A Land and Resources Conservation Agenda for the United States

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Introduction

America’s natural, scenic, historic, and working landscapes are threatened by suburban sprawl, mining, deforestation, second home and resort development, and climate change. Researchers at the University of Pennsylvania have estimated that if current rates of urbanization continue through mid-century, we will develop more land in the next four decades than we have in the past four centuries (Lincoln Institute et al., 2004, p. 9). Other trends also threaten the integrity of important natural and scenic lands. In the East, vast areas of the Central Appalachians are being destroyed by mountain top mining and the great coastal estuaries are threatened by pollution and low density subdivision activity. In the West, public lands are threatened by strip mining, clear cutting, overgrazing, and other destructive activities. In coastal areas, on the Atlantic, Pacific, and Gulf of Mexico, barrier beaches and islands and wetlands are threatened by second home development and sea level rise. Across the country, national parks are being damaged by over-use and under-maintenance. Finally, some of the most productive agricultural lands in and near metropolitan areas are being fragmented by large lot subdivisions.

This paper outlines strategies for identifying and protecting the large landscapes that represent the nation’s natural, scenic, and historic heritage. We begin with a review of past efforts, and then proceed to suggestions for establishing national priorities for preservation. We advocate a new nationwide network for landscape preservation. This network needs to protect important geological, hydrological, and ecological areas; important cultural landscapes; resource production areas; and places prone to natural disaster. The network must also explicitly recognize the relationships between landscape conservation and the emerging urban form of the 21st century: vast megaregions of sprawling development that now are the new home for the nation’s residents and businesses. The protection strategy requires national leadership but must involve all levels of government as well as the private sector, educational institutions, and non-governmental organizations (NGO).

A Review of Land and Resource Conservation in the U.S.

When Europeans found the New World, they encountered a hemisphere already extensively settled. Some settlement such as the grand cities of Central and South America resembled those of the Old World, especially the ancient settlements along the Nile and in the Mesopotamia. Other New World settlements were patchworks so carefully integrated with their environments that they appeared to European eyes as indistinguishable from nature or “primitive.”

As the United States came into being and spread west, the American project became one of growth and development. Jefferson’s land ordinance system and Lincoln’s homestead and transcontinental railroad initiatives, among other national planning efforts, facilitated the division and resettlement of the nation. Along the way, Americans began to notice the loss of important landscapes. As a result, beginning in the late 19th century, places of great beauty and grandeur were set aside as National Parks. At the same time, states began to create networks of state parks and preserves, established metropolitan parks systems, and the first private not-for-profit land trusts were established to preserve outstanding natural and scenic lands.

Meanwhile, Native Americans, often after being relocated several times, were herded on to reservations on lands too poor for farming or ranching and not spectacular enough to be a National Park. As cities grew at this same time, timber was required for buildings and, as a result, forests were set aside first for their wood, then their water, and eventually, through time, for their recreational and open space values. Those places that were not good enough to farm or ranch, were not scenic, had no timber, and were not even livable for the Native Americans; these lands were eventually turned over to the Bureau of Land Management (BLM). Add military bases and wildlife refuges and we have the current federal public land system which comprises almost one-third of the nation.
Especially in the West, large tracks of state land complement this federal system. Management on those and various federal and state lands, vary from agency to agency, from state to state, based on a complex web of goals and policies. Federal and state land is governed by laws and rules that are specific to the purpose for which the land was set aside for public use. Land across the rest of the nation is managed based on 50 different state systems for planning on private land. In general, these state enabling programs emphasize private gain over the public good. The deleterious consequences are all around us.

Previous generations of Americans took bold measures to protect beautiful, productive, and significant landscapes. The creation of National Parks and National Forests provide the most dramatic examples. There have also been creative public-private partnerships to protect significant landscapes such as the Adirondack Park in New York, Lake Tahoe in California and Nevada, the Pinelands of New Jersey, and the Columbia River Gorge in Washington and Oregon.

