Where in Law is Social-Ecological Resilience?*, 18 ECOLOGY & SOC'Y no. 3 (2013); Ahjond S. Garmestani et al., *Can Law Foster Social-Ecological Resilience?*, 18 ECOLOGY & SOC'Y no. 2 (2013); Garmestani & Benson, *infra* note 68.

Definitions of "resilience" have differed. For instance, Holling and others have distinguished ecological resilience from engineering resilience. *See, e.g.*, Holling, *supra* note 40, at 51–66. Engineering resilience emphasizes stability near an equilibrium steady state and its ability to return to that state. *Id.* at 53. By contrast, ecological resilience recognizes that instabilities may cause a system to reach a tipping point and flip into another regime. *Id.* at 53–54.

42. Carl Folke et al., *Regime Shift, Resilience, and Biodiversity in Ecosystem Management*, *in* FOUNDATIONS OF ECOLOGICAL RESILIENCE 119, 140 (Lance H. Gunderson et al. eds., 2009). The adaptive cycle is a way to describe the progression of a system through various phases of organization and function. A simplified description of the adaptive cycle of an ecosystem is that there is a natural system of change for each ecosystem. C.S. Holling, *The Resilience of Terrestrial Ecosystems: Local Surprise and Global Change*, *in* FOUNDATIONS OF ECOLOGICAL RESILIENCE 67, 106 (Lance H. Gunderson et al. eds., 2009). The rhythm and rate of change is determined by the development of internal processes of organization in response to external variables. *Id.* The resilience of an ecosystem varies at different points in the adaptive cycle. *Id.* Ecologists have identified four primary ecosystem functions that interact sequentially. *Id.* at 95. The adaptive cycle for an ecosystem progresses through the following events: (1) exploitation to conservation; (2) conservation to creative destruction; (3) creative destruction to renewal; and (4) renewal back to exploitation. *Id.* The first stage—exploitation to conservation—progresses slowly as the system increases organization and connectedness. As stability increases, it causes the system to become over connected, triggering rapid change. *Id.* The resilience of the system is thus determined by "the balance between the processes of mobilization and of retention." *Id.* at 96. This synthesis of the adaptive cycle as articulated by Holling clarifies the relationship between complexity and stability in a way that profoundly changed our understanding of how ecosystems adapt. *See id.* at 96–97

Holling and Gunderson also coined the term "panarchy" to describe hierarchies of linked or "nested" adaptive cycles across systems. Lance H. Gunderson, C.S. Holling & Garry D. Peterson, *Sustainability and Panarchies,* in PANARCHY: UNDERSTANDING TRANSFORMATIONS IN HUMAN AND NATURAL SYSTEMS (Lance H. Gunderson & C.S. Holling eds., 2002) [hereinafter PANARCHY]. *See infra* Section III.

tem to absorb disturbance" and remain within the same regime. [43] By increasing adaptive capacity, the system will be able to avoid crossing into an undesirable regime or succeed in crossing over to a desirable one.[44]

Resilience theory has emerged "to explain environmental systems that are complex, dynamic, and subject to abrupt and unpredictable change."[45] More recently, the term "resilience thinking" has been used to describe the process of applying resilience theory to managing environmental and natural resource systems to enhance their resilience.[46] In other words, resilience thinking is the practical application of resilience theory.

In the environmental law field, at least three broad areas for improvements have been identified for incorporating resilience thinking. First, policymakers could develop laws that foster resilience in human and natural systems.[47] Second, legislators and regulators could retool current law to be more flexible and adaptive in the face of "changing ecological or social conditions."[48] Third, policymakers could facilitate the incorporation of adaptive management of natural resources.[49] This article focuses primarily on the first area of inquiry in urban settings.[50]

III. THE CITY AS A SOCIAL-ECOLOGICAL SYSTEM

Social-ecological systems have their own unique form of resilience that is beyond the resilience of humans or of ecosystems individually.[51] Thus, an understanding of a city as a social-ecological system contributes to the concept of resilience in cities. Urban planning scholar David Godschalk provided one of the only definitions of "resilient city" in the

43. WALKER & SALT, *supra* note 23, at xiii.

44. *See Introduction* to SOCIAL-ECOLOGICAL RESILIENCE, *supra* note 39, at 6.

45. *Id.* at 3.

46. WALKER & SALT, *supra* note 23, at xi. Although the term may be new to many legal readers, a group of ecologists and social scientists formed a network called the Resilience Alliance over 20 years ago. *See id.*

47. *Introduction* to SOCIAL-ECOLOGICAL RESILIENCE, *supra* note 39, at 7.

48. *Id.*

49. *Id. See also* Robert L. Glicksman & Sidney A. Shapiro, *Improving Regulation Through Incremental Adjustment*, 52 UNIV. KAN. L. REV. 1179, 1179 (2004) (arguing for adjustments to administrative law procedures to better accommodate adaptive management).

50. This article notes but does not take part in an important debate about whether resilience supplements or replaces sustainability as a goal. Melinda Harm Benson and Robin Kundis Craig persuasively argue that resilience should be the new narrative. Melinda Harm Benson & Robin Kundis Craig, *Replacing Sustainability*, 46 U. AKRON 841 (2013); Melinda Harm Benson, *Resilience as the New Narrative*, 2 J. ENVTL. & SUSTAINABILITY L. 1 (forthcoming 2014).

51. Bruce Evan Goldstein, *Resilience to Surprises through Communicative Planning*, 14 ECOLOGY & SOC'Y no. 2 (2009) (stating that humans' control of social-ecological systems is "partial and the outcome uncertain").

literature to date. In the context of urban hazards and disaster mitigation, he posited that a resilient city is:

> "[A] sustainable network of physical systems and human communities. Physical systems are the constructed and natural environmental components of the city. . . . the physical systems act as the body of the city, its bones, arteries, and muscles. . . . Human communities are the social and institutional components of the city. . . . the communities act as the brain of the city, directing its activities, responding to its needs, and learning from its experience."[52]

While this definition has been widely restated, particularly with regard to disaster planning,[53] it is not complete. The definition fails to fully recognize the connection between the physical and the human systems and the roles each play. The connection between those systems creates a new system: a social-ecological system.

A social-ecological system recognizes that everything is connected.[54] Humans do not live in isolation or only in their built environment.[55]

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52. David R. Godschalk, *Urban Hazard Mitigation: Creating Resilient Cities*, 4 NAT. HAZARDS REV. 136, 137 (2003). A city's physical systems include "built roads, buildings, infrastructure, communications, and energy facilities, . . . waterways, soils, topography, geology, and other natural systems." *Id.* A city's human systems "include [all] formal and informal . . . human associations that operate" in the city, such as "schools, neighborhoods, agencies, organizations," businesses, and the like. *Id.* Godschalk delineates the following features of resilient cities with respect to natural disaster planning:

- Construct to be strong and flexible
- Design a "lifeline . . . of roads, utilities, and other support facilities . . . to continue functioning in the face of" disaster
- Guide new development "away from known high hazard areas"; relocate vulnerable existing development
- Construct or retrofit buildings to meet code standards incorporating threat of hazards
- Conserve "natural environmental protective systems" for hazard mitigation
- Prepare and link governmental, nongovernmental, and private sector organizations with current information *Id.*

53. *See, e.g.*, Philip R. Berke, *Integrating Bioconservation and Land Use Planning: A Grand Challenge of the Twenty-First Century*, 10 VT. J. ENVTL. L. 407, 414 (2009); Patricia Salkin, *Sustainability at the Edge: The Opportunity and Responsibility of Local Governments to Most Effectively Plan for Natural Disaster Mitigation*, 38 ENVTL. L. REP. NEWS & ANALYSIS 10158, 10159 (2008); Anna K. Schwab & David J. Brower, *Increasing Resilience to Natural Hazards: Obstacles and Opportunities for Local Governments Under the Disaster Mitigation Act of 2000*, 38 ENVTL. L. REP. NEWS & ANALYSIS 10171, 10180 (2008). *See also* PETER NEWMAN, TIMOTHY BEATLEY, & HEATHER BOYER, RESILIENT CITIES: RESPONDING TO PEAK OIL AND CLIMATE CHANGE 6 (2009) (defining resilient cities as having "built-in systems that can adapt to change, such as diversity of transport and land-use systems and multiple sources of renewable power that will allow a city to survive shortages in fuel supplies").

54. *See* Timon McPhearson, *Wicked Problems, Social-Ecological Systems, and the Utility of Systems Thinking*, THE NATURE OF CITIES (Jan. 20, 2013), http://www.thenatureofcities.com/2013/01/20/wicked-problems-social-ecological-systems-and-the-utility-of-systems-thinking/ (stating that "[i]nterconnectedness is a fundamental trait of systems and cities . . . ").

55. *See id.*

Even though it is possible, perhaps even common, to feel disconnected from nature,[56] we all need air and water to live, despite how polluted that air and water may be. We are all part of an interdependent system comprised of humans and nature.[57] This is a simple—but critical—point: humans are *a part* of nature rather than *apart* from nature.[58]

The human social system is linked to and embedded in the natural and built ecosystems in which we live; "we exist within social-ecological systems."[59] Consequently, although changes can occur in the social or ecological system, they do not do so in isolation.[60] Change in either system affects the dynamics of the other.[61] While we may shelter ourselves from the forces of nature in cities, we do not "direct" all of nature's activities. Our policies and actions do, however, affect the ecological system and thus the system as a whole. As complex adaptive systems, social-ecological systems are subject to unpredictable, nonlinear change.[62]

Social-ecological systems exist on many scales.[63] Ascending from smallest to largest in rough order, social-ecological systems occur at the individual, household, neighborhood, city, state, regional, national, and global scales.[64] At each scale, the social-ecological system is in its own adaptive cycle, moving at its own pace.[65] The hierarchy of these nested adaptive cycles across scales is known as "panarchy."[66] Holling and Gunderson coined this term, which is rooted in the mythical Pan, the symbol of universal nature.[67] Panarchy embodies the cross-scale and dynamic character of interactions between human and natural systems.[68] This interaction has ethical contours that can affect the resilience of cities.

Before turning to these ethical contours, it is important to identify the characteristics that need to be resilient in cities. Characteristics of urban resilience include:[69]

- Individual and household resilience

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56. *See* LOUV, *supra* note 17, at 98–101. Indeed, "nature-deficit disorder" has become a fairly mainstream term, thanks to the work of Richard Louv. *See Home*, RICHARD LOUV, http://richardlouv.com (last visited May 19, 2014).

