Improving Collaboration Between State Trust Land Managers and Large Landscape Conservation Practitioners

Susan Culp

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Abstract

Large landscape-scale conservation (LLC) frameworks hold significant promise for meeting 21st century challenges while maintaining and/or restoring the health and function of critical ecosystem services. This approach recognizes that preservation of functional ecosystems cannot realistically take place on isolated patches of conserved lands, or rely on single agencies or land owners to manage, but that neighboring landowners and managers have an important role to play, especially in ensuring connectivity for wildlife migration. A key factor recognized by nearly all LLC initiatives is the importance of collaboration among multiple stakeholders to the success of the effort.

State trust land managers, as holders and managers of over 38.5 million acres in the Intermountain West, are significant stakeholders and are important to the success of many LLC initiatives. However, they are infrequently involved in LLC initiatives in the West. By bringing such a significant large land owner to the table in landscape-scale conservation initiatives and finding mechanisms that enable their increased participation in development and implementation of management goals, large landscape conservation practitioners will earn a valuable partner, and make important strides in achieving their objectives across multiple jurisdictions.

About the Author

Susan Culp is a Project Manager for Western Lands and Communities, a joint venture of the Lincoln Institute of Land Policy and the Sonoran Institute. The partnership seeks to integrate conservation with development, and promote sustainability in intermountain western states. She oversees its research and policy analysis projects to promote regional planning, improve management of state and federal public lands, and integrate energy, transportation, water and conservation infrastructure at a regional level. She holds a bachelor's in marine biology from the University of California at Santa Cruz and a master's degree in public administration and policy, with a focus on natural resources, from the University of Arizona's Eller College of Business and Public Administration.

Sonoran Institute
11010 N. Tatum Blvd. Suite D-101
Phoenix, AZ 85028
(602) 393-4310 ext 310
Fax: (602) 393-4319
sculp@sonoraninstitute.org

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Introduction

As the 21st century marches on, it has become clear to land managers and conservationists that traditional models and approaches to managing natural resources, such as land, water, and wildlife, are not sufficient on their own to protect critical biodiversity, landscape health, and other values associated with intact, functional ecosystems. Historically, efforts to protect natural landscapes have tended to focus on acquisition of ecologically sensitive natural areas, either by a public land management agency charged with a conservation mission, or through private purchase by a non-governmental organization (NGO) or conservation buyer; preservation of species through federal regulatory means such as the Endangered Species Act; or environmental assessments of human activities, again through federal regulatory measures such as National Environmental Policy Act (NEPA), and recommendations for lower impact alternatives. While these tools and approaches have made considerable conservation progress possible in the Intermountain West over the past decades, alone they cannot address the challenges the region currently faces with continued growth and its associated impacts on land use patterns and resource consumption, or with a changing climate.

An emerging focus on large landscape-scale conservation frameworks, however, holds promise for making genuine strides in managing large landscapes in a manner that can meet 21st century challenges while maintaining or restoring the health and function of critical ecosystem services. As defined by McKinney, Scarlett, and Kemmis, large landscape conservation (LLC) initiatives can be identified by three main criteria; they are multi-jurisdictional, multi-purpose (i.e. incorporating environmental values, and community and economic considerations), and multi-stakeholder (McKinney et al. 2010). This approach recognizes that preservation of functional ecosystems cannot realistically take place on isolated patches of conserved lands or rely on single agencies or land owners to manage, but that neighboring landowners and managers have an important role to play, especially in ensuring connectivity for wildlife migration.

Large landscape conservation efforts would ideally involve all landowners within the region as stakeholders in the process of setting long term goals and benchmarks for land management within the large landscape unit, as defined by the initiative. Additionally, they would all take part in building consensus toward a rational, collaborative approach to stewardship of the natural resources in question, and monitoring and tracking success in achieving the goals of the initiative. This necessitates effective interagency cooperation between federal entities involved, as well as constructive collaboration between federal entities, state agencies, and private landowners.

State trust land management agencies are critical stakeholders for many LLC efforts in the Intermountain West. Trust lands comprise more than 46 million acres in the U.S., with the majority of those holdings located in the West. A unique category of publicly held lands, state trust lands are located in broad, often checkerboard patterns interspersed with federal public

lands and private lands, throughout western states. Given the scattershot pattern that is common owing to the history of the trust land conveyances, state trust lands are a significant part of many of the LLC initiatives in the Intermountain West. However, state trust land agencies have only been engaged in a handful of LLC efforts. Their participation has been relatively low compared to many other stakeholder types, such as federal land management agencies, conservation NGOs, tribes, business and civic groups, and private landowners.

This working paper will examine the LLC initiatives that exist throughout the Intermountain West, and overlay those boundaries with state trust land holdings to identify regions that have a significant trust land component. The fiduciary duties and constraints of trust land managers will be discussed in the context of their potential participation in large landscape-scale conservation efforts. Lastly, concepts for improving interagency collaboration between state trust land managers as partners within LLC initiatives will be examined.

The Need for a Large Landscape Approach to Natural Resource Management

As mentioned before, LLC efforts can be defined as multi-jurisdictional, multi-purpose, and multi-stakeholder initiatives with a focus on land and water management at the appropriate scale. A common thread to these types of initiatives, and a key to their success, is regional collaboration and interagency cooperation (McKinney et al. 2010). As initiatives, they work at a variety of geographic scales, from efforts encompassing tens of thousands of acres ranging to millions of acres, and apply a host of governance structures to foster cross jurisdictional collaboration (McKinney et al. 2010).

Large landscape-scale conservation frameworks move beyond traditional, often piece meal approaches to conservation, and recognize that managing land, water, wildlife and other natural resources to restore or maintain critical ecosystem functions requires a cross-boundary approach involving many landowners and stakeholders. The scope and scale of the challenges facing the West demand a large landscape-scale conservation approach in order to succeed.

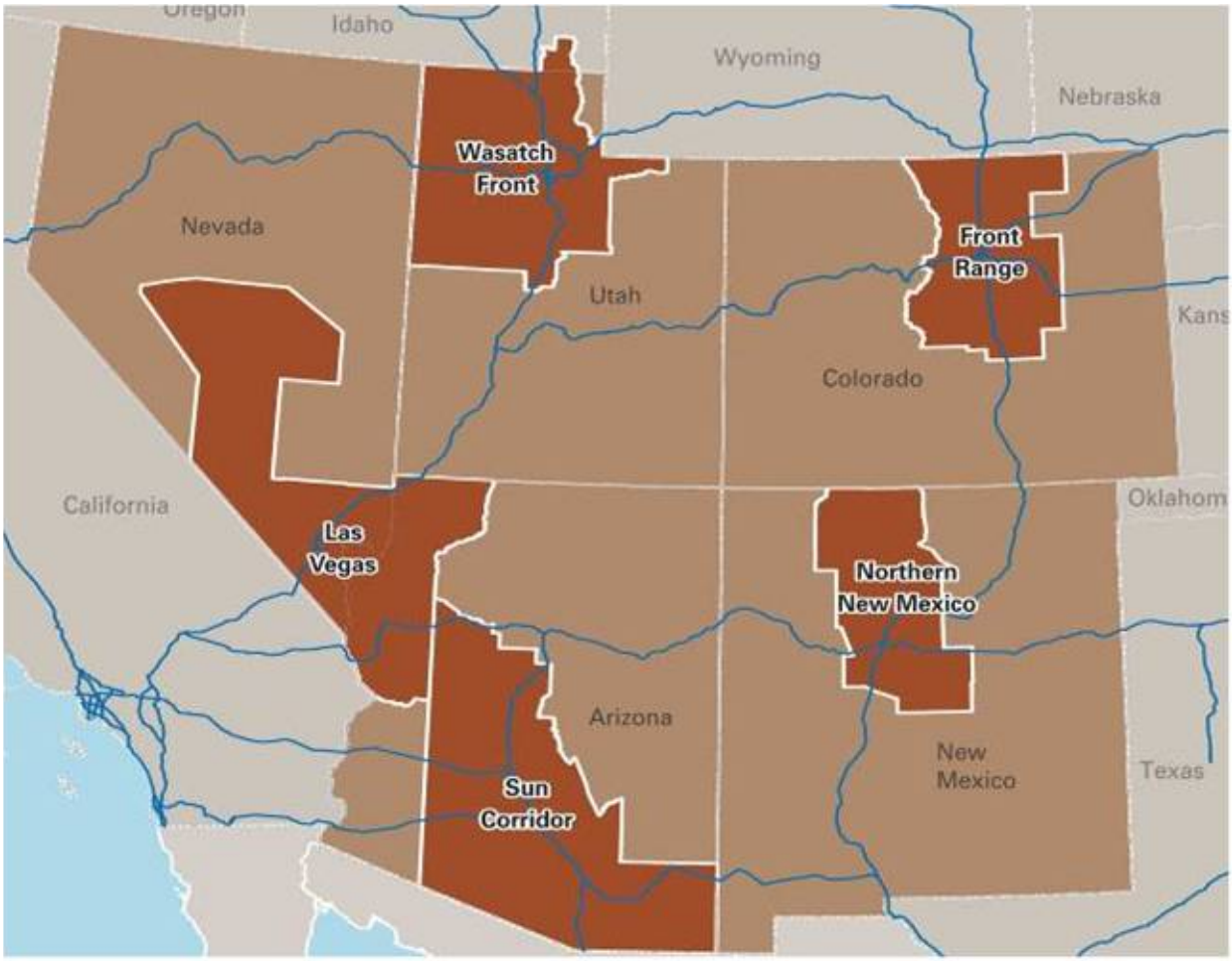
The Intermountain West is a region experiencing great transformations. This is in part due to rapid growth and development of resources—from increased mining, energy development and transmission siting, to increased water use and urban expansion. The West is also caught in the crosshairs of climate related impacts, such as catastrophic wildfires, pest and invasive species outbreaks, prolonged drought, increased severe storms, and urban heat island effects. Each of these impacts would create significant challenges on their own, but combined they have the potential to dramatically alter the landscapes, wildlife and natural resources of the West.

