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SAVING OUR WILDERNESS (AND OURSELVES) STARTS AT HOME: LOCAL CONSERVATION WITH AN EMPHASIS ON WATERSHED PROTECTION

BRANDON MAYES¹

“In wildness is the preservation of the World.”²

INTRODUCTION

Increasingly there is debate over how, and even whether, to preserve America’s “wild” spaces.³ Some believe the federal government should do more to protect these relatively pristine areas, while others believe that states should be able to protect, or utilize, these lands as they see fit.⁴ This piece will advocate for the proposition that, to preserve the American “wilderness,” we will need to redefine “wilderness” and shift the focus of our efforts from the far off “freaks of nature”⁵ to the local wilderness found in every community. By preserving local wilderness and educating the community as to the value of this newly defined wilderness, we will improve local environments and the well-being of the public, while encouraging engagement in the preservation of the more traditional notions of wilderness.

Part one of this piece provides a background for some of the preservation and conservation movements throughout American history. This section

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2. Henry David Thoreau, “Walking,” *THE WORKS OF THOREAU* 672, ed. Henry S. Canby (Boston, Mass: Houghton Mifflin, 1937).

3. Jedediah Purdy, *American Natures: The Shape of Conflict in Environmental Law*, 36 *HARV. ENVTL. L. REV.* 169, 172 (2012) (“Americans disagree, and have long disagreed, about how to use and value the natural world. This disagreement is electoral and policy-oriented, of course, but it also goes to the level of personal and political identity: different conceptions of nature have been tied up with, and often are essential to, sources of dignity and meaning in both private and civic life.”); see also Julie Turkewitz, *Trump Slashes Size of Bears Ears and Grand Staircase Monuments*, *N.Y. TIMES* (Dec. 4, 2017), <https://www.nytimes.com/2017/12/04/us/trump-bears-ears.html>.

4. See generally Carolyn M. Landever, *Whose Home on the Range? Equal Footing, the New Federalism and State Jurisdiction on Public Lands*, 47 *FLA. L. REV.* 557 (1994); see also Marshall Swearingen et al., *Timeline: A brief history of the Sagebrush Rebellion*, *HIGH COUNTRY NEWS* (Jan. 17, 2018), <https://www.hcn.org/articles/a-history-of-the-sagebrush-rebellion>.

5. *The Washburn-Doane Expedition of 1870*, *NAT’L PARKS SERVICE*, https://www.nps.gov/parkhistory/online_books/yell/cramton/sec3.htm (last visited Aug. 5, 2019).

analyzes how each movement defined wilderness and the issues on which these movements placed particular importance.

Part two explores the International Union for the Conservation of Nature's Guidelines in order to provide a framework for addressing the issues surrounding local conservation and a basis for plans of action to those ends. This section will also provide a review of the Triangle Land Conservancy's past history of success and Strategic Action Plan for the future. This analysis highlights an example of a successful program and explains some of the strategies that the author considers to be of great importance for future, successful local conservation programs.

The third section argues for a focus on particular strategies for the initial establishment and maintenance of a successful local conservation program. This begins with a focus on watershed protection, as clean water is a resource that affects every community, every day, in profound ways. This section then provides some examples of early strategies for land acquisition and funding in order to preserve options. It also stresses the importance of local land use policy and the pitfalls of policies that are aimed at curbing horizontal land development. Then, the importance of including underprivileged and underrepresented populations in order to build broad conservation-minded constituencies is highlighted. In order to build this foundation, programs will have to reframe traditional notions of natural resources and highlight how these new resources benefit local populations. This section concludes by recognizing that not every attempt to create and maintain local conservation programs or constituencies always works, but that managers should embrace and learn from failure.

I. BRIEF BACKGROUND OF PRESERVATION/CONSERVATION MOVEMENTS.

A. *Providential Republicanism*

The traditional natural resource preservation movements are probably more accurately described as natural resource understandings.⁶ The oldest of these understandings is "providential republicanism." Under this view, humans are to use the natural world to support their livelihoods, and realization of this purpose can only come through human labor.⁷ Further, under this early scheme, small scale private land ownership was integral.⁸ Such ownership led to "fruitful use;" and thus, political freedom of the individual and

6. Purdy, *supra* note 2, at 172-73.

7. *Id.* at 173.

8. GORDON S. WOOD, *EMPIRE OF LIBERTY: A HISTORY OF THE EARLY REPUBLIC, 1789-1815* (2009).

economic productivity were intertwined.⁹ American notions of private property rights have their foundations in providential republicanism and the scheme still has its place in private property and land use debates.¹⁰

Providential republicanism developed in the context of westward expansion into what many in the nineteenth century viewed as an empty “wilderness” or “waste.”¹¹ Those with an eye to reclaim this western “waste” sought to fill the emptiness—both physical and legal—with “cultivation, private property, and republican government.”¹² Of course, these western lands were not merely lying in “waste.” Native tribes thrived on these lands for generations prior to white settlers moving west. Wrapped up in the ideal of providential republicanism was the notion that such native peoples were not extracting the full potential from the land as God had intended.¹³ The “transient” nature of these people (a mischaracterization at best), coupled with their disuse of the land meant that they could not claim to have significant rights to most of the land in the west.¹⁴ Thus, the land was ripe for the taking by white settlers; once they had acquired the land, they were called to extract what they could from it.¹⁵

Ironically, it was during this nineteenth-century dominance of providential republicanism in the west when Congress created Yellowstone and Yosemite National Parks.¹⁶ However, the parks were not created because they were natural wonders and goods to be protected on their own; Congress created the parks because the areas were seen as “worthless” and too difficult for western settlers to tame.¹⁷ These “wonder-lands” were better used and more valuable as tourist attractions than they would be if sold off to private citizens.¹⁸ Thus, even in the creation of the paradigmatic wilderness areas of the American landscape, providential republicanism focused on the anthropocentric value of these lands and the “resources” contained within. This philosophy of turning over federal lands to private citizens, or at least to states,

9. Purdy, *supra* note 2, at 173.

10. *Id.*

11. *Id.* at 178-79.

12. JAMES KENT, 3 COMMENTARIES ON AMERICAN LAW 312 (1828) (This “immense continent” was “evidently designed by Providence to be subdued and cultivated, and to become the residence of civilized nations.”).

13. Purdy, *supra* note 2, at 180.

14. KENT, *supra* note 11.

15. John Tyler, *Third Annual Message to Congress* (Dec. 5, 1843) (“our fellow-citizens who press forward into the wilderness and are the pioneers in the work of its reclamation”).

16. Purdy, *supra* note 2, at 186-88.

17. Cong. Globe, 38th Cong., 1st Sess. 2300 (1864) (statement of Sen. Conness) (Yosemite was “for all public purposes, worthless”); 14 Cong. Rec. 3487 (1883) (statement of Sen. Vest) (Yellowstone was “simply useless ... ‘mere leather and prunella.’”).

18. 14 Cong. Rec. 3487 (1883) (statement of Sen. Vest).

is still alive and well in the debates over preservation, conservation, and extraction of natural resources in the American west.¹⁹

B. Progressive Management

While providential republicans sought to extract value out of the land and its natural resources, the progressive management movement sought the “greatest good of the greatest number across time.”²⁰ In rejecting the tenets of providential republicanism, progressive management sought to use scientific expertise in order to protect and conserve natural resources while allowing for the “rational use” of those resources for social ends.²¹ Contrary to handing over federal interests in lands and resources, the progressive management movement idealized a strong regulatory influence at the state and federal level, elevating “experts and managers” to “indispensable guardians of the national interest.”²² This understanding of natural resources issues was a far cry from the private, capitalist, extractionist understanding of providential republicanism.

The turn of the twentieth century brought federal legislation that codified the progressive management philosophy.²³ The 1897 and 1916 Organic Acts of the U.S. Forest Service and the National Parks Service—respectively—established guiding principles and regulatory frameworks for American lands.²⁴ They created new categories of land that were permanently reserved by the federal government for “production or recreation.”²⁵ National forests were created to provide “a continuous supply of timber” and to limit the effects of erosion and drought.²⁶ Congress intended the parks to “conserve the scenery and the natural and historic objects and wild life [sic] therein . . .”²⁷ Although the focus of progressive management was the conservation of natural resources and wilderness, there was room for and thoughtful direction of, natural resource extraction.

19. See generally Carolyn M. Lavender, *Whose Home on the Range? Equal Footing, the New Federalism and State Jurisdiction on Public Lands*, 47 FLA. L. REV. 557 (1994); see also Marshall Swearingen et al., *Timeline: A brief history of the Sagebrush Rebellion*, HIGH COUNTRY NEWS (Jan. 17, 2018), <https://www.hcn.org/articles/a-history-of-the-sagebrush-rebellion>.