In 2003, E. Glenn Eugster of the National Park Service provided a useful summary of post World War II efforts to protect special landscapes, often through creative public-private partnerships. Eugster (2003) began his review with the 1949 creation of the National Trust for Historic Preservation and the 1966 National Historic Preservation Act. He describes how conservation efforts have evolved from saving individual buildings and structures to larger landscapes. Over the second half of the last century, the federal government enacted a series of laws designed to protect the environment and to preserve land and other natural resources. Bosselman and Callies (1972) describe this “quiet revolution” in land-use controls that grew from the environmental movement of the 1960s and early 1970s. These laws included the National Wild and Scenic Rivers Act (1968), the National Trails System Act (1968), the National Environmental Policy Act (1970), the Federal Water Pollution Control Amendments (1972) which eventually became the Clean Water Act (1977), and the Coastal Zone Management Act (1972). From 1980-1981, the federal government undertook the National Agricultural Lands Study which led to the Farmland Protection Policy Act (1981). The Safe Drinking Water Act (1974) and Endangered Species Act (1973) were the last in the paradigm shifting federal statutes.

The National Park Service also started defining their traditional mission of protecting and interpreting the nation’s natural and cultural resources in an urban context. The nation’s first urban National Recreation Areas were created: Gateway in New York / New Jersey and Golden Gate in the Bay Area. Several more followed suit, including the Cuyahoga Valley National Park (which was established as a national recreation area in 1974).

While proposed in various forms, a national land use act was never passed by Congress during this time of great ferment. Despite the federal government’s unwillingness to take on critical issues of states’ rights and home rule, Eugster (2003) observes that an important element of this quiet revolution was the recognition by state governments that some portions of the landscape are “sensitive areas.” Eugster (2003) notes that this recognition resulted in nearly 100 new state laws establishing development control standards for floodplains, wetlands, historic sites, and scenic areas. Local municipalities followed suit, developing provisions for local overlay zones and cluster or conservation subdivisions.

Eugster (2003) describes the emergence of the heritage conservation movement within this legislative context as well as large-scale planning efforts underway during the 1970s, such as the New Jersey Pinelands Preserve, the Lake Tahoe initiative, and renewed planning activity in the Adirondacks. The National Parks and Recreation Act of 1978 authorized the creation of the nation’s first urban national historical park in Lowell, Massachusetts and two new “greenline” parks – the New Jersey Pinelands National Reserve and the Santa Monica Mountains National Recreation Area (Figure 1). The one million acre Pinelands Reserve in Southern New Jersey was intended at the time to be the first in a national network of national reserves that would be protected through partnerships between federal and state initiatives, but nearly 30 years later it remains the first and only such reserve in the country.
Building on the success of historic preservation and revitalization efforts in Lowell, National Park Service planners took the lead in other heritage areas planning efforts. These efforts were authorized by the 1979 revisions to the Wild and Scenic Rivers Act. The law was modified "to create a technical and financial assistance program to help states and local governments conserve and protect important river corridors" (Eugster 2003). Two years later, the Council on Environmental Quality (CEQ) issued a report entitled "Landscape Conservation and Development: An Evolving Alternative to Public Land Acquisition" (Council on Environmental Quality, 1981). According to Eugster (2003) this report built on what had become known as the "greenline park philosophy" and promoted new ways to link protection and development (see also Little, 1990). These strategies included federal-state-local government partnerships with the private sector and the emerging land trust movement.

Several innovative large-scale, federal-state landscape heritage initiatives resulted. This includes the Illinois & Michigan (I & M) Canal National Heritage Corridor (1984) and the Blackstone River Valley National Heritage Corridor (1986) (see Kihn et al. 1986). Several other reserves were established to protect large scenic and natural areas containing both public and private lands, some through partnerships between the federal and state governments and others through state action alone. These include the Lake Tahoe Regional Planning Agency Commission (1969), the Adirondack Park Agency (1971), the Martha’s Vineyard Commission (1974), Columbia Gorge National Scenic Area (1986), and the Sawtooth National Scenic Area (1986); much of this work was chronicled in an ambitious research effort by the National Park Service (under the same Wild and Scenic Rivers Area authorization). The Park Service mapped potential protected landscapes nationwide and reviewed
conservation efforts for selected landscapes in the Northeast and Mid-Atlantic states (Chaplick and Sutro 1985). However, federal leadership waned as part of a general retrenchment during the Reagan and George H.W. Bush administrations.

