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Toward Holistic Landscape Conservation in the 21st Century

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Michael B. Whitfield
Northern Rockies Conservation Cooperative

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Abstract

In America we enjoy an amazing conservation legacy. However, all of Planet Earth is in the midst of an environmental and social crisis. Here in the United States, observers often see conflict between efforts to conserve nature in the face of massive loss of biological diversity versus efforts to provide all our people with suitable housing and access to adequate food, clean air and water, and outdoor recreation. Yet both of these challenges are symptomatic of the same threats: a burgeoning human population with out-of-scale environmental impacts, ecological and social fragmentation, and the ever more serious threat of climate change. The emergence of landscape conservation through robust human community collaboration that provides for the non-human interests of wildlife and nature is seen as a necessary approach to meet these daunting challenges. Across the country there are many examples of conservation success through landscape collaboration, but the concept is hindered by incomplete application and a lack of suitable measures of program outcomes. In this paper we make a case for holistic landscape conservation efforts, discuss proposed elements for holistic landscape collaborations that meet both ecological and social goals, and examine the consequences of their implementation in multiple settings.

About the Author

Michael Whitfield is a conservation biologist and research associate with the Northern Rockies Conservation Cooperative, the former Executive Director of the Heart of the Rockies Initiative and earlier the Teton Regional Land Trust, and a long-time leader in the Land Trust and Large Landscape conservation communities. Michael was a leader in the formation of the Heart of the Rockies Initiative and the High Divide Collaborative. He lives and works in Teton Valley, Idaho, and can be contacted at mbw@silverstar.com.

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Introduction

In my nearly 50 years of engagement in various conservation endeavors—agency representative, environmental advocate, ecological researcher, educator, land trust leader, and community collaborator—I have often lived the errors of an incomplete conservation perspective. I have helped develop policy and write conservation plans that never made it to the ground, participated in 'landscape collaborations' that included only state and federal agencies, won conservation advocacy campaigns that alienated potential partners and led to temporary solutions, advanced science that informed symposia but failed to reach conservation practitioners, shared ideas with like-minded people while missing opportunities to speak with a broader community, and formulated goals that might have met current needs but failed to recognize the challenges of the future. I have gradually learned the value of a more holistic approach that includes the interests of people and nature with intentional focus on durable and measurable outcomes that benefit the future well-being of all—people, animals, and nature.

I am encouraged by the emergence of holistic landscape conservation initiatives in my home landscape and across the country. In many cases these collaborative efforts are making conservation progress despite sometimes challenging national and local politics. Often traditional stakeholders are choosing to move forward collaboratively to advance holistic conservation even when faced with opposition from entrenched opposition. However, we need all elements of our communities to pull together if we are to meet current challenges.

Today we face far greater challenges than a lack of good science or inadequate conservation funding or community engagement. Whereas most of our people may say that they care about nature, too few are aware of the threats to nature and what natural systems need to persist. Fewer and fewer of our people recognize the importance of healthy natural systems for their personal and social well-being, to say nothing about the rights of animals and nature to have a secure future. Many Americans struggle day-to-day to find clean water and healthy food and shelter, let alone afford the luxury of consideration for conservation of the natural landscape. In our current time we have allowed our diversity of perspectives and needs to divide us rather than enrich our work together. The barriers to our work together are multitude: rural versus urban, rich versus poor, working land owners versus recreationists, and on and on. We need more bridges and fewer barriers. True conservation collaboration that is broad in participation and comprehensive in goal setting can build those bridges. And it is a critical time for finding ways to couple stewardship of our natural landscapes with stewardship of our society.

The Catholic Pope Francis wrote in his widely heralded encyclical: "We are not faced with two separate crises, one environmental and the other social, but rather one complex crisis which is both social and environmental… There can be no renewal of our relationship with nature without a renewal of humanity itself" (Pope Francis 2015).

I believe that to be successful in the long term, landscape conservation fundamentally must be grounded both in appreciation for the needs of wild nature and natural systems now and into the future and in respect for the individual dignity of people in all sectors. With such a holistic perspective guiding the landscape conservation approach, we conservation practitioners must intentionally develop the skills needed to engage all sectors of local communities while also ensuring a seat at the table for nature and for the common future of nature and humanity. Further, to successfully engage whole communities will require us to incorporate both social and cultural goals along with ecological targets into our planning. I am a biologist, not a social scientist, and I claim no expertise in the social realm. With this paper I merely wish to point to the connection between environmental conservation and social justice, and to argue that we cannot achieve just preservation of nature or society without simultaneous attention to both. I will add that while concurrent consideration of natural and social concerns is indeed a very daunting challenge, it is of itself insufficient. We are in the midst of ongoing human-induced mass extinction that threatens all life on Earth, human and non-human. As current conservation practitioners, we must intentionally seat the interests of future generations of human and non-human beings at our collaborative tables. As we preserve the nature around us, we revitalize our humanity.

The Case for Holistic Landscape Conservation

Measures of Ecological and Social Impact

First, I suggest some conservation targets we need to consider to respond to today's environmental and social challenges, some components of the overarching framework needed to achieve health and sustainability for humanity and nature. I believe that our collective conservation efforts succeed when we achieve durable, long lasting outcomes in the following areas.

Biodiversity

Protection of large, intact areas connects and sustains diverse habitat types, and maintains ecological function and resilience in the context of environmental stressors like development and climate change. Ideally a region's biodiversity exists in a mosaic of landscape elements including diverse habitat types across a variety of geographic scales. Networks of large undisturbed habitat, connectivity habitats, and smaller habitats are necessary to ensure resilience and the interactions among species and the ecological processes that support high-integrity systems. Biodiversity supports both natural and human systems.

Connectivity

Conservation of a permeable landscape with ecological connectivity across aquatic and terrestrial ecosystems includes provision for species movement, genetic connectivity, migration, dispersal, life history, and biophysical processes (recognizing this is species dependent, and recognizing in some circumstances connectivity is not desired). Similarly, social connectivity across landscapes is essential to community and economic well-being.

Habitats are likely to shift due to climate change and other stressors. In order to maintain desired connectivity (and limit connectivity in certain cases to minimize detrimental impacts), we need to understand the current level of landscape permeability, identify existing linkage corridors, and anticipate how these might shift or change in condition in the future. Maintaining and restoring connectivity can help nature and humanity adapt to climate change and mitigate the impacts of other landscape stressors.

Resilience

Disturbance regimes are shifting in time and space due to climate change (e.g., severe storms, frequency and intensity of fire, frequency and severity of drought and flooding, and spread of invasive species and disease). Risk assessments can help identify future conditions and the potential for extreme events, help identify vulnerable areas, and focus management efforts on areas with the greatest ecological and social contribution to the landscape. Maintaining ecological and social processes within the range of variability of disturbance can facilitate climate adaptation efforts.

