Land Conservation Spending in Oregon in Relation to the State Wildlife Conservation Strategy

A REPORT PREPARED FOR THE NATIONAL COUNCIL FOR SCIENCE AND THE ENVIRONMENT

WILDLIFE HABITAT POLICY RESEARCH PROJECT

DEFENDERS OF WILDLIFE

TRUST FOR PUBLIC LAND

MaryBruce Alford, Frank Casey, Andrew duMoulin, Mitchel Hannon, Janet Mackey, Anna McMurray, Katie Theoharides

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Table of Contents

List of Tables

List of Maps and Figures

Maps

Figures

I. Introduction

This report describes and analyzes land conservation expenditures in the State of Oregon for the 1998-2007 time period. The report constitutes one of five state studies to examine how land conservation expenditures were aligned with each state's Conservation Strategy (State Strategy) for habitat conservation, and the extent to which these expenditures overlapped with the Conservation Opportunity Areas (Opportunity Areas) identified in the State Strategy. The report addresses three topics: a spending efficiency analysis; a financial efficiency analysis of land protection costs; and a policy analysis.

Under federal legislation, each state was required to complete a state wildlife conservation strategy by October of 2005 in order to remain eligible for State Wildlife Grant funds. These strategies were required to address eight congressionally mandated elements which included identifying species and habitats of greatest conservation need. Many states took the opportunity to map Opportunity Areas that represented the best areas for conservation of multiple species and habitats. The states used various methods to identify Opportunity Areas. Many states made it clear that the Opportunity Areas were not intended solely for acquisition and emphasized that the maps illustrate sites of high biological significance and opportunity for a variety of conservation actions. In Oregon, the Opportunity Areas identified are composed of a range of habitat types and land uses, including natural and semi-natural landscapes, agricultural and forestry lands and existing developed or excavated areas. Developed and excavated lands are excluded in this analysis.

The spending efficiency analysis has three primary components: (1) to the degree possible, to describe and analyze public and private land conservation expenditures between 1998-2007; (2) to spatially map expenditures and acreages to determine the amount of geographic overlap with the Opportunity Areas identified in the State Strategy, and (3) to determine the percentage and amount of total conservation spending and acreage that aligned with the Opportunity Areas. The financial efficiency analysis examines the relative costs of protecting Opportunity Areas lands that had far not been conserved as of 2007. These costs were estimated by consulting public and private spending data and current cost data associated public and private land protection programs. Three types of land protection costs are compared: fee-simple purchase; permanent easements, and land rentals. In addition, land management costs associated with, fee-simple purchases and transaction costs for easements are included. The policy analysis looks at ways in which the state uses its resources, programs and policies to direct funding towards activities that will achieve the state's land and habitat conservation goals, including the State Strategy. The policy analysis also examines the extent to which a state is guiding conservation spending towards protecting areas defined as important habitat, including the Conservation Opportunity Areas.

The next section reports our findings with respect to spending efficiency in Oregon by employing both descriptive and spatial analysis. Section III provides a policy analysis with respect to land conservation expenditures and their alignment with designated Opportunity Areas in Oregon. Section IV provides estimates of what it would cost to protect remaining Opportunity Areas in Oregon. The last section offers some preliminary conclusions and recommendations with respect to aligning land conservation funding with the State Strategy, and which financial instruments may be more cost-effective in conserving unprotected Opportunity Areas.

II. Description and Analysis of Land Conservation Expenditures in Oregon

The description and analysis of land conservation spending in Oregon is composed of two interrelated topics. First, we provide estimates of the amounts spent and acreages protected by various public and private entities for land conservation in Oregon for the 1998-2007 period. Second, we provide, to the extent possible, a spatial analysis that illustrates the amount of overlap between acres in land conservation and the location of Areas identified in the Oregon State Strategy. It should be noted, however, that the State Strategy was only adopted in 2005, so any overlap between conserved lands from 1998-2007 would be relatively recent. Therefore, the description and analysis of alignment with the Opportunity Areas really serves more as a baseline rather than as an indicator of how strategic land conservation has been for the purpose of implementing the State Strategy.

A. Conservation Expenditures in Oregon, 1998-2007

This section provides descriptions of the public and private land conservation funding sources in Oregon and provides data on the size of protected areas, and related expenditures, by source of funding for 1998-2007. Major data sources include The Trust for Public Land's (TPL) Conservation Almanac, and TPL's LandVote database.

The following sections disaggregate the total funding and acreage reported above into five categories: state-level sources, Federal programs that are and are not coordinated by state agencies, local funding sources, and private land trusts. Describing and analyzing expenditure data using these categories informs our policy proposals that to improve the alignment of conservation funding with Oregon's Opportunity Areas.

State Government Land Conservation Expenditures

Through the passage of Measure 66 in 1998, Oregon committed 15% of its lottery proceeds to state park and salmon/stream restoration projects. The amount of funding generated by Measure 66 is split evenly between the Oregon Parks and Recreation Department and the Oregon Water Enhancement Board. Of the amount that the Enhancement Board receives, 65% must be used for capital expenditures. It is estimated that $46.2 million is now generated annually for habitat protection alone through lottery proceeds. The expenditure of funds from Measure 66 for land conservation is authorized through 2014.

From 1998 to 2007 Oregon spent about $40.6 million and conserved roughly 41,000 acres of land using Measure 66 funding (Table 2.1). These data do not include projects that may have been authorized, but not completed at the time of this report. The amount spent by OWEB for salmon/stream restoration projects represents about 35% of total state conservation dollars over 1998-2007, and over 83% of the total acreage protected.

Table 2.1: Oregon State Land Conservation Expenditures and Acreage, 1998-2007

State Funding Program providing Grants through State Agencies	***Oregon State Agency Coordinating the Funding***	***Expenditures (millions $)***	***Acres***
Measure 66 Lottery Proceeds	State Parks and Recreation Department	$26.3	6,879
Measure 66 Lottery Proceeds	Oregon Water Enhancement Board	$14.3	34,229
Total		**$40.6**	**41,178**

Federal Conservation Programs

Federal government funding programs are broken into three categories: 1) federal land conservation programs coordinated solely by state agencies for which a state match may be necessary; 2) programs coordinated by the federal government that work with various partners, including state agencies; and 3) programs operated solely by federal land agencies with no state involvement. An example of federal funds coordinated by the state is the Coastal and Estuarine Land Conservation Program (CELCP) which issues grants to states for coastal conservation priorities. Individual projects are selected by a designated state agency. Examples of federal programs that involve public and private partners, and are coordinated by the federal government, are the USDA Farm and Ranchland Protection and the Wetland Reserve Programs. Under FRPP, the federal government must approve specific projects before funding is distributed. Lastly, there is federal funding used only by federal land agencies, such as the U.S. Forest Service, to purchase land that add to the public domain and/or implement land management activities.

Federal Conservation Programs Implemented by State Agencies

There are several Federal conservation programs whereby the states play coordinating roles with respect to land conservation activity and expenditures. Table 2.2 summarizes acreage conserved and expenditures for the programs active in Oregon for 1998-2007.

Coastal and Estuarine Land Conservation Program (National Oceanic and Atmospheric Administration)

The Coastal and Estuarine Land Conservation Program (CELCP) provides pass-through grants to states and local governments for land purchases or easements in a state's coastal zone, as provided for in a state's coastal conservation plan. CELCP was created in 2002 in order to "protect those coastal and estuarine areas with significant conservation, recreation,

ecological, historical or aesthetic values, or those that are threatened by conversion from their natural state to other uses."

Table 2.2: Federal Land Conservation Programs Implemented by State Agencies, 1998-2007

Program Name	***Oregon State Agency***	***Program Spending ($ million 2007)***	***Acres Protected***
Coastal and Estuarine Land Conservation Program (National Oceanic and Atmospheric Administration)	Oregon Department of Land Conservation and Development	$0.6	355
Cooperative Endangered Species Conservation Fund Grants to States and Territories (U.S. Fish and Wildlife Service)	Oregon Department of Fish and Wildlife	$0.7	Not available[1]
Forest Legacy Program (U.S. Forest Service)	Oregon Department of Forestry	Accounted for in Table 2.6	Accounted for in Table 2.6
Land and Water Conservation Fund Stateside Program (National Park Service)	Oregon Parks and Recreation Department	$1.5	296
National Coastal Wetlands Conservation Grants (U.S. Fish and Wildlife Service)	Oregon Watershed Enhancement Board	$3.8	Not Available
Pacific Coastal Salmon Recovery Funds (National Oceanic and Atmospheric Adminstration)	Oregon Watershed Enhancement Board	Accounted for in Table 2.1 [2]	Accounted for in Table 2.1
TOTAL		**$7.0**	**651 acres**

[1] The U.S. Fish and Wildlife Service tracks program benefits in terms of species, not number of acres protected.

[2] Funding and acres acquired could not be separated from state dollars spent and acres acquired through OWEB. Expenditures from this Fund are counted in the OWEB category in Table 2.1.

Conserved coastal lands must generally be maintained or restored to their natural state. Public access is a general requirement and the program requires a 1:1 non-federal match, which can be met from various sources, including the value of donated land or restoration. Oregon used CELCP funds only once from 1998-2007 (2003) and spent about $600,000 to conserve approximately 355 acres.

Cooperative Endangered Species Conservation Fund (U.S. Fish and Wildlife Service)

Grants offered through the Cooperative Endangered Species Conservation Fund (authorized under section 6 of the Endangered Species Act) support participation in a wide array of voluntary conservation projects for candidate, proposed, and listed species. There are two grant programs, the Habitat Conservation Plan (HCP) and Recovery Lands Conservation Grant.

HCP conservation grants provide funding to states and territories explicitly for land acquisitions that complement approved HCPs. These grants are available only for fee-simple purchases that go above and beyond the conservation responsibilities that non-federal partners already bear under the terms of the HCP. These grants complement but do not replace private mitigation responsibilities contained in HCPs. Protected acres have important benefits for listed, proposed, and candidate species and for the ecosystems that support those species.

Recovery Land grants provide funds to states and territories for the acquisition of habitat, through both fee-simple purchase and easement, in support of federally listed threatened and endangered species recovery. Funds must contribute to the implementation of a finalized and approved recovery plan for at least one species under the Endangered Species Act.

The Cooperative Endangered Species Conservation Fund was used in Oregon only in 2004 and had an expenditure of $700,000. The U.S. Fish and Wildlife Service measures program accomplishments in terms of benefits to species, and not acres. Additionally, the number of acres conserved is not reported because of the sensitivity of identifying specific locations where endangered species exist.

Forest Legacy Program (U.S. Forest Service)

The Forest Legacy Program was established in 1990 to provide federal funding to states to assist in securing conservation easements on forestlands threatened with conversion to non-forest uses. Fee simple purchases are also allowed. Oregon entered the program by submitting an Assessment of Need to the Secretary of Agriculture. State plans establish the lead state agency, the state's criteria for Forest Legacy projects, and Forest Legacy Areas within which proposed projects must be located. Once the Assessment of Need is approved, the state lead agency can submit up to three grants each year for projects within Legacy Areas. The federal government may fund up to 75 percent of project costs, with at least 25 percent coming from private, state or local sources.

Oregon has received funding for the Legacy Program for only one year, 2007. In that year, $460,000 was spent on one 25 acre project in coordination with the City of Eugene. These acreage and expenditure data are accounted for in the section on local government land conservation (Table 2.6).

Land and Water Conservation Fund (National Park Service)

The Land and Water Conservation Fund provides a 50 percent match to states for planning, developing and acquiring land and water areas for natural resource protection and recreation enhancement. Funds are distributed to states based on population and need. Once the funds are distributed, each state selects projects, with the approval of the National Park Service. Eligible grantees include municipalities, state agencies and tribal governments, each of whom must provide at least 50 percent matching funds in either cash or in-kind contributions, and develop a detailed project implementation plan. Between 1998 and 2007, the Oregon Parks and Recreation Department spent about $1.5 million of Conservation Fund monies over nearly 296 acres.