Changes in Growth Patterns and Resource Use

Over the past two decades, the West has seen significant population growth, demographic changes, and expansion of the urban footprint. In fact, five regions in the Intermountain West have been identified as emerging megapolitans, which are areas that are likely to each become home to more than 10 million people and whose cities have interconnected economies, transportation systems, and other infrastructure connections. These rapidly growing areas are the

Sun Corridor in Arizona, the Front Range of Colorado, Las Vegas in Nevada, Northern New Mexico in New Mexico, and the Wasatch Front in Utah (Figure 1).

Figure 1: Map—Megapolitan Regions of the Intermountain West



Source: Brookings Mountain West

In the last 10 years, the Intermountain West markedly outpaced the nine percent population growth rate for the nation as a whole, with growth that ranged between 13 percent in New Mexico, to over 35 percent in Nevada (US Census Bureau 2011). During the boom years in the Las Vegas and Phoenix metro areas, the cities were adding more than 20,000 new residents per month. The population increases in the region had a substantial impact on land use and growth patterns. Over the 10 year period, the urban footprint for most cities in the region expanded significantly.[1] For example, in the Phoenix metro area, land in urban use increased by nearly 300 square miles from 2000 to 2010 (Berg 2012). A significant portion of the lands that were developed during this period were state trust lands sold for residential or commercial

[1] This trend was not observed in some cities, such as Salt Lake City in the Wasatch Front, that remained bounded by public lands or geographic barriers such as mountain ranges or lakes.

development, particularly in the desert Southwest. The increased population has also created increased demand for a host of other resources, including water, energy, building materials, and amenities.

As a result, the same ten-year period also ushered in an era of expanded energy exploration and development in the region. Increased attention on climate change and renewable energy alternatives, and a focus on the development of domestic supplies, brought energy generation and transmission siting opportunities to the Intermountain West, which is rich in natural gas, coal, oil, and renewable resources such as wind and solar.

This new energy "rush" began in the mid-2000s and initially focused on the development and extraction of oil, coal and natural gas. Advances in hydraulic "fracking" technology made previously inaccessible or low value deposits suddenly worth developing, and during the Bush administration, large amounts of federal public lands in the West were leased for new drilling. State trust land managers in the western states also saw significant increases in mineral royalties for development of oil and gas on trust lands that had marketable deposits of those resources. While fossil fuel development enjoyed a revived boom, there was also increased interest in developing wind, solar and geothermal resources in the West, particularly to serve states that had implemented renewable energy portfolio standards.

In 2012, a large scale Programmatic Environmental Impact Statement (PEIS) was completed to provide a blueprint for the development of 10,000 megawatts of renewable energy, mainly solar, on federal public lands in the Intermountain West (U.S. Bureau of Land Management and U.S. Department of Energy 2012). The Solar PEIS identifies over 285,000 acres of land in the West as priority areas for utility-scale solar and other renewable energy development (U.S. Bureau of Land Management and U.S. Department of Energy 2012). In Arizona, the Bureau of Land Management's Restoration Design Energy Project (RDEP) seeks to implement the Solar PEIS through a collaborative process that identifies lands suitable for utility-scale solar development, an effort that includes multiple stakeholders, including the Arizona State Land Department (U.S. Bureau of Land Management 2013).

State trust land managers have also taken advantage of renewable resources on trust land holdings, with nearly 300 megawatts of renewable energy (primarily wind generation) sited on state trust lands in the Intermountain West (Berry 2013). Arizona, New Mexico and Utah have also leased state trust lands for solar facilities, although none of those projects are operational yet (Berry 2013).

A booming population, expanding urban areas, and increasing demand for energy, water, and land—for development as well as for recreational, scenic, and ecosystem service values—have brought fundamental changes to the West over the past 20 years. For the region to retain the natural values that make it so attractive to new residents, businesses, and visitors, careful management of development, in cooperation with all stakeholders, must take place.

The West's Changing Climate

The impacts of all of the changes discussed above in land and resource use will be exacerbated by a changing climate. As reported in the 2007 Intergovernmental Panel on Climate Change (IPCC), the Intermountain West region is expected to experience the most severe impacts from climate change in the U.S. (Intergovernmental Panel on Climate Change, 2007). More recently, the draft National Climate Assessment, completed in January of 2013, included technical reports on climate impacts currently being experienced in the Southwest and Northwest. These reports confirm many of the forecasted impacts as modeled and reported by the IPCC.

In the Southwest, the observed impacts include temperature increases, reduced flows in the major river basins, and prolonged drought beyond that which was experienced over the past century (Overpeck et al. 2012). The report goes on to identify landscape-scale change in terrestrial and freshwater ecosystems as a result of climate change impacts, acknowledging that the observed impacts of temperature, drought, and disturbance will continue to have substantial effects on land cover, vegetation, and species health.

In the Northwest, the impacts of climate change that have been observed and recorded in the region's technical report for the National Climate Assessment also include reduced water supply due to changes in snowmelt and timing of precipitation, and the commensurate effects a reduced water supply has on ecological systems. The report also highlights the likelihood of continued forest mortality as a result of pest and disease outbreaks, which may lead to significantly altered forest composition and extent in the northwestern states, such as Montana, Idaho, and Washington.

Preserving Critical Ecosystem Health and Function

The combination of climate change, population growth and increased demand for natural resources in the West creates immense challenges to maintaining and sustaining functional, healthy ecosystems, and the many services and values that they provide for human society. However, sustaining those ecosystem services and values is also an emerging priority for residents and visitors alike in the West. There is broad understanding that preservation of natural amenities and resources for tourism and recreation, as well for the lifestyles and industries those resources support and the enjoyment they provide is essential for a prosperous economy and healthy quality of life.

In polling data gathered on reasons why people relocate to the Intermountain West, some of the most frequently noted are quality of life, outdoor opportunities, scenic vistas, and wildlife.[2] Polling data also demonstrates residents' concern for the protection of essential ecosystem services, particularly when it comes to water supplies, flood control, and maintaining clean air.

These natural processes cannot be easily bounded by jurisdictional or land ownership lines. Wildlife, especially large mammals such as bears, elk, and wolverines, as well as migratory bird

[2] This information is taken from a memo on American voter views on conservation dated July 2, 2012, summarizing opinion survey data conducted by Fairbank, Maslin, Maullin, Metz & Associates and Public Opinion Strategies.

species, need vast areas in which to move around and maintain a healthy level of genetic diversity. The traditional approach to conservation management and preservation of biodiversity consists mainly in setting aside land as parks or wildlife refuges, but these isolated areas are often not large enough to contain many species' full ranges. Also, these islands of refugia for wildlife often do not include critical migratory corridors to allow movement and the inter-mixing of different genetic pools for a given species.

Developing cohesive management strategies for resources that cross land ownership boundaries has been an ongoing challenge in the West. This challenge becomes even greater when considering the conflicting management goals and directives between federal agencies, state agencies, private landowners, and lessees of public lands.