Functional ecological processes

Ecosystem processes relate to the structural and functional components of an ecosystem (e.g. vegetation, water, soil, atmosphere, and biota) and how they interact with each other within and across ecosystems. The four fundamental ecological processes of ecosystems are the water cycle**,** biogeochemical (or nutrient) cycling, energy flow, and community dynamics, i.e. how the composition and structure of an ecosystem changes following a disturbance (succession).

Functional social processes and social well-being

Society is held together by the consensus of its members, and cannot maintain stability, order and progress without some level of civil discourse and resolution of conflict. Of course, change arises when people think and act against conditions that are not favorable to their well-being. Tools and processes that allow us to resolve conflict and ameliorate conditions for all our people are crucial. All of us require access to safe and adequate shelter, healthy food, clean air and water, safe and adequate transportation, protection from and adequate response to natural disasters, and access to natural areas to survive and thrive. In a time when climate change may create considerable social disruption, society needs strategies and tactics to adapt to a changing environment. Diversity in interests, skills and perspectives and effective communications systems that provide the means to formulate and achieve societal goals are essential.

Current Conservation Challenges

The Ecological Challenges

Today we face many unprecedented challenges that result from human overpopulation and resource use coupled with the confounding impacts of habitat fragmentation and the existential threats that arise from a rapidly changing climate. Whereas the current world human population

of 7.3 billion is clearly stressing the planet (Ceballos et al. 2015), that population is expected to reach 8.5 billion by 2030, 9.7 billion in 2050 and 10.9 billion in 2100 (United Nations 2019). The resulting **ecological challenges** are manifold: loss of biodiversity, ecological and social fragmentation, pollution, water scarcity, and, of course, climate change.

Loss of biodiversity

Unlike the mass extinction events of geological history, the current extinction challenge is one for which a single species – Homo sapiens - appears to be almost wholly responsible. The current extinction rate is between 100 and 1,000 times greater than what it was before 1800 (Ceballos and Ehrlich 2018). Habitat loss poses the greatest threat to most species. The world's forests, swamps, plains, lakes, and other habitats continue to disappear as they are harvested for human consumption and cleared to make way for agriculture, housing, roads, transmission lines, and the other hallmarks of industrial development (Wilson 2016). Without a strong plan to create terrestrial and marine protected areas, important ecological habitats will continue to be lost. At least 15 percent of greenhouse gas emissions don't come from cars or factories—they come from deforestation.

Reduced biodiversity means millions of people face a future where food supplies are more vulnerable to pests and disease, and where fresh water is in irregular or short supply. Biological diversity is the resource upon which families, communities, nations, and future generations depend (Cardinale et al. 2012). It is the link between all organisms on earth, binding each into an inter-dependent ecosystem, in which all species have their role. It is the web of life (Wilson 2016).

Ecological fragmentation

Ecosystem discontinuities at the landscape scale caused by alterations of the physical and biological environment divide large continuous habitats into smaller and increasingly isolated remnants. Reduced habitat area and patch size, enhanced edge effects at habitat boundaries, loss of habitat complexity, and population isolation can all lead to population decline or loss, decreased species richness, and decay of ecosystem functionality (Didham et al. 2012; Haddad et al. 2015).

Invasive species

Occupying landscapes at alarming rates, invasive species are adversely impacting aquatic and terrestrial ecological function through habitat modification, competition with native species, predation, herbivory, spread of pathogens, and hybridization with native species. Invasive species are a threat to native biodiversity and have major implications for the conservation of public and private lands, and the production potential of working landscapes (Mooney and Cleland 2001, Charles and Dukes 2006). Landscape effects have been documented from a range of invasive species including blister rust, cheatgrass, and aquatic invasive fish, macroinvertebrates, and pathogens such as whirling disease.

Pollution

Pollution poses current and future threats to people and the environment. Pollution sources include industry, transportation, agriculture, and residential activities. The effects of environmental pollution include acid rain (Godfrey et al. 1996), eutrophication of water bodies Chislock et al. 2013), introduction of toxins into food chains, ozone depletion, reduced plant growth, loss of soil fertility, and of course climate change. Pollutants degrade habitats and cause direct harm to animals and plants. Contaminated waters are undrinkable. Polluted air weakens the ozone layer and causes health problems. Contaminated soil degrades habitats and water resources.

Water scarcity

Water scarcity results from population growth, overuse and waste, and water pollution. Ecological impacts include habitat degradation and loss, including loss of wetlands, and wildlife population declines. Groundwater is the hidden resource behind what is visible in any ordinary landscape (Gleeson et al. 2012). Two major sources of disruption of the hydrological cycle are warming produced by climate change and features of the "built environment" that induce more runoff (Karr and Dudley 1981). When climate change results in hotter, more arid surface conditions it both prevents infiltration needed for replenishment of deep reserves and reduces the surface water available for immediate uses such as agriculture or filling reservoirs for drinking water. In the West, precipitation that falls as mountain snow is the water reservoir that sustains waterways and riparian systems. Mountains and highlands are often called the world's natural "water towers" because they provide essential freshwater for populations downstream. (Viviroli et al. 2003). Changes in the built environment, such as the creation of mass concentrations of "hardscape"—asphalt and concrete—as well as the destruction of watershed timberlands, marshes, and wetlands, ease the path for more rapid runoff such that more rainfall ends up going straight to the sea. Accelerated run-off also limits aquifer recharge and lowers water tables. Globally, over 2 billion people live in countries experiencing high water stress, and about 4 billion people experience severe water scarcity during at least one month of the year (Connor et al. 2019). Water use has been increasing worldwide at about 1 percent per year since the 1980s and global water demand is expected to continue at a similar rate. Stress levels will continue to increase as demand for water grows and the effects of climate change intensify.

Climate change

Climate change is a global threat to nature and humanity that can only be mitigated by global policy and action. The direct and indirect impacts of climate change will likely overwhelm all our best conservation efforts if we fail to deal with root causes. Global temperatures are climbing, ice caps are melting, and droughts, wildfires, and super hurricanes are tearing their way across the landscape. The change in climate is impacting all our valuable ecosystems and the human economies and communities that depend on plants, animals, and habitats (Pachauri and Reisinger 2007; Patz and Hatch 2014). Climate change exacerbates the impacts of habitat fragmentation and loss of ecosystem integrity caused by other landscape stressors. Warmer temperatures and changing precipitation patterns are expected to cause more fires and more pest outbreaks. Climate change is already creating less reliable growing conditions for agriculture

with impacts to crops and the food supply. Grasslands and shrub lands are more likely to be invaded by non-native species, and wetlands may suffer losses from drier conditions.