57. WALKER & SALT, *supra* note 23, at 1.

58. *See* ROLSTON III, *supra* note 3, at 52.

59. WALKER & SALT, *supra* note 23, at 31 (emphasis omitted).

60. *See id.*

61. *Id.*

62. *Id.*

63. *Id.* at 88–90.

64. *See generally id.* at 88–95.

65. WALKER & SALT, *supra* note 23, at 88.

66. *Id.* at 89.

67. *Id.*; *see also* PANARCHY, *supra* note 42.

68. Ahjond S. Garmestani & Melinda Harm Benson, *A Framework for Resilience-based Governance of Social-Ecological Systems*, 18 ECOLOGY & SOC'Y no. 1 (2013).

69. David Satterthwaite & David Dodman, *Towards Resilience and Transformation for Cities within a Finite Planet*, 25 ENVIRONMENT & URBANIZATION 2, 291 (2013).

- Support from built systems (e.g., infrastructure, public services)
- Support from natural systems (e.g., ecosystem services)
- Redundancy
- Safe failure
- Government that is flexible and responsive to all residents' needs.

Although this may not be a comprehensive list, at a minimum these characteristics should be present in resilient cities.[70]

To fully understand resilience as a policy goal, though, we must also examine the ethical underpinnings. If urban resiliency is grounded in shared ethic of place, then another critical feature of a resilient city is that its leaders and citizens develop and act from an urban land ethic.[71]

IV. ETHICAL FOUNDATIONS FOR PEOPLE, LAND AND CITIES

The foundations for an urban land ethic can be found in the works of two mid-Twentieth-century visionaries—Aldo Leopold and Jane Jacobs. Both Leopold and Jacobs have been the subject of much scholarly attention.[72] This section's goal is not to analyze that vast body of schol-

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70. They should help to answer the increasingly common question today, which runs something along the lines of "why is Portland thriving and Detroit withering?" What makes a successful or unsuccessful city is a question that has received attention in popular books. *See, e.g.*, HARRY WILAND & DALE BELL, EDENS LOST & FOUND: HOW ORDINARY CITIZENS ARE RESTORING OUR GREAT CITIES (2006) (chronicling the stories of how four cities—Chicago, Philadelphia, Los Angeles, and Seattle—seek to meet the challenges of the urban ecosystem); JARED DIAMOND, COLLAPSE: HOW SOCIETIES CHOOSE TO FAIL OR SUCCEED (2011).

71. *See* Steward Pickett, *The Land Ethic without Urban Isn't*, CTR. FOR HUMANS & NATURE, http://www.humansandnature.org/urban-land-ethic---steward-pickett-response-76.php (last visited May 19, 2014).

72. This article recognizes its modest contribution to the sea of literature on Aldo Leopold's life, land ethic and other writings. *See e.g.*, ALDO LEOPOLD, FOR THE HEALTH OF THE LAND (J. Barid Callicott & Eric T. Freyfogle eds., 1999). A sampling of literature about Leopold includes J. BAIRD CALLICOTT, IN DEFENSE OF THE LAND ETHIC: ESSAYS IN ENVIRONMENTAL PHILOSOPHY (1989); MAX OELSCHALEGER, THE IDEA OF WILDERNESS: FROM PREHISTORY TO THE AGE OF ECOLOGY 205–242 (1991); James P. Karp, *Aldo Leopold's Land Ethic: Is an Ecological Conscience Evolving in Land Development Law?*, 19 ENVTL. L. 737, 740–41 (1989); Charles E. Little, *Has the Land Ethic Failed in America? An Essay on the Legacy of Aldo Leopold*, 1986 U. Ill. L. Rev. 313 (1986); Eric T. Freyfogle, *A Sand County Almanac at 50: Leopold in the New Century*, 30 E.L.R. 10058 (2000); Eric T. Freyfogle, *Ethics, Community and Private Land*, 23 ECOLOGY L.Q. 631 (1996). *See also* Fred Bosselman, *Four Land Ethics: Order, Reform, Responsibility, Opportunity*, 24 ENVT'L L. 1439 (1994) (positing that Leopold's hope for a single land ethic has not been realized and exploring four alternative land ethics).

Jane Jacob's life and works likewise have been extensively explored, particularly in urban studies and planning. *See*, *e.g.*, RECONSIDERING JANE JACOBS (Max Page & Timothy Mennel eds., 2011); ALICE SPARBERY ALEXIOUS, JANE JACOBS: URBAN VISIONARY (Rutgers U. Press, 2006); SHARON ZUKIN, NAKED CITY: THE DEATH AND LIFE OF AUTHENTIC URBAN PLACES (2010); EDMUND FOWLER, BUILDING CITIES THAT WORK (1992) (citing as the author's inspiration Jacobs' book *The Death and Life of Great American Cities*); Jacobs' ideas are studied in multiple disciplines, such as urban sociology. *See* MARK HUTTER, EXPERIENCING CITIES 115-119 (1997). Fewer legal scholars have discussed her ideas and influence. *See, e.g.*, Stephen R. Miller, *Legal Neighborhoods*, 37 HARV. ENVTL. L. REV. 105 (2013); Sam Bass

arship in depth, but rather to identify the key features of the ethic articulated by each as it relates to urban social-ecological resilience.

Although they came from different backgrounds and were writing for different audiences, the ethical approaches conveyed by Leopold and Jacobs share five common features. First, each applied a systems-based approach that stressed the connection between humans and their environment. The type of environment they focused on was different, however; Leopold focused on the natural environment, and Jacobs focused on the built environment. Second, Leopold and Jacobs each described an ethic that would be held both individually and collectively by society. Third, the ethics they expressed were decisively normative. Leopold spoke of moral responsibilities to do what is "good and right." Likewise, Jacobs extolled the greatness of cities and "good" design. Fourth, Leopold and Jacobs were both practical and wrote from their experience living what they espoused. They seemed to understand their ideas would need to be experienced to be adopted. Fifth, although Leopold saw more value in the role of government, neither held much stock in government as the solution. Instead, they looked to individuals and the community as the source of responsibility and action.

A. Aldo Leopold's Land Ethic

Historically, environmental and natural resource management has struggled between utilitarianism and preservation.[73] These two viewpoints were represented by two key individuals that defined early natural resources management in the United States: Gifford Pinchot, the first Chief Forester of the U.S. Forest Service,[74] and John Muir, founder of the Sierra Club.[75] In the late 19th Century, these two were friends, but a schism in their beliefs about how natural resources should be managed soon brought their friendship to a very public end.[76] Pinchot is as-

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Warner, Jr., *Jane Jacobs Moral Explorations*, 28 B.C. ENVTL. AFF. L. REV. 609 (2001) (although published in a legal journal, the author is a professor of urban studies and planning).

73. *See, e.g.*, Karp, *Aldo Leopold's Land Ethic*, *supra* note 72, at,740–41; Robert B. Keiter, *Beyond the Boundary Line: Constructing a Law of Ecosystem Management*, 65 U. COLO. L. REV. 293, 296–97 (1994) (noting this struggle); Richard L. Knight, *The Role of Private and Public Lands in the Development of Aldo Leopold's Land Ethic*, 19 J. LAND RESOURCES & ENVTL. L. 9, 10–11 (1999).

74. ALDO LEOPOLD, FOR THE HEALTH OF THE LAND 14–15 (1999). *See also Gifford Pinchot (1865–1946)*, U.S. FOREST SERV., http://www.fs.fed.us/gt/local-links/historical-info/gifford/gifford.shtml (last visited May 19, 2014).

75. *The John Muir Exhibit*, SIERRA CLUB, http://www.sierraclub.org/john_muir_exhibit/ (last visited May 19, 2014); Karp, *supra* note 72, at 738–39.

76. *Gifford Pinchot*, SIERRA CLUB, http://www.sierraclub.org/john_muir_exhibit /people/pinchot.aspx (last visited May 19, 2014). While a fascinating tale, it is beyond the scope of this essay to detail their relationship and the full impact of their influence on U.S. natural resources and environmental policy. Other scholars have narrated this history well.

sociated with the utilitarian or anthropocentric view of using resources to maximize human benefits, later to be associated with the "conservation" approach.[77] Muir, by contrast, believed in preservation of natural spaces for the sake of preserving them.[78] His preservationist view, which we might now call ecocentric, was that there is more value to land than just what humans can use it for.[79]

These two approaches are only recently beginning to evolve into a third, more complex, approach that advocates ecosystem management.[80] This third approach, which more closely adheres to Muir's environmental philosophy than does utilitarianism, is rooted in Leopold's land ethic.[81]

Leopold advocated for a shift from man as conqueror or director of nature to just "plain member and citizen" of the biotic community.[82] This shift "implies respect for his fellow-members, and also respect for the community as such."[83] He criticized the role of humans a conquerors of nature as self-defeating "[b]ecause it is implicit in such a role that the conqueror knows, *ex cathedra*, just what makes the community clock tick, and just what and who is valuable, and what and who is worthless, in community life. It always turns out that he knows neither, and this is why his conquests eventually defeat themselves."[84]

After three decades in wildlife management with various natural resource administrative agencies, Leopold's own views evolved into an ecosystem approach.[85] This paradigm shift was described in his essay

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See, e.g., CHAR MILLER, GIFFORD PINCHOT AND THE MAKING OF MODERN ENVIRONMENTALISM (2001); Char Miller, *What Happened in the Rainier Grand's Lobby? A Question of Sources*, 86 J. OF AM. HIST. 1709 (2000), *available at* http://jah.oxford journals.org/content/86/4/1709.full.pdf+html.

77. Karp, *supra* note 72, at 738.

78. *Id.* at 738–39. *See also* Roderick Frazier Nash, The Rights of Nature: a History of Environmental Ethics 38–40 (1989).

79. *Id. See* NASH, *supra* note 78, at 38–40.