To date, there has been few resources or investments provided to generate funds or develop frameworks for natural resource efforts at a broad, ecosystem-wide scale. Instead, the activities and management efforts of most federal and state agencies, as well as NGOs that manage preserve lands, tend to be bounded by their borders. Most public land managers recognize that the impacts of land uses outside their boundaries have significant effects on their resources that could undermine their management objectives and ultimately diminish the natural values that a federal public land unit is intended to protect. However, few resources are provided to help land managers engage with adjoining land owners in an ongoing, sustained basis, let alone to create incentives for private landowners or landowners with potentially incompatible uses to manage lands in a manner that will help sustain the natural values in question.

In order to adequately maintain important ecosystem functions, the engagement of multiple landowners in the region on management objectives to maintain those ecosystem values is essential. Given the scale, magnitude, and scope of the many challenges facing federal public land managers and conservationists, it is essential that efforts to resolve problems and address challenges match the level at which the impacts are taking place. The emergence and increasing interest and investment in LLC efforts reflects this understanding, and offers an alternative approach to conservation at an appropriate scale.

Policies to Support Large Landscape Conservation

The paradigm of large landscape-scale conservation frameworks has gained traction at the political level, and has been incorporated into many federal public land agencies management directives. As early as 2005, President Bush's administration recommended that the Department of Interior "support innovative landscape-level, multiyear projects that place an emphasis on collaborative approaches to conservation," at the White House Conference on Cooperative Conservation (McKinney et al. 2010).

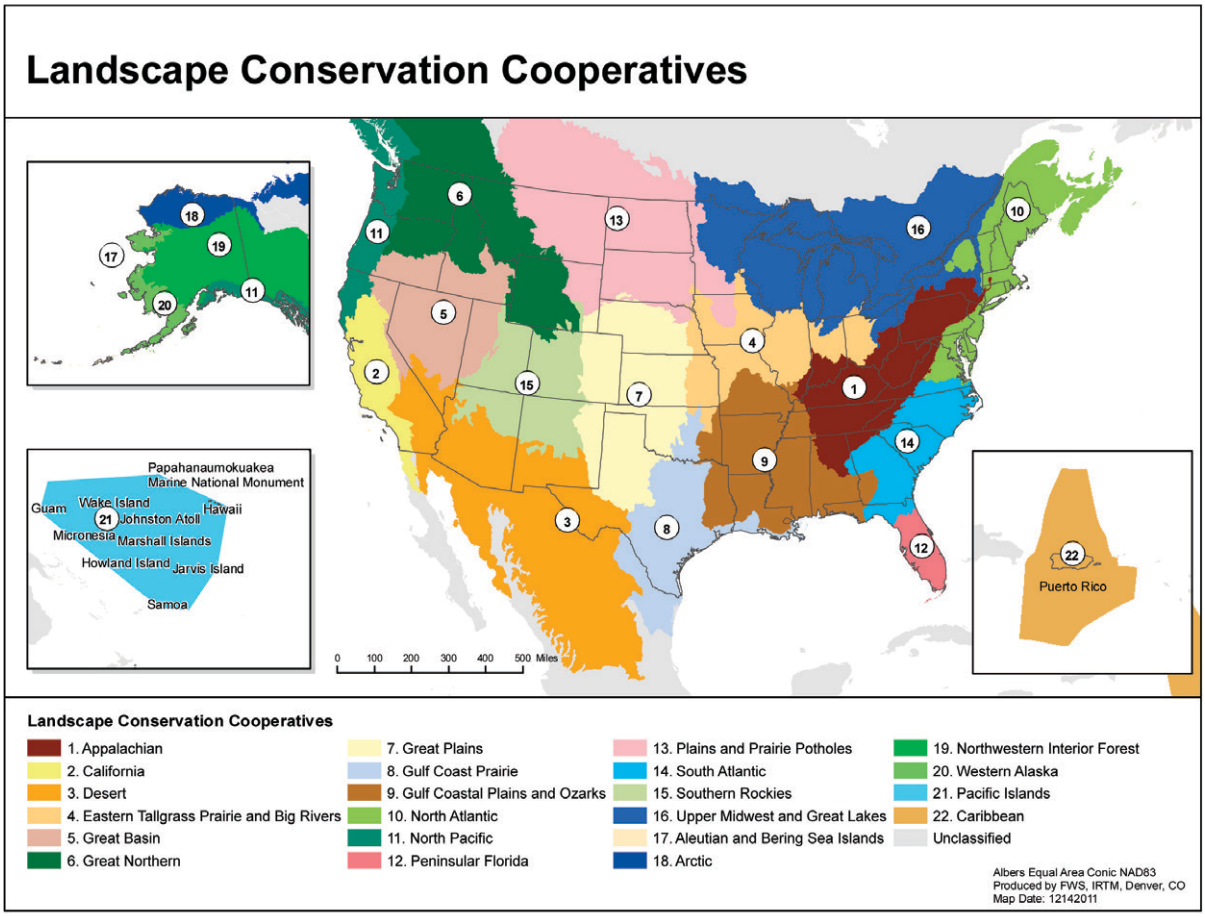
The Obama Administration has continued to provide support for and build momentum around large landscape-scale conservation as a model as well. In 2010, the America's Great Outdoors (AGO) initiative was rolled out as a strategy to reconnect Americans with natural areas, and protect and restore the nation's land and water for future generations (Council on Environmental Quality et al. 2011). The AGO initiative is intended to support collaborative, grassroots level conservation efforts, and to encourage strong interagency cooperation with both private

landowners and conservationists, as well as with other agencies in managing America's natural resources.

The Department of the Interior has continued a focus on LLC as well. In 2009, Secretarial Order 3289 established a series of Large Landscape Cooperatives as collaborative projects between the U.S. Fish and Wildlife Service, National Park Service, Bureau of Land Management, and other federal land and resource management agencies (U.S. Fish and Wildlife Service 2012). These Landscape Conservation Cooperatives will focus on leveraging funding, developing tools and strategies that enable landscape-scale planning and management, and building partnerships with conservation groups, landowners, and other agencies to inform management across jurisdictional lines.

There are six Landscape Conservation Cooperatives whose boundaries are within or encompass some portion of the Intermountain West: the Desert Landscape Conservation Cooperative, Great Basin Landscape Conservation Cooperative, Great Northern Landscape Conservation Cooperative, Great Plains Landscape Conservation Cooperative, the Plains and Prairie Potholes Landscape Conservation Cooperative, and the Southern Rockies Landscape Conservation Cooperative (Figure 2).

Figure 2: Map—Landscape Conservation Cooperatives



Source: U.S. Fish and Wildlife Service

The Landscape Conservation Cooperatives' boundaries were established as biologically based units that comprise large regions across multiple jurisdictional boundaries, and incorporate functional, long-term partnerships in landscape-scale conservation (U.S. Fish and Wildlife Service 2012). One of the core purposes of the LCC is to develop science-based management plans across a large geography. They monitor landscape-scale stressors, such as climate change and human development, which affect the long term health of land, water, wildlife, and cultural resources.

National level investment of this kind in creating a framework for developing cross-jurisdictional management plans, and tracking the impacts of change on natural resources, holds great potential to advance the capacity of conservation efforts at the landscape scale. With an established framework for engagement, resources to enable broad participation, and decision support information more stakeholders may be able to play a role in LLC initiatives. Increased buy-in and a concerted effort to reach new partners may help the Intermountain West move beyond historic land use conflicts and perhaps ensure that the natural capital on which our society depends will be healthy and well managed for many generations.

Large Landscape Conservation Efforts in the Intermountain West

While it is encouraging to see federal level policy priorities and investment in LLC, the Intermountain West has been home to a number of regional collaboration efforts to achieve conservation objectives. The University of Montana's Center for Natural Resources and Environmental Policy has developed a comprehensive inventory and atlas of LLC initiatives in the Intermountain West, ranging from federal level LCCs to small-scale efforts championed by local citizens groups and conservation NGOs (McKinney and Johnson 2013). This effort has identified over 120 LLC efforts throughout the region, which range from the relatively small (encompassing 500,000 acres or less) to the very large (over 100 million acres). This inventory of LLC initiatives can be viewed at www.largelandscapenetwork.org.

Some of the large landscape initiatives inventoried by the University of Montana's Center for Natural Resources and Environmental Policy are interstate water compacts, formalized treaties and agreements for natural resource use across jurisdictional and even national boundaries. While states are frequently parties to these agreements and participate in negotiating the terms of the agreements and subsequent amendments, it is not typically common for the state trust land management agencies to be involved in the details of such management decisions.