Examples of Ecological Conservation Approaches

Identification of ecological hotspots

Biodiversity hotspots, biogeographic regions with relatively high levels of biodiversity, have become a tool for setting conservation priorities and play an important role in decision-making for cost-effective strategies to preserve biodiversity in terrestrial and, to some extent, marine ecosystems (Marchese 2015). This area-based approach can be applied to any geographical scale and it is considered to be one of the best approaches for maintaining a large proportion of the world's biological diversity. However, delineating hotspots includes quantitative criteria along with subjective considerations and the risk is to neglect areas, such as coldspots, areas with relatively low species richness, but with other types of conservation value. Today, it is widely acknowledged that biodiversity is much more than just the number of species in a region. A regional conservation strategy cannot be based merely on the number of taxa present.

Science/Policy Partnerships and other approaches

Concerns over the biodiversity hotspots approach suggest going to more of an interdisciplinary approach through the creation of science-policy partnerships. By investing exclusively in hotspots and ignoring coldspots the risk is to lose large, natural and ecologically important areas that contribute to many ecosystem services (Kareiva and Marvier 2003). Jepson and Canney (2001) have warned that the biodiversity hotspots approach provides only a partial response for conservation. The authors agree that promoting biodiversity hotspots, as a "silver bullet" strategy for conserving the most species for the least cost, is a risk in complex areas of international policy, such as biodiversity conservation, because decision makers may view it as a cure-all. As a result, they conclude that spatial priorities and public policy cannot be determined on the basis of simple species counts alone. Furthermore, as pointed out by Smith et al. (2001), biodiversity hotspots entirely ignore regions of ecological transition. Hence, the authors promote a more comprehensive approach to include regions important to the generation and maintenance of biodiversity, regardless of whether they are "species-rich". A growing number of environmental organizations together with the scientific community are working on a number of different approaches to identify biodiversity patterns, threats, and locations for future acquisition or management (Schmitt 2011). These approaches, which prioritize globally important areas for biodiversity conservation, are based on two key ecological selection criteria (vulnerability and irreplaceability) and can be grouped into three main categories: proactive, reactive, and representative (Schmitt 2011).

Broad scale modeling to identify permeable and climate resilient landscapes

In recent years, many modeling efforts have been undertaken to identify conservation priorities in a changing climate at broad regional or national scales. For example, interest in landscape permeability and climate resilience has generated significant advances. McRae et al. (2008) expanded concepts and algorithms from electrical circuit theory to model ecological connectivity

at the landscape scale. Theobald et al. (2011) used a broad scale modeling approach to map landscape permeability and identify priority connectivity corridors to inform land use planning. Anderson at al. (2014) and Anderson et al. (2016) developed and tested methods for the selection of potential priority landscapes for future conservation of nature under a changing climate based upon geophysical settings that contribute to favorable micro-climates and connectivity of natural cover that enables adaptive movement and range shifts. Geophysical attributes were selected that can be mapped at coarse-filter regional scales and that appear to be predictive of resilience to climate change in the face of large uncertainty. This methodology found high correlation between sites selected for high quality biodiversity and sites with geophysical characteristics that lead to high estimated resilience, such as cooler northern aspects and basin refugia. Prioritized resilient sites combined with the prioritized linkages that connect them led to recommendations for conservation of networks of resilient areas designed to dynamically conserve biological diversity.

Half Earth

E. O. Wilson (2016) has provided a celebration of our planet's vast biodiversity while lamenting the rapidly shrinking array of natural species owing to human impacts. He has noted that "there really has to be a shift in the moral ground by which we consider the living world." In his argument for the conservation of our globally imperiled biosphere, Wilson has proposed a dramatic solution: dedicate fully half the surface of Earth to nature. Wilson asserts that nature does not exist simply to serve and support humans and human economies. He also contends that we still have the capacity to save 85 percent of the planet's biodiversity if we can agree to conserve biodiversity hotspots. The challenge with this approach is how to accommodate people who live within those reserves. Any proposal to massively increase the quantities of protected land and sea is going to have to take into account what most of these people consider primary to their heritage, hopes, and intentions. In an assessment of progress toward the 50 percent protected area goal, Dinerstein et al. (2017) suggest that this goal is attainable and propose strategies to attain it by 2050.

Landscape scaled collaborations

Over the past two decades there has been a dramatic increase in landscape conservation initiatives across the U.S. Landscape conservation initiatives are small and large, urban and rural, and in all regions of the country (Network for Landscape Conservation 2018). Landscape conservation is not just about preservation of remote wildlands or piecemeal land protection. Landscape conservation recognizes that healthy, connected natural landscapes are essential—for clean water, healthy ecosystems, cultural heritage, vibrant communities and economies, climate resilience, climate mitigation, flood and fire control, outdoor recreation, and local sense of place. People are stepping forward in community-grounded ways to embrace and advance this more integrated and more dynamic approach to conservation. Individual acts of conservation are being enriched by ecosystem-scale thinking—the scale at which nature and culture function. An important hallmark of landscape conservation is moving beyond top-down approaches to a more inclusive framework, with informal governance structures built around the objective of bringing people and communities together across boundaries to create shared vision and action on these important, interrelated goals. Stakeholders are stepping up in many landscapes to collaboratively

solve landscape problems despite a current lack of higher-level governmental support. Landscape conservation harnesses the power of people from diverse sectors, geographies, and cultures, providing pathways for them to work together to sustain the long-term health of the places where they live, work, and play. Farther along in this working paper, I provide two examples of landscape conservation at work, one in a rural setting, the other in a more urban setting.

The Social Challenges

A broad definition of environment from the human perspective is "the surroundings or conditions in which a person lives" (Bullard 2006). By this definition, the environment would include one's home, place of work, schools, churches and other points of social interaction, and community parks as well as the physical and natural world**.** These are the places where people spend their time, and they play a big role in a person's overall health, happiness and well-being. We all need safe homes, access to healthy food, clean air and water, safe and adequate transportation, protection from and adequate response to natural disasters, and access to natural areas.

"Until you talk about me having food, shelter, and clothes, I'm not listening to any appeals from environmentalists," a woman shouted out in one of the workshops at the 1976 United Auto Workers Conference at Black Lake, Michigan.

Poverty is a root cause of many of our country's social challenges. The U.S. Census Bureau estimated in 2017 that 39.7 million Americans lived in poverty according to official measures (Fontnot et al. 2018). Further, 18.5 million Americans were estimated to be in deep poverty with household incomes below 50 percent of the poverty threshold, an annually updated measure that varies according to the size of the household and ages of its members. While poverty disproportionately affects marginalized communities, there are people who live in challenging economic conditions in all our country's geographies.