Perhaps not surprisingly, the land trust movement promoted by the 1981 CEQ report blossomed, albeit without a coordinated, comprehensive national partnership or strategy. The slowdown of federal involvement in land conservation was essentially picked up by the land trusts. By mid-century, less than 50 land trusts were in operation. The environmental movement of late 1950s and early 1960s helped elevate the need for land conservation and protection. According to the Land Trust Alliance, by year 2000, there were more than 1,200 land trusts; and within three years, 2003, there were more than 1,500, protecting more than 9 million acres nationally.

As the new century emerged, two new movements for regional land use planning and landscape preservation formed. In the northeast and elsewhere, local municipalities struggling with the limits of home rule began efforts to cooperatively manage development. This took several models including the Cape Cod Commission (1990), the Long Island Central Pine Barrens Commission (1993), and Highlands Water Protection and Planning Act. These groups, operating either as ad hoc, advisory, supervisory, or authoritative, share and coordinate local development interests. Other examples of such groups are the Santa Ana River Watershed (SARW), the New Mayflower Compact, and Rockaway Watershed Partnership.

Nationally, planners and regulators at EPA, the National Park Service, and the USDA Forest Service began to see the limits of a strictly regulatory approach toward achieving clean water, habitat protection, and safe drinking water goals. The National Estuary Program (most notably in the Chesapeake and San Francisco Bays), Habitat...
Conservation Plans in San Diego and Austin, and various watershed protection plans including the filtration avoidance agreements in Massachusetts and New York, the four-state Highlands Conservation Act, and the Comprehensive Everglades Restoration Plan (2000) are all examples of “place-based” interpretation of federal environmental laws. These efforts provide models for land and resource management and partnerships between federal, state and local governments and public and private land managers that could be replicated to create a network of national reserves and protected landscapes.

Establish Nationwide Priorities for Preservation

The first step in the development of a national landscape conservation strategy is the identification of priority areas to be protected. Beginning in the 1990s, the late Ian McHarg (1996) advocated a national ecological inventory to identify the best lands for both development and conservation. Upon the request of U.S. Environmental Protection Agency (EPA) administrator Bill Reilly, McHarg produced a prototype for such an inventory (McHarg et al. 1992). Meanwhile, the EPA produced its EMAP system and, soon afterwards, Secretary of Interior Bruce Babbitt proposed a national biological survey modeled on the U.S. Geological Survey (USGS).

Due to intense opposition from the Congress in the late 1990s, the national biological survey did not occur, but the U.S. Department of Interior did initiate its GAP Analysis Program. Focused on biological resources, GAP is a means for “assessing to what extent native animal and plant species are being protected”. It identifies the “gaps” between what is being protected and what should be. GAP analyses can be state, local, regional or national, but are primarily conducted at the state level and is coordinated by the USGS Biological Resources Division (BRD). The GAP model suggests a framework for a more comprehensive assessment of potential conservation areas. In addition to federal and state agencies, the nation’s universities provide a wealth of information that would be useful for this survey. In addition, university researchers could also help conduct the survey. Such an assessment should have four components:

1. Geological, Hydrological and Ecological Protection Areas
2. Cultural Protection Areas
3. Resource Production Protection Areas
4. Natural Hazard Protection Areas (Table 1)

Geological, Hydrological and Ecological Protection Areas

These areas would include the nationally and regionally significant geological, hydrological, and ecological resources. Geological features would include important mountain ranges and ridges. Significant aquifers and recharge zones are examples of hydrological features.