National Coastal Wetlands Conservation Grant Program (U.S. Fish and Wildlife Service)

Established by the Coastal Wetlands Planning, Protection, and Restoration Act of 1990, the National Coastal Wetlands Conservation (NCWC) Grant Program is a matching grant program administered by the U.S. Fish and Wildlife Service to acquire, restore, and enhance wetland ecosystems of coastal states and territories. Projects in states bordering the Atlantic, Gulf of Mexico, Pacific, and Great Lakes are eligible for funding of up to $1 million per year. The exception is the state of Louisiana, which has its own coastal wetland program administered under the Act. Projects are given priority if they are consistent with the criteria and considerations outlined in the National Wetlands Priority Conservation Plan, are located in states with dedicated funding programs to acquire coastal wetlands and open spaces, are located in maritime forests on barrier islands, benefit endangered species, encourage cooperative efforts among diverse partnerships and/or benefit other conservation efforts.

In Oregon, the NCWC grant program is administered by the Oregon Water Enhancement Board (OWEB). From 1998 to 2007, Oregon spent $3.8 million from NCWC funding. Acreage acquired is not reported because there are often both restoration and enhancement components associated with land purchases, making it impossible to determine which portion of the funding has gone specifically to acquisition.

National Scenic Byways Program and the Recreational Trails Funds (U.S. Department of Transportation, Federal Highway Administration)[1]

The National Scenic Byways Program and the Recreational Trails Funds are coordinated by the Department of Transportation's Federal Highway Administration. Under the Byways program, the U.S. Secretary of Transportation recognizes specific roads as "National Scenic Byways" or "All-American Roads" based on significant archaeological, cultural, historic,

[1] This National program is not included in Table2.2 because acreage and expenditure data were not available.

natural, recreational, and scenic qualities." Discretionary grants are also provided for scenic byway projects to aid in planning, designing and developing a State scenic byway program.

Funding for Recreational Trails is derived from the Federal Highway Trust Fund, which is sustained in part through a portion of the motor fuel excise tax collected from non-highway recreational fuel use (i.e. fuel used by snowmobiles, all-terrain vehicles, off-highway motorcycles, off-highway light trucks). Funding is provided to States to develop and maintain recreational trails and facilities for all types of trail use, some of which include hiking, bicycling, in-line skating, equestrian, and snowmobiling.[2] There is no available acreage or expenditure data for this program in Oregon.

Pacific Coastal Salmon Recovery Funds (National Oceanic and Atmospheric Administration Fisheries Services)

The Pacific Coastal Salmon Recover Fund (PCSRF) was established by Congress in order to restore and conserve Pacific Salmon and Steelhead populations and their habitats. The states of Washington, Oregon, California, Idaho and Alaska, and the Pacific Coastal and Columbia River tribes receive annual appropriations from NOAA. Funds are to be spent using criteria and process that establish priority PCSRF projects.[3]

Funding and acres acquired using the PCSRF cannot be separated from state data that is maintained by the Oregon Watershed Enhancement Board. Therefore, these data are counted as part of state projects in Table 2.1.

Federal Land Conservation Programs with Partners

There are five federal land conservation programs active in Oregon which are managed by Federal government authorities, but can involve an array of various partners. The Federal agencies involved include the Departments of Energy and Agriculture and the U.S. Fish and Wildlife Service. These programs require state matching funds (Table 2.3). In the case of agriculture, land conservation programs involve individual crop and livestock producers as partners.

Bonneville Power Administration (U.S. Department of Energy)

The Bonneville Power Administration (BPA) is a federal agency under the U.S. Department of Energy. A supporting program of BPA is its Wildlife Mitigation Program, which helps to mitigate impacts to wildlife caused by the development and operation of the Federal Columbia River Power System dams. Habitat is protected and enhanced through fee-simple purchases and conservation easements. Projects are selected based on recommendations and criteria set by the Northwest Power and Conservation Council. Tribal Governments, state agencies, property owners, private conservation groups, and other Federal agencies may submit project proposals.[4] Between 1998 and 2007, BPA's Wildlife Mitigation Program expended about $34 million for the protection of approximately 65,000 acres.

[2] http://www.nttp.net/FHWAnttp.html
[3] http://www.nwr.noaa.gov/Salmon-Recovery-Planning/PCSRF/
[4] http://www.efw.bpa.gov/IntegratedFWP/wildlife.aspx

Table 2.3: Federal and Partner Land Protection Programs in Oregon (1998-2007)

Federal Program	***Program Spending ($ million)***	***Acres Protected***
Bonneville Power Administration's Wildlife Mitigation Program	$34.7	64,552
Farm and Ranch Lands Protection Program	$1.8	Not available
Grasslands Reserve Program	$.395	1,334
North American Wetlands Conservation Act	$12.4	1,429
Readiness and Environmental Protection Initiative	$0	0
Wetlands Reserve Program	$55.8	33,662
TOTAL	**$105.1 million**	**99,784 acres**

Farm and Ranch Lands Protection Program (USDA / National Resource Conservation Service)

The USDA Farm and Ranch Lands Protection Program (FRPP) provides matching funds for the purchase of development rights to keep productive farm and ranchland in agricultural uses. FRPP works with state, tribal, or local governments and non-governmental entities. Grants are awarded by the Natural Resource Conservation Service (NRCS) to states, local governments and non-governmental entities on a competitive basis, according to national and state criteria. The program requires up to a 50 per cent non-NRCS match to cover the cost of an easement. Up to 25 per cent of donated land value can be counted as the match. In some cases, Oregon state lottery funds are used as a FRPP match.

Between 1998 and 2007, $1.8 million was spent on FRPP easements. Due to FRPP's reporting system we were unable to accurately determine the acreage protected because it could overlap with land conservation figures from state and/or local sources (Tables 2.1 and 2.6).

Grasslands Reserve Program (USDA)

The NRCS, the Farm Services Agency (FSA) and the U.S. Forest Service coordinate the Grasslands Reserve Program (GRP). The GRP is a voluntary program offering landowners an opportunity to protect, restore, and enhance grasslands on their property through the use of rental agreements or easements (term and permanent).

In Oregon, about 1,334 acres were protected through GRP up to 2007, with a federal cost of $394,800. However, all this acreage is under 30-year rental agreements, and not permanently protected. The location information for these rentals is incorporated into the spatial analysis, but due to confidentiality issues these parcels cannot be broken out by year.

Wetlands Reserve Program (USDA/National Resource Conservation Service)

The Natural Resource Conservation Service (NRCS) administers the Wetlands Reserve Program (WRP), a voluntary program offering landowners the opportunity to "address wetland, wildlife habitat, soil, water, and related natural resource concerns on private lands in an environmentally beneficial and cost-effective manner."[5] The WRP offers agricultural landowners a choice of entering into either 30-year or permanent conservation easements and also provides cost-share assistance.

Between 2002 and 2007, approximately 33,662 acres were conserved under WRP through permanent easements. Another 1,468 acres were protected under 30-year easements. Expenditure data is not available prior to 2002. The total amount spent for permanent and term easements was approximately $55.8 million. Location information is not shown in the mapping analysis due to confidentiality reasons.

Readiness and Environmental Protection Initiative to Buffer Installation Encroachment (Department of Defense)

The Readiness and Environmental Protection Initiative (REPI) allows military installations to work with conservation groups and state and local governments to support defense readiness, and to conserve lands or limiting incompatible development and to preserve biodiversity. By conserving land for environmental, agricultural and recreational uses, the military and its partners are able to protect training areas critical to national defense.

In 2002, as part of the National Defense Authorization Act, Congress authorized Section 2684a of Title 10 United States Code,[6] which allows military services to enter into agreements with private conservation organizations or with state and local governments to protect wildlife habitat. These agreements allow the services to cost-share acquisition of conservation/restrictive-use easements and other interests in land from willing sellers. The REPI has not been used in Oregon.

North American Wetlands Conservation Act (U.S. Fish and Wildlife Service)

[5] Natural Resource Conservation Service United States Department of Agriculture – Farm Bill 2002, Wetlands Reserve Program, Key Points - http://www.nrcs.usda.gov/Programs/WRP/2007_ContractInfo/2007WRPKeyPoints.pdf

[6] 10 U.S.C. § 2684a

The North American Wetlands Conservation Act (NAWCA) was passed in 1989 to provide matching grants for the acquisition, restoration, and enhancement of wetland ecosystems for the benefit of waterfowl and other wetland dependent migratory species. Administered by the U.S. Fish and Wildlife Service, grants are available to nonprofit organizations, state and local agencies, tribes, and private individuals in the U.S., Canada, and Mexico. Two types of grants are awarded; small grants for up to $75,000 and standard grants for up to $1 million. There is a 1:1 non-federal match requirement for each grant although the average match of successful proposals is over 2:1. Between 1998 and 2007 about $12.4 million of NAWCA funds were spent in Oregon and protected over 1,400 acres.

Land Conservation by Federal Land Management Agencies

The land conservation funding described in this section pertains to Federal agencies that protect land solely through their own agencies, with no involvement by the state of Oregon or private partners. These agencies include the Bureau of Land Management, the Bureau of Reclamation, the National Park Service, the U.S. Fish and Wildlife Service, and the U.S. Forest Service. Annual funding and acreage figures could not be obtained from the Bureaus of Land Management or Reclamation. The Bureau of Land Reclamation (BLR) is administered by the U.S. Department of the Interior and buys and owns land to build dams, power plants, and canals. However, expenditure and acreage data pertinent to these lands was not included because of their uncertain status as conserved lands. Funding levels and acres protected are shown in Table 2.4.

Table 2.4: Land Conservation Programs Managed by Federal Agencies (1998-2007)

Source of Funding	***Program Spending ($ millions)***	***Acres Protected***
National Park Service	$6.7	2,454
U.S. Fish and Wildlife Service	$19.5	23,276
U.S. Forest Service	$19.4	96,554
TOTAL	**$45.6 million**	**122,284 acres**

Bureau of Land Management (U.S. Department of Interior)

The Bureau of Land Management (BLM) was established in 1946 through the consolidation of the General Land Office and the U.S. Grazing Service. The BLM is responsible for a variety of programs for the management and conservation of resources on 258 million surface acres, as well as 700 million acres of subsurface mineral estate. These public lands make up about 13 percent of the total land surface of the United States and more than 40 percent of all land managed by the federal government. Yearly BLM data on land expenditures and areas protected is not available for Oregon. However, the total amount of BLM land in Oregon is currently about 4.6 million acres.

National Park Service (U.S. Department of Interior)

The National Park Service (NPS) was created in 1916 and now comprises 390 areas covering more than 84 million acres in every state (except Delaware), the District of Columbia, American Samoa, Guam, Puerto Rico, and the Virgin Islands. These areas include national parks, monuments, battlefields, military parks, historical parks, historic sites, lakeshores, seashores, recreation areas, scenic rivers and trails, and the White House. Between 1998 and 2007, the NPS spent about $6.7 million and protected approximately 2,454 acres in Oregon through the Land and Water Conservation Fund.

U.S. Fish and Wildlife Service (U.S. Department of Interior)

The National Wildlife Refuge System of the U.S. Fish and Wildlife Service (FWS), established over 100 years ago, has grown to nearly 95 million acres. It now includes 540 refuges and more than 3,000 waterfowl production areas spread across the 50 states and several U.S. territories. From 1998 to 2007, $19.5 million was spent by the FWS in Oregon, conserving over 23,000 acres.

