



The economic benefits of conserved lands, trails, and parks on the North Olympic Peninsula

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The Trust for Public Land
January 2021



The Trust for Public Land creates parks
and protects land for people,
ensuring healthy, livable communities
for generations to come.

The Trust for Public Land's Conservation Economics team has extensive experience measuring the economic benefits and fiscal impacts of land conservation. Partnering with its award-winning GIS team, it has published over 50 economic analyses across the country, including reports in Alabama, Arizona, California, Colorado, Florida, Georgia, Illinois, Kansas, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Texas, Vermont, Virginia, Washington, and Wyoming. The Trust for Public Land has advanced this research working with leading academic partners and research institutions, including Colorado State University, Dartmouth College, Georgia Institute of Technology, Michigan State University, University of California-Davis, University of Georgia, Texas A&M, University of Minnesota, University of New Hampshire, University of Vermont, University of Wyoming, and the U.S. Forest Service.

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- North Olympic Land Trust,
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- The group of stakeholders who met at the outset of the project to provide insight and information (see Appendix).

Leadership at Jefferson Land Trust, North Olympic Land Trust, and The Trust for Public Land comprised the report’s working group, the members of which contributed their time, energy, and ideas. The working group guided the report and provided input throughout the creation of the report.




Executive summary

THE NORTH OLYMPIC PENINSULA IS A VIBRANT PLACE, WITH A RICH CULTURAL HISTORY AND A TRADITIONAL WAY OF LIFE, AMAZING WILDLIFE CORRIDORS FOR EAGLES AND ELK, WORLD-CLASS RECREATION, LOCALLY OWNED FAMILY FARMS, AND TRADITIONAL FORESTRY JOBS THAT INJECT LIFE INTO LOCAL TOWNS. Conserving farms, forests, trails, and parks ensures that these communities are healthy and flourishing. This report analyzes the economic value of the conserved farms, forests, trails, and parks on the North Olympic Peninsula, which for the purposes of this report includes Clallam, Jefferson, and Kitsap Counties. The study documents a selection of the significant economic benefits that these resources provide to the community. This analysis includes a tapestry of conserved lands, trails, and parks that have been protected by local land trusts, federal and state agencies, tribal governments, and local park departments in the region. These spaces increase property values, improve water quality, infiltrate stormwater, reduce air pollution, enhance community health, provide recreational opportunities and attract visitors, boost economic development, and bolster the farming, forest, and fishing industries. Conserved farms, forests, trails, and parks support local jobs, increase spending at local businesses, save residents money through reduced health care costs from improved air quality, reduce costs to local governments, and generate local tax revenue. Specifically, the conserved lands, trails, and parks in the region, as pictured in the map on page 9, produce the following economic benefits (see [Table 1](#)):¹

- Land conservation supports the forestry, farming, and fishing industries in the region by helping to maintain the working landscape on which these industries depend. The forest products industry in the region supports local livelihoods by providing 1,440 direct jobs with an associated \$92.1 million in annual wages (see [Table 2](#)).
- The trees on conserved lands and parks, and along trails, also store \$4.23 billion of carbon and sequester \$168 million of carbon annually (see [Table 3](#)).
- Together, the 1,450 farms in Clallam, Jefferson, and Kitsap Counties generate approximately \$29.4 million in agricultural products annually (see [Table 4](#)). The region's commercial fish landings are valued at \$5.59 million per year.
- Conserved farms, forests, trails, and parks on the North Olympic Peninsula increase the value of nearby homes because people enjoy living close to these protected resources and are willing to pay for that proximity. These spaces raise the value of nearby homes by \$616 million and increase property tax revenues by \$6.11 million a year (see [Table 5](#)).

The economic benefits of conserved lands, trails, and parks on the North Olympic Peninsula

These lands provide health benefits and reduce pollution control costs by



\$25.8 million each year

Each year, these lands:

- Provide **\$1.09 million** in stormwater management value and
- Sequester **\$168 million** of carbon

On the North Olympic Peninsula each year:
Forestry provides **1,440 jobs** and **\$92.1 million** in wages



The region's recreation economy supports

- 80 outdoor recreation businesses**
- 962 employees**
- \$110 million in sales each year**



On the North Olympic Peninsula each year:

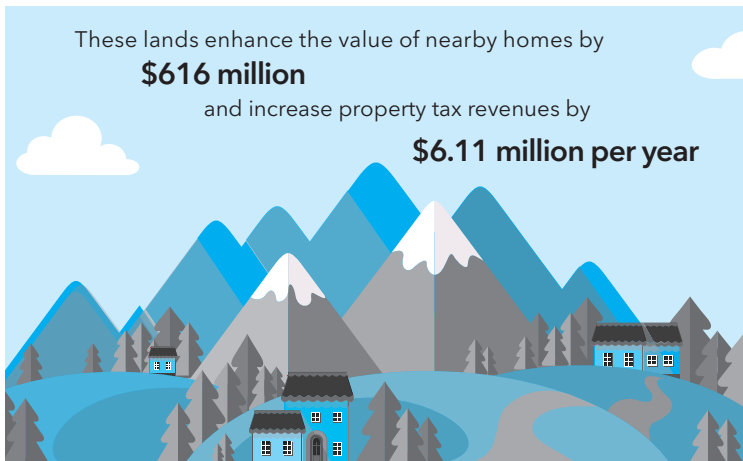
- 1,450 farms** generate
- \$29.4 million** in farm products