20. Purdy, *supra* note 2, at 189.

21. *Id.*

22. *Id.*

23. *Id.*

24. 16 U.S.C. § 1 (2006); 16 U.S.C. § 475 (2006).

25. See PAUL W. GATES, HISTORY OF PUBLIC LAND LAW DEVELOPMENT 565-69 (1968) (describing western land allocation, prior to Yellowstone Park’s creation, as going to states, settlers, and industry in one-off statutes).

26. 16 U.S.C. § 475 (2006).

27. 16 U.S.C. § 1 (2006).

Gifford Pinchot was perhaps the most visible of the movement's advocates.²⁸ Along with "a network of foresters, engineers, and sportsmen," he argued that without a robust regulatory scheme, the nation's forests, mines, and arable lands would be exhausted and its rivers clogged with sediment from erosion.²⁹ Advocates within the movement tied these objectively negative environmental effects to public health issues as well.³⁰ Reformers like Frederick Law Olmstead and John Muir argued that urban Americans could seek refuge and "repair" in the vast natural landscapes.³¹ Conservation under this movement also implicated moral reform. After the "waste" (redefined in this era as overuse of natural resources) of the providential republican era of the nineteenth century, those in the progressive management movement expressed a need to "look beyond selfish interests" and to work towards the prosperity of the entire community and intergenerational equity.³² Conservationists like Teddy Roosevelt saw parks and forests as places of social egalitarianism where citizens could develop a sense of community and singular purpose.³³ However, others like Walter Weyl believed in a more extreme version of communal sharing. For Weyl, conservation should be tied to a "socialization of consumption" that aimed to improve citizens' lives by guiding their consumption; parks were to be valued not for their "capacity to support civic virtues," but to provide satisfaction and leisure to all individuals, not just the elite.³⁴

C. Romantic Epiphany

Concurrent with the rise of the progressive management movement was the romantic epiphany. Central to this epiphany was the idea that interaction with nature could reveal a person's true identity and "place in the world."³⁵ The "literary and personal register" of the epiphany was transformed by the Sierra Club.³⁶ The Club's leader, John Muir, wrote "travel narratives" that

28. Purdy, *supra* note 2, at 191.

29. See GIFFORD PINCHOT, *THE FIGHT FOR CONSERVATION* 43-50 (1910) (setting out the principles of conservation).

30. Frederick Law Olmstead, *The Yosemite Valley and Mariposa Big Tree Grove*, in *AMERICA'S NAT'L PARKS SYSTEM: THE CRITICAL DOCUMENTS* 12, 20-22 (Larry M. Dilsaver ed., 1994) (describing benefits to public mental health from access of beauty).

31. "Thousands of tired nerve-shaken, over-civilized people are beginning to find out that . . . parks and reservations are useful not only as fountains of timber and irrigating rivers, but as fountains of life. . . . [T]hey are trying . . . to mix and enrich their own little ongoings with those of Nature, and to get rid of rust and disease." JOHN MUIR, *OUR NATIONAL PARKS* 1 (1901).

32. Purdy, *supra* note 2, at 193.

33. See Theodore Roosevelt, *Fellow-Feeling as a Political Factor*, *THE STRENUOUS LIFE* 58, 66-68 (1900).

34. Purdy, *supra* note 2, at 196-97.

35. *Id.* at 199.

36. *Id.* at 200.

described the Sierra Nevada landscape using “soaring evocations” of natural beauty that were to be considered “morally instructive.”³⁷ This social education movement was to inform public lands management. In fact, the National Parks Service used Muir’s writings as publicity for the parks.³⁸ For Muir, and other romantics, these works were for both “aesthetic and practical instruction” for social tourism.³⁹

Romantics and Club members sought out this conservation education pursuing the “epiphany” together.⁴⁰ Groups of hundreds traveled to summertime camps and would then set out on smaller expeditions to nearby mountains.⁴¹ Club members created a bulletin to further this “mutual education.”⁴² The Sierra Club Bulletin has been published continuously since 1895 and details the Club members’ experiences through the Sierra Nevada.⁴³ Although the Sierra Club and its members pushed a conservation agenda based on moral imperatives learned through experiencing the natural world, their agenda was not as civically minded as the progressive management agenda.⁴⁴ Club members were more focused on individual experience—with some communion—and an escape to “perfect respite from an imperfect world.”⁴⁵

Although the Club focused its conservation efforts on the locales of “epiphany,” it also advocated for the creation of a national conservation system.⁴⁶ The Club advocated for national forests and parks.⁴⁷ Eventually, the Club would also advocate for a unified parks management system under one

37. See *id.*; see also MUIR, *supra* note 31 (arguing “wildness is a necessity”); *Id.* at 93-95 (“[t]o an observer . . . in the midst of such scenery, getting glimpses of the thoughts of God, the day seems endless, the sun stands still. . . . One day is as a thousand years, a thousand years as one day, and while yet in the flesh, you enjoy immortality.”).

38. See generally MUIR, *supra* note 31 (describing journeys across various National Park landscapes, mirroring the detail one might even find in a trail guidebook).

39. Purdy, *supra* note 2, at 202.

40. See Marion Randall, *Some Aspects of a Sierra Club Outing*, 5 SIERRA CLUB BULL., 221, 221-28 (1905) (describing the logistics of a Sierra Club expedition).

41. *Id.*

42. *Id.*

43. Purdy, *supra* note 2, at 202.

44. *Id.* at 203.

45. *Id.*

46. *Id.* at 205 (describing the Sierra Club as focused on preserving the High Sierra and other open lands); see also Sierra Club statement submitted to Presidential Conference on the Conservation of Natural Resources, reprinted in 6 SIERRA CLUB BULL. 318 (1906) (“Our . . . wealth of natural beauty . . . is an untaxed heritage . . . whose influence upon the life of the nation, physically, morally, mentally, is inestimable, and whose preservation is the greatest service that one generation can render to another.”).

47. See, e.g., F.E. Olmsted, *Fire and the Forest -- The Theory of “Light Burning”*, SIERRA CLUB BULL (Sierra Club, S.F.), Jan. 1911, at 43, 43-47 (discussing methods of fire control on public lands); J. Horace McFarland, *Are National Parks Worth While?*, SIERRA CLUB BULL (Sierra Club, S.F.), Jan. 1911, at 236, 236-39 (praising the parks as a cure for “times when the tired spirit seeks a wider space for change and rest,” but expressing disappointment at the lack of federal policy).

federal agency.⁴⁸ This language of morality based in a “deeper need” for recreation and “esthetic” enjoyment eventually made its way into the public discourse.⁴⁹ These parks and areas were not merely meant for civic recreation. As Robert Sterling put it:

The national parks are far more than recreational areas. They are the supreme examples. They are the gallery of masterpieces. Here the visitor enters a holier spirit. Here is inspiration . . . The spirit of the great places brooks nothing short of silent reverence . . . It is the hour of the spirit. One returns to daily living with a springier step, a keener vision, and a broader horizon for having worshipped at the shrine of the Infinite.⁵⁰

It is this robust, descriptive form that dominated the “environmental language and imagination” for nearly fifty years after its advent.⁵¹

D. Ecological Interdependence

In the 1960’s, the environmental and conservation discourse changed direction. A new understanding of the natural world began to gain prominence; and this understanding was based on a deeper appreciation of natural systems—including humans—and the interconnectedness of all living things within these systems.⁵² Because ecological interdependence addresses the exceedingly complex and interconnected relationships within various ecologies, it is the most difficult perspective to summarily characterize.⁵³

Because this paradigm is the most modern and complex conservation perspective, it does include—perhaps due to this complexity—characteristics of other conservation understandings described earlier.⁵⁴ For some, a deeper understanding of ecological interconnectedness reinforces and adds to the romantic perspective.⁵⁵ Such a deeper understanding bolsters the mutual, instructive education and guides the high-minded, morality-based conservation agenda proffered by romantics. Conversely, where progressive managers sought conservation through expert and technical analysis, allowing for

48. See *National Parks*, SIERRA CLUB BULL (Sierra Club, S.F.), Jan. 1911, at 217-36 (collecting updates on parks management, funding, and potential for legislation establishing a federal management system).

49. Purdy, *supra* note 2, at 206.

50. ROBERT STERLING YARD, *THE BOOK OF THE NATIONAL PARKS* 20-21 (1919).

51. Purdy, *supra* note 2, at 206.

52. *Id.* at 207.

53. See *id.* at 207 (describing Ecological Interdependence as “an image of nature in which all natural systems, including the bodies of human beings and other living things, are intensely interconnected and even inter-permeable.”).

54. *Id.* at 208.