U.S. Forest Service (U.S. Department of Agriculture)

The U.S. Forest Service (USFF) was established in 1905 and is an agency of the Department of Agriculture. At present, it is comprised of 155 national forests, 20 national grasslands, five national monuments, the National Tallgrass Prairie, and six land utilization projects. These units are located in 44 states, Puerto Rico, and the Virgin Islands, and encompass over 192 million acres. From 1998 to 2007, the USFF spent about $19.4 million in Oregon for the conservation of approximately 96,500.

Land Conservation Expenditures through Local Governments

Local government funding sources are entities with bonding/taxing authority such as counties, cities, regional organizations, and soil and water conservation districts. In Oregon, the two major local governments that have generated dedicated sources of public funding for land conservation are the City of Eugene and Metro-Portland. There are other small localities that also generate conservation funding, but these data were not available. Table 2.6 shows the amount of funding and acres conserved through these two major entities between 1998 and 2007.

Table 2.5: Local Land Acquisition Funding Programs (1998-2007)

Local Government	***Program Spending ($ million)***	***Acres Protected***
City of Eugene	$12.3	1,227
Metro-Portland	$123.3	5,874
Total	**$135.6 million**	**7,101 acres**

The City of Eugene has generated $29 million through general obligation bonds for parks and open space. In 1998 the city passed a $23.3 million bond, of which $9.07 million was for parks and recreation purposes. In 2006, the city passed a $29.2 million bond, of which $20.2 went to parks, open space and recreation. Between 1998 and 2007, Eugene spent about $12.3 million for the conservation of approximately 1,230 acres.

Metro-Portland has generated $363 million through general obligation bonds for natural areas to protect water quality and conserve fish and wildlife habitats. In 2006, Metro passed a $227.4 million bond to for these purposes. Since then, Metro-Portland has acquired over 6,000 acres with $123.3 million of funding through its Natural Areas Program.

It should be noted that not all dollars expended through Metro-Portland are used to acquire conservation land. Funds may be used for restoration and/or management of habitat, or for the acquisition of urban parkland, which may have minimal impact on wildlife habitat. The degree of impact of this program on wildlife habitat is a topic for further research.

Private Land Conservation

Private funding sources consist of various land trusts throughout the state. We chose the largest and most active land trusts in Oregon, including the Deschutes Land Trust, Columbia Land Trust, Greenbelt Land Trust, The Nature Conservancy, North Coast Land Conservancy, and Western Rivers Conservancy. Conservation activity for TPL was not included because it does not use organization dollars to acquire land for easement or purchase. Acres that TPL helps protect have likely been captured in other program and/or agency data. Also, except for the Columbia Land Trust and TNC, expenditure and acreage data for the other land trusts is accounted for in other programs or agencies. Data from the Deschutes, Greenbelt, North Coast and Western Rivers land trusts shows that dollars spent comes mostly from state, federal or private foundation grants. Acres and dollars that we were able to identify solely as land trust acquisitions provided in Table 2.6. For TNC, acres protected and expenditures are not spatially represented because the data could not be obtained in a form that allowed mapping.

Table 2.6: Private Conservation Expenditures and Acres Protected (1998-2007)

Conservation Organization	***Program Spending ($ million)***	***Acres Protected***
Columbia Land Trust	$0.5	246
The Nature Conservancy	$24.4	73,179
Total	**$24.9 million**	**73,965 acres**

Summary of Land Conservation Expenditures in Oregon

Overall, we estimate that approximately $359 million was spent on conserving about 345,000 acres in Oregon from 1998 to 2007 (Table 2.7). Land conservation programs involving the federal government accounted for 44% of all expenditures and about 54% of all acres protected. State funding, primarily through Measure 66 lottery funds, accounted for 11% of all expenditures and was used to protect about 13% of all conserved lands. Private entities such as land trusts were vital in providing technical assistance to facilitate land conservation, and accounted for about 7% of all expenditures and 21% of the acreage protected. Eighty-seven percent of the total acres conserved were through fee simple purchase.

Due to the lack of data for some funding sources, both expenditures and acres protected are somewhat underestimated. For example, we could not obtain annual land conservation expenditures or acreages from the Bureau of Land Management, many local governments, and private land trusts. Similarly, our estimates of acres protected are low due to not having acquisition data for lands protected by the federal Cooperative Endangered Species Fund, National Coastal Wetland Conservation Program, or the Farm and Ranch Lands Protection Program.

Table 2.7: Summary of Land Conservation Funding in Oregon (1998-2007)

Source of Funding	***Program Spending ($ millions)***	***Program Spending as a % of Total***	***Acres Protected***	***Acres Protected as a % of Total***
State Funding	$40.6	11%	41,178	12%
Federal Funding with State Coordination	$7.0	2%	651	.2%
Federal Funding with Partners	$105.1	29%	99,784	29%
Federal Agency Only	$45.6	13%	122,284	35%
Local	$135.6	38%	7,101	1.8%
Private	$24.9	7%	73,965	21%
TOTAL	**$358.8 million**		**344,963 acres**	

It is interesting to note that a large percentage of funding came from local governments (38%), but accounted for only less than 2% of the total acreage protected. This is most likely

due to higher land prices near urban areas. Within the category of federal funding with partners, the predominant land protection programs are the Bonneville Power Administrations Wildlife Mitigation Program (64,500 acres) and the USDA Wetland Reserve Program (35,000 acres). Within the direct federal agency land protection program, the US Forest Service has accounted for over 96,000 of the almost 122,000 acres protected over the 1998-2007 time-frame. The next section of this report provides a spatial analysis the expenditures and acreages reported in Table 2.7 that could be mapped. We describe and analyze the extent to which acreages and expenditures align with the Conservation Opportunity Areas identified in the Oregon State Conservation Strategy.

B. Spatial Analysis of Acres Conserved and Expenditures in Oregon

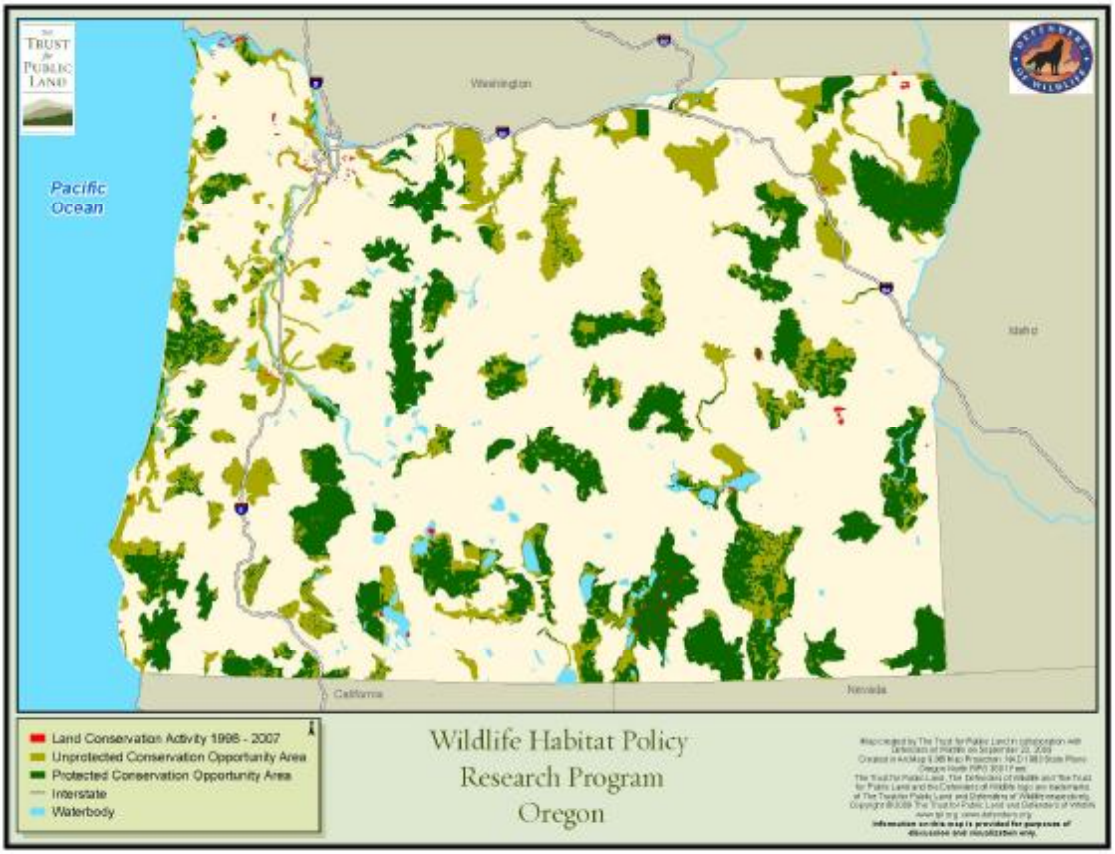
This section provides a description and analysis of the spatial efficiency of land conservation in Oregon with respect to implementation of the state wildlife action plan. We measure spatial efficiency by the geographic alignment between the Conservation Opportunity Areas identified in the State Strategy with the level of conservation spending between 1998 and 2007, ***for those expenditures and associated acreages that could be mapped.*** To investigate this alignment we first collected spatial parcel data for lands conserved between 1998 and 2007 and overlaid these parcels with the state Conservation Opportunity Areas map. A description of the Opportunity Areas, the methods used for this spatial analysis, and our results are described below.

In Oregon, Conservation Opportunity Areas are landscapes where broad fish and wildlife conservation goals can be identified and where there is a high likelihood of successful conservation action. Opportunity Areas were identified by the state on the basis of Geographic Information System (GIS) analysis using a three-step process comprised of (1) using a computerized site selection program called Marxan; (2) validation of the results using expert opinion; and (3) peer review. Marxan is a site selection tool used to prioritize areas for conservation based on user input. The inputs used in Oregon were the locations of priority habitats and species as well as several suitability factors. Suitability factors were used to model areas with the fewest threats to wildlife and/or where resource conflicts occur. Suitability factors include road density, human population density, relative stream quality, conversion of habitat to non-native land cover, and the distance an area is from lands already managed for conservation values. Based on these inputs, the Oregon model produced areas that had the best suitability for multiple species and habitats conservation.

The identified Opportunity Areas were validated against other spatially-explicit planning efforts, including The Nature Conservancy eco-regional assessments, the Oregon Biodiversity Project Conservation Opportunity Areas, and Oregon's Important Bird Areas. Selected Opportunity Areas were also reviewed by Oregon Department of Fish and Wildlife biologists. Sites that were isolated, not identified in other planning efforts, or identified by biologists as less suitable than others were dropped. Opportunity Areas were considered for addition if they overlapped with other planning efforts, contained strategy species and habitats, provided an important corridor linkage between existing protected areas, or if they were recommended by a biologist for having outstanding wildlife values.