80. *See* Keiter, *supra* note 73, at 295–96; LEOPOLD, supra note 74, at 15–17 (noting that Leopold had various names for this approach, including "land-health"). *See also e.g.*, Oliver A. Houck, *On the Law of Biodiversity and Ecosystem Management*, 81 MINN. L. REV. 869 (1997); Nancy Perkins Spyke, *Charm in the City: Thought on Urban Ecosystem Management*, 16 J. LAND USE & ENVTL. LAW 153 (2001); John C. Tucker, *Biodiversity Conservation and Ecosystem Management in Florida: Obstacles and Opportunities*, 13 FORDHAM ENVTL. L. J. 1 (2001); JOHN COPELAND NAGLE & J.B. RUHL, THE LAW OF BIODIVERSITY AND ECOSYSTEM MANAGEMENT (Foundation Press 2002). The "Wise Use" movement in the western United States opposes ecosystem management as the solution, claiming cultural loss and economic displacement. Keiter, *supra* note 73, at 321; LEOPOLD, supra note 74, at 14. Notably, this "grass roots" movement is financed to some degree by natural resource extraction industries. Keiter, *supra* note 73, at 321

81. *See* Keiter, *supra* note 73, at 297–98; LEOPOLD, supra note 74, at 55–75.

82. ALDO LEOPOLD, *The Land Ethic* in A SAND COUNTY ALMANAC 219–220 (Oxford Univ. Press, 1966).

83. LEOPOLD, supra note 82, at 220.

84. *Id.* In his seminal work, *The Control of Nature*, John McPhee details human tactics to control nature in modern settings, including Los Angeles. JOHN MCPHEE, THE CONTROL OF NATURE 191–202 (1989).

85. Scharper, *supra* note 27, at 95.

Thinking Like a Mountain, in which he relates a turning point in his life when he began to view wolves through a lens other than his usual anthropogenic, commodity-based view for the first time:

> In those days we had never heard of passing up a chance to kill a wolf. In a second we were pumping lead into the pack, but with more excitement than accuracy: how to aim a steep downhill shot is always confusing. When our rifles were empty, the old wolf was down, and a pup was dragging a leg into impassable slide-rocks. We reached the old wolf in time to watch a fierce green fire dying in her eyes. I realized then, and have known ever since, that there was something new to me in those eyes—something known only to her and to the mountain. I was young then, and full of trigger-itch; I thought that because fewer wolves meant more deer, that no wolves would mean hunters' paradise. But after seeing the green fire die, I sensed that neither the wolf nor the mountain agreed with such a view.[86]

Leopold's image of the "green fire" in the eyes of the dying wolf became a metaphor for his "emerging ecological ethic" that reflects a realignment of humans with nature.[87] In that moment, he knew that man was no longer conqueror or even manager, but a co-equal, responsible, participatory member of the biotic community.[88] This shift in the understanding of humanity's role was a radical departure from the dominating utilitarian view in natural resources policy at that time. Leopold argued that land use ethics were still "governed wholly by economic self-interest, just as social ethics were a century ago."[89] He stressed, "[w]e abuse the land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect."[90]

At Leopold's urging, human ethics were extended to embrace the "integrity, stability, and beauty of the biotic community."[91] His land ethic embraces a "profoundly different interrelationship" between humans and nature that is "grounded upon ecological interdependency and a moral disposition of love, respect, and admiration."[92] He recognized that important ethical changes require "an internal change in our intellectu-

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86. ALDO LEOPOLD, *Thinking Like a Mountain*, *in* A SAND COUNTY ALMANAC 130 (Oxford Univ. Press, 1966)

87. Scharper, *supra* note 27, at 96.

88. *Id.* at 96–97.

89. LEOPOLD, *supra* note 86, at 224.

90. *Id.* at x.

91. *Id.* at 240.

92. Scharper, *supra* note 27, at 97. *See also* ROLSTON III, *supra* note 3, at 49 (2012) (noting that Leopold "famously, connected beauty and ethics in his land ethic").

al emphasis, loyalties, affections, and convictions."[93] To him, the creation of an ethic was essential because "[o]bligations have no meaning without conscience, and the problem we face is the extension of the social conscience from people to land."[94] His land ethic "enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively, the land."[95]

Even then, Leopold recognized the "balance of nature" did not accurately reflect reality; he turned to ecology and described the biotic "land pyramid."[96] He described what we now call ecosystem adaptation and resilience, and noted humans' unprecedented ability to make changes more rapidly, violently, and broadly than what are otherwise usually slow and local evolutionary changes.[97] Leopold noted the repeated paradoxes in the dualistic natural resource and agricultural approaches: "man the conqueror versus man the biotic citizen; science the sharpener of his sword versus science the searchlight on his universe; land the slave and servant versus land the collective organism."[98]

Modern environmental and natural resource laws, such as the Endangered Species Act, address some of Leopold's concerns about biodiversity: that species "should continue as a biotic right, regardless of the presence or absence of economic advantage to us."[99] Certain laws also address his concern that an entire biotic community that is viewed as lacking economic value will not be protected.[100] An example of progress in this challenging area is the Clean Water Act Section 404 wetlands program.[101] The work is not yet done, though, as the market-based ap-

93. LEOPOLD, *supra* note 86, at 225.

94. *Id.*

95. *Id.* at 219.

96. *Id.* at 230.

97. *Id.* at 232. His simple description remarkably describes the very complex dynamic being studied many years later in resilience science: "When a change occurs in one part of the circuit, many other parts must adjust themselves to it. Change does not necessarily obstruct or divert the flow of energy; evolution is a long series of self-induced changes, the net result of which has been to elaborate the flow mechanism and to lengthen the circuit." *Id.*

98. *Id.* at 238 (emphasis omitted).

99. LEOPOLD, *supra* note 86, at 228 (noting that Europe was ecologically more advanced in recognizing non-commercial tree species should be protected as members of the native forest community because they have a function in the interdependence of the forest ecosystem).

100. *See id.* (expressing concern about "marshes, bogs, dunes, and 'deserts'" as examples of biotic communities that lack economic value). Ecosystem valuation is an important topic that is gaining scholarly interest. *See, e.g.,* Craig Anthony (Tony) Arnold, *The Land Use Regulatory System in the United States*, 22 J. LAND USE 2, 442 (2007); Keith H. Hirokawa, *Sustaining Ecosystem Services Through Local Environmental Law*, 28 PACE ENVTL. L. REV.760 (2011); Keith H. Hirokawa, *Three Stories About Nature: Property, the Environment, and Ecosystem Services*, 62 MERCER LAW REVIEW 541 (2011).

101.. *See* Clean Water Act, § 404, 86 Stat. 816 (1972) (codified as amended at 33 U.S.C. §§ 1251–1387 (2001 & 2013 Supp.)).

proaches—those economic self-interests that Leopold was so concerned about—are playing a larger role within the regulatory framework.[102]

Leopold did not advocate the government as the solution, however: "There is a clear tendency in American conservation to relegate to government all necessary jobs that private landowners fail to perform."[103] While he agreed that most of this growth in the government's role was necessary and proper, Leopold queried: "At what point will governmental conservation, like the mastodon, become handicapped by its own dimensions?"[104] In response to his question, Leopold urged a land ethic to assign more obligations to private landowners and to encourage voluntary conservation of their own lands.[105] This is consistent with his belief that "[w]e can be ethical only in relation to something we can see, feel, understand, love, or otherwise have faith in."[106] The normative touchstone of the land ethic is that an action is "right" when it promotes the "integrity, stability, and beauty of the biotic community."[107]

Thus, the cultivation of a land ethic is both an intellectual and emotional endeavor.[108] In Leopold's opinion, the ultimate problem is one of adjusting attitudes.[109] By cultivating a land ethic that reflects an ecological conscience, the new attitude will lead to "a conviction of individual responsibility for the health of the land."[110] The most serious obstacle Leopold identified in developing a land ethic was a lack of personal connection between humans and land:

> Your true modern is separated from the land by many middlemen, and by innumerable physical gadgets. He has no vital relation to it; to him it is the space between cities on which crops grow. Turn him loose for a day on the land, and if the spot does not happen to be a golf links or a "scenic" area, he is bored stiff. If crops could be raised by hydroponics instead of farming, it would suit him very well. Synthetic substitutes for wood, leath-

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102. *See* Donald J. Kochan, *Economic Perspectives on the Fourth Generation of Environmental Law* 2 J. ENVTL. & SUSTAINABILITY LAW 1 (forthcoming 2014).

103.. LEOPOLD, *supra* note 86, at 228.

104.. *Id.* at 229. This is particularly true of the federal government by virtue of its size. It is not surprising, then, that recent initiatives and actions are occurring at the local level. *See, e.g.,* Hari M. Osofsky and Janet Koven Levit, *The Scale of Networks? Local Climate Change Coalitions*, 8 CHICAGO J. INT'L L. 409 (2008).

105. *Id.* at 230.

106. *Id.*

107. *Id.*

108. *Id.* at 241.

109. *Id.*

110. LEOPOLD, *supra* note 86, at 236. Leopold's use of "health" is encapsulated in an understanding of resilience and the capacity for social-ecological systems to continue and renew.

> er, wool, and other natural land products suit him better than the originals. In short, land is something he has "outgrown."[111]

These words are as true today as they were over sixty-five years ago. This lack of personal connection seriously impedes the evolution of a land ethic. Moreover, as Leopold maintained, "our educational and economic system is headed away from, rather than toward, an intense consciousness of land."[112]

These obstacles have been exacerbated by urbanization, globalization and technology. Although it should not be a great leap of reasoning to extend Leopold's land ethic to urban areas, several barriers have prevented this extension. First, the continuing prevalence of a dualistic view of the urban-rural divide has slowed the evolution of ethics from making this adaptation.[113] Second, Leopold's land ethic stems in part from land ownership, which is limited in space and property interests in cities, because cities have a significant number of renters and higher density living than rural areas. The time has come to reframe Leopold's land ethic in urban terms.

B. Jane Jacobs's Urbanism

The work of another visionary, Jane Jacobs, enables the reframing of Leopold's land ethic into urban terms. Writing over decade after Leopold, Jacobs is legendary in urban planning. In 1961, her radical attack on conventional urban planning in *The Death and Life of Great American Cities* was a call to action.[114] Jacobs was an activist; her writings

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111. *Id.* at 239.