Ecologically critical areas contain one or more significant natural elements that could be degraded or lost as a result of uncontrolled or incompatible development. Significant elements are those that are identified as being necessary to maintain the essential character and integrity of the existing environment, based on the quality, the scarcity, of the role the element plays in the ecosystem. Ecologically critical areas contain important wildlife habitat necessary for the survival of significant species: endangered, restricted, and endemic species; areas of high biodiversity; or areas of exceptional geological or botanical interest. These areas can also provide many amenities and services that maintain natural systems such as flood control, water purification, and pollution abatement.

Ecologically critical areas can provide sites for outdoor education and scientific study. Such areas also have psychological or philosophical value for those who gain comfort from knowing that open semi-wilderness areas and rare and endangered species and habitats still exist (Steiner 2000). (Table 1)
Table 1  
A Typology of Environmentally Sensitive Areas

<table>
<thead>
<tr>
<th>Natural hazard critical areas</th>
<th>Geological hazard areas</th>
<th>Flood hazard areas</th>
<th>Avalanche prone areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire hazard areas</td>
<td>Geological hazard areas</td>
<td>Flood hazard areas</td>
<td>Avalanche prone areas</td>
</tr>
<tr>
<td>1. Areas containing conditions favorable for fires—fuel, weather, and topography</td>
<td>1. Seismic areas: faults and earthquake zones</td>
<td>1. 50-year flood zones</td>
<td>1. Snow avalanche zones—high, medium low potential</td>
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<tr>
<td>2. Volcanoes—live or dormant</td>
<td>2. 100-year flood zones</td>
<td></td>
<td></td>
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<tr>
<td>3. Landslide zones</td>
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<tr>
<td>4. Areas subject to subsidence</td>
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<tr>
<td>5. Areas subject to severe erosion</td>
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<td></td>
<td></td>
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<tr>
<td>6. Liquifaction areas</td>
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<td></td>
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<tr>
<td>7. Mine hazard areas</td>
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| Ecologically critical areas                                                                     |                                                                                       |                                                                                   |                                                                                        |
| Natural wildlife habitat areas                                                                  | Natural ecological areas                                                                 | Endangered, restricted, and endemic species areas                                 | Scientific areas                                                                     |
| 1. Linkage corridors                                                                            | 1. Unique or exceptional ecosystems                                                    | 1. Significant wildlife habitat                                                   | 1. Areas of geologic interest                                                        |
| 2. Diversity of vegetation within a given area                                                   | 2. Flood control areas                                                                  | 2. Pristine aquatic communities                                                    | 2. Areas of forestry interest                                                        |
| 3. Representative vegetation types                                                              | 3. Water purification areas                                                             | 3. Endangered plant and animal species (national list)                            | 3. Areas of botanical interest                                                        |
| 4. Breeding areas (nesting and spawning)                                                         | 4. Water supply areas                                                                  | 4. Plant or animal species proposed or under review for national threatened or     | 4. Areas of ecological interest                                                        |
| 5. Overwintering concentrations                                                                  | 5. Pollution abatement areas                                                             | endangered status                                                                  |                                                                                        |
| 6. Migratory stopover areas                                                                     |                                                                                        | Endangered, threatened, declining or undetermined animal species (state list)      |                                                                                        |
| 7. Oldest, largest, or exceptional specimen trees                                               |                                                                                        | Species at the limits of their geographic range                                    | 5. Outlier, disjunct, or relict species                                               |
|                                                                                                                                                                    |                                                                                        | Restricted and endemic species                                                     |                                                                                        |
### Table 1 (Continued).