Map 2.1 displays the Oregon Conservation Opportunity Areas and the protection status of these areas. Light green shows unprotected Opportunity Areas and dark green shows

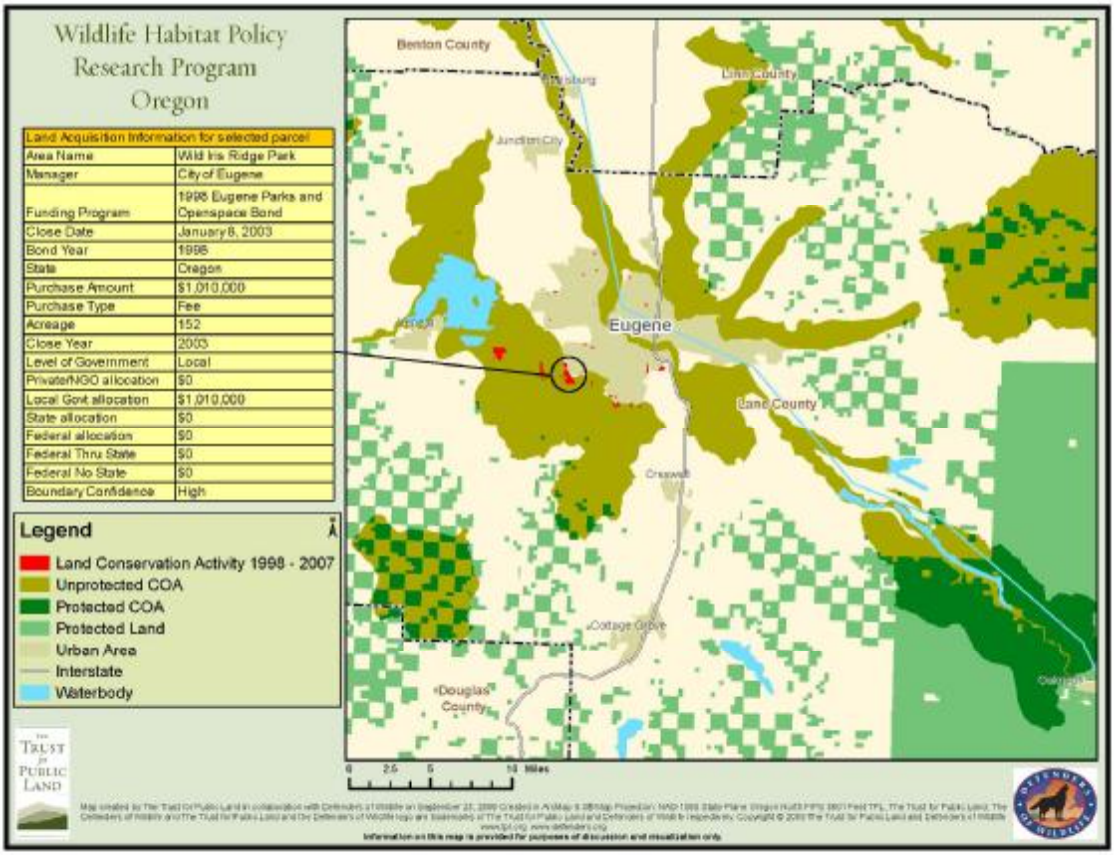
Opportunity Areas that are classified as already protected. The map also shows land conservation activity (in red) from 1998-2007 that we were able to map.



Map 2.1 Protected and Unprotected Conservation Opportunity Areas

The Oregon Conservation Opportunity Areas were mapped using GIS data provided by the Oregon Department of Fish and Wildlife. Protected Areas (Map 2.1) are based on the Public Ownership shape file from the State of Oregon public data website. Public protected areas include lands owned by the Bureau of Land Management, Oregon lands administered by BLM, U.S. Forest Service Lands, State lands, Military or Army Corps of Engineers Lands, Bankhead and Jones Lands Indian Reservations, County Lands, National Grasslands, National Parks and Monuments, and National Wildlife Refuges.

To determine the alignment between conserved lands and the Opportunity Areas we created a spatial database of land conservation activity in Oregon for the years 1998 to 2007. The database delineates the physical boundary of each property and records the cost (expenditure), the date that the transaction was completed, the source of funds used to protect the acreage, type of purchase, and the management entity (Map 2.2). Collecting this data required a variety of methodologies due to the diversity in the spatial data and the ease with which a spatial data record could be matched to corresponding expenditure information.



Map 2.2: Zoomed in view of land acquisition parcel with associated attribute data.

Initially, we contacted each management entity and obtained the spatial data that they could provide. Some entities such as the Portland Metro and USFWS were able to provide specific property boundaries along with that properties' corresponding expenditure data. Eugene Metro provided spatial data with property boundaries that were easily joined to expenditures through a common identifier. These examples represent the best case scenario in terms of matching expenditures with the actual physical areas protected.

The data provided by some agencies, however, was more difficult to utilize. Some Oregon state agencies could only provide generalized areas under their management, not a specific property boundary to align with actual expenditures. In these cases, we used several approaches to estimate the property boundary. First, we contacted the counties in which the property was located to obtain the digital spatial data for all parcels within the county. This would allow us to select the parcel boundary we needed within the larger generalized boundary. The availability of these datasets varied between counties and we were only able to obtain 7 county's digital parcel datasets without cost.

In counties where we were not able to obtain free parcel data, "generalized" boundaries were created within a larger conservation area. These generalized boundaries were simply "blobs" drawn to the correct acreage in order to create a record for use in our analysis. Generalized boundaries were only created in state parks that contained no Opportunity Areas, or state parks that were made up entirely of Opportunity Areas. This measure ensured that the

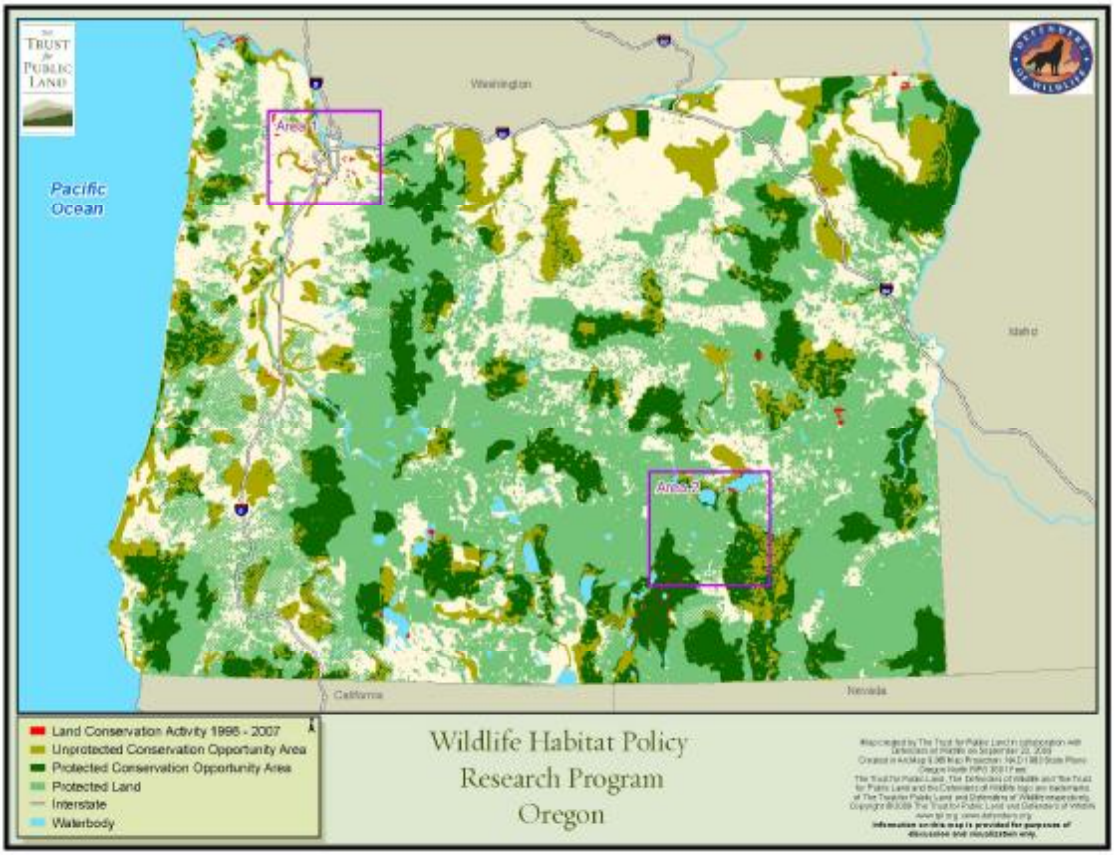
generalized boundary accurately represented the acreage of an Opportunity Area that was conserved.

Oregon State Parks also only had generalized boundaries in their spatial data, but were able to provide map pictures of their parks. We used the maps to hand-digitize the property boundaries for 42 of their 59 acquisitions. Generalized boundaries were created for the remaining parks. In these cases, the spending data had to be manually entered to complete the record.

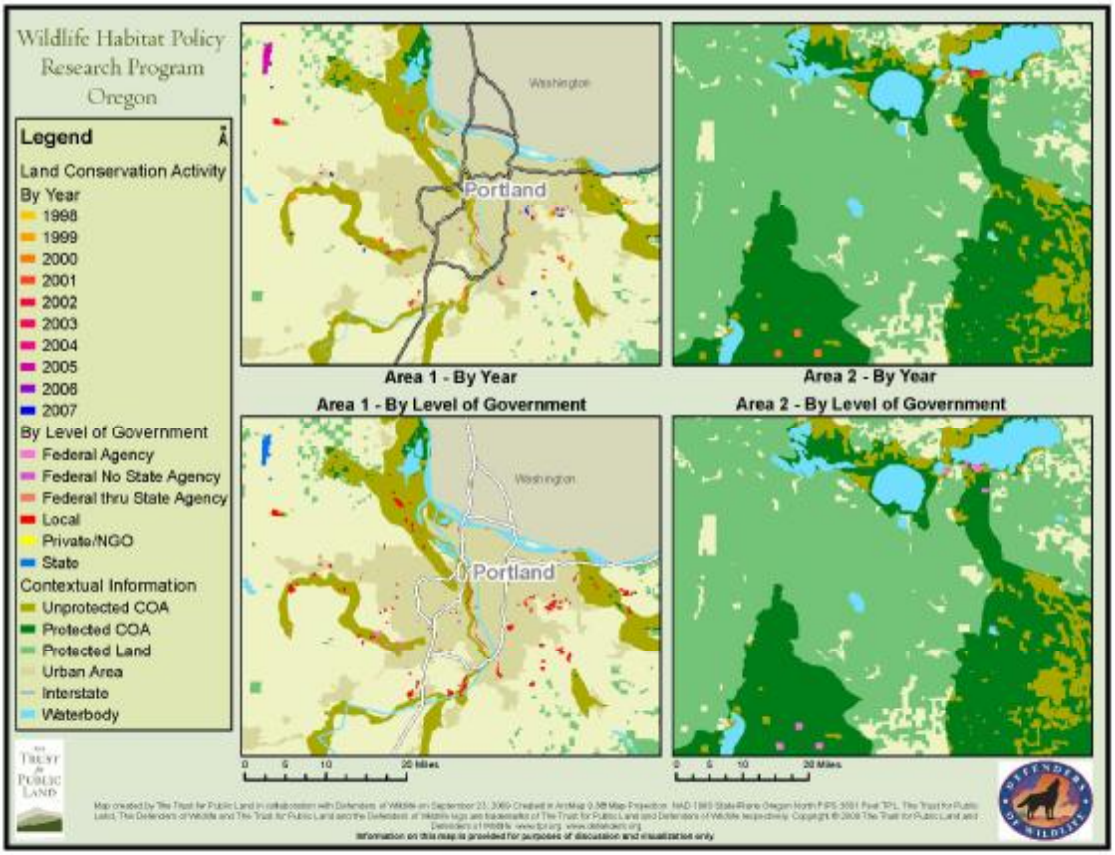
Other management entities and funding programs that provided data included the Columbia Land Trust which provided center points of their acquisitions around which generalized boundaries were created, the CELCP, the Forest Legacy Program, and the Nez Perce and Paiute Tribes which used funds from the Bonneville Power Administration.

Several Federal, state, and private management entities and funding programs either did not have location or expenditure spatial data, were not able to provide it due to disclosure agreements, or did not have the staff time to assemble the data. These entities included the Dechutes Land Trust, North Coast Land Trust, Green Belt Land Trust, Oregon Watershed Enhancement Board, National Park Service, US Forest Service, the USDA FRPP/WRP/GRP programs, North American Wetland Conservation Act, US FWS Section 6 grant program and The Nature Conservancy properties. This missing information represents a gap in our spatial dataset and limits some of the conclusions we can draw about the spatial efficiency of conservation spending in Oregon. Of the roughly $357 million spent on land acquisition in Oregon from 1998-2007, we were only able to map 52% of that amount. For the same time period, we were only able to map roughly 14% of acres protected (about 345,000 acres), or a little over 49,000 acres.