Other efforts are less formalized, and may be a simple partnership or network between conservation NGOs that care about a particular geography. For example, the Clark Fork Coalition is a partnership of organizations, public officials, and scientists that care about the 22,000 square mile basin of the Clark Fork River in Montana; the Greater Flagstaff Forests Partnership is a network of governmental agencies, scientists, conservation NGOs and community leaders working to restore forest ecosystem health in Flagstaff's ponderosa pine forests in northern Arizona.

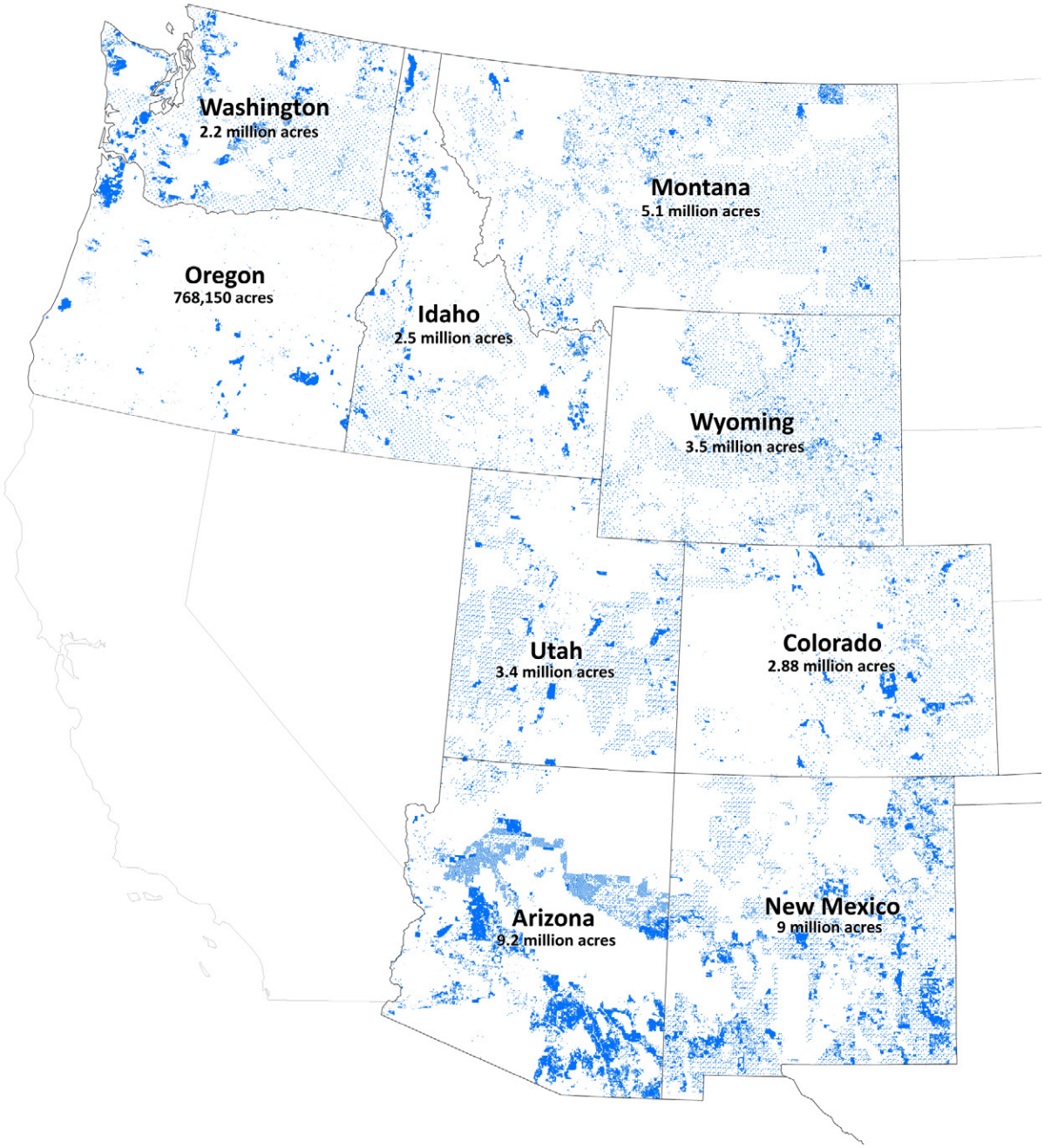
Many of these initiatives do include state trust land holdings, and therefore, would be well served to bring state trust land managers to the table as a stakeholder in their efforts. Some of these initiatives already include the trust land management agency, or at the very least, the broader natural resource management agency of the state, as a member of the team. The Clark Fork Coalition and Blackfoot Challenge in Montana have both included representation from the Montana Department of Natural Resources and Conservation (DNRC) from the beginning. However, the success of engaging trust land managers in LLC efforts varies from LLC initiative to initiative, and often from state to state, depending on the agencies priorities and constraints.

To identify those large landscape initiatives that would benefit from greater participation from state trust land managers, it is necessary to examine the extent and location of significant state trust land holdings in the Intermountain West, and their relationship with existing LLC efforts.

State Trust Lands Across the West

Twenty-three states continue to retain some portion of their original state trust land grants in the U.S., however, the lion's share of trust land holdings are found in the Intermountain West. Approximately 38.5 million acres of trust lands are found within the nine-state region of the Western Lands and Communities program's core geography of Arizona, Colorado, Idaho, Montana, New Mexico, Oregon, Utah, Washington, and Wyoming (State Trust Lands). Nearly half of those lands are held in Arizona and New Mexico, with 9.2 million acres and 9 million acres of trust lands respectively.

Figure 3: Map—State Trust Lands in the Intermountain West



Source: Western States Land Commissioners Association website—www.wslca.org

State trust lands are a significant part of the landscape of the West, especially in Arizona and New Mexico, where they comprise 12 percent and 11 percent of the total acreage of each state, respectively. Also, as an artifact of how state trust lands were originally conveyed to the states (in combinations of sections 2, 16, 32, 36), most state trust land holdings are held in a scattered, checkerboard pattern with federal public lands and private lands interspersed (Culp et al. 2005). As a result, state trust lands are often a critical component of LLC units, particularly when considering connectivity between conservation/wildlife management reserves.

The "Sweet Spot"—Overlaying Trust Lands within Large Landscape Geographies

A quick glance at the map in figure 4 shows the broad extent of state trust land holdings across the landscape of the West. In thinking at the large landscape scale about achieving conservation goals, preserving critical wildlife migratory corridors and ecosystem function, and providing refugia for species to adapt to the inevitable impacts of temperature increases, wildfire, changes in vegetation composition and land cover, and other impacts of climate change, state trust lands are likely to be important.

Appendix I, II and III show the overlay between the geographic boundaries of significant LLC initiatives in the Intermountain West, state trust land holdings, and the Sonoran Institute's three U.S. legacy programs. The Sonoran Institute's legacy programs, in Arizona, western Colorado, and the Northern Rockies, were used to confine the geographic scope of these maps for illustrative purposes, and to focus on core areas that may be of institutional interest to the Sonoran Institute, the Lincoln Institute of Land Policy, and their partners.

Within the Sun Corridor Legacy Program boundaries, shown in appendix I, there are six main LLC initiatives found within the Center for Natural Resource Economics and Policy (CNREP) inventory. These include high level federal large landscape efforts, such as the Department of the Interior's High Plains Partnership for Species at Risk, whose southern edge just reaches the Sun Corridor region, and the Desert Landscape Conservation Cooperative. It also includes grassroots NGO efforts, such as Sky Island Alliance's conservation efforts in southern Arizona, and the Sonoran Desert Heritage Plan, a wilderness package intended to create linkages between significant wildlands in western Maricopa County, which was developed by the Sonoran Institute, Arizona Wilderness Coalition, and other conservation groups. The northernmost lands within the Sun Corridor are also captured within the Southern Rockies Landscape Conservation Cooperative as well as the Four Forests Restoration Initiative.

State trust land holdings within the Sun Corridor are shown in light blue on the map. As can be clearly seen, they form an extensive percentage of the landscape, and critical corridors between large, contiguous blocks of public lands within the region. This is particularly the case in southern Arizona, in Pinal, Pima and Santa Cruz counties. Some large landscape initiatives in the region have gone to great lengths to involve state trust land managers as partners and collaborators, while other initiatives have taken more of an advocacy role with state agencies about their LLC priorities.