112. *Id.*

113. Scharper, *supra* note 27, at 97 (asserting that "[t]he paradigm shift Leopold inaugurates is as much about transforming philosophical understandings of the human subject as it is about traversing the traditional town-country divide"). Scholars have primarily used Leopold's land ethic to support protection of rural areas from urban encroachment. *See, e.g.*, Richard L. Knight, *The Role of Private and Public Lands in the Development of Aldo Leopold's Land Ethic*, 19 J. LAND RESOURCES & ENVTL. L. 9, 9 (1999) (articulating a concern with protecting public and private interests in agricultural land from urban development); John A. Humbach, *Law and a New Land Ethic*, 74 MINN. L. REV. 339, 369 (1989) (proposing developing a new land ethic geared to keeping urban areas from encroaching on natural lands, primarily through zoning and land use controls).

114. JACOBS, *supra* note 2. It is not simply this author's characterization of her work as an attack; Jacobs opens her first chapter with these powerful words: "This book is an attack on current city planning and rebuilding. It is also, and mostly, an attempt to introduce new principles of city planning and rebuilding, different and even opposite from those now taught in everything from schools of architecture and planning to the Sunday supplements and women's magazines. My attack is not based on quibbles about rebuilding methods or hair-splitting about fashions in design. It is an attack, rather, on the principles and aims that have shaped modern, orthodox city planning and rebuilding." *Id.* at 3. Also the author of THE ECONOMY OF CITIES (1969) and CITIES AND THE WEALTH OF NATIONS: PRINCIPLES OF ECONOMIC LIFE (1984), Jacobs's influence from her trilogy of urban books has continued to grow rather than wane over the last 60 years. Sonia Hirt, *Jane Jacobs, Urban Visionary*, *in* THE URBAN WISDOM OF JANE JACOBS 3 (Sonia Hirt & Diane Zahm eds., 2012) [hereinafter URBAN WISDOM] (citation omitted); Paul Kidder, *The Right and the Good in Jane Jacobs's*

addressed the "ethical underpinnings of what we call liberal democracy."[115] She inspired civil protest and civil disobedience, placing her among other great Americans who sparked the moral conscience of fellow citizens.[116]

Jacobs's urbanism is rooted in the unique opportunity of urban life: cities "provide the right to choose individual lifestyles, but also the opportunity to pursue some version of a shared good."[117] Her work differs from Leopold's in two significant ways. First, Jacobs's focus was the urban domain, rather than the rural images evoked by Leopold's writing. Second, the ethical underpinnings of Jacob's work were implicit rather than explicit like Leopold's land ethic. Yet their philosophies overlap in important ways.

Like Leopold, Jacobs adopted a systems-based approach. She embedded ecological principles in her writing.[118] Drawing a connection between natural and urban ecosystems, she defined a "city ecosystem" as "[a] natural ecosystem is defined as 'composed of physical-chemical-biological processes active within a space-time unit of any magnitude.' A city ecosystem is composed of physical-economic-ethical processes active at a given time within a city and its close dependencies."[119]

Urbanism in THE URBAN WISDOM OF JANE JACOBS 9 (Sonia Hirt & Diane Zahm eds., 2012). *See also* SHARON ZUKIN, NAKED CITY: THE DEATH AND LIFE OF AUTHENTIC URBAN PLACES (2010) (relying on and critiquing Jacob's work as a foundation for arguing for authenticity in cities). Jacobs's work significantly influenced the New Urbanism movement. *See* Celeste Pagano, *DIY Urbanism: Property and Process in Grassroots City Building*, 97 MARQ. L. REV. 335, 346 (2011) (noting that "the very new urbanism movement that was spurred by the writings of Jacobs and others has evolved to develop features very much at odds with her vision"). For a description and history of the New Urbanism movement, see GERALD E. FRUG, CITY MAKING: BUILDING COMMUNITIES WITHOUT BUILDING WALLS 149–54 (1999) (describing the principles of the New Urbanism); JILL GRANT, PLANNING THE GOOD COMMUNITY: NEW URBANISM IN THEORY AND PRACTICE 30 (2006); ANDRES DUANY ET AL., SUBURBAN NATION: THE RISE AND SPRAWL AND THE DECLINE OF THE AMERICAN DREAM 258–60 (2000) (using term "neotraditionalism" to describe New Urbanism); *Charter of the New Urbanism*, CONGRESS FOR THE NEW URBANISM (2001), http://www.cnu.org/charter (last visited May 20, 2014) (stating the principles of New Urbanism). Some of the leading voices of the movement call for a reconnection between nature and the design of human-built communities. *See, e.g.*, PETER CALTHORPE, THE NEXT AMERICAN METROPOLIS: ECOLOGY, COMMUNITY, AND THE AMERICAN DREAM 25–26 (1993).

115. Kidder, *supra* note 114, at 9 (examining the definition of liberal democracy as focused on rights over normative meanings of "good" and integrating it with Jacobs's implied urban ethic).

116. *Id.* (listing Jacobs among other great American activists, including Thoreau and Martin Luther King, Jr.). Jacobs is also considered among other influential authors of the 1960s who served as a catalyst to the U.S. environmental movement and generated awareness of complexity in urban and natural systems, such as Rachel Carson (SILENT SPRING, 1962) and Ian McHarg (DESIGN WITH NATURE, 1969). Jonathan Barnett, *Jane Jacobs and Designing Cities as Organized Complexity*, *in* THE URBAN WISDOM OF JANE JACOBS 246–249 (Sonia Hirt & Diane Zahm eds., 2012).

117. *Id.* at 11 (italics omitted).

118. *See* Kidder, *supra* note 114, at 9.

119. *Id.* at 9–10 (internal citations and italics omitted).

Jacobs implicitly addressed the need for shared morals or ethics in connection with this city ecosystem. To Jacobs, a "good" city "is one that builds upon the vitality that is unique to concentrated urban populations."[120] By vitality, Jacobs means an active public realm.[121] This vitality is reflected in her advocacy of particular physical structures and design features as well as her preference for "foot people" (pedestrians and mass-transit users) over "car people."[122] Indeed, "[e]verything that Jacobs says about designing streets, organizing districts, providing local amenities, and creating economic opportunities serves to promote a vital urban community. The vitality that stems from urban concentration is . . . what makes the city a great and fascinating place. . . ."[123]

Jacobs, like Leopold, emphasized the importance of diversity. The type of diversity that Jacobs was passionate about, though, was primarily focused on humans and their built environments. To her, a successful city had diverse people, neighborhoods, buildings types and uses, housing and economic activity. [124] Jacobs also anticipated the concept of sustainability in cities by discussing social capital, local action, and 'biomimicry,' in design (using nature as a source of inspiration).[125]

Another concept about which Leopold and Jacobs agreed was that ecosystems, whether natural or human, are constantly changing.[126] Resilience science calls this change adaptation, and each system has an adaptive cycle.[127] Not all systems are changing at the same rate; some parts change rapidly, some slowly in the panarchy.[128] Jacobs memorably recognized this ever-present state of change in an eloquent metaphor:

> Under the seeming disorder of the old city, wherever the old city is working successfully, is a marvelous order for maintaining the safety of the streets and the freedom of the city. It is a complex order. Its essence is intricacy of sidewalk use, bringing with it a constant succession of eyes. This order is all composed of movement and change, and although it is life, not art, we may fancifully call it the art form of the city and liken it to the dance—not

120. *Id.* at 14.

121. *Id.*

122. Kidder, *supra* note 114, at 15–16. Although it is beyond the scope of this essay to comprehensively discuss Jacobs's influence, much has been written about Jacobs's influence on urban design projects, building designs, historic preservation, transit-oriented development, block and street layouts, mixed-use development, and other areas. *Id.* (citing sources).

123. *Id.* at 14.

124. *See* Kidder, *supra* note 114, at 9 (noting Jacobs' influence on neighborhoods, building design, and the dynamics of the urban economy).

125. Lynn Scarlett, *Introduction: Cities and Sustainability—Ecology, Economy and Community*, 11 SUSTAINABLE DEV. L. & POL'Y 2, 2 (2010). *See also generally* JANE JACOBS, THE ECONOMY OF CITIES (1969); JANE JACOBS, CITIES AND THE WEALTH OF NATIONS (1984).

126. JACOBS, *supra* note 125, at 50; LEOPOLD, *supra* note 86, at 232–36.

127. *See* Holling & Gunderson, *Resilience and Adaptive Cycles, in* PANARCHY, *supra* note 42, at 32–34.

128. *See* JACOBS, *supra* note 2, at 50.

> to a simple-minded precision dance with everyone kicking up at the same time, twirling in unison and bowing off en masse, but to an intricate ballet in which the individual dancers and ensembles all have distinctive parts which miraculously reinforce each other and compose an orderly whole. The ballet of the good city sidewalk never repeats itself from place to place, and in any one place is always replete with new improvisations.[129]

Other urban theorists similarly recognize the dynamic of urban communities as one of motion, difference, and spontaneity.[130] This dynamic reflects the adaptive capacity of cities.

In her later work, *Cities and the Wealth of Nations*, Jacobs focused on the adaptive capacity of urban economies. She observed, "[c]ities are the open-ended types of economies in which human capacities for open-ended economic creation are not only able to establish new and initially tentative little things but also to inject them into everyday life in a practical way."[131] While Jacobs described this in terms of the economy of cities, her recognition of the adaptive capacity of cities can be understood more broadly to demonstrate a feature of a resilient city.

Jacobs further recognized cities are not an isolated system; they are part of larger regions of organized complexity, which she called "city-regions." [132] Cities, then, are part of larger systems that overlap with sub-systems. In this sense, Jacobs's systems approach is consistent with panarchy theory, which recognizes the layers of complexity of systems of different scales changing at different rates.[133] The resulting complexity at the city, regional, state, national, and global scales and their connection with the natural environment is far more dynamic than even Jacobs could have predicted.[134] Accordingly, an ethic that reflects this complexity is in order.

V. ESTABLISHING AN URBAN LAND ETHIC

Seeking to define resilient cities is tail chasing without broad social acceptance of resilience as the goal. Urban resiliency may push society to shift our thinking and patterns of behavior, perhaps to become a dif-

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129. *Id.* at 50. The captivating metaphor of the "sidewalk ballet" is oft-quoted and has inspired urban scholars. *See, e.g.*, Benjamin Fraser, *The 'Sidewalk Ballet' in the Work of Henri Lefebvre and Manual Delgado Ruiz*, *in* The URBAN WISDOM OF JANE JACOBS 24 (Sonia Hirt & Diane Zahm eds., 2012).