Based on the spatial data collected, we created a database of land parcels protected between 1998 and 2007 and used the data base to map how closely these parcels aligned with the Opportunity Areas. Map 2.2 displays in red the parcels conserved, along with the Opportunity Areas and existing protected areas. Map 2.2 also highlights two Opportunity Areas (in purple boxes) that will be examined further in figure 2.3 below.



Map 2.3: Protected and Unprotected Conservation Opportunity Areas and Land Acquisitions Made from 1998-2007.



Map 2.4: Public Land Acquisitions by Year Overlain with Protected and Unprotected Conservation Opportunity Areas and the Level of Government Providing Funding.

To determine the degree of overlap between Oregon's Conservation Opportunity Areas and the lands protected between 1998 and 2007 for which we could get information, we completed a spatial intersect analysis using Geographic Information Systems(GIS). To do this we used the intersect tool, which allows the user to calculate the acreage of public land conserved (in red in Maps 2.2 and 2.3) that overlap with Opportunity Areas.

It is important to note that the State Strategies and the identification of the associated Conservation Opportunity Areas were not completed prior to October, 2005. Thus, there is no a priori reason to expect that conservation spending and Opportunity Areas will align prior to late 2005 or 2006 in most states. Lands protected may have occurred in these areas before 2005 for a number of reasons including prior recognition that these areas were important for conservation, landowner donation or interest in easement programs, or other conservation interests in these areas. In Oregon, however, the Opportunity Areas had been previously identified through the Oregon Biodiversity Strategy (1993-1999) and thus were recognized as priority conservation areas for our study period. Therefore, we would expect more overlap in Oregon as compared to states that only identified their Opportunity Areas in 2005.

Available spatial data for land acquisitions from 1998-2007 shows that 49,133 acres were protected through fee-simple purchases and permanent easements. 24,090 acres (49%), of

the lands protected that could be mapped overlapped with the Conservation Opportunity Areas (Figure 2.1). Of the total land area protected (about 345,000 acres) over this time period, only 14% could be mapped. However, when improved spatial data is available, the estimated percentage of land protected that aligns with the Opportunity Areas will increase.

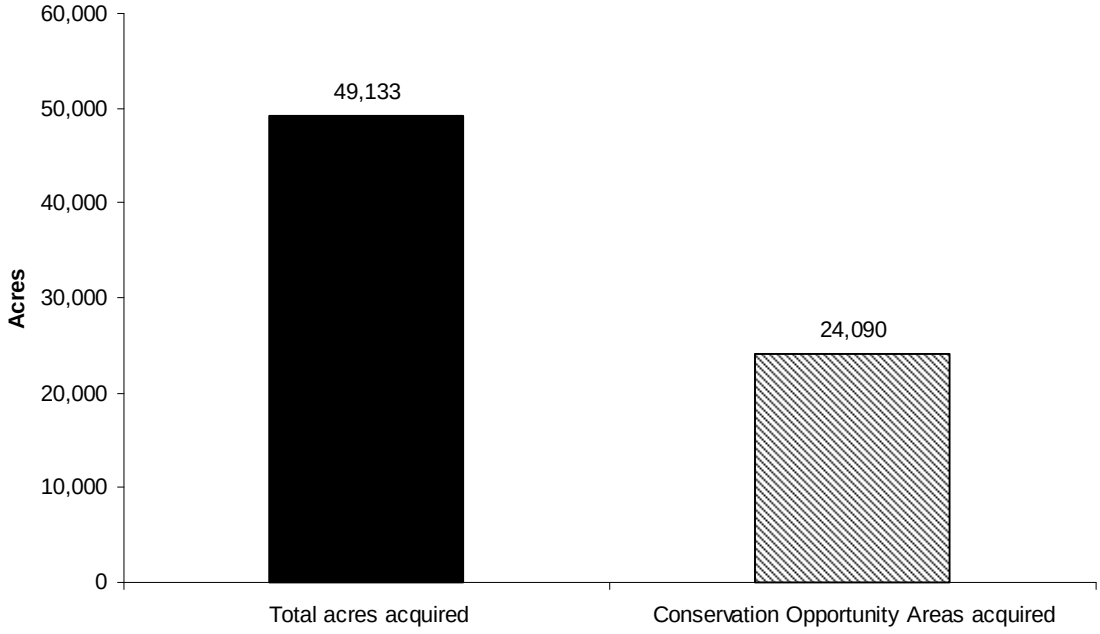


Figure 2.1 Mapped Conserved Lands in Oregon and Overlap with State Strategies (1998- 2007).

Within our time frame of analysis, the largest amount of habitat protected was in 2000 (Table 2.9 and Figure 2.2), followed closely by 2001 (about 13,000 and 10,000 acres, respectively). The highest percent of overlap between total lands conserved and areas identified in the Conservation Opportunity Areas occurred in 2003 at 87% (Table 2.9). While there is no consistent trend in the overlap between total acres conserved and the Opportunity Areas, there is evidence that the pace of conservation increased after the State Strategy was developed (62% in 2006, and 76% in 2007) (Table 2.9 and Figure 2.3).

Table 2.8: Mapped Conserved Lands and Overlap with the State Conservation Opportunity Areas by Year (1998-2007).

Year	*Total Mapped Acquisitions*	*Total Mapped Acres*	*Overlap with Conservation Opportunity Areas*	*Non Wildlife Priority Acres Acquired*	*% Acres Acquired that Overlap Conservation Opportunity Areas*
1998	108	7071.2	5643.1	1428.1	80
1999	85	3758.3	1566.8	2191.5	42
2000	175	12966.4	8535.5	4430.9	66
2001	102	10030.8	2748.6	7282.2	27
2002	79	1016.8	668.5	348.3	66
2003	37	1100.1	961.1	139	87
2004	56	5630	321.7	5308.3	6
2005	28	2624	154.8	2469.2	6
2006	25	1769.3	1097	672.3	62
2007	61	3164.6	2392.6	772	76
TOTAL	**756**	**49131.5**	**24089.7**	**25041.8**	

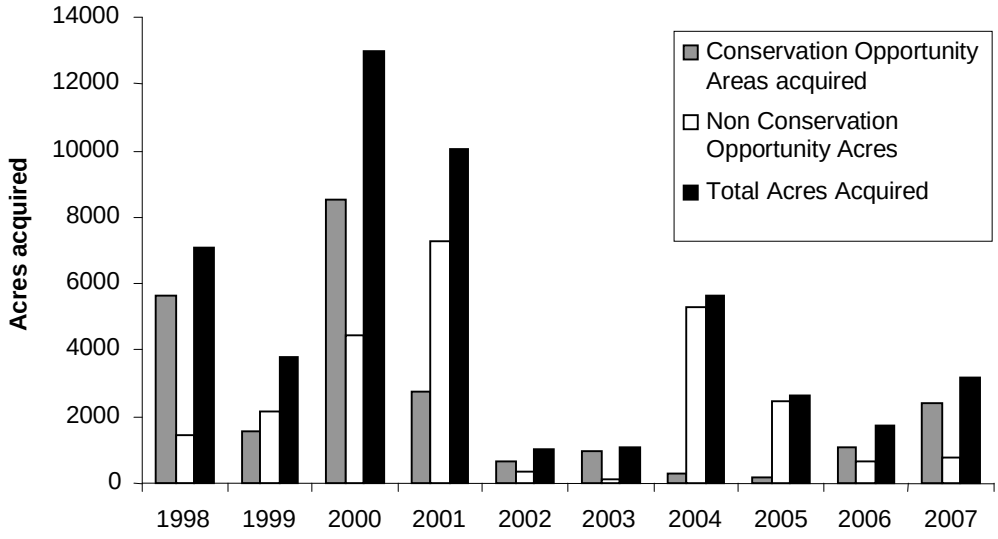


Figure 2.2 Mapped Conserved Acres Compared to Acres that Align with Conservation Opportunity Areas, 1998-2007.

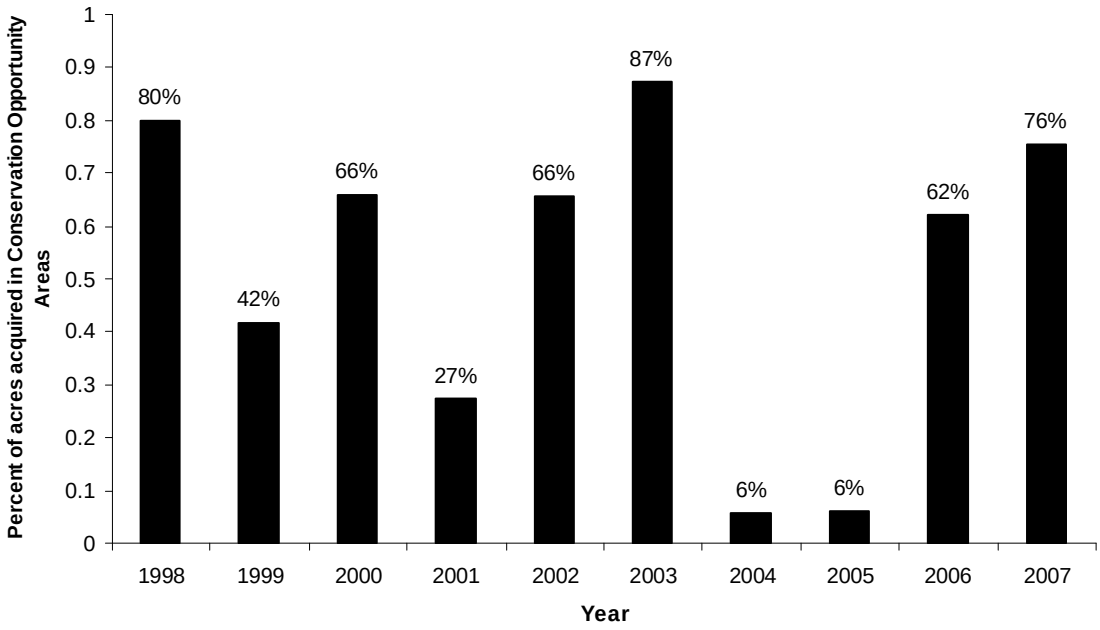


Figure 2.3 Percent of Mapped Conserved Acres that Overlap with Conservation Opportunity Areas (1998-2007).

In Oregon, *for those areas that could be mapped*, federal agencies acquired the highest total number of acres between 1998 and 2007 (about 36,000 acres). Federal agency land conservation efforts also had the highest number of acres (about 19,000) that overlapped with Conservation Opportunity Areas (Table 2.9 and Figure 2.4). Federal funds used *without* state involvement acquired the second most total acres (1,760), but only 13 percent of the acres that could be mapped overlapped with the Opportunity Areas (Figure 2.5). Of non-federal land conservation efforts, 15% of state acquisitions could be mapped, 92% of local acquisitions, and only .3% of private acquisitions (Table 2.9). The lack of spatial data for the nearly 74,000 acres protected by private entities (e.g. land trusts) was due to the lack of access to those lands protected by The Nature Conservancy.