Food insecurity

The United States is one of the richest countries in the world, yet food insecurity impacts people in every U.S. community. Nearly forty million people struggle with some level of hunger in the United States (Feeding America 2017). A household that is food insecure has limited or uncertain access to enough food to support a healthy life. Children are more likely to face food insecurity than any other group in the United States. In 2017, an estimated 15 million households were food insecure (Coleman-Jenson et al. 2018).

Lack of sufficient shelter

The affordable housing crisis is primarily thought of as a problem for cities in the U.S., but the problem pervades many rural communities as well. Many hard-working American families cannot afford adequate shelter. At last measure in 2017 (Joint Center for Housing Studies of Harvard University 2019), 18.2 million American families spent more than 50 percent of their income on rent. More Americans are renting and fewer are buying homes. Rental costs are increasing in many communities to the point that often even middle income earners have a hard

time finding housing. The inability of so many individuals and families to secure affordable housing reflects the fact that increases in rents and existing home prices have continued to outrun income growth. While states and localities have begun to devote more (and, in some cases, considerably more) resources to affordable housing, their efforts do not come close to meeting the scale of the problem. An estimated 2.9 million people per year lose their rentals because they cannot afford the rent, and over 550,000 Americans are homeless (Henry et al. 2017). Despite progress in many areas of the country, the unsheltered population has grown dramatically in many western states with high housing costs (Joint Center for Housing Studies of Harvard University 2019).

Access to education, jobs, and engagement with the natural environment

Poverty and education are inextricably linked. Poverty limits access to education, limits awareness of the full range of possible paths to success, and thus limits opportunities. People living in poverty often short-circuit their educations so that they can work, which leaves them without the literacy and numeracy skills needed to advance (Broadhurst et al. 2005). Their children, in turn, often end up in a similar situation with few options but to leave school to work in low-paying jobs will little future opportunity. Misconceptions about poverty and the poor continue to nurture flawed policies (Glazer 2019). The prevalent myth is that jobs are the silver bullet to defeat poverty. Jobs are necessary for people to improve their lives, but they need to be jobs that that are well-paying enough to support a family, jobs with opportunities for a future, and jobs that include access to transportation between home and workplace.

Pollution and siting of ecological hazards

Decades of research have established clear patterns of racial and socioeconomic disparities in the distribution of a large variety of environmental hazards (Mohai and Saha 2015). These disparities may arise at the time of siting of hazardous waste facilities or from demographic changes that arise post siting. Minority and low-income neighborhoods and communities in transition are disproportionately targeted by industries that follow the path of least resistance when deciding where to locate hazardous waste sites and other polluting facilities (Bullard et al. 2007). Hazardous waste sites, polluting industrial facilities, and other locally unwanted land uses are disproportionately located in nonwhite and poor communities. Racial discrimination in zoning and the housing market, along with siting decisions based on following the path of least resistance, may best explain present-day inequities.

Social Conservation Approaches

The environmental movement has sometimes been viewed as neglectful of minority and poor communities. Environmental justice, a concept that came into its own in the 1980s, is a social movement that works to remedy that neglect through focus on the fair distribution of environmental benefits and burdens. Environmental justice has been defined as “the fair treatment and meaningful involvement of all people regardless of race, color, sex, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies” (Bullard 2006; Environmental Protection Agency 2012). Below are a few examples of environmental justice approaches.

Advocacy campaigns and litigation

A key strategy deployed by environmental justice advocates is litigation, often based in violations of civil rights laws (Roberts 1998). There are many examples of long-term struggles against the siting of hazardous waste facilities, mining activities, landfills, industrial farming, and incinerators in minority communities. One example is the Navajo-Hopi Struggle to Protect the Big Mountain (or Black Mesa) portion of the Navajo and Hopi Reservations in Arizona (Brugge 1994). In 1974, the federal government partitioned the Big Mountain area where members of the Hopi and Navajo tribes reside and transferred some of the land to private ownership. Although many Hopi and Navajo were relocated to other lands, about 300 families remained at Big Mountain to fight exploitation of their lands by private mining companies such as Peabody Coal Company. The tribal council system is the only representative of the Native American community that is formally recognized by the state and federal governments. Although the Navajo tribal council approved the government actions, many members of the Hopi and Navajo communities disagreed with what they saw as destruction of their native lands. In 1993, Peabody bulldozed at least four Navajo burial grounds. Not only was the Black Mesa to be strip-mined, but the Mohave power plant, 275 miles away was to be fed by a liquefied slurry of crushed coal pumped along a pipeline that used large quantities of precious desert aquifer water. Navajo tribal members blocked bulldozers with their bodies, tore down fences, turned away government officials, lobbied for government attention, and raised awareness among their people using through messages and meetings. These Navajo filed several lawsuits concerning land use and water rights. Other lawsuits have addressed the Navajo's inability to perform religious ceremonies and other practices due to destruction of the land. On March 11, 1996, a federal judge ruled that the activity of Peabody was an infringement on the human and environmental rights of local residents. Peabody appealed the decision and continued fighting to re-establish mining. On September 26, 1996, the U.S Congress passed the Navajo-Hopi Settlement Act, which required all Navajo to relocate by 2000. Today, families still refuse to acknowledge the various land acts. In regard to Peabody Coal, on December 22, 2008, the Department of Interior Office of Surface Mining (IOSM) granted a permit to the coal company to allow the continuation of operations in Black Mesa. However, after reevaluation due to an appeal from Navajo and Hopi peoples, the Department withdrew this permit granted to Peabody early in 2010, marking a success for the tribal and environmental organizations. The Mojave coal-fired power plant was decommissioned in 2011 (Bessler 2011).

Education campaigns

The Western Shoshone of western Nevada, through a long-standing information and education campaign (Kendziuk 2004), have responded to federal government efforts to site the Yucca Mountain High-Level Nuclear Waste Repository on their treaty lands. Part of the conflict rests on whether governmental actions at Yucca Mountain impinge on the right of Native Americans to gain access to sacred natural resources. In response to the lack of environmental health concern displayed by the federal government, the Western Shoshone Health Project was formed in 1994. The goals of the project are to collect data on the effects of fall-out from nuclear sites and provide information on the quality of the land, soil, water, plants, and health of the people in the territory. A campaign focused on education has helped them deal with the root of the problem. This unique partnership was forged among outside researchers, health care providers,

and native communities by combining indigenous ways of thinking with technical skills. Perhaps if the Shoshone people had been educated earlier on the health and environmental effects of radiation, the devastation and destruction that has overcome their people and their lands could have been avoided to some degree.