In Western Colorado, due to the nature of the state trust land conveyances at statehood, there are few trust land parcels in the region. Much of the public land in that region of the state had already been conveyed as tribal reservations or other federal land designations. However, there are a few important LLC efforts that include state trust land components. The Southern Rockies Landscape Conservation Cooperative covers the entire geography of the Sonoran Institute Western Colorado Legacy Program. The remaining efforts are relatively small in scale. The Uncompaghre Plateau Project and the San Miguel Watershed Coalition are small initiatives that both cover a similar geography. Their boundaries include a small number of scattered trust land parcels that are currently managed under grazing leases. The South Park National Heritage Area (NHA), however, includes some larger, contiguous parcels of state trust lands. While the 2013

management plan for the South Park Natural Heritage Area does not list the Colorado State Board of Land Commissioners among the partner agencies, the trust land management agency is identified as a potential partner.

Sonoran Institute's Northern Rockies Legacy Program is fully encompassed by a number of very large LLC initiatives, including the Greater Yellowstone Coalition, Yellowstone to Yukon, Great Northern Landscape Conservation Cooperative, and others. Many smaller scale LLC efforts can also be found, including the Blackfoot Challenge, Big Hole Watershed Group, and the Clearwater Resource Council. Of the three geographies reviewed for this working paper, the Northern Rockies hosts the largest number of LLC initiatives.

With the exception of the Alliance for the Wild Rockies, which does not include significant state trust land holdings within its boundaries, most of the LLC efforts in the Northern Rockies contain significant trust land elements. State trust lands in Montana tend to be distributed in a checkerboard fashion through most of the state, with the exception of some larger contiguous areas in the northwestern part of the state. For many of the long-standing, established LLC initiatives, such as the Blackfoot Challenge, the Montana Department of Natural Resources and Conservation (DNRC), the agency responsible for trust land management in the state, has been represented in the discussions.

The distribution of state trust lands in both Montana and Arizona again illustrates the importance of engaging trust land management agency leadership in LLC efforts. Trust land managers must be a part of management decisions within these areas, both to communicate the management constraints and fiduciary obligations governing state trust lands, as well as enable the parties to explore revenue generating uses on those lands that are not incompatible with the values being managed at the landscape-scale. Otherwise, it may be difficult to achieve the management goals of adapting to climate and land use change, preserving the value of natural resources far into the future, and maintaining the critical ecosystem services that communities in the West depend upon.

Compatibility of Neighboring Uses

The vast majority of state trust land holdings—up to 80–90% in most western states—are managed under grazing or agricultural leases, particularly those parcels found in the more rural areas. In those states that have significant mineral, oil and gas, or rare earth deposits, mining and energy development—including renewable energy projects such as wind or solar generation—are another common use on rural lands within LLC units. In the Northwest, many rural trust lands are managed for timber production. Trust land parcels found within urban boundaries or at the edge of urban development are often sold or leased for residential or commercial development. Clearly, some of these uses can be compatible with adjoining LLC management goals and priorities, but occasionally they are not.

The compatibility of adjoining land management activities on checkerboarded lands has long been recognized within public and state trust land management communities as a significant issue that needs to be resolved. Unfortunately, the tools available to resolve land ownership patterns are few, and their implementation tends to be resource intensive. The most frequently

used approach to reconciliation of land tenure is the land exchange process, where transactions can take years to complete, can be fraught with political barriers, and carry significant costs in terms of staff resources and expertise.

While progress is being made toward resolving some land management issues through legislative exchanges on a localized, piece-meal basis, it is unlikely that this tool, in its current form, will be able to be applied so broadly as to eliminate the problem of checkerboard land ownership patterns throughout the West. However, policy efforts are underway to create a process for improved reconciliation of land tenure issues and conflicting management objectives. A proposal to streamline the in lieu site selection process to resolve in-holdings and checkerboard land patterns has been developed and has been shared with Congressional leaders in the West. At best, however, passage of the measure would be a longer term solution (Culp and Marlow 2013).

Large landscape-scale conservation initiatives that have significant state trust lands present within their boundaries may need to develop other tools or approaches to deal with potential land management conflicts on adjoining trust lands, and work to bring trust land managers to the table as a stakeholder in the initiative if they are not already participants. In order to constructively engage with trust land managers, the leaders of the LLC effort must have a good understanding of the fiduciary duties and trust responsibilities that govern trust land management in the West. The trust responsibility controls what is possible to achieve regarding management of state trust lands and may inform partners in LLC efforts on ways to ensure compatibility of use without violating the trust mandate for this unique category of lands in the West.

The Trust Responsibility and Management Constraints

Nearly all of the western states recognize that a "trust relationship" was created by the conveyance of trust lands through each state's enabling act. This concept of a trust responsibility is further elaborated in state constitutions and statutes governing their management. This legal doctrine, as it is generally understood, holds that the lands are held in trust by the state, that the state has a fiduciary obligation to manage those lands for the benefit of the designated beneficiaries (primarily K12 schools), and that this fiduciary duty constrains how those lands are managed such that it must be done in the best interests of the beneficiaries (Culp et al. 2005).

In general, this mandate can be summed up as an overarching objective of highest possible revenue generation through the sale or lease of state trust lands to provide financial support for the beneficiaries. In considering how to engage state trust land managers successfully in stakeholder processes, LLC proponents may be well served in regarding state trust lands as they would similarly situated private lands open to development and traditional economic uses. In fact, engaging state trust land manager may prove to be even more challenging considering the management constraints and requirements for revenue generation on trust lands. While a private landowner may make management decisions that reflect personal values, including conservation of environmental values for future generations, often state trust land managers do not have a similar level of discretion and flexibility.

The fiduciary duties and obligations of trust doctrine form a common theme of revenue generation for all western states, but there are a number of differences between the western states and how that trust responsibility has developed over time through the various enabling acts, state constitutions, and case law. Some of these differences have created opportunities for integrating long term conservation values into the management of trust lands. For the purposes of this working paper, the states of Montana, Colorado and Arizona will be examined and compared since it is those LLC geographies that are being explored in more detail.

The Trust Responsibility in Arizona

Arizona's Enabling Act language and constitutional provisions are the most restrictive of any of the western states. The state of Arizona was the last of the lower 48 states to enter the Union, and as such, the enabling legislation and constitution were written to be much more explicit on how trust lands were to be managed. Given past mismanagement and even outright fraud in how trust resources had been disposed by some states, Congress sought to clarify the trust responsibility and mandate governing the management of these lands (Culp et al. 2005).

Over time, substantial case law has built up that provides legal direction in how Arizona state trust lands can be managed, including requirements for public auctions and competitive bidding, and a requirement that the state lease or sell the lands for the appraised fair market value and for "highest and best use" to the highest bidder (Culp et al. 2005). The state is under no obligation to renew leases, only to grant leases according to the best interests of the trust. However, according to *Jeffries v. Hassell*, 3 P.3d. 1071 (Ariz. 1999) the "best interest of the trust" does allow some flexibility for the Arizona State Land Department (ASLD) in evaluating the quality and responsibility of lessees or purchasers.

The ASLD mission articulates a broader set of values and goals for trust land management:

> "To manage State Trust lands and resources to enhance value and optimize economic return for the Trust beneficiaries, consistent with sound stewardship, conservation and business management principles supporting socioeconomic goals for citizens here today and generations to come. To manage and provide support for resource conservation programs for the well-being of the public and the State's natural environment." (Arizona State Land Department)

However, as a general rule, trust management has been interpreted quite narrowly in practice. While the mission recognizes the value of long term, sustainable management, including preservation of conservation and environmental values, and discusses the concept of revenue optimization, the mandate of the constitution and case law calls for revenue maximization and strict adherence to the trust responsibilities laid out in the enabling act and constitution.

There are a handful of tools available in Arizona to achieve conservation, such as the Arizona Preserve Initiative (API), passed by the state legislature in 1996, which allows the purchase of trust lands designated for conservation purposes at the appraised fair market value without going to auction. For trust lands to be designated within the API program, there must be a community petition for their consideration; the final decision of whether to classify trust lands for

conservation purposes under API falls to the State Land Commissioner. While limited in scope and unlikely to be applied at a large landscape-scale, the API program does provide a mechanism for conservation.

More recently, limited land exchange authority has been established in Arizona through passage of Proposition 119 in 2012. The voter approved measure allows land exchanges between Arizona state trust lands and the Federal government for two purposes: military facilities protection and to improve the management, protection, and public use of Arizona state trust lands. Again, while limited in scope, it does offer a path for resolving in-holdings in Federal public land units such as parks and national conservation areas.