130. Fraser, *supra* note 129, at 25–26. *See also* Barnett, *supra* note 116, at 245–256.

131. JANE JACOBS, CITIES AND THE WEALTH OF NATIONS (1984).

132. Barnett, *supra* note 116, at 255 (noting that in her 1984 book, CITIES AND THE WEALTH OF NATIONS, Jacobs "expanded her theories to include city regions").

133. *See* C.S. Holling et al., *In Quest of a Theory of Adaptive Change*, *in* PANARCHY: UNDERSTANDING TRANSFORMATIONS IN HUMAN AND NATURAL SYSTEMS 3, 5 (Lance H. Gunderson & C.S. Holling eds., 2002) (including a discussion of panarchy).

134. Barnett, *supra* note 116, at 255.

ferent type of city. True change, one that affects all levels within cities from individuals to neighborhoods to government, must come from embracing a new way of thinking about people, land, and cities. That step forward is the development of an urban land ethic.

Social-ecological resilience for a city can be grounded in an urban ethic that reflects the interrelationship between humans and their built and natural environments. An urban land ethic recognizes that urban areas are different. Place matters, and cities are a particular type of place that affects how we interact with the land. As with Leopold's land ethic, an urban land ethic "has its origin in the tendency of interdependent individuals or groups to evolve modes of co-operation."[135] Leopold considered the land ethic as the third stage in the evolution of ethics.[136] The first stage governed relations between individuals, the second stage integrated relations between individuals and society, and the third stage addressed humans' relationship to land and all non-human life on that land.[137] The urban land ethic incorporates a fourth element that is dominant in cities: the built environment.

Leopold noted that "[a]ll ethics so far evolved rest upon a single premise: that the individual is a member of a community of interdependent parts. His instincts prompt him to compete for his place in that community, but his ethics prompt him also to co-operate."[138] An ethic thus serves as guidance; it is "a kind of community instinct in-the-making."[139] Jane Jacobs evokes a similar feeling about the link between community and ethics: "Cities have the capability of providing something for everybody, only because, and only when, *they are created by everybody*."[140]

Viewed through the social-ecological lens, neither Leopold's nor Jacob's ethics provides a full picture for cities. An urban land ethic integrates and expands on the ethics articulated by Leopold and Jacobs. It integrates Leopold's land ethic, which was focused on rural areas and landowners,[141] with Jacob's urbanism. It also updates the underlying science from equilibrium theory to resilience theory.[142] An urban land ethic explicitly addresses the loss of sense of place that has occurred in America's shift toward urbanism. Finally, an urban land ethic shifts

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135. LEOPOLD, *supra* note 86, at 218. Leopold explains that such cooperative mechanisms are what ecologists know as symbioses, and he notes that "politics and economics are advanced symbioses" which have an ethical content that substitutes cooperation for competition in part. *Id.*

136. *Id.*

137. *Id.*

138. *Id.* at 219 (parenthetical language omitted).

139. *Id.*

140. James Stockard, *Jane Jacobs and Citizen Participation*, *in* The URBAN WISDOM OF JANE JACOBS 49, 49 (Sonia Hirt & Diane Zahm eds., 2012) (quoting Jacobs).

141. Leopold's land ethic does not take into account or resonate with urban renters.

142. *See* A. Dan Tarlock, *The Nonequilibrium Paradigm in Ecology and the Partial Unraveling of Environmental Law*, 27 LOY. L.A. L. REV. 1121 (1994) (arguing that Leopold's land ethic is based on equilibrium theory of ecology).

these ethics, which are more grounded in dualistic thinking, toward resilience thinking.[143]

A. Principles

Three primary principles give shape to an urban land ethic. First, an urban land ethic is rooted in a systems-based approach within the framework of resilience theory. Second, an urban land ethic also is place based, encouraging both an individual and collective mindfulness. Third, an urban land ethic promotes interconnectivity between people, their natural and built environments, their community, and their government.

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143. An urban land ethic is also consistent with the movement of law toward an understanding of two principles affecting the concept of property in this country: (1) land has become a basic community resource; and (2) land—and accompanying property rights—do not exist in isolation. *See* ADAM ROME, THE BULLDOZER IN THE COUNTRYSIDE: SUBURBAN SPRAWL AND THE RISE OF AMERICAN ENVIRONMENTALISM 232–34 (Donald Worster & Alfred W. Crosby eds., 2001) (discussing Jesse Dukeminier Jr.'s 1965 article *The Coming Search for Quality* and Joseph Sax's 1971 seminal article *Takings, Private Property and Public Rights*). Since the mid-1960s, legal scholars have been pushing the law closer to a Leopoldian understanding of the interconnectivity of systems as they relate to the rights and responsibilities toward land. *Id.* In his seminal 1973 article, *This Land is Whose Land? Changing Concepts of Land as Property*, Donald W. Large recognized that each parcel of land is "inextricably intertwined" with other parcels in a complex network of relationships. Donald W. Large, *This Land is Whose Land? Changing Concepts of Land as Property*, 1973 WIS. L. REV. 1039, 1045 (1973). Consequently, as Donald W. Large famously argued, "[w]e now realize . . . that causes and effects flow across artificially imposed divisions in the land without regard for legal boundaries. This land simply cannot be neatly divided into mine and yours." *Id.*

Over forty years later and living more densely than ever in urban areas, Large's point is poignant. A corollary of this understanding of interconnectivity of property was the evolving notion of a communal view of land. This evolution was noted by Jesse Dukeminier Jr., who observed that "the public is beginning to think of land as a *basic community resource*." Jesse Dukeminier, Jr., *Foreword: The Coming Search for Quality*, 12 UCLA L. REV. 707, 716 (1964–1965). Consequently, he argued, "[a]s land use comes to be viewed as a matter of the most serious community concern, and vital to the maximization of all community values, legal institutions must accommodate this change."143 *Id.* The failure of law to reflect "a more communal view of land" as a source of life puts "the preservation of ecologically vital yet economically valueless systems" at risk.143 ROME, *supra* note 143, at 234 (quoting Large, *supra* note 143, at 1081); *see also* SAM BASS WARNER, JR., THE URBAN WILDERNESS: A HISTORY OF THE AMERICAN CITY 15 (1972) (analyzing the American commitment to property as an individual liberty rather than as a social resource). Scholars have also called for a reorientation of the basic property paradigm, the bundle of sticks metaphor. *See, e.g.*, Craig Anthony (Tony) Arnold, *The Reconstitution of Property: Property as a Web of Interests*, 26 HARV. ENVTL L. REV. 281 (2002) (urging the replacement of the bundle of sticks metaphor with a metaphor of property as a web of interests); Myrl L. Duncan, *Reconceiving the Bundles of Sticks: Land as a Community-Based Resource*, 32 ENVT'L L. 773 (2002) (calling for a reconfiguration of the property rights paradigm that emphasizes the interconnectedness of rights and explicitly incorporates public rights); Robert J. Goldstein, *Green Wood in the Bundles of Sticks: Fitting Environmental Ethics and Ecology into Real Property Law*, 25 B.C. ENVT'L AFF. L. REV. 347 (1998) (developing the theory of "green wood" and its place in property and environmental law).

1. Identifying with the City as a Social-Ecological System

Urban residents must identify with their city as their social-ecological community. This identification must come at the individual level and must have roots in the locality: "Such transformation of the personal self will result in an appropriate care for the environment."[144] People must recognize that they are a part of their ecosystem; they do not stand apart from nature. Moreover, our relationship with nature is deeper than one of controlling or engineering it to better serve humans.[145] Environmentalists have not always helped their cause by frequently emphasizing nature as being apart and distinct from cities.[146] Thus, we must reframe the issue: "there is no environment 'out there' that is separate from us."[147] In other words, "[w]e *are* our surroundings."[148]

The urban land ethic reflects our understanding of humans as part of a social-ecological system. If we understand the interdependence of humans as part of a system, that understanding connects us to the land and nurtures responsibility to our cities. This shared ethical foundation embraces connecting and reducing harm, as well as understanding ecosystem complexities and human inequities.[149] By cultivating an urban land ethic, city dwellers will "learn to 'reinhabit' their landscapes," rather than control them.[150]

2. Encouraging a Sense of Place

To build resilience in cities, an urban land ethic is essential at both the individual and community level. In other words, the ethic should be held both personally and collectively. A personal connection is critical to ground each of us, tethering us to the land in a way that is anything but burdensome: "[A] person also needs an embodied sense of residence on a landscape."[151] Society's shift away from rural to urban life "brings a threat of being place-less" in a world where people traditionally have had "a sense of place."[152] For many urban residents, it has become "in-

144. *Id.*

145. ROLSTON III, *supra* note 3, at 45. Environmental philosopher Professor Holmes Rolston III inquires "Is our only relationship to nature one of engineering it for the better?" *Id.*

146. *E.g.*, ROME, *supra* note 143, at 252 (describing environmentalists' failure to address the problems of urban land use).

147. SUZUKI, *supra* note 8, at 2.

148. *Id.* at 8.

149. STEPHANIE KAZA, MINDFULLY GREEN: A PERSONAL AND SPIRITUAL GUIDE TO WHOLE EARTH THINKING ix (2008).

150. ROLSTON III, *supra* note 3, at 189.

151. ROLSTON III, *supra* note 3, at 49.

152. *Id.* at 48. *See also* James Howard Kunstler, Home from Nowhere: Remaking Our Everyday World for the Twenty-First Century 19–20 (1996).

creasingly difficult to recognize the linkages that once gave us a sense of place and belonging."[153]

Disconnection is the primary barrier to the development of an urban land ethic. Urban residents are disconnected in three main ways. First, urban residents are generally more disconnected from nature than their rural counterparts. Second, due to Americans' mobility and the sheer number of residents in cities, combined with the fact that cities have more strangers and anonymity, urban dwellers have less connection to their community.[154] Third, urban living also can lead to a feeling of complacency and disconnection with government. Together, these disconnections lead to a loss of a sense of place. Recovering a sense of place is essential to an urban land ethic and, ultimately, to the resilience of the city.