Governmental policy and programs

In 1994, President Clinton signed Executive Order 12898 to require federal agencies to address environmental justice in minority and low-income populations. As a result, federal agencies began to incorporate environmental justice into their missions and programming. As a result, the U.S. Department of Agriculture (USDA) issued departmental regulation 5600-002 to implement the president's order by ensuring that minorities do not experience disproportionate adverse effects from agency actions and that minorities are afforded full participation in decision making. This regulation later led to an USDA Environmental Justice Strategic Plan in 2012 that advances efforts to benefit minority communities.

Many challenges remain. For instance, the most prevalent example of environmental injustice affecting the Latino community is the exposure to pesticides faced by farmworkers. After DDT and other chlorinated hydrocarbon pesticides were banned in the United States in 1972, farmers began using more acutely toxic organophosphate pesticides such as parathion. A large portion of farmworkers in the U.S. are working as undocumented immigrants, and as a result of this status, they are not able to protest against regular exposure to pesticides or benefit from the protections of federal laws (Shrader-Frechette 2002).

Non-governmental organization work

An example of NGO efforts to expand opportunities for minority communities is the work of Michigan Future Inc. This organization's agenda for gaining better job opportunities for Michigan workers features four core pillars (Michigan Future Inc. 2017):

- Helping participants find family-supporting employment through a combination of income supports and comprehensive and customized case management. Services could include housing, child care, transportation, substance abuse support, mental health resources, job training, financial education, etc.
- Using TANF (Temporary Assistance for Needy Families) funding to help those out of work or underemployed get family-supporting jobs.
- Augmenting wages and benefits through some combination of employer mandates and/or a strengthened safety net.
- Reforming the criminal justice system.

Current Experiments in Holistic Landscape Conservation

As noted below, I believe that we work most effectively when a diverse array of stakeholders come together to conserve environmental and social values at a landscape scale that participants can call home while stretching to consider broader ecological and cultural connections. Below I

provide two examples of large landscape collaboration, one rural and one a mix of rural and urban, that illustrate many of the elements of holistic landscape conservation that I discuss later in this working paper. Both examples are works in progress--neither has reached its full potential. Both examples bring together diverse interests to consider broad conservation values, ecological and cultural connectivity, and community needs, but neither has fully addressed the environmental justice issues that exist in their respective landscapes nor fully engaged stakeholders who represent those issues. Both of these collaborations are working effectively at the landscape scale, while both have much more work to do.

A Rural Setting: A Rocky Mountain Example—The High Divide Collaborative

The Collaboration: The setting and vision

For the past 18 years the Heart of the Rockies Initiative has been developing collaborative approaches to Landscape Conservation in the central Rocky Mountains of the United States and Canada. The HOTR vision for this region is of vast landscapes that are ecologically intact, functional, and linked together, and of human communities where local people retain their heritage and sense of place, enjoy a high quality of life, and are connected to nature.
The Initiative's most successful implementation of holistic collaboration is evidenced in the High Divide Collaborative in the High Divide of Montana and Idaho. The High Divide is often referred to as the "land in between" three of the West's iconic landscapes: the Greater Yellowstone, the vast central Idaho Wilderness, and the Crown of the Continent. It straddles the Continental Divide along the Idaho/Montana border, harboring the headwaters of the great Missouri and Columbia rivers that flow to opposite oceans. It is a stronghold for wildlife species that have disappeared from much of their historic range and is the centerpiece for broad scale connectivity between large ecosystems. The High Divide has a conservative political and social context and working ranchlands are central to the region's rural way of life. It was critical to engage ranchers and other local stakeholders up front in the formation of the High Divide Collaborative.

The High Divide Collaborative is a partnership of landowners, local community leaders, public land managers, state wildlife agencies, scientists, and conservation groups delivering a broad conservation vision for the region that includes the conservation and restoration of public and private lands. The High Divide Colloborative's area of interest is determined by the stakeholders involved in the partnership, and necessarily bleeds into some parts of adjacent landscapes due to the Collaborative's goal to sustain cultural and ecological connectivity. The Hige Divide Collabroative intentionally focuses, not on either/or conservation, but on goals that benefit both ecological and social interests. The High Divide Collaborative partners have work together to develop a common ground vision for the ecological and social well-being of the High Divide region. The Collaborative's shared goals are to conserve:

- continental-scale connectivity between large protected core areas for wide-ranging wildlife like pronghorn, elk, moose, lynx, wolverine, and grizzly bear;
- working family ranchlands central to the region's economy, communities, and way of life;
- nationally important wild recreation lands and waterways;

- headwaters for world-class fisheries, including steelhead, salmon, grayling, bull trout, and cutthroat trout. These are THE headwaters for the Missouri and Columbia rivers. Conservation here has immeasurable downstream benefits including for fisheries, irrigation, and recreation.
- A legacy of national historic trails: Nez Perce, Continental Divide, Lewis & Clark.
- Expansive crucial core and migratory sage grouse habitat.
- A heritage of access to public lands for hunting, fishing, and recreation.
- Habitat in the outskirts of towns, called the wildland urban interface, to limit wildfire risks, and fire management costs, and to maintain forest management options.

Methods and practices

The High Divide Collaborative deploys landscape conservation design practices (Finn et al. 2018) to ensure a partner-driven approach that responds to stakeholder values and the best available science to develop and implement a vision for a sustainable, resilient landscape that meets the ecological and social needs of current and future generations of people and wildlife. The Collaborative convenes a broad array of stakeholders who represent local communities and share an interest in the natural and cultural resources of the landscape. From the outset the Collaborative has been careful to listen to all stakeholders and to provide planned, recurring opportunities for all perspectives to be heard by the entire group. Early on, participants agreed to basic standards for stakeholder participation in the High Divide Collaborative. Decisions were to be made by consensus—not everyone has to be enthusiastic about a choice, but everyone has a voice and the group is committed to bringing everyone into the decision-making. At the beginning of each of meeting, the group reiterates the value of its foundation of trust in one another and the importance of respecting each other's perspectives and being responsive to each other's needs. The group also reviews and confirms the Collaborative's shared goals. The Collaborative regularly engages participants through annual workshops, subcommittee meetings, and annual conservation celebrations and field tours. Goal setting is ongoing and dynamic. The group uses its shared goals to develop science to inform the current and projected status of conservation targets. From there the group develops conservation strategies and implements planning. The science informs decision-making but does not govern it.