These lands generate **\$306 million** annually in direct visitor spending



These lands enhance the value of nearby homes by **\$616 million** and increase property tax revenues by **\$6.11 million per year**





- Undeveloped lands with pervious surfaces improve water quality by capturing precipitation, filtering pollutants, and slowing runoff. Conserved farms, forests, trails, and parks in the region provide value by absorbing 1.2 billion cubic feet of water and filtering 82,400 tonnes² of pollutants, resulting in \$1.09 million in stormwater management value each year (see [Table 8](#) ↗).
- Trees and shrubs on conserved farms, in forests and parks, and along trails remove air pollutants that endanger human health and damage structures. These spaces on the North Olympic Peninsula provide health benefits and reduce pollution control costs by \$25.8 million per year (see [Table 10](#) ↗).
- Conserved farms, forests, trails, and parks contribute to the region's high quality of life, which plays an important role in attracting businesses and employees and enhancing the community's recreation economy. Residents of the North Olympic Peninsula spend \$33.1 million annually on sports, recreation, and exercise equipment (see [Table 17](#) ↗). This spending, along with tourist spending, buoys 80 outdoor recreation businesses that generate \$110 million in sales and support 962 employees.
- Tourism is a key component of the North Olympic Peninsula economy. Conserved farms, forests, trails, and parks are critical to the local tourism economy because they attract visitors. These resources generate \$306 million annually in direct visitor spending (see [Table 20](#) ↗).

This study provides information on the benefits of conserved farms, forests, trails, and parks in the three-county North Olympic Peninsula region, which until now have been unknown. This analysis estimates the benefits that are provided by the tapestry of conserved lands, parks, and

trails as it currently exists. These benefits are distributed across many sectors of the region's economy. Each estimate above represents a different type of value, with different time frames, accruing to different beneficiaries such as local businesses, governments, and residents, and therefore cannot be summed into a single figure.

In order to provide a robust and reliable report, the report's authors relied on the most conservative methods supported by existing methodology and literature. For example, in any instance where multiple valuation methods were available, The Trust for Public Land utilized the method that produced the conservative, lower-bound estimate. This study illustrates that conserved farms, forests, trails, and parks are key economic drivers that contribute hundreds of millions of dollars in economic benefits annually (Table 1 ↗).

TABLE 1. SUMMARY OF ESTIMATED ECONOMIC BENEFITS PROVIDED BY CONSERVED FARMS, FORESTS, TRAILS, AND PARKS ON THE NORTH OLYMPIC PENINSULA (2020\$)	
Benefit category	Total
Forest products, farming, and commercial fishing industries (annual)*	
Carbon sequestration	\$168,000,000
Direct wages in forest products industry	\$92,100,000
Value of agricultural products sold	\$29,400,000
Value of commercial fish landings	\$5,590,000
Enhanced property value ³	
Total additional property value (realized at the time of sale)	\$616,000,000
Additional property tax (annual)	\$6,110,000
Water quality (annual)	
Stormwater infiltration	\$1,090,000
Air pollution removal (annual)	\$25,800,000
Economic development (annual)**	
Spending on sports, recreation, and exercise equipment by residents	\$33,100,000
Sales generated by outdoor recreation businesses	\$110,000,000
Tourism spending (annual)	\$306,000,000

* The value of carbon storage and sequestration is specific to the conserved farms, forests, trails, and parks in the region; however, the forest products, farming, and fishing industry values presented above illustrate the importance of conserved lands on the North Olympic Peninsula. Not all products sold or direct wages paid are exclusively due to conserved lands.

** The economic development values presented here illustrate the importance of the recreation economy on the North Olympic Peninsula. Not all spending and sales in these categories are exclusively generated by conserved farms, forests, trails, and parks.