55. *Id.* at 210 (“ecology [which yesterday] was a science . . . had better become something like a religion,” and called for a “cultural transformation” marked by “personal commitment to a new philosophy and poetry of ecology.”) (citing Connie Flateboe, *Environmental Teach-In*, 55 SIERRA CLUB BULL. (Sierra Club, S.F.) Mar. 1970, 14, at 15).

conservation as well as the pursuit of “wealth and liberty,”⁵⁶ this new environmentalism questioned whether such an approach was sustainable.⁵⁷ In addition, although some romantics used the new ecological understanding to bolster their ideals, the paradigm also questioned the appropriateness of the “en masse” educational excursions into the wilderness.⁵⁸ In fact, this new perspective did not, and does not, prescribe any affirmative action; it instead describes conditions and relationships that can inform, through cause and effect, future decisions and how they will affect systems moving forward.⁵⁹

Ecological interdependence has retained its influential position in the conservation discourse. It informs the very argument asserted by this work. Certainly, aspects of the older perspectives play roles in any local conservation movement. Consumptive use is a reality and always will be; thus, any “unused” area will affirmatively restrict access to resources. Technical expertise will be necessary to plan and manage systems in a progressive manner. If we were to avoid actions because of any follow-on effects realized in an interdependence analysis, we would likely never take action. Furthermore, it is through local conservation and outreach that such programs seek to achieve the mutual instruction of the public, leading to a moral education on the importance of protected spaces. Through this revival of conservation morality, such movements can inspire action in local environments, and ultimately, to the “gallery of masterpieces”⁶⁰ that are the pristine American wildernesses.

II. CONSERVATION PRACTICES AND PROGRAMS ALREADY IN PLACE

Formulating plans for local conservation programs depends, in large part, on the type and size of area the programs will cover. There is no one-size-fits-all solution. This section discusses two distinct types of localities—large urban cities and suburban areas—and some of the programs already in place, or theorized, in each of these areas. Although the specific models for local conservation vary across these functional realms, the philosophical and foundational bases remain the same. Local conservation, no matter where, can lead to greater conservation awareness and engagement on a national level. As the International Union for the Conservation of Nature (“IUCN”) puts it:

[protected areas] offer experiences in nature to the large numbers of people who live near them; and they build . . . constituencies for nature conservation . . . the wildest and remotest places on Earth, the most imperiled species

56. *Id.* at 214.

57. *Id.*

58. *Id.*

59. *Id.*

60. STERLING, *supra* note 50.

on Earth will be protected only if . . . people care about nature where they live.⁶¹

This statement describes precisely the argument that this article seeks to prove and lays the foundation of the suggestions made by this article.

A. Urban Conservation and the IUCN

Urban areas seemingly present the largest challenges to local conservation. By their very nature these areas are densely populated, largely over-developed, and there is generally little “natural” space to conserve. However, there are international organizations that advise the world’s largest metropolitan areas on how to promote and implement conservation plans and educate their populations on such programs. The IUCN has promulgated an explanation of urban protected areas, and more importantly, a set of guidelines and best practices for establishing, promoting, and sustaining protected natural areas in large urban settings.⁶² This section provides a synopsis of these guidelines and best practices. As the IUCN states, although the particulars of different programs in different types of local settings may vary, the principles on which these guidelines are founded will transfer across the spectrum of localities.⁶³

To begin, the IUCN provides key definitions and framing of concepts used in its discussion of urban protected areas. The IUCN defines “nature,” in the context of protected areas, as “biodiversity, at [the] genetic, species, and ecosystem level, and often also . . . geodiversity, landform, and broader natural values.”⁶⁴ Something that is “natural” is “anything that has not been made or significantly changed by humans.”⁶⁵ The IUCN classifies areas on a 0-10 scale of naturalness.⁶⁶ A wilderness is an area that has not been cultivated or

61. TED TRZYNA ET AL., *Urban Protected Areas: Profiles and Best Practice Guidelines*, BEST PRACTICE PROTECTED AREAS GUIDELINES SERIES No. 22, at v (IUCN, 2014), <https://portals.iucn.org/library/sites/library/files/documents/PAG-022.pdf> (speaking of protected areas in and adjacent to large urban areas in Seoul, South Korea; Rio De Janeiro, Brazil; Nairobi, Kenya; London, England; and Los Angeles, California).

62. *See generally id.*

63. *Id.* at vi.

64. *Id.* at 3.

65. *Id.*

66. *Id.* at 4 ((0) Completely artificial system with no self-maintained macroscopic life; (1) Transformed system where human processes govern with clear dominance of artificial elements; (2) Semi-transformed system where human elements are predominate and biological systems do not; (3) Highly intervened system that includes areas with natural, cultivated, or breeding biological production, mixed in a mosaic with buildings and other infrastructure; (4) Cultural assisted system (there are important infrastructures and/or conditioning of the physical environment, with forced biological production and moderate addition of matter, usually with pollution added); (5) Cultural self-maintained system (processes are conditioned by extensive human activities, with native species altered and occasionally managed); (6) Semi-natural system (human infrastructure is scarce or concentrated; wild exotic species are possibly dominant, with native species considerably reduced); (7) Quasi-natural system (extensive human

inhabited by humans. The IUCN also proffers the Wilderness Act of 1964's definition of wilderness: "an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain."⁶⁷

An "urban protected area" is an area within, or at the edge of, any larger population center. The phrase "urban protected area" must be broken into its parts in order to more completely define and understand the term.⁶⁸ A "protected area" is a "clearly defined geographical space, recognized, dedicated, and managed through legal or other effective means to achieve the long-term conservation of nature with associated ecosystem services and cultural values."⁶⁹ A "large population center" is anything ranging from a town to a megacity.⁷⁰ The IUCN also provides examples of "protected area management categories," many of which would be familiar to the most (e.g. nature reserves, wilderness areas, national parks, national monuments, etc.).⁷¹

The IUCN Guidelines ("Guidelines") also provide context for urban protected areas. As one might imagine, these areas are managed by national, state, and local governments, as well as non-governmental organizations ("NGOs"), and even private businesses.⁷² Urban development has "both positive and negative effects on protected areas and natural resources generally . . . concentrations of human population in cities can relieve pressure on more remote rural and natural areas, and result in economies of scale in such areas as energy, housing, transportation and solid waste reuse and recycling."⁷³ However, the negative impacts are often the most evident in urban areas: the depletion of water and forests; fragmentation and elimination of habitat; noise and light pollution; introduction of invasive species; fires; and general consumption and waste.⁷⁴

activities, but with low physical impact); (8) Sub-natural system (there is possibly an extended presence of wild exotic species, but with low impact); (9) Natural system (few exotic species are present); (10) Natural virgin system (only natural elements and processes are present); *see also* Antonio Machado, *An Index of Naturalness*, 12 J. FOR NATURE CONSERV. 95 (2004), http://www.teva.org.il/_Uploads/dbsAttachedFiles/machado.pdf.

67. TRZYNA, *supra* note 60, at 3; *see also* 16 U.S.C.S. § 1131(c) (2019).

68. *Id.* at 4.

69. *Id.*

70. *Id.*; *see generally* XUEMEI BAI ET AL., 1 ECOSYSTEMS AND HUMAN WELL-BEING: CURRENT STATE AND TRENDS 797–821 (JERRY EADES & EXEQUIEL EZCURRA EDS., 2005) (describing urban areas by population and size and describing the "urbanization" trends) (available at <https://www.millenniumassessment.org/documents/document.766.aspx.pdf>). This article will further delineate the distinction between a town and large cities in its evaluation of "suburban" conservation in the following section.

71. TRZYNA, *supra* note 60, at 5.

72. *Id.* at 6.

73. *Id.*

74. *Id.* (citing Robert J. McDonald, et al., *The Implications of Current and Future Urbanization for Global Protected Areas and Biodiversity Conservation*, 141 BIOLOGICAL CONSERVATION 1695-1703 (2008)).

Next, the Guidelines explain how urban protected areas are distinct and why they are important.⁷⁵ Urban protected areas are distinct from other, more remote, protected areas because they are closer to large concentrations of people. This means that these areas see large numbers of visitors (some who may not have experienced more remote protected areas or wilder forms of nature).⁷⁶ These protected areas are also near more ethnically and economically diverse populations.⁷⁷ They are also often closer to media outlets and opinion leaders, as well as actors in the conservation arena: national, state, and local governments; legislatures; land-use planning agencies; and educational and cultural institutions.⁷⁸

Urban protected areas are important for many reasons. They promote human health and well-being by providing areas for recreation.⁷⁹ Furthermore, natural areas have important developmental effects on children.⁸⁰ These areas also provide urban populations a way to connect with their immediate surroundings, with their region, and, ultimately, with the Earth, and can help to define community identity. They also provide important ecosystem services, and can bolster a community's resilience to the negative effects of climate change.⁸¹ In addition to the ecosystem services, these protected areas serve as important economic drivers as they attract tourism and spending.⁸²

In the context of broader conservation efforts, the most important function of urban protected areas is their ability to build conservation constituencies. People will generally only venture into nature if they "know it."⁸³ These protected areas provide a chance for large numbers of people—from which later conservation constituencies are built—to know nature on some level. If these populations come to know and appreciate the natural world in their home city, they will be more willing to protect the far-off, pristine, and fragile wildernesses.⁸⁴

75. *Id.*

76. Bai et al., *supra* note 69, at 806-11.

77. *Id.*

78. TRZYNA, *supra* note 60, at 6.

79. *Id.* at 7.