Table 2.9: Protected acreage and overlap with Oregon's Conservation Opportunity Areas, 1998-2007

Source of Funding	***Protected Acreage***	***Protected Acreage with Spatial data***	***Percent Protected Acreage with Spatial Data***	***Mapped COA Acreage Protected***	***Percent COA Acreage Mapped***
Fed thru State	651	401	62%	401	100 %
Fed with Partners	99,784	13, 164	13%	1,760	13 %
Fed Agency	122,284	22,594	18%	16,835	74 %
Total Federal	**222,719**	**36,159**	**16%**	**18,996**	**52 %**
State	41,178	6,185	15%	2,127	34 %
Local	7,101	6,542	92%	2,888	44 %
Private	73,965	245	.3%	76	31 %
TOTAL	**344,963**	**49,131**	**14%**	**24,087**	**49%**

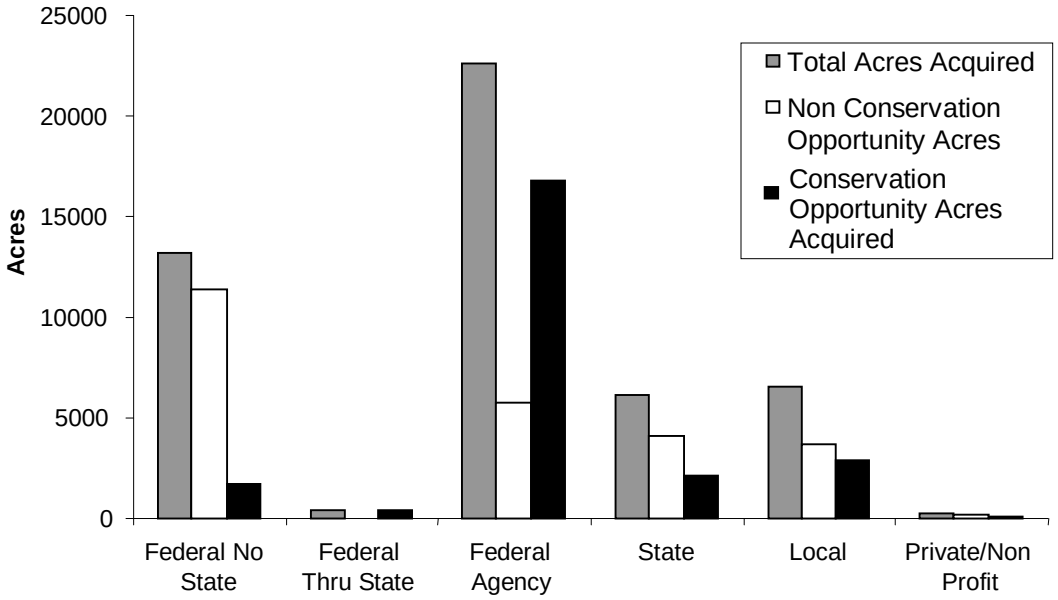


Figure 2.4 Mapped Conservation Acres and Overlap with Conservation Opportunity Area by Type of Funding (1998-2007).

Figure 2.4 illustrates the amount of land protected that could be mapped by government funding source. The levels of government included acquisitions through federal agencies, federal funding used to make acquisitions without state agency involvement, federal funding for acquisitions directed through state agencies, local conservation funding, private and non-governmental organization funding, and state land acquisition dollars.

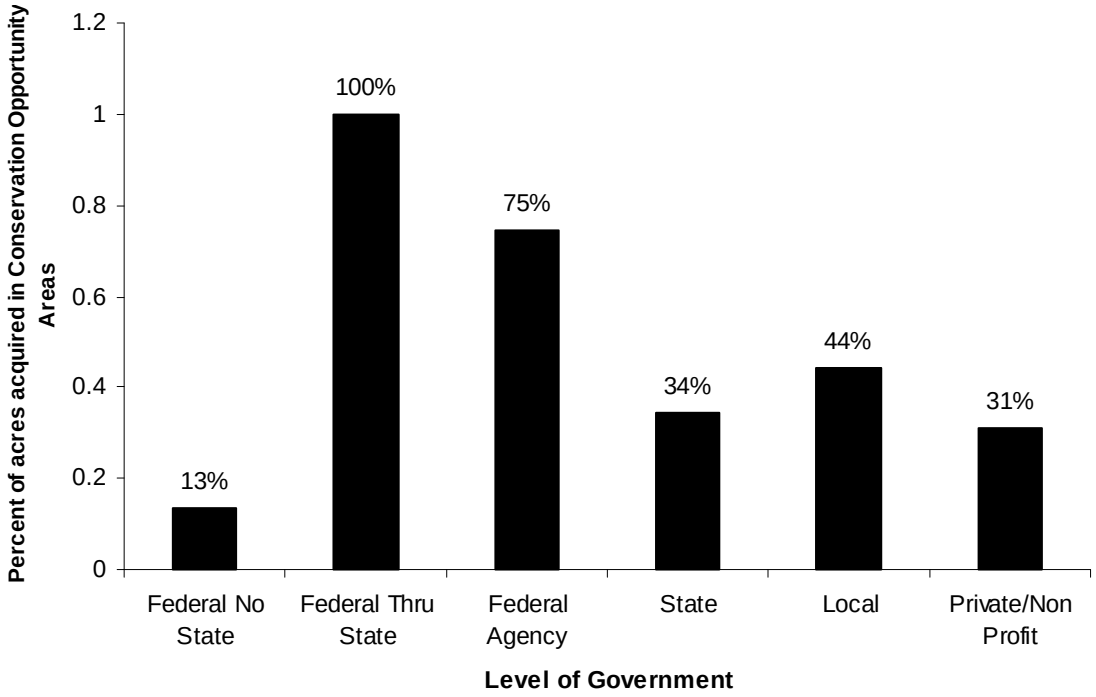


Figure 2.5: Percent of Total Acres Protected that Overlap with Oregon Conservation Opportunity Areas, 1998-2007.

Table 2.10 shows the total amount of expenditures by source of funding for the 1998-2007 time frame, the percentage of those expenditures that could be spatially mapped, and within the expenditures that could be mapped, the percentage overlap with the Oregon Conservation Opportunity Areas. For example, of the nearly $41 million that was spent by the State of Oregon, almost $31 million (43%) could be spatially represented. Of the $31 million that could be mapped, $13 million (or about 43%) fell within Oregon's Opportunity Areas. Across all funding sources, about $185 million of the $389 million expended (52%) over the 1998-2007 period could be spatially represented. Of the $185 million, about 34% fell within the Opportunity Areas. Notably, only 16% of total expenditures from federal sources could be mapped. However, nearly 84% of those expenditures that could be mapped fell within the Opportunity Areas.

Table 2.10: Conservation Spending and Overlap with Conservation Opportunity Areas in Oregon, 1998-2007

Source of Funding	***Total Spent ($ millions)***	***Spending with Spatial Data ($ millions)***	***Percent Spending with Spatial Data***	***Expenditures with Spatial Data in COA ($ million)***	***Percent COA Expenditures with Spatial Data***
Fed thru State	7	0.59	8%	0.59	100 %
Fed no State	105.1	5.32	5%	2.0	38 %
Fed Agency	45.6	18.75	41%	18.2	97 %
Total Federal	**157.7**	**24.66**	**16%**	**20.8**	**84 %**
State	40.6	30.75	76%	13.0	43 %
Local	135.6	128.73	95%	27.3	21 %
Private	24.9	1.26	5%	0.98	78 %
TOTAL	**$358.8 million**	**$185.42 million**	**52%**	**$82.87 million**	**34%**

III. Policy Analysis of Oregon State Land Conservation

A key component of land conservation is the way in which states use policies and programs to direct funding towards activities that will achieve their conservation goals. In this section, we examine Oregon's land conservation policies and programs to help explain the spatial patterns of land protection. We sought to determine the degree to which the policies are used to align expenditures for land conservation in Oregon towards protection of the Conservation Opportunity Areas identified in the Oregon State Strategy. In other words, we examined whether state agencies are guiding spending towards protecting the areas it considers the most important habitat areas for strategic habitat conservation.

Oregon's conservation policy environment has a variety of characteristics, some of which strengthen implementation of the State Strategy, and others that make achievement of the strategy more challenging. We first examine the strengths of the policy environment, and then some challenging factors impacting implementation of the State Strategy.

A. Strengths of the Policy Environment

There are four major strengths of Oregon's conservation policy environment. These include a shared understanding of the conservation priorities within the state, the existence of a constitutional amendment to provide dedicated funding for conservation, an effective outreach plan for implementing Oregon's Conservation Strategy, and the presence of new emerging actors in land conservation spending. Each of these strengths is discussed below.

With respect to a shared understanding of conservation priorities within the state, Oregon has guided land use in the state since the mid-1970s on the basis of its 19 Statewide Planning Goals. Although these Goals are not oriented towards wildlife habitat conservation, they are implemented through city and county comprehensive plans and zoning and land-division ordinances. Strong land use planning was designed to constrain urban development and keep development from interfering with forestry and agriculture. By protecting land for economic uses, this regulatory approach is credited with being relatively effective at confining urban development and restricting land speculation. The state's land use planning also has minimized the need for land conservation programs to protect working landscapes. The strong tradition of emphasizing land use planning in Oregon could be helpful in the future for being more strategic in protecting Opportunity Areas.

The Oregon Plan for Salmon and Watersheds was passed in 1997 in response to listings of several salmon species under the federal Endangered Species Act, as a mechanism for Oregon to take actions to protect its natural resources using voluntary and cooperative mechanisms, rather than regulatory ones. In this plan the state aligned individual species protection with habitat protection, developing an approach that was used in the State Strategy.

Oregon's State Strategy was an outgrowth of work already undertaken in Oregon and did not present surprises to the conservation community. Analysts used the same database used by OWEB. The priorities in the strategy are similar to those established earlier by OWEB, although by eco-region rather than by major drainage basin.

In 1998 the citizens of Oregon passed a constitutional amendment, Measure 66, to direct state lottery funds to conservation. This funding is to be used for the purposes of "restoring and protecting Oregon's parks, beaches, watersheds and critical fish and wildlife habitats" (State Constitution, Article XV, Section 4, as amended). The availability of dedicated state funding for conservation has enabled the state to acquire conservation land, restore habitat, and build local conservation capacity throughout the state. More than 50 local Watershed Councils and 40 Soil and Water Conservation Districts are able to identify and implement needed actions to protect watersheds and habitat at the community level, often on private land. The benefit of *dedicated* state funding is that resource agencies don't face the variability of state level appropriated funds nor the uncertainty about timing and variability in levels of federal funds.

Measure 66 redirected 15% of the Oregon Lottery funds to statewide conservation from job creation, economic development, and public education. At the time of passage, this was estimated to be about $46 million per year. By 2007, Measure 66 funding had grown to nearly $100 million per year. The measure comes up for voter renewal in 2014. Half of the funds, about $50 million per year, go to the Oregon Parks and Recreation Department (OPRD) for parks and beaches. In 2007, the legislature directed that $22 million of OPRD's funds be used for acquisitions of habitat and natural areas, rather than ongoing park maintenance. OPRD also used Measure 66 funds for grants to city and county departments of parks and recreation. The other half of the Measure 66 funds goes to the Oregon Watershed Enhancement Board (OWEB) to protect salmon, wildlife habitat, and watersheds. 65% of OWEB's share of the funds, about $30 million per year, is for capital expenditure and is directed to land acquisition and habitat restoration. This money is distributed through OWEB's grants program to local governments, NGOs, and tribes. State agencies may apply for the money, but only if they are partners with another organization.

Although lottery funding is a dedicated and relatively stable source of funds, it is the *only* source of state funds used in Oregon by state agencies for land acquisition. In contrast, there is a wide range of funding mechanisms that other states use for land conservation. Some states direct a portion of tax revenue to conservation, including selective sales taxes, fees for licenses or permits (hunting and fishing stamps, special license plate sales), property taxes, severance taxes applied to extraction of natural resources (including oil and natural gas, timber, fish, and mineral resources), or documentary and stock transfer taxes. Some states earmark revenues from state-owned enterprises (e.g., highways or parking facilities) or sales of products from state forests. There also are a variety of miscellaneous revenues sources used, including sales of state land, oil and gas leases, lease of tidelands and submerged lands (e.g., leases to casinos in Mississippi), interest on revenue generated by sales of state land, tobacco settlement monies, environmental penalties, and lottery revenues.