Perhaps the simplest solution to recovering a sense of place is for Americans to reduce their mobility. In other words, we should stay put instead of moving from place to place.[155] Writer, educator, and farmer Wendell Berry makes a compelling argument for staying home or returning to your home and living off the land.[156] Recent statistics suggest that more Americans may be staying put for economic reasons.[157] Given the uncertainty of mobility trends, other avenues for overcoming these disconnections are explored next.

3. Promoting Connections

An urban land ethic promotes connections between citizens of a city and "the land" (encompassing the biotic community or natural world), each other, and their local government.

a. (Re)Connecting to the Land

An authentic urban land ethic is one that sees nature first and foremost as a part of the city, but then goes further by making sure that nature maintains an intentional and recognized space in cities though biophilic design and urban planning. In cities, it is easy to "escape" na-

153. SUZUKI, *supra* note 8, at 3. This is true not only for urban residents; technology and globalization also contribute to this loss of sense of place. *See id.*

154. Larger cities also deal with a significant transient population that may not have opportunity to settle long enough to make a connection to a specific community.

155. BEATLEY & MANNING, *supra* note 7, at 199.

156. WENDELL BERRY, ANOTHER TURN OF THE CRANK (1995).

157. In 2013, 11.7% of Americans moved, a near record low. *Why Americans are Moving Less: New Jobs Aren't Worth It*, www.theatlanticcities.com/jobs-and-economy/2014/04/why-americans-are-moving-less (last visited May 19, 2014). Americans' declining mobility is explained by a number of factors – and the interrelationship between these factors - including home ownership, aging population, and fewer job opportunities or opportunities that are more economically advantageous. *Id.*

ture.[158] We build the city as shelter from the forces of nature. We have created the built environment as our habitat; we assume ecosystem services are being performed.[159] For some urbanites, the connection with nature has been almost completely severed.[160] For example, our "environment" is controlled: we decide which plants and animals are allowed and our non-local and packaged food is readily available (at least in parts of the city).[161] Although the weather cannot be controlled, we build shelter to diminish its effects and we can control indoor climates.[162] Many urban residents do not know—and possibly do not care—about the source of their energy and water, or the destination of their sewage and garbage.[163] By distancing ourselves from the natural world in cities, we live an illusion: "[c]ut off from the sources of our food and water and the consequences of our way of life, we imagine a world under our control."[164] In addition to urbanization, globalization is shrinking our world, and this shrinking also is decimating the sense of place in a local community.[165]

To re-establish a connection with the natural world, an urban land ethic demands an authentic or constructed sense of place. Scholars and commentators have urged people to reconnect with nature. Many emphasized this is a personal or spiritual connection.[166] Buddhist tradition is particularly rich in its understanding of the interdependence of people

158. *Id.* at 4.
159. *Id.*
160. *Id.* at 24.
161. *See i*d.
162. *Id.*
163. SUZUKI, *supra* note 8, at 24. Suzuki calls this separation between humans and nature "[t]he most destructive aspect of cities." *Id.*
164. *Id.* at 25.
165. *Id.* at 4.
166. *See, e.g.*, THOMAS BERRY, THE DREAM OF THE EARTH 1–5 (1988); THOMAS BERRY, THE GREAT WORK: OUR WAY INTO THE FUTURE ix (1999) (urging that the great work facing humanity is moving beyond extraction and consumption to establishing a mutually beneficial relationship with nature); Louis Redmond, *Diverse Native American Perspectives on the Use of Sacred Areas on Public Lands*, *in* NATURE AND THE HUMAN SPIRIT: TOWARD AN EXPANDED LAND MANAGEMENT ETHIC 127, 127–32 (B.L. Driver et al. eds., 1996) (offering a variety of approaches recognizing the importance of a spiritual connection with land); JAMES WILLIAM GIBSON, A REENCHANTED WORLD: THE QUEST FOR A NEW KINSHIP WITH NATURE 221–44 (2009) (arguing that Western society is experiencing a cultural shift that reveals a yearning for a spiritual reconnection with nature in the face of environmental challenges); LAST CHILD IN THE WOODS, *supra* note 17, at 1–5; RICHARD LOUV, THE WEB OF LIFE: WEAVING THE VALUES THAT SUSTAIN US 2–4 (2008) (advocating cultivating a spiritual awareness of common humanity and connecting with the world); KAZA, *supra* note 149 (offering a Buddhist-inspired "green practice path" for taking environmental action); RALPH METZNER, GREEN PSYCHOLOGY: TRANSFORMING OUR RELATIONSHIP TO THE EARTH 98–113 (1999) (examining the historical roots of the split between humans and nature and proposing a solution to heal this rift and restore a healing relationship with nature); THE NATURAL CITY: RE-ENVISIONING THE BUILT ENVIRONMENT 322, 329 (Ingrid Leman Stefanovic & Stephen Bede Scharper eds., 2012) (including section entitled "From the Starts to the Streets: Cosmological Perspectives"). Some commentators urge a call to action, including former Vice-President Al Gore. AL GORE, EARTH IN THE BALANCE: ECOLOGY AND THE HUMAN SPIRIT 16 (1992).

and nature.[167] Others look to the adoption of native peoples' perspectives to better connect and understand nature.[168]

Spending time in unstructured nature—whether in or out of the city—offers opportunities for connection. Ideally, these unstructured, natural places should be integrated into urban design.[169] We need to be cognizant not to design "the wild right out of them by correcting drainage, landscaping, or adding playgrounds and playing fields."[170] Hence, we still need wilderness areas: "[w]e simply need that wild country . . . for it can be a means of reassuring ourselves of our sanity as creatures, a part of the geography of hope."[171] In more concrete terms, unstructured or "wild" natural areas provide many benefits to humans and the ecosystem: beauty, recreational opportunities, sanctuary, carbon sequestration, watershed preservation and protection, biodiversity and habitats.[172] Is, as Thoreau wrote, "wildness . . . the salvation of the world"?[173]

While the wild may look different in the cities—it could be native plants growing in an empty lot—we need to acknowledge nature's presence in cities. Cities do not have the large undeveloped tracts of Thoreau's or Leopold's experience, but they do have biotic content that com-

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167. KAZA, *supra* note 149, at xiv.

168. *See, e.g.*, DAVID SUZUKI & PETER KNUDTSON, WISDOM OF THE ELDERS: HONORING SACRED NATIVE VISIONS OF NATURE (1992) (introducing an environmental ethic based on native peoples' vision of nature as scared ecologies, which resonated with aspects of modern scientific views about ecology); THOM HARTMAN, THE LAST HOURS OF ANCIENT SUNLIGHT: WAKING UP TO A PERSONAL AND GLOBAL TRANSFORMATION 292–94 (1998) (advocating adopting the perspectives and practices of ancient cultures to transform our relationship with our environment); *see also* interview of Jesse Wolf Hardin by Derrick Jensen (July 8, 2000), *in* HOW SHALL I LIVE MY LIFE?: ON LIBERATING THE EARTH FROM CIVILIZATION 274, 276 (2008) (Hardin clarifies that, "[t]o become native again is not to emulate Native American or any other past or existing cultures, but instead to recall and relearn our own connection to and responsibilities to the regions where we presently reside." Meaning, "[w]e're native to the degree that we enter into reciprocal relationship with the living land we're each an integral part of."); Maxine Burkett, *Indigenous Environmental Knowledge and Climate Change Adaptation, in* CLIMATE CHANGE AND INDIGENOUS PEOPLES: THE SEARCH FOR LEGAL REMEDIES 96-120 (Randall S. Abate and Elizabeth Ann Kronk Warner, eds., 2013).

169. For a discussion of the importance of unstructured nature for children, *see infra* Section I .

170. King & Stefanovic, *supra* note 12, at 340 (quoting Robert Michael Pyle).

171. Sandra B. Zellmer & John M. Anderies, *Wilderness Preserves: Still Relevant and Resilient After All These Years*, *in* SOCIAL-ECOLOGICAL RESILIENCE AND LAW 15 (Ahjond S. Garmestani & Craig R. Allen eds., 2013) (quoting Wallace Stegner). *See generally*, RODERICK FRAZIER NASH, WILDERNESS AND THE AMERICAN MIND (1982).

172. Zellmer & Anderies, *supra* note 171, at 15.

173. Leopold, *supra* note 86, at 133 (citing Thoreau's essay, *Walking*). Leopold suggested that Thoreau's words reflect a need to understand humans place in the natural world--"We all strive for safety, prosperity, comfort, long life, and dullness. The deer strives with his supple legs, the cowman with trap and poison, the statesman with pen, the most of us with machines, votes, and dollars, but it all comes to the same thing: peace in our time. A measure of success in this is all well enough, and perhaps it is requisite to objective thinking, but too much safety seems to yield only danger in the long run." *Id.* Perhaps our adaptive system is ready for a regime change.

prises the land community of which Leopold spoke. An urban land ethic reminds city dwellers that nature is not something "out there" but rather something accessible "right here" if you look closely.[174]

b. Connecting to Community

In addition to causing a disconnection with the land, urbanism can lead to a sense of placelessness through loss of connection to communities of people. The more populous the city, the more strangers; the more strangers, the fewer shared values.[175] Thus, the "explosive rate" of urbanization is "accompanied by a deterioration of the social fabric that held people together."[176] Despite the cultural shifts of globalism and individualism in modern society, "more and more people yearn for community and rituals that bind them together."[177] Another common American societal phenomenon, the breakdown of family, has an inverse relationship with the desire to connect with others to create a sense of community. An urban land ethic heals both of these harms because it is a shared value that also promotes connecting with surrounding natural environment.

A connection with community is encouraged through an urban land ethic. First, the ethic is rooted in understanding our place in the social-ecological system that is the city. This system includes human relationships with each other as well as the land. Second, the urban land ethic is a shared ethic held both individually and collectively. The notion of sharing promotes connecting with others who share the same values or ethics. Neighborhoods are therefore a good starting point because each one "contains a somewhat greater denominator of values [, needs, and interests] than does the city as a whole."[178] Like families, neighborhoods "have a history and an identity that often binds community members together."[179] Beyond the household, they serve as the primary context "for family life and as a focus of many informal relationships and activi-

174. *See* LYANDA LYNN HAUPT, THE URBAN BESTIARY: ENCOUNTERING THE EVERYDAY WILD (2013).

175. *See* SUZUKI & KNUDTSON, *supra* note 168, at 174; *see also* ROBERT D. PUTNAM, BOWLING ALONE: THE COLLAPSE AND REVIVAL OF AMERICAN COMMUNITY 48–64 (2000) (narrating the decline in civic engagement, community, and social networks).