The Trust Responsibility in Colorado

Case law in Colorado has also interpreted the restrictions on trust land management in the Colorado Enabling Act to create a binding legal trust. However, there are some key differences in trust law and management in Colorado. For example, in Arizona the ASLD is regarded as having "super zoning authority," where plans and disposition strategies for trust land, in theory, override local zoning authority. However, once the trust lands are conveyed through sale to a new party, local zoning does apply. In Colorado, trust lands are subject to local government zoning regulations, even if those regulations prohibit a use that might otherwise be permitted by the state trust management agency, the Colorado State Land Board (the Board).

The requirements of the trust responsibility in Colorado also differ significantly due to the passage of a 1996 constitutional amendment regarding trust land management. Prior to the passage of Amendment 16, the Colorado constitution included a provision requiring trust lands to be managed to generate maximum possible revenues—similar to the current Arizona mandate. Amendment 16 clarifies that trust lands in the state are held in a perpetual, intergenerational trust to support public schools, and should be managed to produce "reasonable and consistent income over time" rather than the revenue maximization model (Culp et al. 2005). The amendment also requires the Board to protect and enhance the long term productivity of Colorado state trust lands through selection of 300,000 acres to create a "stewardship trust," and authorizes the Board to sell or lease conservation easements or similar interests in the land (Culp et al. 2005).

This provides a level of flexibility and a long range view that offers additional options to Colorado trust land managers in considering conservation management and uses for trust lands. Some of these considerations may be uniquely aligned with the efforts of LLC initiatives, as well. It should be noted, however, that the courts did issue a warning to trust land managers in *Branson School District RE-82 v. Romer,* 958 F. Supp. 1501, 1520 D. Colo. (1997), which held that, while the provisions of Amendment 16 were reasonable and prudent given the intergenerational nature of the trust, the conservation of trust lands simply for public benefit may not pass legal muster. There must be a purpose aligned with acting in the best long term interests of the beneficiaries for conservation of trust lands to be valid. In thinking about trust land managers participation in LLC endeavors, efforts should be made to ensure that the best long-term interests of the trust are taken into account and accommodated.

The Trust Responsibility in Montana

Montana's enabling act and constitution have also been ruled by the courts as creating a trust responsibility. Similar to Arizona, the Trust Land Management Division within the Montana Department of Natural Resources and Conservation must receive full market value for leases and sales (Culp et al. 2005). However, there are several important differences. Trust lands in Montana are also subject to the Montana Environmental Policy Act (MEPA).

This legislation, passed in 1971, requires all state agencies, even those responsible for managing state trust lands, to consider the environmental, social, cultural and economic impacts of land use decisions, ranging from fish and wildlife to community safety. MEPA requires agencies to "look before they leap," in terms of creating impacts that would damage the state's natural resources, and to communicate the potential impacts of agency actions to the public (Montana Environmental Information Center).

However, unlike Arizona's strict revenue maximization obligation that requires selection of the highest bidder on trust land leases and sales, the state of Montana may accept lower bids on state trust land leases in order to ensure "maximum return with the least injury to the land" and attract the "best lessees" to manage state trust land under lease (Culp et al. 2005). Thus, in spite of the requirement for Montana trust land managers to obtain full fair market value in generating revenue from state trust lands, both MEPA and the discretion in the leasing program to ensure the continued productivity and health of the trust land holdings provide some flexibility for managing trust lands in a long term, sustainable manner that may be compatible with LLC efforts in the state.

Aligning Large Landscape Conservation Objectives with Fiduciary Duty

The fiduciary duties of state trust land agencies in managing trust lands can create barriers to managing trust lands according to management goals laid out in LLC initiatives. However, the trust responsibility has been evolving over time to recognize broader social, economic, and environmental costs and benefits associated with their land use activities.

Trust land management case law over the past decade has started to incorporate some of the broader public goals as elements in long term asset management. For example, in *Branson School District v. Romer,* the court opinion held that:

> "A trustee is expected to use his or her skill and expertise in managing a trust, and it is certainly fairly possible for a trustee to conclude that protecting and enhancing the aesthetic value of a property will increase its long term economic potential and productivity. The trust obligation, after all, is unlimited in time and a long-range vision of how best to preserve the value and productivity of trust assets may very well include attention to preserving the beauty and natural values of the property."

Further, in a Utah Supreme Court opinion in *National Parks and Conservation Association v. Board of State Lands,* 215 Utah Adv. Rep. June 24, (1993) the court found that:

> "School lands [should not] be administered to maximize economic return in the short run… some school lands have unique scenic, paleontological, and archeological values that would have little economic value on the open market… it would be unconscionable not to preserve and protect those values. It may be possible for the Division to protect and preserve those values without diminishing the economic value of the land."

As trust law evolves in the state trust land management sector, long term asset management in other sectors is evolving as well, bringing new attention to sustainability concerns. More and more, maintaining environmental and social values connected with property over an intergenerational time span is seem as a prudent and reasonable management strategy, and one which would be consistent with both the fiduciary mandate governing state trust lands as well as many LLC initiatives' goals. A recent article by Emerson, Little, and Kron elaborates on this concept:

> "The responsible fiduciary is one who seeks to assess long-term economic, social and environmental factors that are already major (if poorly understood) value drivers today… The responsible fiduciary is also one who seeks to understand how these factors may represent both risk and reward to their portfolio." (2005).

The management of state trust lands for long term environmental health may not be a strategy that can be broadly applied to all trust land holdings, but a select portion of the trust portfolio may be reasonably managed in this manner. The key would be the strategic identification of trust lands that contribute the most to LLC efforts, and evaluation of the contribution of those lands to ecosystem health and function, wildlife connectivity, and other core ecosystem services that LLC initiatives may seek to preserve.

Tools and Strategies to Integrate Management of State Trust Lands

Once critical state trust lands components of large landscape conservation unites have been identified, LLC proponents could approach trust land managers about the management options available to ensure the long term, sustainable management of those parcels consistent with the LLC objectives and their fiduciary mandate. As discussed in the previous section examining state by state constraints related to fiduciary responsibility, there are a number of tools and mechanisms that have evolved over time to ensure that state trust lands with significant ecological values could be protected.

For Colorado, this could mean inclusion in the state's long term Stewardship Trust (the Trust), which currently includes approximately 296,000 acres (Colorado State Land Board). Since the Trust can only hold 300,000 acres, any significant additions must occur at the expense of parcels already included within the Trust. However, the Colorado State Land Board has emphasized that it is a "living trust" intended to adapt and change over time to include changing priorities for long term management (Colorado State Land Board).

Other mechanisms available in Colorado include the establishment of a conservation easement for which the trust would be compensated (certain land uses excluded), or use of a non-

simultaneous land exchange, where trust land could be sold for conservation use and the Board could use the proceeds to buy less environmentally sensitive lands with economic potential elsewhere in the state.

In fact, land exchanges with federal public land agencies could be an effective, albeit time consuming and resource intensive, method of rationalizing land ownership such that trust land in-holdings within LLC units could pass into federal ownership while economically productive lands that are not essential to maintaining large-scale ecosystem health and function could be transferred to the state for revenue generation. This mechanism has the advantage of being universally applicable throughout the Intermountain West, now even in Arizona, which had previously restricted the use of land exchanges involving state trust lands.

Another broadly applicable tool is the use of payments for ecosystem services (PES), where stakeholders or entities interested in maintaining environmental values, such as watershed health, forest health, or biodiversity, pay land owners or managers to enhance, conserve or maintain those environmental values. Mitigation and conservation banking, where land owners sell an interest, or credits, in wetland restoration and enhancement or endangered species protection to developers that are legally required to offset their impacts to habitat, wetlands or species, is another strategy. Both enable that trust land managers to meet their revenue generation requirements while also meeting conservation goals.

Encouraging State Trust Land Manager Participation

Beyond the constraints created by the trust responsibility, engaging trust land managers in LLC efforts is also made difficult by the limited staffing, funds and resources of the agencies themselves. The recession brought significant, across-the-board budget cuts to most state agencies, including trust land agencies. While some states are able to achieve self-funding through trust management activities, and are therefore slightly more sheltered from budget shortfalls, many other states rely on legislative appropriations to fund agency operations and management.

Even in the best of circumstances from a resource perspective, trust land agencies are charged with development of long range disposition and management plans on millions of acres of land, overseeing public auctions for land sales and leases, managing and enforcing lease provisions, evaluation of proposed projects, and many other activities. Given their responsibilities as trustees for significant property assets, they tend to remain focused on revenue generation and portfolio management that will more directly contribute to the trust's core objectives.