80. *Id.* ("Children need direct experience of nature for healthy physical, intellectual and emotional development. Urban protected areas are especially well placed to help people in this way. They can also be useful as communal spaces for social interaction"); see also THOMAS ELMQVIST, ET AL., URBANIZATION, BIODIVERSITY AND ECOSYSTEM SERVICES: CHALLENGES AND OPPORTUNITIES: A GLOBAL ASSESSMENT 199 (2013) (available at <https://link.springer.com/content/pdf/10.1007%2F978-94-007-7088-1.pdf>).

81. *Id.* at 197-202.

82. TRZYNA, *supra* note 60, at 7.

83. *Id.*

84. *Id.*

B. IUCN Examples of Urban Conservation Programs

In order to suggest ways to establish and promote local conservation, it is useful to discuss and evaluate current and historic conservation programs in a variety of urban landscapes. In its Guidelines, the IUCN lays out global examples of conservation efforts for protected areas in urban landscapes of varying sizes that also have different geological and environmental features.⁸⁵ This section discusses a selection of these examples, namely: London, England; Hong Kong, China; and Los Angeles and San Francisco, California. The diverse landscapes, sizes, populations, and political bodies of these case studies provide important strategic considerations and lessons learned for future urban conservation efforts.

i. London, England: Smaller Scale, Community-based Protected Areas

The Wetland Centre in London, England, represents a smaller-scale, community-based model for urban conservation in a metropolis.⁸⁶ Seven kilometers from London's city center, the Wildfowl and Wetlands Trust ("WWT") has partnered with private developers and a water utility to recreate a forty-two-hectare (roughly 104-acre), historic wetland.⁸⁷ In order to establish this site, the WWT entered into an arrangement with private partners whereby the first 10 hectares of land were developed providing the funding for the creation of the wetland and related infrastructure. The land is owned by a water utility, while the WWT has leased the land for 125 years for nominal rent.⁸⁸ The utility receives "green credentials" for leasing the land for conservation purposes.⁸⁹ Additional funding for visitor facilities was raised from separate private sources. The Centre, set in an "urban pocket of countryside," receives 220,000 visitors and 22,000 educational visits (many from underprivileged areas) annually. There is also direct access via public transportation to the Centre.⁹⁰ Because it is a private venture, the Centre does charge admission prices with discounts for members who provide support, students, and

85. *Id.* at 11-48.

86. *Id.* at 40.

87. *Id.* at 41.

88. *Id.*

89. *Id.* ("Green credentials" are important to many in the United Kingdom. A company's credentials can bring in and help to retain customers who value environmentally friendly initiatives). *See e.g.*, Skip Hire UK, *Are Businesses Doing Enough to Improve Green Credentials?*, INDUSTRY VOICE, <https://www.businessgreen.com/bg/sponsored/2304365/are-businesses-doing-enough-to-improve-green-credentials>.

90. TRZYNA, *supra* note 60, at 41.

unemployed visitors.⁹¹ The WWT has since established eight other sites around England.⁹²

ii. Hong Kong: Diverse and Segmented Landscape with Public and Governmental Control

Hong Kong's urban protected areas provide a model for geographically and geologically complex developed terrains. The city covers an area of over 1,108 square kilometers.⁹³ Approximately forty percent of that land is protected as part of the parks system.⁹⁴ The landmass as a whole is a complex system of islands and land separated by rivers and mountains.⁹⁵ Over the past several decades, the population has exploded—doubling in the past sixty years. This rapid growth demanded quick action and Hong Kong's political backdrop provided the necessary means for that action. Originally, the colonial British government was able to establish the foundation for the large public parks system. The government quickly set aside vast amounts of land, containing the rapid growth to the urban center. This public control carried over when the Chinese government took control of the city.⁹⁶ Additionally, because the elected government now carries the duty of maintaining this system and setting its management policy, the electors have a powerful voice in the decision-making process. In 2011, the city government evaluated a proposal to extend a landfill into a section of one of the protected park areas. Citizens created such an uproar, threatening to oust any representative who voted in favor of the proposal, that the government quickly scuttled the idea.⁹⁷

Hong Kong's parks welcome thirteen million visitors per year.⁹⁸ The types of protected areas span the spectrum. Some areas are parks where the public congregates for recreation and enjoyment.⁹⁹ Others include more vulnerable areas with sensitive ecologies, where access to these areas is restricted in

91. WWT WETLAND CENTRES, *Prices*, <https://www.wwt.org.uk/wetland-centres/london/plan-your-visit/prices/> (last visited May 1, 2019).

92. WWT WETLAND CENTRES, <https://www.wwt.org.uk/wetland-centres/> (last visited May 1, 2019).

93. AGRICULTURE, FISHERIES AND CONSERVATION DEPARTMENT, THE GOVERNMENT OF HONG KONG SPECIAL ADMINISTRATIVE REGION, *HONG KONG : THE FACTS - Country Parks and Conservation*, https://www.afcd.gov.hk/english/country/cou_lea/the_facts.html (last visited November 12, 2019).

94. *Id.*

95. *Id.*

96. TRZYNA, *supra* note 60, at 21.

97. *Id.*; see also Lai Ying-kit, *Hong Kong Government Fails to Pass Controversial Landfill Extension Proposals*, SOUTH CHINA MORNING POST (Jul. 12, 2013, 7:30 PM), <https://www.scmp.com/news/hong-kong/article/1281220/hk-government-fails-pass-controversial-landfill-extension-proposals>.

98. TRZYNA, *supra* note 60, at 20.

99. *Id.* at 21.

ways commensurate with their vulnerability.¹⁰⁰ Not only have they provided the ecological (e.g. watershed protection, wildlife habitat, etc.) and aesthetic benefits to the city, they have been a place of refuge in times of dire need. In 2003, the SARS virus infected a large portion of the population.¹⁰¹ The epidemic was so severe that the city's residents were not allowed to leave its boundaries.¹⁰² The parks provided a place of refuge for those who could not leave the city but could not stand staying in their homes and in the crowded, miserable city streets. The city's residents flocked to the open, quiet, and clean park settings for fresh air and respite.¹⁰³

Important take-aways from the Hong Kong model include: (1) the type of bold and early response required for quickly-expanding populations; (2) the role that local, state, and federal actors can play; (3) the political power that citizens can wield (especially once there is widespread appreciation and buy-in); and (4) bifurcating the protected areas by allowing more access to the less fragile natural areas in order to make restriction to more vulnerable areas more acceptable.¹⁰⁴

iii. Los Angeles and San Francisco: The Western Models

The creation of urban protected areas in Los Angeles and San Francisco, California, provides a model for other urban areas in the western United States, where there is significantly more land owned by the federal government. Accordingly, the National Parks Service and National Forest Service have been able to set aside, preserve, and manage these federal public lands in and around these large metropolitan areas.¹⁰⁵ In some ways, this western model is similar to the Hong Kong model. An unforgiving terrain, a characteristic of the American west, frames many of the populated areas which requires action to avoid ever-increasing encroachment into natural areas.¹⁰⁶ Los Angeles, a megacity not unlike Hong Kong, is surrounded by mountain ranges. Much of this land was retained by the federal government as the western states entered the Union.¹⁰⁷ Thus, the government has had much more involvement in the creation and maintenance of protected areas around western cities. The National Parks Service ("NPS") and the U.S. Forest Service

100. *Id.*

101. SARS Impacting Daily Life in Hong Kong - 2003-04-25, VOICE OF AMERICA (Oct. 29, 2009, 09:18 AM), <https://www.voanews.com/archive/sars-impacting-daily-life-hong-kong-2003-04-25>.

102. *Id.*

103. *Id.*

104. TRZYNA, *supra* note 60, at 21.

105. *Id.* at 42-47.