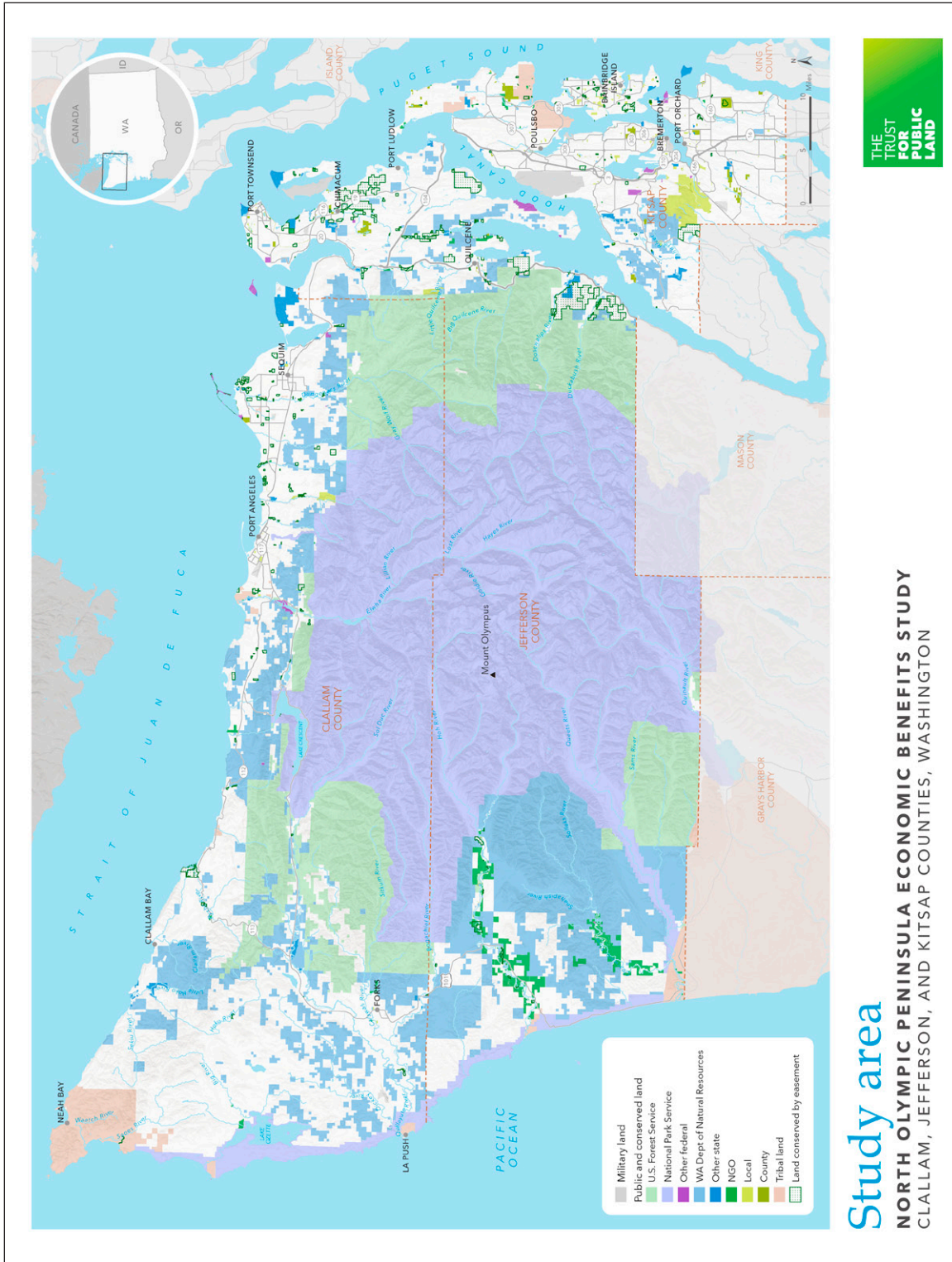


FIGURE 1 Map of the public and conserved lands, trails, and parks in the North Olympic Peninsula region.⁴ Copyright © The Trust for Public Land. The Trust for Public Land and The Trust for Public Land logo are federally registered marks of The Trust for Public Land. Information on this map is provided for purposes of discussion and visualization only.

Economic benefits in the context of the COVID-19 pandemic

THIS REPORT WAS COMPLETED IN THE WINTER OF 2020, IN THE MIDST OF THE COVID-19 PANDEMIC.

At the time, the pandemic had already proved the important role that conserved lands, trails, and parks play in enhancing physical and mental health while providing critical spaces for people to more safely connect with nature and each other. It also highlighted the challenges associated with managing these resources under such complicated circumstances, especially given the stay-at-home orders and other recommendations that limited movement and upended funding models. Although it is unknown how the pandemic and resulting economic fallout will affect the availability and operations of conserved lands, trails, and parks and the communities that depend on them in the short and long terms, this analysis sought to provide a baseline understanding of the economic benefits provided by conserved lands, trails, and parks on the North Olympic Peninsula.

Nationally, the global pandemic has underscored that access to conserved lands, trails, and parks is crucial to quality of life. During this crisis, people have turned to these spaces like never before—for fresh air, exercise, meditation, a sense of peace. Research shows that conservation and parkland are, indeed, a potent force for our well-being: numerous scientific studies show the benefits of nature for both physical and mental health.