176. SUZUKI & KNUDTSON, *supra* note 168, at 174 (arguing that the values have shifted from citizenship to consumerism and social goals have been replaced by economic goals).

177. *Id.* at 173 (discussing Anthony Stevens' findings).

178. Thomas J. Mikulecky, *Neighborhoods: Small, More Responsive Local Government*, 72 PUB. MGMT. 9, 9 (1990); *see also* Sheryll D. Cashin, *Localism, Self-Interest, and the Tyranny of the Favored Quarter: Addressing Barriers to New Regionalism*, 88 GEO. L.J. 1985, 2001 (2000) (arguing that civic engagement enables community members who might not otherwise interact to cultivate mutual ties to their neighborhood and, in turn, to understand each other better).

179. Matthew J. Parlow, *Civic Republicanism, Public Choice Theory, and Neighborhood Councils: A New Model for Civic Engagement*, 79 U. COLO. L. REV. 137, 143 (2008).

ties."[180] Jane Jacobs observed that "in real life, only from the ordinary adults of the city sidewalks do children learn–-if they learn it at all-–the first fundamental of successful city life: people must take a modicum of public responsibility for each other even if they have no ties to each other."[181]

Neighborhoods and other community groups serve as a place for voices to be heard; they can be a source of empowerment and advocacy. Neighborhoods provide a forum for connecting on a personal level and encourage localization rather than localism. Localism is typically used to describe the "transfer of political power towards local government"; localization is a broader concept that connotes an adjustment of economic focus from global to local.[182] Changes at the local level are a way to get started. Local changes may serve as a catalyst for changes on higher scales, which in turn may support local resilience. For example, a policy change at the national level could create a climate that is supportive of local and regional initiatives.

Through collaboration at the local level, people engage in community-building processes. The most local is home, and it is where social transformation often begins. For example, the "slow food," organic food, and local food movements have coalesced to support a variety of linkages between people, land, and cities, including community gardens, urban farming co-ops, community supported agriculture, and farmers' markets. [183] To highlight one of these efforts, community gardens serve multiple purposes that build resilience, including community building through social interaction, connection with land, education, food security, and environmental restoration.[184] Local community-building serves to build resilience from the ground-up.

c. Connecting to Government

Connecting with community at the neighborhood level also may help to overcome another type of urban detachment, which stems from

180. Robert J. Chaskin & Sunil Garg, *The Issue of Governance in Neighborhood-Based Initiatives*, 32 URB. AFF. REV. 631, 633 (1997).

181. JACOBS, *supra* note 131, at 93.

182. ROB HOPKINS, THE TRANSITION COMPANION: MAKING YOUR COMMUNITY MORE RESILIENT IN UNCERTAIN TIMES 51 (2011). *See also* JEFF RUBIN, WHY YOUR WORLD IS ABOUT TO GET A WHOLE LOT SMALLER: OIL AND THE END OF GLOBALIZATION 24 (2009) (arguing that Americans must "decouple our economy from oil" and "reengineer our lives to adapt to a world of growing energy scarcity" that will result in living more locally).

183. Books on these related food movements are abundant and growing in number. *See, e.g.,* VICKI ROBIN, BLESSING THE HANDS THAT FEED US: WHAT EATING CLOSER TO HOME CAN TEACH US ABOUT FOOD, COMMUNITY, AND OUR PLACE ON EARTH (2014).

184. *See* Marianne E. Krasny & Keith G. Tidball, *Community Gardens as Contexts for Science, Stewardship, and Civic Action Learning*, 2 CITIES AND THE ENV'T no. 1 (2009).

alienation from government.[185] An urban land ethic seeks to restore city dwellers to their role as citizens by connecting them with government and promoting active citizenship. Both Leopold and Jacobs stressed the importance of active citizenship, but each had something different in mind. Leopold focused on humans as citizens in the biotic community for which he used the metaphor of "land". By contrast, Jacobs's notion of citizenship was the responsibility that comes with being a city dweller.

In this context, citizenship means active participation in public affairs at a level in the city where an individual citizen's contribution "can be appreciated and count for something."[186] Significantly, it is an understanding of citizenship that acknowledges the interdependence of the city as a social-ecological system: "the good of everyone is tied together in an interconnected web that is ruptured only at the peril of everyone in the community – that's where citizenship resides."[187]

Moreover, a connection to government means that government organizations and institutions have a responsibility to seek input from its citizens and to be responsive. A resilient city should have a government that has a duty to be responsive to all its residents' needs.[188] An authentic urban land ethic sees equity as part of resilience.[189]

With these principles of an urban land ethic in mind, the next consideration is how to cultivate such an ethic.

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185. Parlow, *supra* note 179, at 141. *See also* MATTHEW A. CRENSON & BENJAMIN GINSBERG, DOWNSIZING DEMOCRACY 3 (2002) (describing the current era of "personal democracy" in which collective mobility of citizens is discouraged and unlikely); PAUL E. PETERSON, CITY LIMITS 119 (1981) (examining neighborhood and individual attempts to influence local government decision making and noting feeling of anomie experience by local residents); MICHAEL J. SANDEL, DEMOCRACY'S DISCONTENT: AMERICA IN SEARCH OF A PUBLIC PHILOSOPHY 3–7 (1996) (observing that citizen anxiety about the ability to be heard in government decisions increases as societal institutions become more dominating and impersonal); Gerald E. Frug, *The City as a Legal Concept*, 93 HARV. L. REV. 1059, 1068–69 (1980) (citizens have increasingly fewer opportunities to influence their local government decision making due to growth in the government bureaucracy, lack of citizen participation, and government decision making without community consultation); Archon Fung & Erik Olin Wright, *Deepening Democracy: Innovations in Empowered Participatory Governance*, 29 POL. & SOC'Y 5, 37 (2001) (describing citizens' experience with local government as apathetic, frustrating and alienating); Stephen R. Miller, *Legal Neighborhoods*, 37 HARV. ENVTL. L. REV. 105, 108–09 (2013).

186. John McCaughry, *Bringing Power Back Home: Recreating Democracy on a Human Scale, in* PEOPLE, LAND, AND COMMUNITY: COLLECTED E.F. SCHUMACHER SOCIETY LECTURES 133 (Hildegarde Hannum, ed., 1977).

187. *Id.*

188. *See infra* Section III for a list of characteristics of resilient cities.

189. Equity as a feature of a resilient city is a topic that deserves more attention. The concept is related to the notions of equity raised by environmental justice communities, but at the same time it is broader. For instance, it would seemingly encompass access to open space, fresh food from community gardens and farmers' markets, and "green" housing. Further, it arguably includes urban "renewal" projects that seek to tear down or "gentrify" older or minority neighborhoods.

B. Cultivation

Precisely how to bring about or advance the elements of the ethic is a question that will take time. Grass-roots suggestions for cultivating an urban land ethic include living mindfully, being informed, teaching others, and engaging actively as a citizen,[190] These grass-root approaches are critical, informal mechanisms that are reflected in the principles articulated above. While there are many approaches, education and law provide more formal avenues for cultivating an urban land ethic.

Education can cultivate an urban land ethic by establishing connections between urbanites and their natural surroundings, their community, and their government. Education has served as vehicle for cultural change,[191] and a link between education and pro-environment behavior has been recognized.[192] Thus, although "it is not a panacea, it is an essential ingredient in building a new ethic."[193] Scholars and educators such as David Orr, one of today's leading environmental educators, have been studying approaches to civic ecological education and place-based education.[194] A growing consensus recognizes the importance of teaching basic ecological literacy.[195] Exactly what comprises ecological literacy and how to teach it is beyond the scope of this discussion; how-

190. Louise E. Stoehr, *German and American Paths to Sustainability*, *in* TOWARD A MORE LIVABLE WORLD: SOCIAL DIMENSIONS OF SUSTAINABILITY 71, 79 (Jerry Williams & William Forbes eds., 2012). For an excellent article with specific ideas for building community connections in cities, see Palma Joy Strand, *Cultivating "Civity": Enhancing City Resilience with Bridging Relationships and Increased Trust*, 50 Idaho L. Rev. _ (2014). For recommendations on resilience building in communities, see PHILIP MONAGHAN, HOW LOCAL RESILIENCE CREATES SUSTAINABLE SOCIETIES: HARD TO MAKE, HARD TO BREAK (2012); ROB HOPKINS, THE TRANSITION COMPANION: MAKING YOUR COMMUNITY MORE RESILIENT IN UNCERTAIN TIMES (2011).

191. Jerry K. Frye, *Sustainability and American Education*, *in* TOWARD A MORE LIVABLE WORLD: SOCIAL DIMENSIONS OF SUSTAINABILITY 51, 55 (Jerry Williams & William Forbes eds., 2012).

192. *Id.* at 52. Books about green living abound, and some are focused specifically on urban living. *See, e.g.,* SCOTT KELLOGG & STACY PETTIGREW, TOOLBOX FOR SUSTAINABLE CITY LIVING: A DO-IT-OURSELVES GUIDE (2008). For a counter-perspective, *see* DERRICK JENSEN, *Forget Shorter Showers: Why Personal Change Does Not Equal Political Change, in* THE DERRICK JENSEN READER: WRITINGS ON ENVIRONMENTAL REVOLUTION 421–24 (Lierre Keith ed., 2012); *see also* DERRICK JENSEN & ARIC MCBAY, WHAT WE LEAVE BEHIND 61–70 (2009) (arguing that humans must work to facilitate the root of sustainability, which requires waste to become another being's food in the ecosystem).

193. BEATLEY & MANNING,, *supra* note 7, at 196.

194. *See, e.g.*, Keith G. Tidall & Marianne E. Krasny, *Urban Environmental Education From a Social-Ecological Perspective: Conceptual Framework for Civic Ecology Education*, 3 CITIES & THE ENVT. 1 (2010); DAVID SOBEL, PLACE-BASED EDUCATION: CONNECTING CLASSROOMS & COMMUNITIES (2009) (emphasizing connecting students to their communities and ecologies through experiential learning); ECOLOGICAL LITERACY: EDUCATING OUR CHILDREN FOR A SUSTAINABLE WORLD (Michael K. Stone & Zenobia Barlow eds., 2005).