106. *Id.*

107. *Id.*

(“USFS”) have protected and restored many of the areas surrounding Los Angeles.¹⁰⁸

San Francisco’s protected areas are also mostly run by the NPS.¹⁰⁹ However, similar to the landscape in Hong Kong, the city’s littoral nature means that parks are spread across islands and landmasses separated by water.¹¹⁰ The Golden Gate National Recreation Area (“GGRNA”) spans over 33,000 hectares (roughly 81,545 acres) and is a patchwork of protected zones.¹¹¹ Also, as in Hong Kong, the program was created in response to increased development in the 1970s.¹¹² The GGNRA consists not only of more “natural” areas (e.g. bay waters, intertidal zones, marshes, grass/scrub lands, and oak woodlands) but also “built” areas such as the Presidio, Fort Point, and Alcatraz.¹¹³ The GGNRA receives over seventeen million visitors per year, and because much of it is publically funded, most areas are free to the public.¹¹⁴ However, the federal government mandated that the Presidio Trust be financially “self-sustaining.”¹¹⁵

These western American urban areas reinforce the lessons of conservation in response to rapid population growth and the role government can play in local conservation. This model is not so readily transferable to the rest of the country where the federal government does not control nearly as much land. However, the Guidelines provide strategies for local, urban conservation that can be applied, with variation, to many different urban areas.

C. The Guidelines: A “How To” in Four Parts

The IUCN Guidelines break their best practices into four functional groups. The first section deals with addressing protected areas and their

108. Santa Monica Mountains, www.nps.gov/samo (last visited August 17, 2019); Angeles National Forest, www.fs.usda.gov/angeles (last visited August 17, 2019).

109. TRZYNA, *supra* note 60, at 42-47.

110. *Id.*

111. *Id.*

112. *Id.*

113. About the Parks Conservancy, <https://www.parksconservancy.org/about-parks-conservancy> (last visited August 17, 2019).

114. TRZYNA, *supra* note 60, at 42-47.

115. Saving and Sharing an American Landmark, <https://www.presidio.gov/presidio-trust/about> (last visited August 17, 2019) (“The Presidio of San Francisco is managed by two federal agencies in partnership: 300 acres along the coast are managed by the National Park Service, while the rest of the Presidio, 1,191 acres, is managed by the Presidio Trust. Both agencies work in close collaboration with the Golden Gate National Parks Conservancy, a non-profit organization that provides indispensable philanthropic and programmatic support. The Presidio Trust is an unusual federal agency. In our founding bipartisan legislation, Presidio Trust Act, the Trust was charged with operating the park without taxpayer support. Funds earned through leasing homes and workspaces and operating hotels, a golf course, and venues are used for park management and upkeep.”).

interactions with citizens.¹¹⁶ This section focuses on providing access to such areas (assuming they are not the more sensitive ecological areas) to as many people as possible.¹¹⁷ The IUCN stresses reaching out to diverse ethnic and economic groups. This means planning areas to include public transportation, providing for free access to the extent possible, and providing access for those with disabilities. In order to reach the most people, the Guidelines encourage programs to engender a sense of local ownership by involving local artists and writers, connecting culture and nature by preserving ancient and historical “built” areas in the protected spaces, and reaching out to local businesses as sponsors and partners.¹¹⁸ They also stress the importance of outreach—sometimes in the form of traditional marketing—to the public, but also to the media, opinion leaders, and policy makers.¹¹⁹

Influencing and even dictating public behavior also plays a role. Conservation programs should be the example for the public to follow. As such, the Guidelines push for programs to be stewards, not only of the lands they protect, but of the greater environment.¹²⁰ In other words, programs should be thoughtful about choices of energy uses and sources, building materials and practices, and other actions necessary for the establishment and maintenance of protected areas.¹²¹ It also means policing public activity. For example, program leaders will have to work with the government to proscribe littering and pollution, crime and vandalism, human-to-wildlife contact, poaching, and the introduction of invasive species.¹²²

The second section addresses urban protected areas and their relation to the surrounding landscapes. These guidelines encourage the promotion of connections to other natural areas.¹²³ The main focus of such efforts are zoning laws and the control of sprawl.¹²⁴ In order to deal with rapid population growth and conserve the natural areas surrounding population centers, growth must be limited to certain geographical boundaries.¹²⁵ The Guidelines suggest limiting the outward expansion of urban areas by creating growth corridors and increasing density.¹²⁶ Establishing “sharp edges” to urban

116. TRZYNA, *supra* note 60, at 52-73.

117. *Id.* at 52-54.

118. *Id.* at 55-57.

119. *Id.* at 58-59.

120. *Id.* at 60-61.

121. *Id.* at 62.

122. *Id.* at 64-69.

123. *Id.* at 74-85.

124. *Id.*

125. Scott Beyer, *Portland's Urban Growth Boundary: A Driver of Suburban Sprawl*, FORBES, March 29, 2017, <https://www.forbes.com/sites/scottbeyer/2017/03/29/portlands-urban-growth-boundary-a-driver-of-suburban-sprawl/#6aafbcf46964>.

126. *See id.*; *see also* TRZYNA, *supra* note 60, at 75.

development zones will help in combating sprawl and the loss of available urban protected areas.¹²⁷ But, such programs do not always effectively address the issue of sprawl, and can have their own unintended consequences, such as increasing housing prices, and pushing sprawl well beyond the urban boundaries.¹²⁸ In addition, such programs must take into account the economically disadvantaged, as they tend to be displaced by the high-density, urban development advocated by the Guidelines. If cities do not make room for lower-cost accommodation in their urban development plans, then these populations will naturally move out and potentially encroach on the protected areas.¹²⁹ Furthermore, the Guidelines stress watershed monitoring and management, as well as limiting the impacts of human-made sound, light, and electro-magnetic fields.¹³⁰

The Guidelines' third section offers best practices for urban protected areas in the context of interaction with local institutions.¹³¹ The Guidelines stress inclusion of governmental agencies in adjoining jurisdictions in order to more effectively coordinate, and not undermine, conservation efforts within the protected area.¹³² They also advocate for cooperation with other institutions and NGOs that have complementary missions.¹³³ This includes other regional conservation organizations, educational institutions, and museums to name a few. Specifically, the Guidelines advocate for outreach to local universities and educational institutions for partnerships in research to continually evaluate conservation issues and solutions, and to help disseminate this knowledge.¹³⁴ Engagement with these public and private institutions will help improve and entrench protected areas in their respective communities and regions.¹³⁵

In the last section, the Guidelines set forth some general practices for "promoting, creating, and improving urban protected areas."¹³⁶ This means that protected area managers need to understand the importance of conservation and tailor their outreach messages to convey this importance.¹³⁷ They must also tailor messages for the various constituencies in their regions.¹³⁸ The Guidelines also stress the importance of continuous acquisition of new lands

127. TRZYNA, *supra* note 60, at 74-85.

128. Beyer, *supra* note 124.

129. TRZYNA, *supra* note 60, at 74-85.

130. *Id.*

131. *Id.* at 86-92.

132. *Id.* at 86.

133. *Id.* at 87.

134. *Id.* at 91.

135. *See id.*

136. *Id.* at 93-101.

137. *Id.*

138. *Id.*

for conservation.¹³⁹ Program managers must also possess political savvy in order to address the policy differences between protected areas in different localities.¹⁴⁰ They must also understand that, in general, longer term success will depend on garnering political capital.¹⁴¹ Moreover, as they stress the acquisition of new lands through a diversity of options, the Guidelines also emphasize securing funding through diverse sources.¹⁴²

D. The Triangle Land Conservancy: An Example of Suburban Conservation

Although less densely populated, suburban areas are seemingly more amenable to local conservation movements. The nature of American urban planning, or lack thereof, and the population growth in these suburban areas present specific challenges to such movements.¹⁴³ Where urban areas have already developed the land within city limits and often spill out of those borders, American suburban areas are often plagued by inefficient sprawl that eats up undeveloped natural areas.¹⁴⁴ The increase in population in these areas is often addressed by new low-density development outside the boundaries of the traditional town or city.¹⁴⁵ Whereas urban conservation programs might turn unused, previously developed areas into more “natural” spaces, or preserve such spaces just outside their limits,¹⁴⁶ suburban conservation groups often move to acquire land in order to prevent this sprawling development.¹⁴⁷

Perhaps a quintessential example of a historically small suburban area experiencing rapid sprawl is the Research Triangle in North Carolina. With three major research universities in three adjacent counties attracting research, technology, and other such industries, the Triangle has seen rapid

139. *Id.*

140. *Id.* at 97.

141. *Id.*

142. *See id.* at 98.

143. *See generally* William A. Fischel, *Does the American Way of Zoning Cause the Suburbs of Metropolitan Areas to Be Too Spread Out?*, in GOVERNANCE AND OPPORTUNITY IN METROPOLITAN AMERICA, 151-91 (Nat. Acad. Sci. 1999).