Conservation outcomes

- The High Divide Collaborative's deep and ongoing engagement with stakeholders takes time and yields incremental progress as planning progresses. The planning process coupled with stakeholder engagement reveals resource conflicts early on. As a result, the design process is adaptive and dynamic as the group collectively develops and implements conservation strategies. As such, the Collaborative continues to effectively tackle difficult conservation issues.
- The Collaborative's clear demonstration of broad and deep support for shared conservation goals has yielded strong support from local and national political leaders and congressional delegations from both states and has resulted in substantial federal and private investments in priority conservation initiatives.
- In partnership with USDA Rural Development in Montana, the Collaborative is now implementing a new program to support rural development in western Montana and its

communities that are facing changes in land use, wildlife populations, weather, and economic stability. The Collaborative has recently hired a Rural Development Director to focus on immediate opportunities for community and conservation needs, and growing access to USDA Rural Development resources in Montana and the Central Rockies region. The Director will assist communities with development of project proposals and securing loans, grants, or agreements for projects. By marketing and implementing USDA RD programs in high conservation interest areas, this new staff member will work to bridge the gap between ecological, economic, and social values.

- Compass (2017) and Graves et al. (2019) have provided some measures of ecological conservation outcomes for the work of the Heart of the Rockies Initiative with particular focus on Greater Yellowstone and the High Divide. These assessments document the value of a collaborative approach to achieve conservation goals.

An Urban/Rural Setting: The Cleveland, Ohio Example—Western Reserve Land Conservancy

The Collaboration: The setting and vision

The Western Reserve Land Conservancy (WRLC) was created by the largest ever merger of land trusts in the United States, a merger of 13 smaller organizations in Northeast Ohio. Today WRLC is a dynamic organization that covers an area of 4 million acres with a population of approximately 4 million people. The Conservancy's service region includes hundreds of miles of Lake Erie shoreline and hundreds of miles of stream corridors with associated riparian areas, and wetlands, extensive agricultural areas with some of the most productive prime soils in the country, and diverse urban areas including large cities like Cleveland and Akron and many smaller cities and towns. "We think of our region as a living organism—you ignore any part of the landscape at your peril." (R. Cochran pers. comm. 2019). The Conservancy works to protect natural areas, cherished local landscapes, farmland, and parks and preserves while also creating healthy cities through county land banks, urban reforestation, and connecting urban people to nature through trails and greenways.

The Western Reserve Land Conservancy is broadly collaborative with a wide array of entities to deliver on its mission:

- WRLC partners with municipalities, conservation districts, corporations, and schools to complete conservation projects.
- WRLC is a partner in the Lake Erie Allegany Partnership for Biodiversity, a broadly based collaborative focused on conservation of biodiversity through biology research, outreach, and conservation funding.
- The Conservancy founded and leads the Ohio Land Bank Association to serve its Ohio county land bank members in resolution of home vacancy issues and revitalizing neighborhoods.
- WRLC helped to establish and is a member of the Cleveland Tree Coalition with recognition that trees are vital to urban human health.
- The Conservancy is also a founder and an active member of the Coalition of Ohio Land Trusts.

The Conservancy's goals include:

- protection of water quality is an overarching ecological goal, with focused efforts to protect and restore stream corridors and riparian buffers and wetlands with all their associated biodiversity—algal blooms are a major new threat to this goal;
- protecting habitats for unique and sensitive species with particularly specialized habitat needs as indicators of the health of these habitats;
- increasing connectivity of protected open space to add greater ecological resilience;
- research and action to help urban neighborhoods self-heal from the housing crisis;
- urban reforestation with recognition of the high value of trees for human health; and
- urban trails and greenways that provide people with opportunities to engage with nature and working to link greenways to provide connected networks of green open space.

Methods and practices

In 2011 the Western Reserve Land Conservancy launched what has become its Thriving Communities program to help revitalize urban centers in its service area in the wake of the recent foreclosure crisis. WRLC recognizes that home value is a vital asset for people working their way out of poverty. Urban areas in Northeast Ohio were hit very hard in the housing crisis. The population of Cleveland, a beautiful and diverse older city, has declined from 950 thousand to 380 thousand in recent years. WRLC has focused on research and action to find ways to help urban neighborhoods self-heal from the housing crisis, including inventory of vacant and distressed housing properties that are perceived as toxic to neighborhood renewal. Tools used include establishment of county land banks, surveying properties to identify their status and value, securing demolition funds, providing for green space through urban land conservation, urban reforestation, and research on urban blight issues. Western Reserve Land Conservancy's Thriving Communities program has provided municipalities with information to most effectively target their limited resources for rehabilitation and demolition through property inventories.

Urban reforestation is a primary program for WRLC through its Reforest Our City program (Fedor 2015). The Conservancy points to the vital value of urban forests for human health (Kardan et al. 2015). The Conservancy also recognizes that past mistakes by urban arborists, such as trees with roots that impact water systems or fruit trees that drop debris, can lead to urban citizen resistance to establishment of new trees. Future plantings need to be resilient to climate change and invasive species.

WRLC's land protection efforts focus on lands that provide for habitat protection, recreation and/or education opportunities, open space for public benefit, and historic preservation. The Conservancy works with partners to create public parks and preserves. They also use conservation easements to help landowners conserve privately held natural areas and working farms.

Conservation outcomes

- The Conservancy surveyed all property parcels in Cleveland in 2015 and then in 2018 updated the data in the most at-risk neighborhoods (Western Reserve Land Conservancy 2018). The result has been a significant decrease in the number of distressed, vacant residential properties and an increase in property values to the benefit of homeowners in relatively poor neighborhoods.
- WRLC has worked with landowners and other partners to protect and conserve over 57,000 acres of priority lands.
- WRLC is currently developing metrics of success to guide its planning. Metrics will include:
    - natural areas (percent of land needed to sustain natural ecological function);
    - connectivity of natural areas to provide resilience;
    - a measure of biodiversity;
    - farmlands, percent of contiguous areas that feature prime soils and support functioning farms;
    - urban health;
    - urban forest canopy; and
    - extent and connectedness of trails and greenways.