195. BEATLEY & MANNING, *supra* note 7, at 196. Exactly what comprises ecological literacy and how to teach it is beyond the scope of this article. Considerable recent literature addresses this topic. *See* Tidall & Krasny, *supra* note 194; SOBEL, *supra* note 194.

ever, some key features of ecological education include experiential learning, the outdoors as the classroom, service-based learning, and place-based education that focuses on local and regional issues. Urban residents should be "students of their places."[196] Outsiders need not impose education. Long-term residents have a wealth of local cultural and environmental knowledge to tap into, if they were only asked.

It is important to have multiple approaches across multiple scales. Potential venues for education promoting an understanding of social-ecological systems range from elementary schools to higher education to citizen advocacy efforts. One creative example in the city of Columbia, Missouri, is a partnership between the Columbia Public Schools and the Missouri Department of Natural Resources to build an elementary "nature school" in a state park adjacent to the city.[197] Higher education also offers an array of opportunities. For instance, the development of multi- and inter-disciplinary concentrations and research, such as urban ecology, explain how we are a part of complex social-ecological systems.[198]The symbiotic relationship between colleges and universities with cities in which they are located also provides opportunities for collaboration to promote sustainability.[199] Finally, the physical venue itself can be a teacher by incorporating ecological design into buildings.[200] The greening of buildings and, more broadly, institutional policies would help to cultivate an urban land ethic.

These educational efforts would contribute to the cultivation of an urban land ethic in three ways. First, place-based education would help urban residents develop stronger ties to their community. Second, it would enhance residents' appreciation for the natural world and their place in it. Third, these connections would give rise to a heightened commitment to serving as active, contributing citizens. Action can contribute to social learning, and social learning can lead to political action. Political action invokes the role of law and legal institutions.

Law has an essential role to play in integrating into government decision-making an understanding of the dynamics of social-ecological

196. BEATLEY & MANNING,, *supra* note 7, at 198.

197. Catherine Martin, *Columbia School Board to discuss 'nature school,'* Columbia Daily Tribune (March 9, 2014), http://www.columbiatribune.com/news/education/columbia-school-board-to-discuss-nature-school-plans/article_ .

198. Environmental education is being infused into urban studies, social science, history (such as biohistory), and economics (including valuation of ecosystems). The emerging field of urban ecology is particularly significant for urban resiliency. Distinguished scientist Steward Pickett has been a leader in research about urban ecosystems. Steward T.A. Pickett, et. al, *Beyond Urban Legends: An Emerging Framework of Urban Ecology, as Illustrated by the Baltimore Ecosystem Study*, 58 BIOSCIENCE 2, 139 (2008); Steward T.A. Pickett, et.al, *Urban Ecological Systems: Linking Terrestrial, Ecological, Physical, and Socioeconomic Components of Metropolitan Areas*, ANNU. REV. ECOLO. SYST. 32:127-57 (2001). He also advocates for an extension of Leopold's land ethic mixed with social justice ethics.

199. Keith H. Hirokawa & Jonathan D. Rosenblum, *Town and Gown: Collaborating in the Shared Space*, in TOWN AND GOWN: LEGAL STRATEGIES FOR EFFECTIVE COLLABORATION (Cynthia A. Baker and Patricia E. Salkin eds.) (forthcoming).

200. BEATLEY & MANNING, *supra* note 7, at 196.

systems. Many of our environmental law and policies, however, are maladaptive because they are based on an outdated conception of the "balance of nature." Law is also at odds with science to the extent that science is a process and the law seeks certainty. The science of ecology, however, affords us tools in making our societal values into public policy. Interdisciplinary scholars, especially Craig Allen, Melinda Harm Benson, and Ahjond Garmestani, have been examining ways in which law can foster social-ecological resilience.[201]

Although the scholarship on social-ecological systems and law has not specifically discussed urban settings, several of the recommendations identified are generally applicable. First, the law must become more adaptive.[202] The primary vehicles for increasing the adaptive capacity of law are the use of adaptive management and adaptive governance.[203] Flexibility rather than rigidity is important to building adaptive capacity that results in more resilience. Second, institutional interplay, the interaction between institutions on multiple scales, is critical.[204] In other words, communication between scales of governance from local to federal is key.[205] In the urban setting, less formal institutions may become part of this communication with more formal city government. Third, the law must become more reflexive, allowing for an iterative process across scales with multiple feedback loops.[206]

While scholars have been working on shifting to more adaptive, resilience-based law and governance, much of the work has focused on the national level and federal policies. The next challenge lies in how to infuse these principles at the local level, particularly in urban settings. Some of this work has already begun at the local level with regard to specific natural resources and climate change. Jane Jacobs recognized cities are adaptive in many non-legal ways, such as building use and jobs. She articulated what we intuitively know: to stay successful-–or resilient-cities need to change.

Encouraging more adaptive, reflexive governance may actually prove easier to accomplish than larger-scale reform at the state and national level. For example, zoning changes, transportation, housing, and disaster planning are issues before many local governments. Returning to the community garden example, community gardens can be private or

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201. *See* Arnold & Gunderson, *supra* note 39; Ahjond S. Garmestani et al., *Can Law Foster Social-Ecological Resilience?*, 18 ECOLOGY & SOC'Y no. 2 (2013); Ahjond S. Garmestani and Melinda Harm Benson, *A Framework for Resilience-based Governance of Social-Systems*, 18(1): 9 ECOLOGY AND SOCIETY (2013).

202. Arnold, *Adaptive Law*, supra note 39.

203. Ahjond S. Garmestani et al., *Can Law Foster Social-Ecological Resilience?*, 18 ECOLOGY & SOC'Y no. 2, at 37. See also Arnold, *Adaptive Law*, *supra* note 39.

204. *Id.*

205. *Id.*

206. Ahjond S. Garmestani & Melinda Harm Benson, *A Framework for Resilience-based Governance of Social-Systems*, 18 ECOLOGY & SOCIETY 1, 9 (2013).

public, but either way the law has a role to play. Even if private property is used, land use controls govern urban agriculture and any related buildings. Law has a role in creating incentives to create community gardens through the donation or leasing of land and provision of services, such as water.

Another example of the role of law in building urban resilience is the creation and sustaining of urban forests. Urban forests provide valuable ecosystem services as well as a place for city residents to connect with the natural world.[207] Urban forestry also provides an opportunity for community building and creating a local identity that contributes to a sense of place.[208] The recursive process of urban forestry planning demonstrates how an urban land ethic can be cultivated through policy. The more trees that are planted or sustained through urban forestry planning, the more that people value trees, which leads to more citizen support for continuing urban forestry planning. Urban forestry planning can also cultivate a better understanding of the ecological, social, and economic services urban forests provide. Finally, urban forest planning influences community identity and sense of place.[209] In supporting community gardens and urban forests through policies and decision-making, legal institutions and the law itself instill a sense of caring and commitment to place.

As decision-makers make policy decisions—about environmental problems, natural resource management, land use, community growth, transportation, housing, disaster planning–-, they must identify the underlying ethical choices involved in making those decisions. We should question the moral assumptions of these decisions and view choices about the future as ethical choices.

An urban land ethic should be infused on all levels—or in resilience theory parlance, across all scales in the city from individual to city wide. In other words, the ethic must be cultivated from the ground up as well as top down. This integrative approach builds resilience because it encourages information sharing and collective planning.[210] Increasing cross-scale interactions in social-ecological systems will likely demand new legal and institutional interactions and arrangements of different forms and scales.[211] Accordingly, elected officials, political leaders, civil servants, community pillars, researchers, media, businesses, educators, urban planners, and architects all have a role to play in cultivating and demonstrating an urban land ethic. Cross-, inter- and multi-disciplinary

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207. *See* Keith H. Hirokawa, *Sustainability and the Urban Forest: An Ecosystem Services Perspective*, 51 NAT. RESOURCES J. 233 (2011).

208. *Id.*

209. *Id.* at 254.

210. Sharing information across scales is encouraged to manage for resilience. *See* Garmestani & Benson, *supra* note 206, at 9.

211. Jonas Ebbesson & Carl Folke, *Matching Scales of Law with Social-Ecological Contexts to Promote Resilience*, *in* SOCIAL-ECOLOGICAL RESILIENCE AND LAW 265, 265–67 (Ahjond S. Garmestani & Craig R. Allen eds., 2014).

work between and among professionals and citizens cultivates the urban land ethic and builds social-ecological resilience. The more individuals and communities that hold and act from an urban land ethic, the more hopeful the prospects for a resilient city.

VI. CONCLUSION

With more than half of the world's population living in urban areas, there is a growing need for cities to become more resilient and increase adaptive capacity to handle change and mitigate disasters. This article posits a normative argument about how resilient cities should be—and arguably must be—defined to include an understanding of the city as a social-ecological system in which humans and their built and natural environments constitute a unique system. Scientific understanding can play into the ethics of decision making. Accordingly, this article advocates grounding urban resilience in an urban land ethic. An urban land ethic would support resilience building within cities on all scales. An authentic urban land ethic is one that sees nature first and foremost as a part of the city, but then goes further by making sure that nature maintains an intentional and recognized space on a physical, intellectual, and emotional level. An urban land ethic is not simply another tool in the resilience building toolbox. It is foundational.

In a data-driven world of hard facts and figures, it may seem soft to argue for an ethic that promotes hope and caring. Resilience science, however, tells us why we must care. Change must come from a paradigmatic shift in our understanding of ecological knowledge. As part of a social-ecological system, we can experience ourselves changing, evolving with our natural and built environment. If we shift to resilience thinking as our underlying conceptual framework, this becomes the basis of our interaction with each other and the non-human, physical world. We need to act on this knowledge to change maladaptive law and policies. To develop a resilient society, we must care.

This article does not call for a revolution, but for an evolution in our way of thinking. It seeks to inspire and enable urban dwellers, planners, designers, educators, and policymakers to begin to shift our understanding of our relationship with the world in which we live. This shift has ethical underpinnings that need to be acknowledged and cultivated as an urban land ethic. While there are a number of pragmatic details to be worked out, this article leaves as an open invitation to future work questions of implementation. In the meantime, we must adjust our vision to resilience thinking: "One must make shift with things as they are."[212] We must begin thinking like a city.

212. LEOPOLD, *supra* note 86, at ix.