144. Richard Stradling (Raleigh News & Observer), *North Carolina Doesn't Mind Sprawl*, CHICAGO TRIBUNE (Oct. 2, 2005) (<https://www.chicagotribune.com/news/ct-xpm-2005-10-02-0510020414-story.html>).

145. Guidelines at 6. “Urban sprawl involves building on unprotected rural land between a city and a protected area, sometimes growing to the extent that it surrounds the protected area.”

146. *See generally* TRZYNA, *supra* note 60.

147. *See* TRIANGLE LAND CONSERVANCY, *Accelerating the Pace of Conservation: Strategic Action Plan 2018-2025* 4 (2018), https://www.triangleland.org/cms/wp-content/uploads/2018/12/TLC_2018_SAP_web.pdf; *see also* ENO RIVER ASSOCIATION, *Conservation and Parklands*, <http://www.enoriver.org/what-we-protect/parks/> (last visited Apr. 23, 2019).

growth in the past ten years.¹⁴⁸ That growth is forecast to continue. Presently, in the three representative counties constituting the Triangle, the respective populations are: 141,812 in Orange County; 300,865 in Durham County; and 1,023,811 in Wake County.¹⁴⁹ These numbers do not include the adjacent counties that are seeing similar rapid growth. The Triangle Land Conservancy (“TLC”) estimates that one million more people will move to the Triangle by 2035.¹⁵⁰ Accordingly, TLC has revised their strategic conservation plan to account for this rapid growth.¹⁵¹

Over the past 35 years, TLC has “conserved” over 18,000 acres of land and 138 miles of stream across six North Carolina counties.¹⁵² TLC’s new strategic plan contains “aggressive” conservation and community outreach goals, including an increased focus on safe, clean drinking water; continued connection of local citizens to the area’s “natural” spaces; continued preservation of local wildlife habitats; and increased protection and promotion of local, historical farmlands.¹⁵³ This strategic plan involves not just the TLC and its private members, but also municipal and county governments, other local, regional, and state-wide conservation groups, and non-member private citizens.¹⁵⁴

Furthermore, TLC’s Watershed Protection Program will receive added emphasis moving forward.¹⁵⁵ The program, primarily funded by the ever increasingly urban city of Raleigh, currently “safeguards” the Upper Neuse Watershed across six counties.¹⁵⁶ The program currently uses six land trusts to protect over 9,000 acres of land and 101 miles of stream and has prevented over 5,000 pounds of nitrogen and 1,000 pounds of phosphorous from infiltrating Raleigh’s drinking supply.¹⁵⁷ Moving forward, the program will expand to other watersheds, including the local Cape Fear River and Jordan Lake, with the help of the City of Raleigh, Wake and Durham Counties, and

148. Richard Stradling, *North Carolina is a ‘Sticky State,’ and Other Lessons on Population Growth*, NEWS AND OBSERVER (Feb. 28, 2019, 10:05 AM), <https://www.newsobserver.com/news/local/article226891394.html>.

149. *2013-2017 American Community Survey 5-year Estimates*, U.S. CENSUS BUREAU, https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml?src=bkmk (last visited 4/23/2019) (search for the respective county in the search field, then select “2017 ACS 5-Year Population Estimate” from drop down menu).

150. See TRIANGLE LAND CONSERVANCY, *supra* note 146, at 1.

151. See *id.*

152. See *id.*

153. *Id.*

154. *Id.* at 4.

155. *Id.* at 3.

156. *Id.*

157. *Id.*

other associations and conservation groups.¹⁵⁸ Moreover, TLC plans to “replicate the Watershed Protection Program” in other areas in North Carolina.¹⁵⁹

In addition, TLC will attempt to expand protections to natural wildlife habitats. TLC has already helped North Carolina’s Natural Heritage Program (“NHP”) protect 10,000 acres of natural areas.¹⁶⁰ Currently, in TLC’s Brumley Nature Preserve in Orange County, there are “47 different species of Odonates.”¹⁶¹ TLC plans to add 1,000 acres of buffer zones to these protected natural habitat areas.¹⁶² The Conservancy also has a goal of preserving seventy-five percent of the unprotected Natural Heritage sites, as identified by the NHP.¹⁶³ Furthermore, TLC will increase educational and outreach programs. The Conservancy plans to provide increased educational resources for landowners and members; partner with educational institutions to help manage and monitor protected areas, as well as identify additional areas alongside the NHP; and expand “Citizen Science” projects to increase understanding of the importance of this land stewardship.¹⁶⁴

TLC also plans to protect historical, local farmland and promote locally grown food. The strategic plan includes additional protection of some 300 acres of such farmland in Johnston and Chatham Counties; two counties that are adjacent to the central Triangle counties.¹⁶⁵ Increased urgency for this program is needed if it is to succeed because Chatham County is experiencing rapid growth as industry, development, and overflow from the neighboring Orange County move in.¹⁶⁶ TLC also plans to build a “model preserve” in Wake County that will help teach new farmers looking for effective means

158. *Id.*

159. *Id.* at 4.

160. <https://www.ncnhp.org/faqs> (last visited August 25, 2019) (“a NHP natural area is an area of land or water that is important for the conservation of the natural biodiversity of North Carolina. The Natural Heritage Program identifies these natural areas based on biological surveys, as authorized in the Nature Preserves Act (G.S. 113A-164.1 to 164.11). Although biologists receive permission from landowners and land managers prior to conducting any biological surveys, identification of these natural areas is based on ecological and biological information, rather than political or property boundaries.”).

161. Odonates (Dragon Flies) are an indicator species (species whose numbers can signal the health, or decline, of a particular ecosystem). *Indicator species*, U.N. World Conservation Monitoring Ctr., <http://www.biodiversitya-z.org/content/indicator-species> (last visited 4/23/19).

162. See TRIANGLE LAND CONSERVANCY, *supra* note 146, at 8.

163. *Id.*

164. *Id.*

165. *Id.* at 10.

166. Chatham Park, *Frequently Asked Questions*, <https://www.chatham-park.com/faq/> (last visited Aug. 12, 2019). In 2014, the first phase of construction in Chatham Park began. The final buildout of the Park will span more than 7,000 acres. Although the Park is designed to be environmentally conscious (containing parks, trails, greenspaces, and sustainable energy provisions), it will swallow a large portion of land creating increased scarcity for these local farm projects.

of establishment.¹⁶⁷ This model preserve also has the goal of helping to ensure county-wide food security.¹⁶⁸

All of these programs, and their public and behind-the-scenes aspects, could not happen without the support and funding of private citizens.¹⁶⁹ Thus, perhaps the most important programs are the educational and outreach programs. These programs bring new members and funding to TLC, increase awareness about the importance of local conservation, and also provide areas for recreation and enjoyment to the community as a whole, free of charge. TLC's flagship protected area for community outreach and recreation is the Brumley Family Nature Preserve in Orange County.¹⁷⁰ The Preserve contains miles of trails for hiking, running, and mountain biking, which are used by thousands of visitors each month.¹⁷¹ In 2018, TLC added the 35th mile of trail and hosted over 1,500 guests at outreach events.¹⁷²

As part of the 2035 strategic plan, TLC plans to open another preserve in Wake County by 2020 and increase outreach programs by fifty percent.¹⁷³ Moreover, the Conservancy aims to add twenty-five more miles of trail in the protected areas by 2025. TLC also plans to increase outreach to traditionally underrepresented ethnic minorities and increase these groups' participation as members, volunteers, staff, and board members by at least twenty-five percent in the coming years.¹⁷⁴

The TLC model provides an example of an organization that has focused on watershed protection, diversity in methods of land acquisition and funding, and outreach aimed at building a broad conservation constituency in the Triangle. TLC has built on its momentum and is beginning to work with municipal and regional policy makers as it gains political capital. It serves as a model of success for the suggestions that follow in the next section.

III. A SUGGESTION FOR ESTABLISHING MORE LOCAL CONSERVATION PROGRAMS IN THE UNITED STATES

The previous section offers guidelines and strategies for local conservation movements, and provides an example of a successful program in practice. This section highlights what this piece argues are the most pertinent issues

167. See TRIANGLE LAND CONSERVANCY, *supra* note 146, at 10.

168. *Id.*

169. *FY 17 Annual Report*, TRIANGLE LAND CONSERVANCY, available at https://www.triangle-land.org/cms/wp-content/uploads/2018/01/TLCAR_fy17_electronic-copy.pdf (last visited Aug. 12, 2019).

170. See TRIANGLE LAND CONSERVANCY, *supra* note 146, at 5.

171. *Id.*

172. *Id.*

173. *Id.* at 6.