Elements of Holistic Collaboration: Discussion

With many others I advocate for a landscape approach to conservation that goes beyond piecemeal tactics to a strategic consideration of landscapes at the scales at which nature and culture function. At the same time, we recognize the power of collaboration to protect the landscapes that people call home—the power of sense of place. When we consider the scale of our collaborations, we seek a sweet spot that is a mixture of local familiarity and connection to the broader picture. That sweet spot is bigger than backyard, larger than any local jurisdiction, and yet not so grand that is loses local relevancy. Thus, a vitally important early challenge for any landscape collaboration is to define the landscape scale that fits this ecological and cultural sense of place while concurrently recognizing that this definition of place must arise from the full array of landscape stakeholders in a ground-up process, not as a top-down directive. As Robert Bendict has written, "just as true love requires two lovers, a sense of place requires both the place and a receptivity to that place. . . a sense of place begins within ourselves." The appropriate landscape scale is a mixture of what is local and the ecological and cultural connections of local to the big picture, what we might call a landscape of place. In my experience in the High Divide of Idaho and Montana, the necessary stakeholder ownership of place for our collaborative function required some learning of landscape of place, some expansion of what each of us considered local. As we define the bounds of the landscape we establish the frame for an ongoing landscape conversation, with recognition that those boundaries will be fuzzy and flexible. Again, definition of landscape scale is a process, not a one-time decision. As such, every landscape will have its unique character and conservation goals. When working within this power of landscape of place, we can stitch together the tapestry of the much broader connections that lead to enduring conservation.

In the realm of landscape conservation, substantive and durable success arises when community members from many backgrounds come together from day one to shape a common sense of place, of landscape, and develop a future vision grounded in respect for diversity of perspective. A first step to such deep collaboration is to ensure consideration for the interests of all interested stakeholders—some of whom have not yet been born and some who are not human. Truly working together with the full array of stakeholders forces us to recognize that our collaborative efforts must respond to nature, resources, and people. Our collaborations can thrive when we engage and pay attention to: 1) our relationships with our partners, human and natural, and their diverse interests, perspectives, and needs; 2) the context and conditions of our natural and social environments and the existing policies that constrain them; and 3) the information and communication gaps needed to advance our conservation goals. Often minority and marginalized communities have not been included in collaborative conversation and their needs have not received due consideration (Roberts 1998). Environmental justice is not only about securing a fair distribution of goods. Treating others justly also involves recognizing their membership in the community and promoting the capabilities and opportunities that they need to fully participate, function, and flourish in decision-making processes (Schlosberg 2007). Inclusiveness in conservation planning also requires consideration for future generations, humans and non-humans (Treves et al. 2019).

Collaborative stakeholders should enter their discussions with a commitment to respect one another's values. Success starts by building a foundation of mutual trust, trust that each participant's values will be heard and respected. Such trust is the foundation for creating an open-source arena for dialogue and information exchange–a place where we work together in true collaboration to find common ground, a safe place where participants can change their perspectives, a platform that purposefully fosters a continual re-earning of mutual trust.

The power of such settings is that participants come to recognize that we are all stakeholders who wish to maintain and enjoy healthy, sustainable environments. Broad partnerships built on trust become platforms where landowners, community leaders including those from minority communities, agency representatives, environmentalists, and advocates for future human and animal generations have an active voice and are welcomed, not as outsiders but as community members. Together we can visualize desired future conditions and recognize tradeoffs through provision of the best available science while always recognizing that the science informs decisions-it does not make the decisions-we as collaborative stakeholders do.

We must form our vision around the most prominent social, cultural, and ecological features of the landscape. As conservation practitioners we clearly have no chance at success if we merely offer the latest ecological information and hope for good decisions. Our goals must not only be ecological but must also consider "people" values: families, economy, culture, and legacy. In my landscape I am reminded of the simple lessons provided by a rancher in Montana's Madison Valley. As he recognized the conservation successes achieved in his valley, he reminded us that if we are to sustain long distance seasonal elk and antelope migrations, we must also consider how we will sustain the private land forage upon which the wildlife—and the local ranchers—depend. Similarly, if we are to restore and sustain dispersal linkages for large carnivores such as grizzly bears, we must discover strategies to ensure tolerance for the inevitable conflicts.

I've witnessed the power of holistic, community-based conservation to conserve large landscape values. As I reflect on my experiences, and what I have learned from all of the people that I have worked with over the years, I see several key elements as central to this approach that I believe can be applied in diverse settings across the country. These include:

- The full array of stakeholders should be invited to the discussion from day one (or as soon as we identify them). From there we will have to invest in our collective capacity to allow all sectors to continue to participate.
- If we are to achieve durable outcomes that benefit the future well-being of all-people, animals, and nature, we must intentionally provide representation of the interests of future generations of people and non-human beings in our current discussions.
- We start by building trust that diverse values and perspectives will be respected; that we will work together to discover common ground. Trust arises from respect, taking the time to listen, to learn value for other views, to develop relationships.
- As our stakeholder team is developed, we need to collaboratively identify our working geography, our landscape of place that fits the collective sense of appropriate landscape scale.
- Successful collaboration requires consistent leadership and organizational capacity to convene, coordinate, and facilitate the conversations and to document their results.
- Explicit training in and continual renewal of the skills needed to advance civil discussion are needed to fully empower people to engage in community-based approaches.
- Clear articulation of the problems faced and the desired outcomes is essential to the development of solution strategies.
- We need to work across boundaries in an All Lands and All Hands approach.
- We need to develop and share information and science at appropriate scales that allow practitioners to define what conditions will be if we choose one vision over another, to help us understand the advantages or disadvantages of conservation strategies, and to share in ownership of conservation strategies.
- We rely upon our investment in one another and our shared stewardship of nature and community to make the right choices for the landscape.
- Our goals will necessarily be holistic: social, cultural, and ecological.
- We need to expand awareness of ecological and social conditions and issues in our landscapes. We need to empower our story tellers, those authentic voices who have the capability to reach all audiences and bring more allies to our partnerships.
- We must stay the course; true collaboration is a long iterative process. We must nurture the collaborative.
- Results matter—small successes keep people at the table. We should celebrate success—this fosters stakeholder pride and ownership in the collaborative.
- We should also share those successes with others outside of our partnerships so that they can recognize and support the work of landscape stakeholders.
- We have a much better chance of succeeding if we worry less about Who authored the success and more about Who gets to share in the outcomes.

I am a conservation biologist by training and avocation, and my enduring passion is for the protection of wild nature, wild nature on the big scales necessary for ecosystem conservation. It

is never easy to reconcile my enthusiasm for the wild side of my home landscape with the realities of partnership with many individuals who on the surface may have very different values. At the same time, I greatly respect the perspectives of the diverse community leaders with whom I share my landscape. Over the years, I have learned that when we spend time to understand one another, we discover that we generally share core conservation and community values. I also recognize that my enthusiasm alone will never be sufficient for conservation of my landscape or my community. It will require a broadly collective love and awareness of home and community and shared conservation interest to get the job done.