<table>
<thead>
<tr>
<th>Scientific areas</th>
<th>Wilderness recreation areas</th>
<th>Historic, archaeological, and cultural areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Scenic areas of outstanding quality based on research techniques</td>
<td>1. Recreation areas—for biking, camping, canoeing</td>
<td>1. Sites on or potentially eligible for inclusion on the national or state Register of Historic Places</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Sites containing significant archaeological or historic resources</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Buildings, structures, and landscapes on or potentially eligible for the Historic American Building Survey, the Historic American Landscape Survey, and the Historic American Engineering Record</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Areas essential to the lifestyle of local residents</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Natural resource critical areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural lands</td>
</tr>
<tr>
<td>Prime farmland</td>
</tr>
<tr>
<td>Unique farmland</td>
</tr>
<tr>
<td>Additional farmland of statewide importance</td>
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Sources: adapted from the Smithsonian Institution Center for Natural Areas (1974); the Pinelands Commission (1980); Newman (1982); and Steiner (2000).
While the U.S. Fish and Wildlife Service is responsible for protecting rare, endangered, and threatened species, the habitat for those species should be integrated into comprehensive, national conservation priorities. The GAP Analysis Program has identified the important gaps between protected areas and valuable habitat that can provide a basis for this effort.

Cultural Protection Areas
These areas would include regionally or nationally significant historical, archaeological, or visual resources. Such areas contain one or more significant scenic, recreational, archaeological, historic, or cultural resources that could be degraded or lost as a result of uncontrolled or incompatible development. They have features such as access and proximity to water, special recreation value such as wilderness qualities, or buildings, structures, and sites possessing significant historic or archaeological values.

Heritage corridors, such as the Blackstone, and historic trails, such as the Lewis and Clark, provide examples of cultural protection areas. Running from Providence, Rhode Island, to Worcester, Massachusetts, the Blackstone National Heritage Corridor includes the significant sites of the early American Industrial Revolution as well as important places for the labor movement, in addition to a lovely river valley with important recreational and wildlife values and preserved segments of the historic Blackstone Canal. The Lewis and Clark National Historic Trail traces one of the most important journeys in American history across a large cross-section of the country.

Resource Production Protection Areas
These areas would include regionally or nationally significant farmlands, ranches, forests, mines, and water resources (Table 1). Natural resource critical areas provide essential products for development supporting economies at all scales. Significant resources include essential products such as timber or minerals like sand and gravel, or the elements necessary for production such as prime quality soil and water supplies. These resources can be renewable or non-renewable.

The United States possesses some of the richest farmland in the world, yet the American Farmland Trust estimates that we are losing three acres of farmland an hour to development. The nation also possesses rich natural resources including forests, minerals, and water. An existing mapping tool that could be used in the survey is the U.S. Department of Agriculture’s (USDA) Land Evaluation and Site Assessment (LESA) system (Steiner et al. 1994). LESA uses several well-established USDA systems, such as the soil survey, to identify the best agricultural lands.

Another important issue is drinking water protection. Sprawl and urbanization pose significant threats to the supply and quality of our drinking water. When impervious surface reaches 10 percent within a watershed, it poses a threat to our water supply. A 30 percent impervious surface cover degrades the available supply. Maintaining a supply of clean drinking water is a powerful reason to protect the lands surrounding watersheds. Municipalities and regions can save money by avoiding the need to build costly water filtration plants by purchasing development rights or land preserves around watersheds.

Natural Hazard Protection Area
Natural hazard critical areas may result in the loss of life and property if developed. These areas would include places prone to fire, geological hazards, floods, hurricanes, and avalanches. Examples of geologic hazards are seismic areas (earthquake and fault zones), volcanoes (live or dormant), landslide zones, areas subject to subsidence, areas subject to severe erosion, liquefaction areas, and mine hazard areas (Steiner 2000), (Table 1)

An example of such an effort is provided by The National Consortium to Map Gulf Coast Ecological Constraints (Steiner et al. 2006). That effort used existing data from federal, state, local, and private sources to map areas of societal, flood, high wind, and storm surge risk. Historical hurricane patterns, economic impacts, and sea rise vulnerability were overlaid with social
vulnerability factors to determine cumulative risk at the Gulf Coast regional scales. The areas of the greatest risk could be set aside as preserves having the dual benefits of protecting human health, safety, and welfare as well as of providing wildlife habitat and coastal regeneration.