174. *Id.*

and the techniques for addressing them. First, although some argue such analyses are not appropriate in conservation debates,¹⁷⁵ this author posits that future programs must lay out an urgent cost-benefit argument that favors local conservation as a way to address a significant issue for any locality: watershed protection.¹⁷⁶ Next, this section suggests certain strategies most central to the implementation of future programs already referenced in the previous section, including sources and diversity of funding, modes of land acquisition, and lobbying for local zoning ordinances that restrict horizontal growth. In addition, perhaps most importantly for sustained success, this section stresses the importance of building constituencies in the community by emphasizing outreach to the underprivileged and underrepresented.¹⁷⁷ The constituency building process must include a reframing of the “natural resources” understanding.¹⁷⁸ In order to maintain successful programs, conservationists must educate constituencies on non-traditional resources, like the absence of human-made light and sound, and highlight studies that show the social, health, and psychological benefits that natural areas can have on people.¹⁷⁹ Of course, this author does not suggest that such efforts will always move forward without challenges and even failures. Consequently, this piece ends with a discussion of examples of local conservation “failures,” the word being in quotation marks because each failure presents lessons to be learned.¹⁸⁰

A. Getting Their Attention

Humans can be a selfish lot. Most of what people do—quite understandably—stems from self-interested motivations of day-to-day survival. Thus, any conservation program must root its importance in an ecosystem service that affects everyone’s day-to-day survival. Watershed protection and access to clean water are ever-increasing concerns for localities all over the United

175. COMMITTEE ON ASSESSING AND VALUING THE SERVICES OF AQUATIC AND RELATED TERRESTRIAL ECOSYSTEMS, NATIONAL RESEARCH COUNCIL, *Valuing Ecosystem Services: Toward Better Environmental Decision-Making* 33-34 (2004) (highlighting that some argue that ecosystem services and non-human species have their own moral value while others argue that ecosystems should be valued based on their anthropocentric value).

176. See generally TRZYNA, *supra* note 60; see also TRIANGLE LAND CONSERVANCY, *supra* note 146, at 6.

177. *Id.*

178. See generally William Cronon, *The Trouble with Wilderness*, in UNCOMMON GROUND: RETHINKING THE HUMAN PLACE IN NATURE, 69-90 (1995).

179. ELMQVIST, *supra* note 79.

180. Email from Ted Trzyna to author (Apr. 17, 2019, 08:26 EST) (on file with author); see also CAMBRIDGE CONSERVATION INITIATIVE, *Embracing failure in conservation*, <http://www.cambridgeconservation.org/collaboration/embracing-failure-conservation> (last visited May 1, 2019).

States.¹⁸¹ The IUCN Guidelines stress the importance of watershed protection in implementing urban conservation programs.¹⁸² The Triangle Land Conservancy emphasizes watershed protection, as the Conservancy has established most of its protected areas along the Triangle's streams and water sources.¹⁸³ As populations grow, cities of all sizes use more water.¹⁸⁴ In addition to using more water, a higher population means more use and introduction of pollutants through dumping or runoff into local watersheds.¹⁸⁵ As such, local utilities must build expensive infrastructure to meet the demand for water and invest in new technologies to remove a growing list of pollutants from public water.¹⁸⁶

Given the space and time necessary for this infrastructure to develop, nature can do some of this work for us. Natural areas, especially those adjacent to rivers, streams, and lakes, can filter micronutrients and pollutants from runoff before that effluent reaches the sources of our drinking water.¹⁸⁷ This filtration provides a larger, cleaner quantity of water for treatment by water utilities.¹⁸⁸ Although growing populations will always mean increased demand for such water, if localities protect at least the riparian areas around their respective water sources, they will reduce the cost of treatment required to bring local water sources up to safe drinking standards.¹⁸⁹ Moreover, retaining the land around these areas and limiting urban sprawl through zoning ordinances and increased density in already developed areas will reduce the infrastructure costs related to future need.¹⁹⁰ These costs, especially in areas of extreme sprawl like Houston, TX, can be more than significant and can present large hurdles for future growth.¹⁹¹ Focusing on the existential issue of access to clean water can serve to get an entire community's attention.

181. ENVIRONMENTAL PROTECTION AGENCY, *Healthy Watersheds Protection*, <https://www.epa.gov/hwp/what-epa-doing-healthy-watersheds> (last visited June 18, 2019).

182. TRZYNA, *supra* note 60, at 80.

183. *See generally* TRIANGLE LAND CONSERVANCY, *supra* note 159, at 3.

184. Blake Hudson, *Land Development: A Super-Wicked Environmental Problem*, 51 ARIZ. ST. L.J. (forthcoming 2019) (noting that two-thirds of megacities around the world rely on "precipitation sheds" for one-third of their water supply; destroying these forests through land development reduces the available supply while increasing the demand for fresh water).

185. *Basic Information and Answers to Frequently Asked Questions*, ENVIRONMENTAL PROTECTION AGENCY, <https://www.epa.gov/hwp/basic-information-and-answers-frequent-questions#why> (last visited July 11, 2019).

186. *Id.*

187. *Id.*

188. TRIANGLE LAND CONSERVANCY, *supra* note 159, at 3.

189. *The Economic Benefits of Protecting Healthy Watersheds*, ENVIRONMENTAL PROTECTION AGENCY (Apr. 2012), https://www.epa.gov/sites/production/files/2015-10/documents/economic_benefits_factsheet3.pdf.

190. 2012 *Report Card for Houston Area Infrastructure*, AMERICAN SOCIETY OF CIVIL ENGINEERS, (2012), http://ascehouston.org/images/downloads/Report_Card/asce_houston_report_card_full_report_rev.pdf

191. *Id.*

B. You Have Their Attention, Now What?

Sustained success for a local conservation program is no guarantee. This section argues that the preservation of options is a crucial consideration for establishing a local conservation program. The preservation of future options necessarily means the acquisition of land that can be preserved—or at least left alone—as protected areas.¹⁹² Even if there is not quite enough support or funding to improve or restore the land once it has been acquired, acquisition can exclude development so that restoration can occur at a future date.¹⁹³ As in other areas of local conservation considerations, land acquisition is most effective when achieved through diverse manners.¹⁹⁴ One such method, crucial at the early stages of a program, is private purchase and leasing.¹⁹⁵ At the initial stages, especially in the eastern United States where government owns less land, private agreements will play a greater role.¹⁹⁶

Some states, including North Carolina, have enacted legislation that governs and encourages the creation of conservation and preservation easements.¹⁹⁷ These easements can be effective tools in keeping title to such lands in the hands of private citizens while simply overlaying restrictions on the development of those areas.¹⁹⁸ Public-private agreements can also provide a way to set aside land and exclude development. Private landowners, particularly in more rural areas, have entered into agreements with the federal Fish and Wildlife Service and the North Carolina Department of Natural Resources whereby these agencies purchase and preserve the land.¹⁹⁹ Although these agreements aren't always driven by coordinated conservation programs, they can be a way to protect future options for such programs, and provide a path for bringing in federal resources where the federal government does not already own the land.²⁰⁰

Diversity in funding sources is also of great importance. Again, without the guarantee of public funding, or where such funding is predicated on proven results, programs will likely have to turn to private sources.²⁰¹ Dues

192. See TRZYNA, *supra* note 60, at 95.

193. *See id.*

194. TRIANGLE LAND CONSERVANCY, *supra* note 146 at 4; TRZYNA, *supra* note 60, at 41.

195. TRIANGLE LAND CONSERVANCY, *supra* note 146 at 4; TRZYNA, *supra* note 60, at 41.

196. *See e.g.*, TRIANGLE LAND CONSERVANCY, *supra* note 146 at 4; *see also* Bureau of Land Management, *Geospatial Services*, <https://www.blm.gov/services/geospatial> (last visited December 11, 2019).

197. N.C. GEN. STAT. § 113A-235 (2018).

198. *See generally* TRIANGLE LAND CONSERVANCY, *supra* note 146.

199. Dennis Anderson, *Landowners in Minnesota and Elsewhere are Creating a Movement*, MINN. STAR TRIB. (April 14, 2019), <http://www.startribune.com/landowners-in-minnesota-and-elsewhere-are-creating-a-movement/508543932/>.