During the COVID-19 pandemic, Jefferson Land Trust and North Olympic Land Trust, the two land trusts on the North Olympic Peninsula, adapted their operations to reflect the changing environment. Both land trusts saw an increase in visitation to preserves, such as North Olympic Land Trust's Lyre and Siebert Creek Conservation Areas and Jefferson Land Trust's Chai-yak-wh and Illahee Preserves. Fundraising events morphed into virtual events, stewardship work parties changed according to restrictions on group size, and easement monitoring changed in response to safety guidelines. The Payroll Protection Program was vital to advancing the work at both land trusts.

The farmers of the Dungeness and Chimacum Valleys were hit hard by the Stay Home, Stay Healthy orders, losing markets and customers. To assist their farm neighbors, Jefferson Land Trust, North Olympic Land Trust, and community partners developed the Olympic Peninsula Farmers Fund to assist local farms. The program raised funds to purchase contracts from local farms to supply produce and other products to food banks in Clallam and Jefferson Counties. Over \$70,000 was raised and distributed to local farms.

At the time of this report's writing, high levels of uncertainty existed around the extent to which the COVID-19 pandemic would affect the economy or the economic benefits provided by conserved lands, trails, and parks on the North Olympic Peninsula. In the United States,



economic activity plummeted and unemployment soared in the wake of the coronavirus pandemic. Despite not knowing the scale of these impacts, researchers at The Trust for Public Land identified the types of economic benefit categories that were most likely to be affected. For example, natural goods and services, such as air pollution removal and water quality, were not likely to be directly affected by the pandemic or the economy more broadly; however, benefits related to the use of these resources or more directly related to consumer spending are likely to see the repercussions of the pandemic.

Tourism value, as explained in the report, is dependent on several factors, including the state of the overall tourism economy. This benefit category will likely be affected by the pandemic, which has limited the feasibility and desirability of travel, changed the nature of travel (i.e., mode of travel, distance traveled, and the activities or experiences sought), and limited the ability of visitors to make discretionary purchases on their trips. Although tourism will be lower for an unknown amount of time, outdoor tourism may rebound faster or account for a larger share of the market as the tourism economy recovers, especially if visitors shift to outdoor activities that require fewer interactions and enable social distancing.

In the economic development section below, The Trust for Public Land also explores the recreation-based economy and spending by residents on related goods and equipment. Although the pandemic will impact consumer spending in unknown ways, The Trust for Public Land also knows anecdotally that certain industries, such as bicycling, are experiencing increased demand that may help counteract dips in spending to some extent.

In addition, the value of homes may decrease due to the economic fallout related to the pandemic or increase due to a heightened demand for homes outside cities. In that case, the property value benefit provided by conserved lands, trails, and parks in the region would change proportionally due to macroeconomic conditions.

The farming community in the region was also impacted by COVID-19, having to quickly adjust its methods of distribution as restaurants were unable to operate. Meanwhile, in many communities, the pandemic elevated concerns about the current food system and highlighted the essential role of local food. At the time of the report's writing, the specific impacts on the forest products industry were also unknown. A decline in the industry could follow a weakening of the overall economy and the construction sector; alternatively, an increased demand for construction materials could bolster this industry.

The following pages outline the economic benefits provided by conserved lands, trails, and parks. The values derived in the report are based on the most recent data that were available at the time of analysis, which occurred prior to the coronavirus taking hold in the United States. Although the changes due to COVID-19 are certain to affect the overall economy and the level of benefits provided, The Trust for Public Land believes that this report's results emphasize how significant the tapestry of conserved lands is to the community and the return that the region's residents gain from investing in these assets. The pandemic has underscored the importance of having these resources available in our communities and the power they have to improve our health and well-being, but as this report also demonstrates, they are a key part of the local and regional economy and will be essential as the region works to rebuild its economy.

Introduction

THE NORTH OLYMPIC PENINSULA IS A VIBRANT PLACE, WITH A RICH CULTURAL HISTORY AND A TRADITIONAL WAY OF LIFE, AMAZING WILDLIFE CORRIDORS FOR EAGLES AND ELK, WORLD-CLASS RECREATION, LOCALLY OWNED FAMILY FARMS, AND TRADITIONAL FORESTRY JOBS THAT INJECT LIFE INTO LOCAL TOWNS. Conserving farms, forests, trails, and parks on the North Olympic Peninsula ensures that these communities are healthy and flourishing.⁵ These resources are owned or maintained by federal, state, and local governments, as well as nonprofit organizations and are public goods that provide value to residents at little or no cost. Thus, the actual value of conserved lands, trails, and parks is often overlooked. Conserved farms, forests, trails, and parks can even be seen as a drain on limited resources when undefined, vague benefits are compared with the very real costs of protection, maintenance, and operations. Yet these spaces do provide tangible, and measurable, economic benefits to local residents and governments. Through economic analysis, it is possible to isolate and quantify many of these benefits and help interested parties gain a fuller understanding of the value provided by conserved lands, trails, and parks.