Collaboration on multi-stakeholder, cross-jurisdictional initiatives can be costly in terms of staff time and resources. For LLC initiatives to successfully bring trust land managers to the table, they must provide some motivation that speaks to the benefits that will accrue to them as trustees in order to justify the expenditure of their staff time and resources. Another tactic to engage trust land managers is to demonstrate how the outcomes will improve trust land managers ability to serve the best interests of the trust. There are multiple ways that participation in LLC initiatives can arguably be in the best interests of the trust, especially considering the many challenges that

the Intermountain West faces and the potential for LLC to address these challenges through improvements in land management and value over the long term.

Access to Scientific Data to Improve Management

One of the primary purposes of LLC initiatives, particularly of the federal Landscape Conservation Cooperatives, is to coordinate science, data sharing, and information exchange between jurisdictions, agencies, and other partners to enhance and improve the adaptive capacity of natural resource management on a landscape scale (U.S. Fish and Wildlife Service 2012). As managers of vast holdings throughout the West with limited staffing resources available to monitor and track change to environmental attributes on millions of acres, trust land managers could greatly benefit from increased access to landscape-scale scientific data, trends, and other information relevant to management of their land holdings. Climate change and other landscape stressors not only have impacts to wildlife and ecosystem health, but also to the long-term economic productivity of lands. Access to information on the nature of these impacts and strategies for adaptation will help trust land managers be better stewards of their portfolios for the over the long term.

Trust land managers also maintain large amounts of in-house data on land use, conditions, and activities on their holdings that would be valuable to LLC initiatives. Sharing this information with LLC initiatives could provide a more comprehensive picture of the impacts of climate change, growth and development, and land use management strategies on the landscape. By participating in data sharing activities, both trust land managers and LLC proponents would benefit.

Endangered Species Act Listings

In 2011, a lawsuit against the U.S. Fish and Wildlife Service (USFWS) by the Center for Biological Diversity and Wild Earth Guardians was settled, requiring nearly 800 candidate species to be considered for Endangered Species Act (ESA) protection by 2016 (Legal Settlement re: *Center for Biological Diversity v. Salazar*, 10-cv-0230: 2011). This has created significant pressure for the USFWS to review the science, population dynamics, range, and habitat needs for hundreds of species in the Intermountain West in a few short years. There is a high likelihood that there will be a significant number of new species listings that will affect land use in the region.

The settlement has created some degree of consternation among many large landowners in the West, who are concerned that their activities may be markedly constrained by ESA regulations preventing the "take" or harm of listed species and their habitat. State trust land managers share this concern. However, participation in LLC efforts may provide a proactive way for trust land managers to manage lands not only to anticipate and address endangered species concerns on their land holdings, but also to contribute to the provision of sufficient refugia and migratory corridors at a scale that can prevent future species listings and their commensurate constraints on land use. Compatible uses, such as well-managed grazing or agriculture, could be managed in such a way to provide long term protection of critical habitat.

Also, the possibility of numerous new ESA listings has created incentives for developers (ranging from real estate developers to energy and transmission line developers) to create programs for "advance mitigation" designed to prevent species listings in the first place. Such programs provide funding for critical habitat restoration, enhancement and protection for candidate species; these programs could also be a revenue generating opportunity for state trust land managers consistent with LLC objectives.

Long Term Asset Management

As described earlier in this section, evolving concepts of fiduciary duty for intergenerational trusts continue to support concepts of sustainability, environmental value, and long term productivity of assets. These long-term goals and considerations are, in some cases, very closely aligned with the goals and purposes of LLC frameworks.

An increasing number of trust land managers are beginning to plan for long-term sustained income generation, and identify trust lands that belong in such asset classes. However, it is a daunting task for trust land agencies to complete a full inventory and evaluation of the values and attributes on each parcel of state trust land. LLC initiatives could assist in providing valuable information to trust land managers on the environmental attributes of trust land parcels within a LLC unit. This could help make the case for inclusion of those parcels in asset classes reserved for long term sustainable management as a means of increasing their ultimate value, as well as provide beneficial information to trust land managers about features on their lands.

Building Collaborative Partnerships with Trust Land Managers

A key factor recognized by nearly all LLC initiatives is the importance of collaboration with multiple stakeholders to the success of the effort. As federal entities experience their own unique challenges associated with inter-agency collaboration, there are unique challenges confronting collaboration with trust land managers.

A significant barrier is lack of understanding of the trust responsibilities and unique mandates governing trust lands, and the constraints of trust land managers in participating in collaborative efforts such as LLC initiatives. While lack of awareness of the trust mandate can be an impediment on the part of those attempting to bring trust land managers to the table, the culture of trust land agencies themselves may also foster a view that their trust mandate prevents or limits their participation as well (Yaffee et al. 2006). It is important to overcome both of these barriers to ensure full and constructive participation of trust land managers.

Federal agencies are in a uniquely advantageous position to encourage broad participation in landscape scale conservation partnerships. They bring significant resources, expertise, and authority to the table, and since they manage such vast acreage in the West, can be quite influential in broader issues of land use. The Sonoran Institute, in partnership with the Bureau of Land Management, identified a series of best practices for collaborative planning at the landscape scale, which can be a useful guide not only in engaging with communities, NGOs, and private landowners, but with trust land agencies as well.

These best practices reflect common themes associated with building mutual trust, common purpose and commitment to work together across boundaries. They include leading with vision, which enables a compelling set of issues, management goals, and objectives to knit a group together and unite their efforts to achieve tangible results (Spillane and Wilson 2012). They also recognize that in an era of constrained resources and increased focus on public-private partnerships, no single entity can accomplish landscape-scale conservation. By embracing the role of "enabler," federal agencies can forge deeper, more productive partnerships toward mutual goals of long term sustainable resource management (Spillane and Wilson 2012).

Federal agencies are usually in a position to make substantial scientific contributions to the practice of conservation by monitoring and collecting data, and developing and piloting new tools for mapping, remote sensing, scenario planning, species monitoring, and modeling of processes such as wildfire, movement of groundwater, and climate change impacts (Spillane and Wilson 2012). This information can be critical in forming a foundation for adaptive management for LLC initiatives, as well as informing decision making within communities and partner agencies. Providing this kind of scientific data can be an important factor in bringing stakeholders to the table.

Additionally, new and emerging technologies and resources are making collaboration more streamlined and less resource intensive. Continued efforts should be made to explore the potential of online resources and social media as a means of connecting diverse stakeholders and managing collaborative processes (Spillane and Wilson 2012). Reducing the cost of participation increases the likelihood that those with a substantial stake in collaborative process outcomes will be fully engaged.

All of these strategies can be put to use to encourage full participation of trust land managers in LLC initiatives. Clear articulation of the benefits of participation and how the best interests of the trust and trust land managers fiduciary duties continue to be served will help encourage greater involvement from these agencies, which represent a significant landowner in most LLC initiatives. Also, by developing a full understanding of the constraints and responsibilities of trust land managers, LLC proponents can be better positioned to find creative solutions to integrating their management objectives in a manner consistent with the trust responsibility. If successful, LLC initiatives could earn a valuable partner, and one with considerable land holdings.

Conclusions: Charting a Path Forward to Engage State Trust Land Managers Effectively

The demographic, political, and natural forces impacting the landscapes of the Intermountain West will be transformative over the next century. If the environmental values of the region are to be maintained and/or restored to sustain future generations, it will require conservation and natural resource management at a scale appropriate to the maintenance of critical ecosystem functions and species diversity. LLC practitioners are wise in their efforts to include diverse stakeholders, since the challenges cross jurisdictional boundaries and require the participation of multiple landowners to address them.

State trust land managers, as holders of over 38.5 million acres in the Intermountain West, are significant stakeholders and are important to the success of many LLC initiatives. However, they are infrequently involved deeply with many of the over 100 LLC initiatives in the West. The following steps could be undertaken to rectify this oversight.

First, LLC proponents should develop a full and deep understanding of the trust responsibility and fiduciary duties of trust land managers within their region, including the unique aspects of trust law and legal guidance within the state. By improving their comprehension of these management constraints, LLC practitioners will be in a better position to identify creative means to bridge the management goals of the LLC effort and the fiduciary mandate governing trust land management.

LLC practitioners should also communicate the benefits of collaboration to trust land agencies, and clearly articulate how participation will be in the best interests of the trust. This could include access to, and participation in compiling, vital information about on-the-ground land use change that affects trust land parcels within LLC units, increasing public awareness and understanding of the trust mission, or participating in long-term management activities that, over time, will increase the value of trust assets.