200. *Id.*

201. TRZYNA, *supra* note 60, at 98-99; TRIANGLE LAND CONSERVANCY, *supra* note 146, at 10 (break down of funding sources by percentage).

paying membership is one way to secure private funds.²⁰² As the constituency grows, so will the funding allowing for more projects with which to grow the program and the conservation constituency. Local businesses, eager to increase their “green credentials” among the growing conservation constituency, can make for effective sponsors.²⁰³ Eventually, with a substantial constituency and effective engagement with policy makers, public funds will start to reach these local conservation movements.²⁰⁴

With local policy makers on board, the next crucial step is to rein in the horizontal expansion of development. This issue also requires a multi-faceted plan. Local governments should implement zoning ordinances that work in concert with conservation programs. Restricting sprawl is crucial to preserving natural areas, but this process presents challenges as well. Local governments must not only restrict horizontal development, but must require more density in already developed areas.²⁰⁵ Governments can do this through zoning laws that require higher density in areas that are to be redeveloped and restrict development altogether in other areas. Furthermore, when urban areas enact such restrictions, they can create housing scarcity that drives up prices.²⁰⁶ Thus, communities and people without financial resources will be displaced.²⁰⁷ This creates a couple of counterproductive problems. First, affected people will have to find somewhere else to live. Although they may be excluded from developing the protected areas, they may leapfrog these zones to adjacent areas free from such ordinances.²⁰⁸ They will still spread laterally into less developed areas, in direct opposition to the central goal of local conservation initiatives. Such displacement would also very likely alienate a part of the potential conservation constituency such programs are designed to build.²⁰⁹ Outreach, education, and inclusion are not enough when it comes to underprivileged and underrepresented populations. Any successful program will have to make these groups significant stakeholders by including them in development schemes and keeping them in the community.²¹⁰

202. TRIANGLE LAND CONSERVANCY, *supra* note 146, at 10.

203. TRZYNA, *supra* note 60, at 41 (London Wetland Centre).

204. TRIANGLE LAND CONSERVANCY, *supra* note 146 at 3 (TLC’s Watershed Protection Program is primarily funded by the City of Raleigh).

205. Beyer, *supra* note 124.

206. *Id.*

207. *Id.*

208. *See id.*

209. *See id.*

210. *Id.*

C. Rethinking Natural Resources

In addition, the maintenance of successful local conservation programs will require managers to highlight the benefits of non-traditional natural resources that protected areas provide.²¹¹ In order to do this effectively, people will need to adjust the way they see natural resources.²¹² For example, clean water is more readily valued as an ecosystem service. However, once a program has momentum, education and outreach can focus on non-traditional ecosystem services like “spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experience”²¹³ This section asserts that the maintenance of a successful local conservation program will depend in part on a more deeply rooted appreciation of natural spaces. That appreciation will have to include non-traditional notions of natural resources from which local citizens can benefit. Local protected areas and conservation programs provide psychological and health benefits beyond those directly related to ecosystem services.²¹⁴

Lack of human-made sound and light are resources that can provide such benefits.²¹⁵ Researchers in the United States are working to quantify the effects of human-made light and sound on human health and well-being.²¹⁶ Researchers for the National Parks Service have already linked increased sound, considered an “alerting stimulus,” to an increase in blood pressure, heart rate, and breath-rate in large urban populations.²¹⁷ This new study is aimed at determining the effects of human-made sound on residential urban areas.²¹⁸ At night, artificial light may also have negative impacts on human health. Artificial light has well documented negative effects on wildlife,²¹⁹ and increased exposure to artificial light at night can negatively impact the human circadian rhythm and overall health.²²⁰ This disruption in the natural circadian rhythm has been linked to an increased risk of diabetes, heart disease, obesity, and

211. ELMQVIST, *supra* note 79, at 178.

212. Cronon, *supra* note 177.

213. ELMQVIST, *supra* note 79, at 178.

214. *Id.*

215. See <http://soundandlightecologyteam.colostate.edu/about.html>.

216. *Blue Light Has a Dark Side*, HARV. HEALTH PUB., <https://www.health.harvard.edu/staying-healthy/blue-light-has-a-dark-side> (last visited Aug. 13, 2018); see also *Mapping Sound*, NAT'L PARKS SERVICE, <https://www.nps.gov/subjects/sound/soundmap.htm> (last visited June 19, 2019).

217. Rebecca Martinez, *NC State Researchers Want To Hear Your Backyard For A New Mapping Project*, WUNC (Jan. 28, 2019), <https://www.wunc.org/post/nc-state-researchers-want-hear-your-backyard-new-mapping-project>.

218. *Id.*

219. Aisling Irwin, *The Dark Side of Light: How Artificial Lighting is Harming the Natural World*, NATURE (Jan. 16, 2018), <https://www.nature.com/articles/d41586-018-00665-7>.

220. *Human Health*, INT'L DARK SKY ASS'N, <https://www.darksky.org/light-pollution/human-health/> (last visited June 22, 2019).

certain cancers.²²¹ If communities continue to expand horizontally, eat up undeveloped land, and light up the night sky—a necessity for safety and ordered civilization where humans choose to congregate—there will be more light and less dark. This author, although living in a less developed, almost rural area, can see the “sky glow”²²² encroaching from the expansion of the surrounding small towns and cities. This means that the sprawl is beginning to bring noise and light where they once were not as prominent. As stated above, this light and noise can bring negative consequences with them. If local conservation programs are to gain support from a broad local constituency, they must tie the benefits of protected areas to as many aspects of every-day life that they can. Accordingly, managers must rethink traditional notions of “natural resources” and must convince others that these resources are worth preserving in their communities.

D. Failure Is an Option That Should Not Deter Local Conservation Efforts

Admittedly, the majority of this piece views the establishment of local conservation programs in an optimistic light. Certainly, success in this context is not as easy as reading the IUCN Guidelines or the TLC Strategic Action Plan and attempting to recreate these successes. Not all efforts to establish urban conservation programs have been successful. One of the most famous examples comes from the early days of Los Angeles, CA.²²³ In the 1930s, the Olmstead plan to prevent development of Los Angeles land in order to create more natural parks and recreation areas was abandoned because of fears of decreased property values for upper and upper middle class citizens.²²⁴ Even when such programs fail—and some inevitably will—we must learn from those situations as we do from those programs that achieve great success.

Moreover, the drafters of the IUCN Guidelines have not been able to collect much in the way of lessons learned from failed conservation efforts.²²⁵ As Ted Trzyna, principal author of the IUCN Guidelines, told the author herein:

We get little feedback. . . . It's common at conferences for someone to say that we can learn more from failures than from success stories, but I don't think much is done to tell the stories of failure, at least in terms of failed projects. One reason, of course, is that no one likes to fail, let alone write about it. Another reason is that conservationists have become pretty good

221. HARV. HEALTH PUB., *supra* note 215.

222. Irwin, *supra* note 218.

223. See generally GREG HISE & WILLIAM DEVERELL., EDEN BY DESIGN: THE 1930 OLMSTED-BARTHOLOMEW PLAN FOR THE LOS ANGELES REGION (U.C. Press, 2000).

224. *Id.*

225. Trzyna, *supra* note 179.

at adapting their projects as they go along. However, if adaptation means cutting back drastically on the original goals, is it honest to claim victory?²²⁶

Without this feedback, it is difficult to learn from past mistakes. However, some researchers are working to collect this data in an effort to learn from failure and embrace it so that future efforts for conservation do not fail for the same reasons as previous attempts.²²⁷

IV. CONCLUSION

An effective local conservation program or movement must be based on a sound philosophical foundation and should implement the types of strategies that are appropriate for specific localities as they are outlined in the IUCN Guidelines and practiced by organizations like the Triangle Land Conservancy. Moreover, effective programs must not be afraid of failure. Such movements should be guided by the moral drivers pushed by those in the Romantic Epiphany and Sierra Club and by an evidence- and science-based understanding of systems and the wholistic effects of particular actions (Ecological Interdependence). However, they must not discount the traditional cost-benefit analyses that drive economic and social growth (Providential Republicanism and Progressive Management). Organizations should build constituencies using the types of strategies outlined in the Guidelines. In order to bring constituencies on board in the early stages, organizations and governments can stress the importance of protected spaces and their impact on watershed health. This is an issue that spans all the conservation understandings mentioned above. With these constituencies, organizations can make bold moves that will protect local wilderness and bring communities and institutions together.

Rooted in American values is the providential republican notion that land development is an “unassailable right.”²²⁸ If this horizontal development is to continue unfettered, local wilderness will disappear. And, it may not be long after that the traditional “gallery of masterpieces” will follow. Communities must take action on the local level to protect local wildernesses and watersheds. If done properly, local conservation programs can build constituencies that will demand the preservation of local wilderness. With a greater

226. *Id.*

227. CAMBRIDGE CONSERVATION INITIATIVE, *Embracing failure in conservation*, <http://www.cambridgeconservation.org/collaboration/embracing-failure-conservation> (last visited Apr. 1, 2019). At the time this article was drafted, the author did not receive a response regarding this study’s initial findings. That said, the fact that such research is occurring bodes well for future conservation efforts as the sharing of knowledge and experience—perhaps most importantly of failure—is vital for the improvement and future success of local conservation programs.

228. Hudson, *supra* note 183.

appreciation for protected areas and their benefits, the public will be more apt to protect the traditional wildernesses.