Recommendations: Meeting Today's Challenge

In America we have been given an incredible legacy of environmental protection, a solid foundation of hope for the future of our conservation endeavors. In my neighborhood, Yellowstone is at the heart of our public lands inheritance, a vital heart still beating 147 years after it became the world's first national park. Across the country, our public lands remain among the greatest American treasures, with 28 percent of the total U.S. land base in federal ownership (Vincent et al. 2017) and many additional public parks owned by states and local governments. On the private land side land trust/landowner partnerships are providing a more recent additional pillar of hope for the future of conservation, having protected over 56 million acres of land through voluntary agreements with willing landowners (Land Trust Alliance 2018). Whereas we face a future with huge conservation challenges, we stand on the shoulders of those who have provided a rich history of conservation success.

However, we cannot rest on past accomplishments. It is estimated that we are losing 1.5 million acres of natural areas in the conterminous U.S. annually (Theobold et al. 2019). Our farmlands in both urban and rural areas are being developed and lost to production at the rate of 1.55 million acres per year (Sorensen et al. 2018), with 550 thousand of those acres coming at the expense of our most productive soil and weather conditions for growing food. Couple those losses with continued population growth and climate change, and it is clearly time to up our game.

I offer my fellows in conservation, without an attempt to be comprehensive, what I consider as key recommendations for our future work. I very intentionally first list what I might term two-way outreach, encouragement of a deep collective conversation that leads to greater awareness and engagement, because I believe that many of our challenges rest upon this essential prerequisite. I recommend that our first action be a concerted effort to move general public sentiment to recognize: 1) that the environment governs individual and community health for all humans, and 2) that all of nature is justly entitled to a shot at a future on planet Earth.

A Collective Conversation—Building a Movement for our times

I challenge representatives of the full spectrum of today's conservation community, from Wilderness activists to urban advocates for environmental justice, to physically meet together to plan for and implement a strategy that invites people from all sectors to engage in a profound conversation about how we wish to live today and in the future. It will not be easy for us to fully empower all the credible voices that we need in this conversation, but I believe that it is an

essential step in the face of our current environmental and social crises. While many of us do a good job of speaking to our members, our donors, and all those who care about our respective efforts, our greatest collective challenge is the general public's lack of awareness of and interest in conservation issues. We need robust outreach that includes listening and has the potential to engage all Americans. We can best elevate public awareness of environmental and social concerns and opportunities when we include more people in the dialogue, when we listen and share information. If we are to gain the governmental policies, organizational capacity and conservation funding needed to achieve our goals, we need many more partners who are informed of and care about environmental and social conditions. We all fail if we do not raise conservation's public profile. In fact, absent public support, we stand to lose much of the 150 years of conservation success that is our foundation.

Conservation science is exploding with an abundance of new information to help us meet our challenges—we need to share that growing knowledge in forms that landscape stakeholders can use to make informed decisions and craft well-grounded plans for the future, and that the general public can understand and appreciate.

Policy

At all levels of governance, policies and programs that enable us to work collaboratively across geographic, jurisdictional and cultural boundaries and across time scales are essential. We work from the fringes until we succeed at bringing the collaborative discussion and work into the center of what we do as a society. We need governmental support to enable and fund our collaborative processes. For example, the national Landscape Conservation Cooperative program was a great innovation that was discontinued just as it was gaining traction. We need similar programs that provide a place for collaboration, planning and research tools, and project funding at the landscape scale. In addition, we need government at all levels to secure our hard earned framework of environmental laws and public land protections.

Partnership

Throughout this paper I have argued for truly collaborative conservation initiatives that reach across cultural and jurisdictional divides at appropriate landscape scales. This infers decision making that is broadly participatory and stakeholder driven. Working together in fully shared conversations we can discover common ground and create visions for sustainable futures for people and nature.

Organizational capacity

Successful collaborations require strong leadership and a sustained convener. We need to strengthen the organizational capacity of our conservation partnerships through skills training, leadership and governance development, and resource development. We need funding to sustain our collaborations.

Landscape Perspective

We need to work together with a landscape perspective. We necessarily work from project to project, but overall our work should be framed within a holistic landscape vision at the landscape scales at which nature and human communities actually function. We need to move beyond single focus, piecemeal efforts as we consider the ecological and cultural elements of entire landscapes, public to private, wild to rural to urban.

Landscape scale

When a collaborative works at a landscape scale that stakeholders consider home, its participants can fully own the collaboration. This leads to sustainable effectiveness. .Just as "all politics is local" (Thomas O'Neill), effective landscape collaborations build from the power of sense of place. When we consider landscape scale, we seek a geography that includes both local familiarity and ecological and cultural connections of local to the broader picture, what we might call a landscape of place. Our collaborative landscape of place is bigger than backyard, larger than any local jurisdiction, and yet not so grand that is loses local relevancy. Again, definition of landscape scale is an ongoing collaborative process, not a one-time decision. As such, every landscape will have its unique character and conservation goals.

Neighborhoods for all

In the landscape conservation context, consider that rich Nimbies will always have more power than poor Nimbies. Beyond humans, the vast majority of life on earth has no voice in human decision-making. In the long-term, we are all connected. On planet Earth, we all live in the same neighborhood. We need to expand the meaning of backyard.

Funding

Along with a supportive public, we need to continue to innovatively grow the funding needed for landscape conservation programs and the partnerships that drive them.

An intentional future

True collaboration, in the sense that I speak of in this paper, means that we all have a seat the table, and further, that we all share ownership of the table. Our challenge as current stakeholders is to speak for the rights of future generations of people and nature. In the big picture each of us represents a multitude of unborn voices—we have to think about and plan for the long-term.

I believe that we as conservationists hold the keys to environmental and social renewal. At our core, we can feel the power of local community-based conservation when we experience it in action. No one individual or single organization or agency can meet all the challenges that we face, nor even can these challenges be tidily classified as "social" or "economic" or "environmental." When we bring diverse perspectives together around a shared interest in sustaining a place that all our people can call home, we can direct that power of community for tremendous benefit to nature and community at large regional scales. We succeed together.

On a global scale and in the United States, we are failing to protect the future for humans and nature. Our usual incremental steps toward desired conservation and social outcomes are far too little for our situation. We need a revolutionary course correction in our thinking and action. I know of no partnerships or initiatives that are meeting all the suggested steps that I mention in this paper, and I do not argue for perfection at the expense of the good. But we do need to dramatically improve our performance in all these areas. And to be clear, the "reform that is needed is not anti-capitalist, anti-American, or even deep environmentalist; it is simply the transition from short-term to long-term thinking" (Wright 2004). I am encouraged by some current political dialogues that mix ecological protection, climate resiliency, and environmental justice into one proposal. Now it is up to us as conservation practitioners to put some muscle and connective tissue on the bones. We begin to realize a better future for humanity and nature when we intentionally give that future a seat at the table in today's conservation conversation. If we are to achieve durable outcomes that benefit the future well-being of all-people, animals, and nature, we must succeed together.

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