By bringing such a significant large land owner to the table in landscape-scale conservation initiatives, and finding mechanisms that enable their increased participation in development and implementation of management goals, practitioners will earn a valuable partner, and make important strides in achieving their objectives across multiple jurisdictions.

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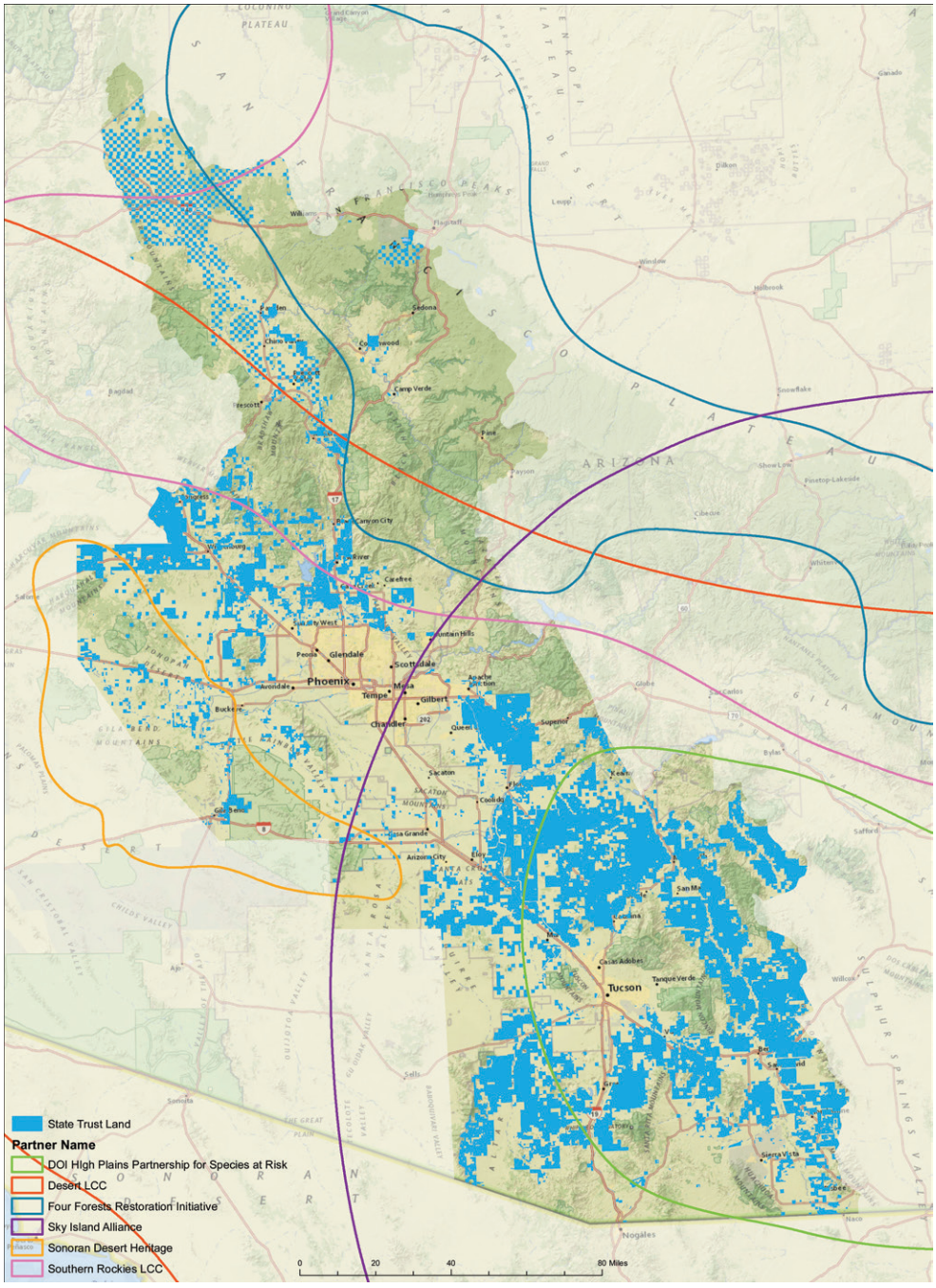
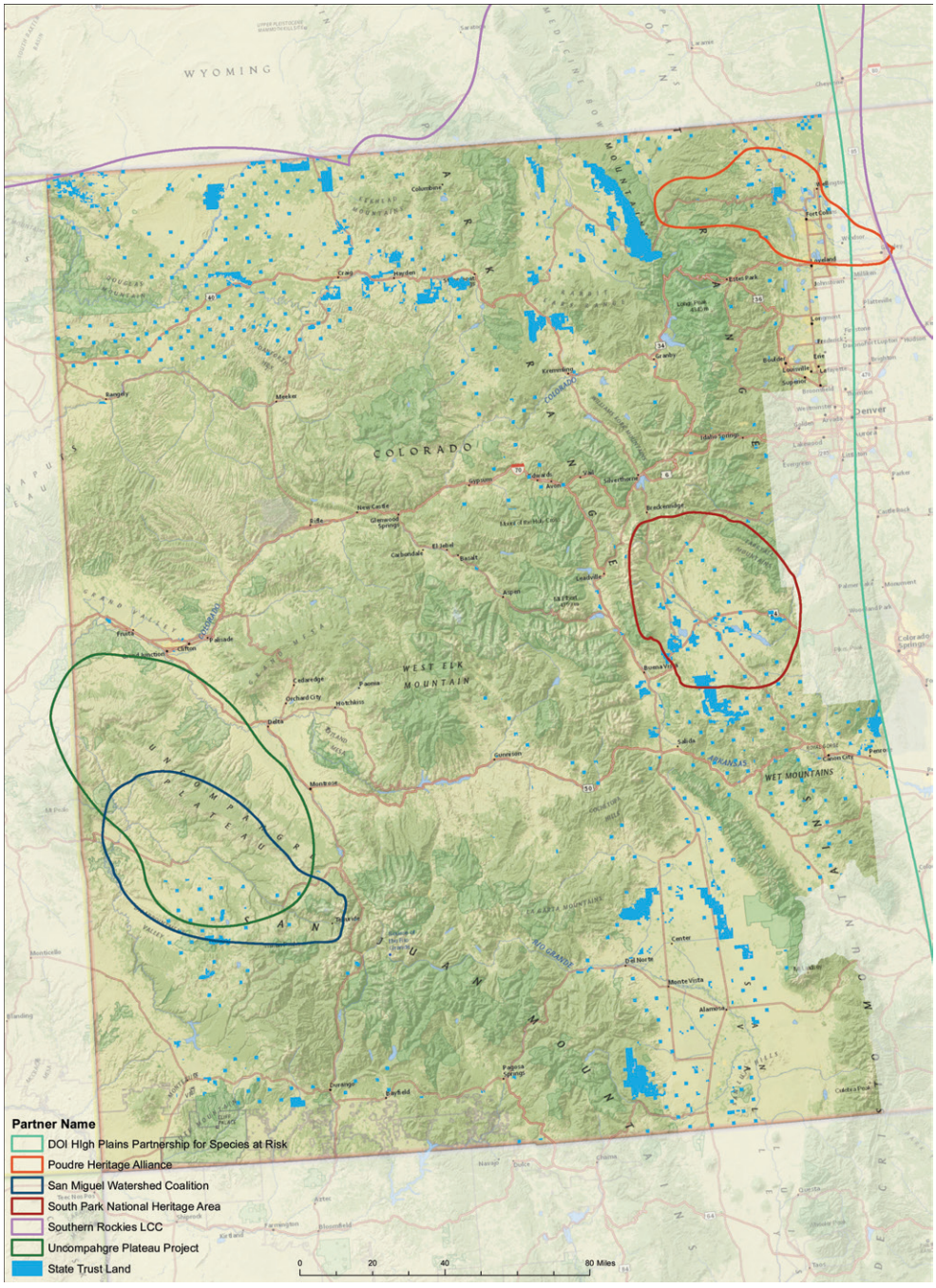
Appendix I
Map of the Arizona Sun Corridor Legacy Program Overlaid with LLC Initiatives and State Trust Land Holdings



Appendix II
Map of the Western Colorado Legacy Program Overlaid with LLC Initiatives and State Trust Land Holdings



Appendix III
Map of the Montana Northern Rockies Legacy Program Overlaid with LLC Initiatives and State Trust Land Holdings