THOMAS BARTON





This report analyzes the public and conserved lands, trails, and parks in the North Olympic Peninsula region including Clallam, Jefferson, and Kitsap Counties (as shown on page 9). Conserved lands consist of conserved farms, forests, trails, and parks, and this report documents a selection of the significant economic benefits that these lands provide to the community. This analysis includes a tapestry of conserved farms, forests, trails, and parks that have been protected by local land trusts, federal and state agencies, tribal governments, and local park departments in the region.

Conserved farms, forests, trails, and parks provide many recreational opportunities to the public for free or at a reasonable cost, including biking, camping, canoeing and kayaking, fishing, hiking, horseback riding, mountain biking, visiting beaches, and more. By providing access to an array of outdoor activities, these spaces generate numerous economic benefits within the local community by attracting visitors to the region and bolstering economic development.

In addition to these recreation- and tourism-related benefits, conserved farms and forests also support natural resource-based industries such as forest products, farming, and commercial fishing, enhance property values, and provide natural goods and services, such as reducing air pollution, infiltrating stormwater, improving water quality, and absorbing carbon from the atmosphere.

In order to provide robust and grounded evaluations, The Trust for Public Land relied on the most conservative methods supported by comparable economic valuation studies. In any instance where multiple valuation methods were supported, or where a range of values were available for analysis, The Trust for Public Land selected the method or values producing the lower-bound estimate. Therefore, it is likely that the actual benefits are higher than what The Trust for Public Land estimated in the following pages.

Although this analysis determined many of the economic benefits of conserved farms, forests, trails, and parks on the North Olympic Peninsula, it did not capture the full value of these high-quality spaces. From walking in peaceful places to boosting community health,⁶ from observing the night sky and listening to natural quiet to lowering levels of stress and depression, the full value of these special spaces goes far beyond dollars and cents.

Defining conserved lands, trails, and parks

Prior to this report, there was no single source or map record of the various public and conserved lands, trails, or parks in Clallam, Jefferson, and Kitsap Counties. In many open space analyses, conserved lands are often limited to property owned for conservation purposes and property with conservation easements, state-owned conservation properties, and nongovernmental organization lands. Conserved lands in this project were expanded to include public and conserved properties, trails, and parks in and near population centers to tell the entire story of public open space and conserved properties across the three counties at the time of analysis. The Trust for Public Land worked with Jefferson Land Trust and North Olympic Land Trust to acquire, compile, and classify nine different data layers of conserved lands, trails, and parks in the region.⁷

CONSERVED LANDS, TRAILS, AND PARKS include state and federally protected lands; municipal and county conserved lands, trails, and parks; lands held by local, regional, and national land trusts and conservation organizations; private lands with conservation easements; tribal lands, and all other publicly conserved spaces within the three counties. These lands account for 1.76 million acres, or 68.6 percent of the overall land base.

FEDERAL CONSERVED LANDS consist of lands owned by several U.S. agencies, such as the National Park Service, National Forest Service, Fish and Wildlife Service, and Department of Defense. Examples are: Olympic National Park, Olympic National Forest, and Flattery Rocks National Wildlife Refuge. This category includes 1.25 million acres, accounting for 71.1 percent of all the lands covered in this analysis. Large military bases were included as federally owned open space for the air pollution and stormwater analyses but removed for the property valuation.

STATE CONSERVED LANDS consist of lands owned by the State of Washington, including agencies such as Washington State Parks and Washington Department of Fish and Wildlife. These lands account for 397,000 acres, which make up 22.6 percent of all the lands covered in the analysis, or 78.2 percent of all nonfederal lands covered in the analysis. Examples are Department of Natural Resources (DNR) State Forests, such as Mount Walker State Forest, Old Fort Townsend State Park, South Puget Sound Wildlife Area Complex, and DNR Natural Area Preserves.⁸



NONGOVERNMENTAL ORGANIZATION CONSERVED LANDS consist of lands owned by land trusts or privately owned lands with conservation easements held by nongovernmental organizations (NGOs). These NGO properties are included in the National Conservation Easement Database and Protected Areas Database of the United States 2.0. These lands account for 31,900 acres, which represent 1.82 percent of all the lands discussed in the analysis, or 6.30 percent of all nonfederal lands covered in the analysis. Although this list is not exhaustive, examples are lands protected by Bainbridge Island Land Trust, Forterra, Great Peninsula Conservancy, Jefferson Land Trust, The Nature Conservancy, and North Olympic Land Trust. This category does not include privately owned lands that have not been protected.

TRIBAL LANDS consist of reservation and non-reservation lands owned by tribal nations such as Jamestown S’Klallam, Lower Elwha Klallam, Port Gamble S’Klallam, Port Madison Suquamish, Hoh, Quileute, Quilcene, and Makah Tribes. These lands account for 44,100 acres, 2.51 percent of all the lands covered in the analysis, or 8.71 percent of all non-federal lands discussed in the analysis.

OTHER CONSERVED LANDS consist of land owned by municipal and county governments for conservation purposes. These lands account for 34,300 acres, which represent 1.95 percent of all the lands included in the analysis or 6.76 percent of all nonfederal lands included in the analysis. Examples are Dosewallips River Trail, North Kitsap Heritage Park, and Lords Lake. This category does not include homeowner association parks or other private open space without public access.