The state of Oregon also has an effective organizational outreach program to promote their State Strategy. ODFW, the author of the State Strategy, has done an effective job promoting it. Staff that were involved with developing the Strategy continue to promote it. The agency's outreach has included between 150 and 200 presentations to groups across the state since the State Strategy was completed. ODFW has worked at a program level with key state land conservation agencies to ensure coordination of efforts. This work is paying off, with state agencies referencing the strategy in their own plans (such as OPRD's 2006 Land

Acquisition Priorities and DLCD's Coastal and Estuarine Land Conservation plan [CELCP] for NOAA).

Oregon has two examples of new and emerging funding sources for land conservation spending. The first are local government entities such as the Yamhill Soil and Water Conservation District. The second is tribal governments that are using tribal money, in addition to federal grants, to acquire land to protect fish and wildlife resources. Both of these funding sources are very small compared to state, federal, or other local government programs, but they may be indicative of people's willingness to use innovative mechanisms to fund the protection of land that is important to them.

Soil and Water Conservation Districts (SWCDs) in Oregon have taxing authority, and the citizens of the Yamhill SWCD voted to tax themselves in order to fund technical assistance to the local landowners. Since 2003, Yamhill SWCD has used some of the funding to leverage grants to acquire conservation easements on more than 1,000 acres to conserve the productive soils. Although the emphasis in the Yamhill case is on agricultural lands, it could serve as a model for habitat conservation funding as well.

Some of Oregon's tribal governments have developed natural resource programs and are conserving and restoring lands they used historically for hunting and fishing, using wildlife mitigation funds from the Bonneville Power Administration and other federal grants. In addition to investing grant funds in land conservation, two tribes are using funds from casino operations to protect fish and wildlife resources. The Umatilla Tribe uses money from the Wildhorse Foundation to conserve land, which is funded by the tribe's casino operations at the Wildhorse Resort. The Warm Springs Tribe, through its economic development organization, Warm Springs Ventures, is protecting resources in ceded lands which the tribe used historically, but that are not adjacent to their current reservation.

B. Challenges Impacting State Conservation Strategy Implementation

There are some fiscal policy factors that impact the implementation of the State Conservation Strategy. One factor is the relatively low level of spending per capita on land protection. Although it is difficult to say what an appropriate level of land conservation spending should be, Oregon does not spend as much per capita with state funds as many other states. Per capita spending to implement the State Strategy would be higher if Oregon could direct more spending from other sources, such as federal programs or local governments. Unfortunately, that is not the case. Oregon does not have the quantity of local government ballot initiatives as other states, nor has it used federal funds to support its conservation work as much as other states. Historically the administration and the legislature were opposed to using federal funds, in part because they didn't want to have land taken off local tax roles and in part due to a bias against big government. This has changed in recent years, and the state now does pursue more federal grants.

Second, there are no mechanisms for tracking or analyzing land conservation expenditures in the state. Oregon has a fairly decentralized state structure for managing land conservation that involves 5 agencies (ODFW, OPRD, OWEB, DLCD, and ODF). There is not one entity within state government that is responsible for tracking, analyzing, and reporting on land conservation activity on a consolidated basis for all state agencies. Nor is there an

entity that looks at all land conservation spending within the state from sources beyond state funds, including spending by the federal government, tribal governments, local governments, and private organizations.

IV. Estimated Costs of Conserving Un-Protected Conservation Opportunity Areas

This section provides a general (average), statewide cost estimate for conserving lands identified as lying within Oregon's Conservation Opportunity Areas, but, as of the end of FY 2007, not yet protected. Because we are not including 2008 and 2009 land conservation activity, the average costs reported here may be somewhat overestimated. The tendency to overestimate can also be attributed the fact that 2006-2007 was a period of a large bubble in land prices across the country. The total unprotected Opportunity Area acreage across the state was estimated to be approximately 5.8 million acres in 2007.

We estimate land conservation costs based on three separate investment strategies: fee simple purchase, conservation easements, and land rentals. We estimate the costs associated with these three strategies on both a one-time basis and over a thirty-year time period. For the thirty-year time we assume that the total amount of acres to be protected are done so in 30 equal increments and assume a 3% annual increase in land prices over-and-above inflation. For our fee-simple purchase estimates we add annual management costs. For the easement strategy, we account for up-front, one-time transactions costs.

We first discuss the methods we used for estimating state wide average prices for the three conservation strategies and then report results.

A. Cost Estimation Methods

Fee-Simple Purchase Acquisitions

Cost data on fee-simple purchase acquisitions comes from three sources: (1) Expenditure data that TPL collected from federal, state, and local public sources[7]; (2) data compiled by the National Agricultural Statistics Service (NASS) on private commercial transactions involving crop and pasture land; and (3) Specially Assessed Forestland Values provided by the Oregon Department of Revenue [8] (Table 4.1).

Table 4.1 Fee-Simple Costs per Acre in Oregon

Data Source	***Cost per Acre ($2007)***
TPL spending data	$6,752
NASS cropland data	$2,180
NASS pasture land data	$630
Western Forestlands	$441
Eastern Forestlands	$103

Forestland Data

The Oregon Department of Revenue distinguishes forestland costs by whether the area is in the western or eastern part of the state. The east-west boundary follows along the western borders of Wasco, Jefferson, Deschutes, and Klamath counties. These counties are included

[7] The TPL data consists of 65 land acquisitions in Oregon between 2006 and 2007. The 2006 acquisitions were adjusted to 2007 prices.

[8] Personal Communication. Pam Overhulser. Oregon Department of Revenue. November, 2008.

as part of eastern Oregon. Purchase prices for forestlands reflect the average of recent sales price for the purpose of using the land for timber production. In western Oregon, the forestland values are broken down into eight classes based on the land's potential productivity and we employ a cost of $450/acre. For eastern Oregon, forestland values are not broken down by productivity class and we used an assessed value of $103/acre.

While there is forestland purchase price information in the TPL spending database, it was not possible to extract these and combine them with the Department of Revenue because (1) the Specially Assessed Values for forestland had no corresponding acreage data, so we could not properly weigh the costs from the different sources; and (2) most of the TPL acquisition data are comprised of mixed land covers, and it is difficult to separate out forestland costs from other land cover types.

It is also important to note that the Specially Assessed Values only represent the purchase cost of forestland intended for timber production. No land purchases intended for conservation purposes are included in the Department of Revenue data. We incorporate these land prices because forestland values for production purposes represent the opportunity cost of acquiring the land.

Calculating Statewide Fee-Simple Costs

We calculated an average statewide per acre fee-simple costs by weighting costs based on the proportion of different land cover types in the unprotected priority areas from the Oregon Opportunity Areas. The land cover percentages are included as follows: cropland at 9.49%[9]; pastureland at 6.68%[10]; western forestland at 14.56%[11]; eastern forestland at 8.37%[12]; and "other" at 60.90%[13] (Table 4.2). We consolidated all other land cover categories into one "other" category because the vast majority of the acquisitions in the TPL data had mixed land cover (e.g., a mixture of wetlands, grasslands, etc.)[14].

Table 4.2 Oregon Weighted Fee-Simple Costs ($ 2007)

Land Cover	***Percentage***	***Acres***	***Cost per Acre***	***Total Cost***
Cropland	9.49%	554,818	$2,180	$1,209,503,191
Pastureland	6.68%	390,806	$630	$246,207,645
Western Forestland	14.56%	851,359	$450	$383,111,367
Eastern Forestland	8.37%	489,308	$105	$51,377,318.57
Other	60.90%	3,561,442	$6,832	$24,332,984,920
TOTAL	**100.00%**	**5,847,732**	**$4,484**	**$26,223,184,440**

[9] Defined as "Cultivated Crop" land cover in GIS data
[10] Defined as "Pasture/Hay" land cover in GIS data
[11] This includes Deciduous Forest, Evergreen Forest, and Mixed Forest in Western Oregon.
[12] This includes Deciduous Forest, Evergreen Forest, and Mixed Forest in Eastern Oregon.
[13] This includes Shrub/Scrub, Grassland/Herbaceous, Woody Wetlands, and Emergent Herbaceous Wetlands.
[14] A few of the 52 acquisitions in TPL's data also included some minor crop and pastureland. However, we kept them in the "other" category, instead of putting them in the crop and pastureland categories, to avoid skewing the NASS data.

Across all land types, we estimated a statewide average cost for fee-simple land purchase in Oregon to be about $4,484 per acre.

Management Costs

We define management practices as all practices/investments which contribute to the overall integrity of the habitat protected, including site construction, biotic surveys, habitat restoration, habitat maintenance, public services, reporting, office maintenance, field equipment, operations, as well as contingency and administration (including overhead)[15].

To estimate habitat management costs of protecting unprotected Opportunity Areas we contacted land trusts, local governments, state agencies, and the National Wildlife Refuge System. Table 4.3 shows per acre cost estimates for various sources. Other land managing entities could not provide average management cost data either because they did not keep track of these types of costs as separate from other expenditures, or management costs varied significantly from one property to another for a variety of reasons, or the available data only represented a portion of the properties' total management cost that particular agency funded.

We used data provided by two reports analyzing the costs of managing natural lands. The first report, "Natural Lands Management Cost Analysis: 28 Case Studies" (Center for Natural Lands Management 2004), provides an in-depth analysis of the costs of managing land in Oregon, as well as other states. In addition, we used the "Investigation of Wildlife O&M Costs" by the Independent Economic Analysis Board (IEAB) of the Northwest Power and Conservation Council. This report analyzes the current operations and maintenance costs of wildlife projects in Oregon (and other states), in order to improve cost efficiency in the Fish and Wildlife Program of the Bonneville Power Administration (BPA).

[15] Personal Communication. Joanne Rodriguez. Center for Natural Land Management. August, 2008.

Table 4.3 Management Costs of Land Acquired through Fee-Simple Purchases in Oregon

Data Source	***Cost per Acre ($ 2007)***
Oregon Department of Fish and Wildlife - Wildlife Areas (via the IEAB report)	$27
Land Trust Surveys[1] (via the IEAB report)	$15
Center for Natural Land Management Report on Preserves in Oregon[2]	$112
City of Eugene	$287-$1,787
Columbia Land Trust	$1.80-$19.50
Deschutes Land Trust	$53.73
National Wildlife Refuge System	$10.95
The Nature Conservancy	$12.70
Average Management Cost per Acre	**$12.18-$16.67**

[1] There may be an overlap between the IEAB data from land trusts and the City of Eugene. The Willow Creek Wildlife Mitigation Project, which was partially owned/funded by the City of Eugene.
[2] The Camp Polk Meadow Preserve from the CNLM analysis is taken out since the Deschutes Land Trust provided us with management cost figures for this preserve as well. The Umatilla National Wildlife Refuge is included in this analysis, but does not overlap with the NWRS data because the refuge is managed as part of a complex in Washington.

We estimate the range and average statewide management costs by weighting the costs from each data source by the total acreage of managed land[16]. Based on these calculations, the average annual cost of managing land acquired through fee-simple purchases in Oregon ranges from about $12 to $17/acre (Table 4.3).

Cost of Establishing Conservation Easements

Cost data for establishing conservation easements is based on expenditure data that TPL collected from federal, state, and local public sources, and from the USDA WRP and FRPP programs. There have been no GRP easements in Oregon to date. In the TPL data set, there were six non-donated easements in 2006 and 2007. There were 6 easements made through WRP in 2006 and 2007, and only two easement made through FRPP in 2007. We calculated

[16] The Columbia Land Trust recommended against averaging management costs because the costs of small acquisitions are significantly more expensive per acre than the costs of larger acquisitions, and are not comparable. The City of Eugene provided cost per acre figures for different land cover types.

the average cost for conservation easements by weighting the total cost of easements in each data source by the total acreage of land protected.