National Landscape Survey

These four assessments should be combined in a National Landscape Survey, which builds on existing national databases including the Geological Survey, EMAP, and GAP. While geographic information systems and remote sensing imagery have advanced to a point where an abundance of data exists about our national landscapes, a coordinated effort to analyze and synthesize these data is lacking. This should be a goal of the National Landscape Survey. The effort should be coordinated by the federal government, enlisting state agencies and universities and result in a map of the most significant land and resources that merit protection. In addition, the survey should identify new and potential opportunities for large-scale interregional connectivity, such as the Appalachian Trail, the Pacific Crest National Trail, and the Lewis and Clark National Historic Trail.

Create a New Nationwide Network of Natural Reserves and Heritage Areas

The National Landscape Survey would provide a spatial representation and prioritization of important landscapes requiring preservation and management nationwide. Intuitively, the result would be the identification of the large landscapes worthy of protection. Conservation of these areas must involve a partnership that combines technical expertise, financial resources, regulatory powers, and political engagement from all levels of government and the private sector. The strategies for realizing a national network would also need to vary among regions to take into account differences in public land management and water law. Suggested roles for the various entities follow.

Federal

The first essential federal role is to establish the National Landscape Survey, the blueprint for protection. Next, the federal government could pursue a “conditionality” role, as suggested by Bruce Babbitt (2005), in which federal aid would be conditioned on parallel responsibilities being taken by the states and local governments. Babbitt (2005) suggests parallel and complementary policies and incentives from the federal government for states to engage in planning for the protection of rivers and landscapes. Secretary Babbitt advocates the establishment of federal guidelines for protection to which the states must comply in order to be eligible for incentives, such as planning grants. Failure to achieve the national standards would result in the elimination of federal funds. Because the states have greater knowledge of local systems, they would have the latitude to devise their own strategies to meet federal standards. The federal government would also play an important moderating role among states by building on existing programs, such as the National Recreation Trail Program, established in 1968 as a network of scenic, historic, and recreational trails. Many, such as the Endangered Species Act, Safe Drinking Water Act, the Appalachian Trail, and the Lewis and Clark National Historic Trail, cross several states and provide the opportunity to create biological connectivity.

States

This strategy encourages creativity and innovation from states. The goal is clear: to preserve environmentally and culturally significant areas, as identified by the National Landscape Survey. The federal government would provide grants to states to develop plans that fit within state law. The states could, in turn, provide incentives for local or regional, or even megaregional, entities.

The experience in the Pinelands, Lake Tahoe, Chesapeake Bay, the Highlands, the I&M Canal, and other federal-state partnership reserves indicates that states can be quite inventive with some federal help and encouragement. Bruce Babbitt (2005) points to the success of the Florida Everglades. He was responsible for drafting interagency plans to restore the ecosystem of South Florida, the Everglades, and Florida Bay. According to Babbitt, the keys to the Everglades success were: (1) widespread public support translated into Congressional funding and (2) the positive role played by the U.S. Army Corps of Engineers. (Babbitt notes that the Corps is not an
agency noted for environmental good deeds.) Those keys helped strengthen the state’s role in the Everglades preservation efforts.

Local and Regional
As federal goals and incentives can encourage state-level innovations, so too can state action prompt local and regional initiatives. Many states do not provide adequate support to local and regional entities for expanding open space. Across the nation, local and regional governments will welcome more support and expanded regulatory authority to protect environmentally sensitive areas. Examples of such authority include the Highlands Water Protection and Planning Act and Long Island Pine Barrens Commission. States can expand the advantages for targeted lands to be placed in permanent conservation and affect the losses to local government. Already, numerous regions have undertaken visioning efforts, such as Envision Utah and Envision Central Texas. A key result of these efforts is that local residents support expanded open space opportunities.

Private Sector
Businesses succeed or fail in an ever more competitive, global market place. Quality of life has become an important factor in attracting and retaining businesses. Employees, especially in knowledge fields, seek recreational and open space opportunities. As a result, investment in open space would seem prudent.