Supporting forestry, farming, and commercial fishing

LAND CONSERVATION SUPPORTS FORESTRY, FARMING, AND COMMERCIAL FISHING ON THE NORTH OLYMPIC PENINSULA BY HELPING TO MAINTAIN THE INTACT WORKING LANDSCAPES ON WHICH THESE INDUSTRIES DEPEND. The following section describes the importance of each sector of the economy and draws connections between conserved lands and these industries.

Forest products industry

Statewide, forests make up 52 percent of the total land area.⁹ These forested lands keep the air and water clean, sequester carbon, protect habitat for plants and wildlife, ensure scenic beauty, and provide recreational opportunities for residents and visitors. Importantly, these lands also provide critical jobs and support for the local economy. The protection of forested land helps stabilize the economy and ensure its continued success.

Statewide, forestry, logging, and wood products account for 21,300 jobs with \$1.24 billion in annual income.¹⁰ Working forests contribute directly to the economy through the sale of timber, manufacturing of wood products, transportation of forest products, and tax revenues on harvested timber and timberland property. These lands also indirectly bolster the economy through spending by forest products businesses on materials and support services.



CAROLHUELSBERG

The forest-based economy is critical to the North Olympic Peninsula as well. In 2017, over 388,000 Scribner thousand board feet were harvested by private and public landowners in Clallam, Jefferson, and Kitsap Counties.¹¹ The most recent data available also show that the region hosts essential infrastructure, such as sawmills, pulp mills, chip facilities, and shake and shingle mills, including seven in Clallam and one in Jefferson County.¹² The industry supports local livelihoods by providing 1,440 direct jobs in the region with an associated \$92.1 million in wages. In addition to the direct and indirect effects of the industry, the forest economy supports an induced economic impact in the form of service jobs. Combined with the indirect and induced impacts, working forests support 3,610 jobs with \$206 million in wages (Table 2 [↗](#)).¹³

**TABLE 2. ECONOMIC IMPACTS OF WORKING FORESTS
IN THE REGION, 2017 (2020\$)**

County	Direct jobs	Total jobs	Direct wages	Total wages
Clallam	790	1,990	\$50,700,000	\$113,000,000
Jefferson	271	682	\$17,400,000	\$38,900,000
Kitsap	374	940	\$24,000,000	\$53,700,000
Total	1,440	3,610	\$92,100,000	\$206,000,000

Forestry and logging also support small businesses in the region. An additional 110 unincorporated businesses in Clallam, Jefferson, and Kitsap Counties are operated by self-employed individuals and do not have paid employees. These businesses generate \$6.77 million in receipts annually. In addition to the self-employed forestry and logging operations in the region, working forests also sustain self-employed operations that provide support for both forestry and agriculture. Although it is not possible to isolate the portion of these 117 businesses and \$4.06 million in sales they generate that is attributable to forests, working forests do bolster those livelihoods as well.¹⁴

Given the importance of forestland protection from multiple viewpoints, including an economic one, several organizations in the region are committed to keeping forested lands forested and sustainably managing those forests. These organizations include local land trusts such as Jefferson Land Trust and North Olympic Land Trust, but also statewide organizations such as the Washington Forest Protection Association, which represents the state’s private forest landowners. In addition to land protection that occurs through the purchase of fee simple ownership by conservation groups, conservation easements can be an effective tool for



protecting working forests. Working forest conservation easements protect wildlife habitat and ecological diversity and also provide economic and community benefits.¹⁵ By protecting these lands from development, the easements keep working forests working and ensure a sustainable flow of products as well as the ongoing provision of natural goods and services, such as improved drinking water quality.¹⁶

Maintaining large intact blocks of forestland helps working forests remain operational.¹⁷ Even forestlands without easements benefit from nearby easements because of the added stability. Forestry and logging support stores can count on having customers, and forestland owners can continue to invest in their properties because they know the industry is more likely to remain viable. In this way, easement benefits spill over across the entire forestry sector.

Community forests

The community forest model promotes conservation and community and economic development through community ownership and management of land.¹⁸ This model of land ownership is becoming more common in Washington, with examples such as the Mt. Adams Resource Stewards (Klickitat County) and the Stemilt-Squilchuck Community Forest (Chelan County). Jefferson Land Trust is currently working with a host of partners such as the Northwest Community Forest Coalition, Ecotrust Forest Management, The Trust for Public Land, and Washington Environmental Council to establish a community forest on Chimacum Ridge, an 850-acre working forest property in Jefferson County. As a community forest, the group envisions managing the land for multiple community benefits. Selective ecological timber

harvest would bring in revenue while also protecting water quality and wildlife habitat. The group also envisions this land providing business opportunities, outdoor classrooms for local school groups, and recreational access and trail connectivity to the community.¹⁹