Table 4.4 Conservation Easement Costs per Acre ($ 2007)

Data Source	*Number of Easements*	*Total Acreage*	*Total Cost*	*Cost per Acre*
TPL Expenditure Data (2006 and 2007)	6	1,843	$7,366,259	$3,999
WRP (2006)	5	9,891	$18,486	$1,852
WRP (2007)	1	707	1,746,280	$2470
FRPP (2007)	2	508	$1,151,366	$2,266
TOTAL	**14**	**13,039**	**$28,749,905**	**$2,205**

Regardless of the small number of observations, the data provide a picture of the varying costs of easements throughout the state. The average cost of an easement is estimated to be approximately $2,205/acre (Table 4.4).

Easement Transaction Costs in Oregon

We define transaction costs as all those administrative costs incurred in the establishment of a conservation easement. These include initial site visits/pre-closure "walk through"; landowner negotiations; appraisals; project planning, coordination, and documentation; title evaluation; escrow; legal assistance: drafting and recording of the easement; and initial baseline property report[17]. Due to time and budget constraints, we could not run an in-depth analysis of every cost involved in easement establishment. As a result, we relied on readily available data that the various sources could provide us, such as annual budgets, management plans, etc.

Transaction costs associated with establishing conservation easements were obtained by contacting land trusts and federal conservation programs. Similar to management costs, some land trusts could not provide transaction cost data either because they did not keep track of them as separate from other expenditures, or because costs varied significantly from one property to another and the use of an "average" cost was thought to be misleading. Table 4.5 illustrates transaction costs per project from various sources.

The original objective of our research was to identify transaction costs on a per acre basis. However, the majority of agents with whom we spoke, in Oregon and in other states, told us that there is little relationship between the acreage of an easement and transaction costs. Most of the organizations who provided us with data provided an average cost or range of

[17] Personal Communication. Joanne Rodriguez. Center for Natural Land Management. August, 2008.

costs per project. While several factors do influence transactions costs (relationships with the landowner, permitted rights, distance of property from office, how extensive the baseline survey is, etc.) overall costs tend to be within the same range for each project within an organization. Thus, because of the difficulty in estimating per acre transactions costs, the figures reported in Table 4.5 are not incorporated into our overall estimate of the costs of conserving unprotected Opportunity Areas via the easement strategy (Table 4.7). However, it should be noted that transactions costs per easement property can be substantial ($15,500-$21,000 per easement) and should be recognized as a significant cost element when choosing this land conservation strategy.

Table 4.5. Transaction Costs per Easement in Oregon

Organization	***Costs per Easement ($ 2007)***
Southern Oregon Land Conservancy	$8,000-$10,000
Three Rivers Land Conservancy	$15,600 - $32,750
Wetland Reserve Program	$27,398
Farm and Ranchland Preserve Program	$12,000-$13,000
Average Transactions Cost per Easement	$15,570-$20,789

Cost of Rental/Lease Agreements

Rental/lease rates in Oregon come from data compiled by the NASS on private commercial rental rates involving cropland[18] and from the USDA Conservation and Grassland Reserve Programs (Table 4.6). The CRP data is specifically for General Sign-up enrollment in Fiscal Year 2007. Since there have been no new GRP rental agreements in recent years, the GRP data reflects 2005 contracts, adjusted to 2007 dollars.[19]

Table 4.6. Rental/Lease Rates in Oregon

Data Source	***Cost per Acre ($ 2007)***
Private Cropland	$100.00
Conservation Reserve Program (General Sign-up)	$47.23
Grassland Reserve Program	$10.13
Average Cost/Acre	**$52.66**

Comprehensive data on the actual land areas that were rented under each of the programs shown in Table 4.6 were not available. As a result, a weighted average statewide rental rate based on land cover type could not be estimated. This data represents the rental rates for only a small portion of the land cover types in Oregon. Because the rental data in these categories tend to be on agricultural lands, it does not, for the most part, include land cover types such as forestlands, wetlands, etc. As a result, the rental rates may be biased toward

[18] NASS provided no data on pastureland rental rates for Oregon.

[19] The National FSA office provided average rental rate data from 2005-2007. The average rental rate was $10.13/acre. Due to disclosure issues, we could not break down costs by fiscal year.

the cost of renting agricultural lands and not other land cover types. We estimated an average rental/lease rate at about $52.70/acre.

B. Estimated State Wide Costs for Conserving Un-protected Conservation Opportunity Areas in Oregon

Table 4.7 summarizes the estimated per acre and total costs for conserving currently unprotected Opportunity Areas in Oregon. The figures in the second and third cost columns represent the cost of protecting the unprotected Opportunity Areas (about 5.8million acres), based on the costs per acre figures in the first column. The figures in the second column represent the estimated cost for these lands if they were all purchased, had an easement, or were rented in one year. The figures in the third column represent the estimated cost of protecting these lands over a 30-year period. For the 30-year costs, we assumed that the total acreage to be protected would be divided into 30 equal annual increments. With the exception of the base year, we also assumed a 3% annual increase in land costs and that all protection strategies were equally viable in all parts of the state.

Table 4.7 Per Acre and Total Costs by Protection Strategy in Oregon

Protection Strategy	***Cost per Acre (2007)***	***Total One-Time Costs ($ Million)***	***Total 30-Year Costs ($ Million)***
Fee-Simple Purchase	$4,434	$25,927	$41,116
Management Costs	$12.18-$16.67	$71.2- $97.5	$1,998 - $2,743
Purchase + Management Costs	$4,446 - $4,500	$25,998 - $26,025	$43,114 - $43,850
Conservation Easement	$2,205	$12,894	$20,448
Rental Agreements	$52	$307	$8,602

The estimated 30-year cost of protecting all currently un-protected Opportunity Areas through fee-simple acquisitions (including management costs) is the most expensive option at approximately $43 to 43.8 billion. Conservation easements would cost about $20.4 billion and rental agreements nearly $8.6 billion over 30 years. However, rental costs would continue to be incurred after the 30-year time-period. In contrast, land protected through fee-simple purchases and perpetual conservation easements require no further payments, with the exception of the cost of land management. The least cost option would be to pay existing landowners to manage for biodiversity values. Management costs, over a 30-year period, would be approximately $2 to $2.7 billion. As indicated at the start of this section, these estimated costs are probably more than what would actually have to be paid because of the use of high 2006-2007 land price data due to the real estate bubble in those years.

V. Preliminary Conclusions and Recommendations

Based on our analysis of Oregon's spending and spatial data, as well as the state's policy environment, this section provides some preliminary conclusions and recommendations with respect to employing various financial resources for implementation of the Oregon State Wildlife Conservation Strategy. These recommendations are directional, rather than specific, because this study did not include analysis of the state's approach to implementing its State Strategy.

Our first recommendation is to develop the capacity and a program to track all land protection programs in the state, including spatial representation. As was indicated in Section II, not all protected land and expenditure data was available to us. Furthermore, only 52% of the available expenditure data and 14% of the available protected acreage data could be spatially represented. A more thorough tracking of protected acres and expenditures would have two benefits. The first benefit would be to understand what types of lands are being protected and how these lands align with the Conservation Opportunity Areas. Second, tracking would allow for the identification of opportunities to guide investment towards high priority areas in the future. Third, administrative transactions costs can be decreased with a more streamlined identification system for investing in the protection of the Opportunity Areas.

Finding historic data on some land acquisitions (spending, acres acquired, and the spatial characteristics) proved difficult. However, the information presented here will serve as a good baseline for future tracking of conservation effort. Gathering and reporting *current* data would not need to be as onerous as gathering data on past projects, particularly if clear definitions and guidance were provided to each organization. ODFW might consider establishing guidelines to standardize reporting on acquisitions within the state as a means of measuring progress towards goals set in the State Strategy. Conserved lands could be recorded on the Conservation Registry which has been established by Defenders of Wildlife, as long as the Registry could incorporate future standardized guidelines and that the data could be easily converted to reporting and analysis formats.

The state could maximize its efforts to protect land in Opportunity Areas by increasing funding available to state agencies and by increasing the alignment of lands acquired with Federal funds. Because Measure 66 funds are the only dedicated funds state agencies have for land conservation, it is critical that OPRD and OWEB receive support from the private sector to ensure renewal of the measure in 2014. OPRD and OWEB might also consider whether there is an appropriate balance in the use of these funds for fee-simple purchase and other forms of land conservation. These agencies, and others, also could pursue federal grants more aggressively. This could include leveraging grant-writing skills in some of the land trusts and NGOs. It also might involve looking at federal sources used by other states that haven't been used as frequently in Oregon (such as the National Scenic Byways Program and the Recreational Trails Fund) to see if there might be an opportunity to bring in new funding sources.

Even without increasing the amount of funding available to the state, state agencies could increase the degree of alignment between conserved lands and high priority habitat in the

Opportunity Areas. An important step would be to understand the degree of alignment of the various funding programs and then focus on the larger programs that are not yet yielding high alignment. ODFW might consider measuring and reporting on alignment as a means of demonstrating effective implementation of the State Strategy. Additionally, state agencies might choose to tip the balance between opportunism and strategic investments when deciding on where to spend land conservation funds in the direction of more strategic behavior.

A third recommendation would be for the state to develop approaches to influence land selection by non-state programs, emphasizing entities with the highest historical spending levels. Most of the funding for land acquisition in Oregon comes from funding programs that state agencies do not control, which creates a challenge and an opportunity for implementing the State Plans.

Local jurisdictions make up a large funding source for land conservation in Oregon, so the state should consider ways to encourage protection of priority habitats by these entities. If ODFW has not done so already, it could be useful to get involved with the Metro and Eugene wetlands programs to make sure they understand how the Conservation Strategy applies to their areas. Oregon has not had the level of activity that many states have in terms of citizens putting conservation initiatives on the ballot, so it would not take a lot of effort to track local ballot measure activity, and watch for initiatives coming from areas with high priority lands. On a more proactive basis, ODFW may want to ensure that its field staff members who understand the Strategy stay involved in early discussions about targeting land for acquisition at the local government level.

The state also has opportunities to influence individuals and/or organizations, including tribal governments, which apply for federal funds through programs that are not coordinated through state agencies, such as NRCS funds, BPA grants, and NAWCA grants. Approaches will need to be tailored for different entities, or possibly for different regions of the state, but the key will be to ensure that they understand what types of habitat the state has identified in the Strategy as being of highest priority. One example for alignment between the State Strategy and NRCS is the adoption of State Strategy priorities in the NRCS Wildlife Habitat Incentive Program (WHIP). A handful of state NRCS offices have directly incorporated the State Strategy into WHIP ranking criteria. These criteria rank different offers from landowners to determine which projects to fund and thus can target farm bill conservation dollars towards implementing the State Strategy.

With respect to financing the conservation of the remaining unprotected Opportunity Areas, there will undoubtedly be a variety of tools that will be used in Oregon: fee-simple purchase, easements, land leases/rentals for purposes of flexibilities, and paying land owners to manage for habitat values. During these current times of tight budgets at the federal, state, and local levels, it would useful for the state to determine the extent to which they could pay current landowners to manage for habitat values that would positively impact implementation of the State Strategy. We estimated that the cost of paying Oregon landowners to manage the remaining unprotected Conservation Opportunity Areas for biodiversity values over the next 30 years would be between $2.0 and $2.7 billion. Alternatively, fee-simple purchase would be over $41 billion, easements over $20 billion, and land rental about $8.6 billion.

Oregon has made a significant investment in the creation of its State Strategy and continues to invest in implementation of the strategy. It is early in the implementation process. Data is not readily available to demonstrate fully the degree of alignment between spending on conservation land acquisition and protection of the Opportunity Areas. Nevertheless, we believe that the state needs to continue to engage with private, local, and federal sector entities to guide spending towards protecting the areas it considers the most important habitat areas.

VI. References

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