The potential for valuing open space in dollar terms may also present itself through cap-and-trade programs to reduce carbon emissions. Pioneered by the EU Emissions Trading Scheme, and now being advanced in the Northeast with the Regional Greenhouse Gas Initiative (RGGI), these programs provide a marketplace in which power plants can purchase carbon “credits” or “offsets” to meet their regulatory cap on emitting carbon. Currently under RGGI, afforestation is one activity that qualifies as a carbon offset. However, it may be some time before the offset value of an acre of forestland matches the real estate value of that same acre. As Congress considers national legislation to expand cap-and-trade programs in the U.S., the opportunity for integrating it with a landscape preservation effort should be considered.

Non-Governmental Organizations
The role of NGOs such as land trusts will be instrumental for a national landscape conservation strategy to succeed. Since the CEQ published its alternatives to public land acquisition report in 1981, the number and sophistication of land trusts have grown dramatically across the United States, with more than 1600 now operating from coast-to-coast. They have the expertise and credibility to retain and manage conservation lands into the future, and have leveraged private philanthropy and state and federal tax incentives to preserve millions of acres of important conservation lands.

A New National Network
This national system of natural reserves and heritage areas will require federal leadership; state, local, and regional innovation; and creativity from the public sector and NGOs. It will also need to recognize regional differences and take advantage of the growing interests in megaregions.

Regional Preservation Strategies
Federal and state public lands are distributed differently across the nation. Many states in the West are comprised of high percentages of public land. In contrast, Texas has very little public land. Water law also differs in the East and West. The coast lines and megaregions present special opportunities for this national landscape conservation strategy.

The West: Public Lands Preservation and Management
In the West, a crucial first step would be to revitalize national treasures in decline. Existing National Parks need to be restored, their management systems improved, and funding increased. Based on the National Landscape Survey, new National Parks and Monuments should be created. Areas adjacent to existing National Parks are especially vulnerable and need stronger protection. Efforts could also be expanded to engage so-called “gateway communities” in joint efforts to meet park visitors’ needs for lodging, food and services, while preserving the integrity of landscapes and the visitors experience.

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1 For more information on these initiatives, see www.envisionutah.org and www.envisioncentraltexas.org.
Wilderness and roadless areas in National Forests and on BLM lands need to be restored and expanded. Based on the National Landscape Survey, new National Forests and wildlife refuges should be created. New national scenic corridors and preserves should be established around existing protected areas, such as wild and scenic river corridors. The coordinated efforts of the federal government, two states, and several local governments to protect the Columbia Gorge provides one example of such an undertaking.

The Plains: Buffalo Commons and Prairie Preserves
The national survey will result in the identification of important prairie preserve opportunities across the Great Plains where irrigated crop cultivation is no longer viable. In 1987, Deborah and Frank Popper put forth their initially controversial “Buffalo Commons” proposal. From initial skepticism from within the region, the concept has received wider acceptance. The Great Plains Restoration Council identifies the Buffalo Commons as “a cultural and social movement for positive, restorative social and ecological change on the Great Plains” (Great Plains Restoration Council, 2007).

As a model and a metaphor, the concept is now mature enough to investigate as a network of “buffalo commons.” Such a network would include restored prairie ecosystems, integrated into a comprehensive economic development program of business, solar, and wind power production.

The East: Preserve Biodiversity, Watersheds, and Scenic and Historic Landscapes
In the east, biodiversity, watersheds, and scenic and historic areas can be protected through: (1) new National Parks, (2) new heritage areas, and (3) new state and regional parks and preserves. In addition, the federal government needs to provide financial and technical expertise, while states impart management and regulatory powers and incentives for local cooperation. A first step would be to revive the Land and Water Conservation Fund to provide matching funds to the states to undertake land conservation.

Based on the National Landscape Survey, a new generation of National Parks, coupled with state-level land-use regulatory commissions would be established to protect large natural and scenic landscapes in the East. Precedents for efforts of this kind include the Long Island Sound Stewardship Act and the New Jersey Highlands Conservation Act.