Carbon sequestration and storage

The trees and vegetation in conserved lands, trails, and parks help mitigate global warming and climate change by absorbing carbon out of the atmosphere and storing it.²⁰ Forest landowners in Washington have sold carbon credits in exchange for committing to store carbon in their forests into the future. For example, in 2016 Microsoft purchased credits from Nisqually Land Trust and agreed to store carbon for 100 years on a 520-acre property.²¹ Forestlands on the peninsula have the potential to store carbon. In fact, The Trust for Public Land estimated the value of carbon removed and stored by trees in conserved lands and parks using i-Tree Canopy (see i-Tree methodology on page 39).²² Each year, trees on conserved lands and parks remove 2.04 megatons of carbon from the atmosphere, with an estimated value of \$168 million. In addition, the trees in conserved lands and parks store 51.3 megatons of carbon, valued at \$4.23 billion (Table 3 [↗](#)).²³

TABLE 3. VALUE OF CARBON STORAGE AND ANNUAL CARBON SEQUESTRATION BY CONSERVED LANDS, TRAILS, AND PARKS ON THE NORTH OLYMPIC PENINSULA (2020\$)

Category	Megatons	Value
Annual carbon sequestration by trees	2.04	\$168,000,000
Carbon stored in trees	51.30	\$4,230,000,000

Farming

Farming has a long history as a critical component of the region’s economy and rural character.²⁴ It has also been a topic of community conversation for several years, as residents consider how to expand the local food movement, understand the challenges facing farmers, and explore how to provide food for the region.²⁵ The peninsula’s working farms supply jobs, provide locally sourced produce, and support the quality-of-life factors such as connection to place and cultural identity that make the area a draw for residents and visitors alike. For example, the Chimacum Valley’s farm-to-table scene is featured as a destination within the region.²⁶ These same quality-of-life factors have attracted retirees, who have further fueled economic activity in the region. At the same time, this growth pressures remaining lands, driving up property values, incentivizing land development, and contributing to concerns



about housing affordability.²⁷ The state of Washington has seen significant population growth, having added 1.31 million new residents between 2001 and 2016. In response to this growth and pressure on farmland, the state implemented policies and programs to protect its farmland. In fact, compared to all U.S. states, Washington has had one of the top 10 responses to the visible changes in the farming landscape.²⁸ These programs, in addition to the work of local land trusts, have been essential to conserving farms, including those protected by agricultural easements, have contributed to the region’s capacity to supply local food, and have allowed the region’s farms to continue creating benefits throughout the community.²⁹

Working farms diversify and support the region’s economy. According to the 2017 Agricultural Census, there are 1,450 farms in the region spanning 40,300 acres, or 28 acres per farm on average. Over 95 percent are family farms, and over 22 percent of these farms hire farm labor. Forage consistently is the top crop by acreage in all three counties, with barley as the second crop for Clallam, vegetables for Jefferson, and cultivated Christmas trees for Kitsap. The region’s farms sell a total of \$29.4 million in products each year (Table 4); 56.7 percent of sales are driven by livestock, poultry, and products and 43.3 percent by crops.³⁰

TABLE 4. FARMS, ACREAGE, AND MARKET VALUE OF PRODUCTS SOLD ON THE NORTH OLYMPIC PENINSULA, 2017 (2020\$)				
Category	Clallam County	Jefferson County	Kitsap County	Region total
Number of farms	528	221	698	1,450
Land in farms (acres)	17,200	13,800	9,390	40,300
Market value of products sold	\$12,700,000	\$9,760,000	\$6,970,000	\$29,400,000

Farmland protection has played a major role in preserving the land base that is vital to the region's farming industry. Farmland conservation also helps provide qualified farmers with access to high-quality agricultural land, assists with the start-up or expansion of commercial agricultural businesses, promotes the conservation of existing farms, and aids the transition of conserved or nonconserved farms to the next generation of farmers.³¹

From 2007 to 2012, the number of active farms and farmland acreage decreased in Clallum and Kitsap Counties. In Jefferson County the number of farms stayed the same but the land on farms decreased.³² These trends are not unique to the region and suggest that farmland loss may be an inevitable product of growth and development; however, growth and farmland loss do not have to be synonymous. That is, balanced land use can be a key tool to ensure that both the economic benefits of a robust farming industry and the benefits of continued growth are realized in the region.

Conservation easements are among the most effective planning tools for supporting the continued success of farming. By removing development rights from farm properties, conservation easements help relieve development pressure on farms, keep working farms intact, and may provide tax savings to farmers. Used as part of a balanced land use planning strategy, conservation easements can also leverage outside investment to bring new funding to the region. Beyond attracting state and federal investment, conservation easements are supporting farms across the region by keeping working lands active. A recent example is Short's Family Farm in Jefferson County. An easement was purchased on this 254-acre farm in 2016, protecting this farm's heritage while also anchoring Chimacum's agricultural economy and community. Because of the significance of this project, Jefferson Land Trust was able to leverage federal investment from the U.S. Department of Agriculture's former Farm and Ranch Lands Protection Program (currently the Agricultural Conservation Easement Program) as well as state investment from the Washington Recreation and Conservation Funding Board Farmland Preservation Program and the Jefferson County Conservation Futures Fund.³³

Even farms without agricultural easements benefit from nearby easements because those easements provide stability and ensure the permanence of farming and supporting industries in an area. Farm supply stores know they will have enough customers each season to remain open. Meanwhile, nearby farmers without easements can continue to invest in their properties because they know the industry will remain intact. In this way, easement benefits spill over across the entire agricultural sector.