Concurrently, a new generation of federal and state urban heritage parks is needed, such as San Francisco’s Golden Gate National Park, New York’s Gateway National Recreation Area, and Massachusetts’ Heritage Parks system. This would be consistent with the leadership many cities are taking to regreen urban areas, such as Houston’s Buffalo Bayou and New York’s Fresh Kills restoration area. Outside the cities, agricultural preserves should be expanded or created for large, highly productive agricultural lands threatened by suburban or resort development.

The Coastlines: Preparing for Sea Level Rise
In the 1970s, the Coastal Zone Management Act took noteworthy initial efforts to protect the nation’s coastlines. In light of potential sea level rise and continued frenzied development along the coasts, a renewed initiative is necessary. A first step would be to reform national flood insurance and disaster recovery programs to remove incentives for development in flood prone areas and buy out storm damaged properties. The New Jersey Blue Acres Program buys out properties from residents who live in flood-prone areas and designates the land as open space or develops it for recreational purposes.

The National Landscape Survey will identify future storm surge areas and flood zones. Maps of these areas should be used to promote local planning and zoning to discourage or prevent development in these areas. In uplands likely to become the shores of the future as a result of sea level rise, development rights and fee interests should be purchased.
Federal and state agencies should create more effective estuary management and restoration programs, including effective land acquisition and land-use regulatory programs. Drawing on data from the National Landscape Survey, a new generation of national estuary parks and reserves should be created.

The Megaregions: A Network of Regional Reserves
Megaregions are networks of more than one metropolitan area, connected by economic, transportation and environmental links. With the exception of the Gulf Coast and Great Lakes megaregions, most are rapidly growing. Regional Plan Association projects that by 2050, more than 70 percent of the population and economic growth will occur in ten megaregions across the United States (Regional Plan Association, 2006). Because of rapid growth in these megaregions, the protection of open space and important resource lands is especially crucial. As a result, the national strategy will promote networks of protected “regional reserves” in and adjoining the nation’s ten emerging megaregions.

Based on the National Landscape Survey, regional reserves would protect large (100,000 acres or more) ecological, scenic, historic, recreational, agricultural, and water supply systems through state-initiated, regional land-use regulatory programs, similar to the New Jersey Pinelands and the Long Island Pine Barren Preserves. Drawing from the National Landscape Survey, planners will be able to identify suitable candidate landscapes for preservation at the megaregion scale.

For example, the Texas Triangle is formed by San Antonio and Houston at its base with Dallas-Fort Worth at the apex. It is most likely that any national survey, such as the one proposed here, will identify the Edwards Plateau and Hill Country on the west of the triangle, and the Blackland Prairie and Coastal Plain on the east, as significant landscapes. The Edwards Plateau and Hill Country area contains one of the richest aquifers in the nation and is a scenic landscape. The Blackland Prairie and Coastal Plain include the richest farmland in the state. The Coast Plain also includes shorelines important for recreation and vulnerable to hurricanes.

In the Northeast megaregion, the University of Pennsylvania and the Regional Plan Association have already identified 26 candidate landscapes and coastal estuaries that would appear suitable as regional reserves (Figure 3). Of these, only five (Adirondack Park, New Jersey Pinelands, Long Island Pine Barrens, New Jersey Highlands, Cape Cod) are protected through existing systems.

Conclusion
To establish priorities for nationwide preservation, a National Landscape Survey is necessary. Based on that survey, a new national network of preserves and heritage areas can be created. Implementation of that network will require new action and partnerships by the public and private sectors as well as by NGOs and universities. Implementation of the system will vary by region across the country, with special attention paid to vulnerable coastlines and emerging megaregions.

Protecting our lands and natural resources must become a national priority. The federal government’s receding role in conserving and protecting our most precious lands threatens their availability for America’s future. These landscapes hold a significant place in American history; if we want to enjoy their scenic beauty and safeguard resources, there must be federal action, coupled with state, regional and local efforts.
Figure 3. Northeast Landscapes.
Source: RPA adapted from the Appalachian Mountain Club.
References