The region's agricultural lands are significant economic producers in the three-county area. They also contribute to the quality-of-life and sense-of-place factors that have driven growth



in the region. At the same time, this growth is increasing pressure to convert remaining agricultural lands to other forms of development. This long-term trend is threatening the continued viability of the industry as a whole, as well as its many and varied contributions to the region's economy and sense of place. Recognizing the importance of these working lands, conservation efforts are a key tool for the continued viability of this important piece of the region's economy.

Agritourism

Land conservation helps support a growing agritourism industry in the region, which diversifies the income farmers can derive from their properties. Agritourism includes a wide array of opportunities, including farm tours, weddings and special events, U-pick farms, wine and cider tastings, wagon and hay rides, special dining events, farm-related accommodations, and seasonal activities.³⁴ These agritourism strategies provide not only supplemental income to help farmers remain viable, but also important chances for tourists seeking authentic experiences on the North Olympic Peninsula. Some farms incorporate tourism in their farming practices. In 2017, 32 farms offered agritourism and recreational services. Revenues from these activities were not available for the region to avoid disclosing data for individual farms. However, state-level information indicates that on average a farm with agritourism generates \$32,200 in related revenue. Applying that average revenue to the region would result in \$1.03 million in revenue within the three counties of interest.³⁵



Fishing

Protecting fish habitat and water quality contributes to the commercial fishing industry and the closely related seafood industry. The quality of the region's water depends on the uses of adjacent lands, including those within the region. Thus, the region's land uses have the potential to influence the quality of ocean waters and the saltwater fishery. Local conservation efforts have focused on the protection of lands that enhance or protect salmon habitat. To that end, North Olympic Land Trust has protected dozens of properties across Clallam County focused on conserving quality and contiguous fish habitat, including 1.7 miles of marine shoreline and 12 miles of stream and river habitat conservation.³⁶ For example, the Lyre Conservation Area is a 280-acre property that features the estuary at the mouth of the Lyre River as well as streams, tidal flats, kelp beds, and a half mile of shoreline along the Strait of Juan de Fuca.³⁷ North Olympic Land Trust has also partnered with the Makah and Lower Elwha Klallam Tribes, Clallam Conservation District, Salmon Recovery Funding Board, and North Olympic Peninsula Lead Entity for Salmon to protect the Pysht River Conservation Area.³⁸

In addition to salmon, groundfish, halibut, albacore, and shellfish are important to the state's fishing industry. Along the Strait of Juan de Fuca, ports are located in Port Townsend, Sequim,

Port Angeles, and Neah Bay. The Strait of Juan de Fuca is responsible 705,000 pounds of shellfish, 136,000 pounds of groundfish, and 4,500 pounds of salmon, valued at \$1.36 million. Looking more broadly at the region, Clallam County, Jefferson County, and Kitsap County commercial fish landings total \$3.72 million, \$1.64 million, and \$229,000, respectively, or \$5.59 million for the region.³⁹ These data support the importance of this fishery to the local economy and highlight the role of conservation in maintaining and improving the habitat on which these species depend.

As shown in this section of the report, forestry, farming, and fishing are critical industries in the North Olympic Peninsula region. The numbers above describe the extent to which these natural resource–based trades contribute to the local economy. This section describes the economic, historical, and cultural importance of maintaining these industries and the role that land conservation can play in their continued success.



PAT DOWNS

Creativity, collaboration, and community – a recipe for success at Finnriver Farm & Cidery

By Jefferson Land Trust

There's a lot going on at Finnriver Farm & Cidery. What began as a 33-acre organic family farm specializing in blueberries has become a vibrant farm and craft cidery that contributes to the local economy, enhances the dynamic local food scene, serves as an open and welcoming gathering place for the community, and draws thousands of visitors to the rural Chimacum Valley, on Washington State's Olympic Peninsula each year.

Certified Organic and Salmon Safe, Finnriver is also a Certified B Corporation that seeks ways to make business a force for good. In total, nearly 70 people work at this vibrant organization. The two farm locations (the 33-acre Home Farm and 50-acre Orchard and Cidery) are three miles apart. Both the farm and orchard properties are permanently protected as farmland forever with conservation easements from Jefferson Land Trust. Additionally, both properties border salmon-bearing Chimacum Creek and have 35-foot buffer areas along the bank of the creek, where over time a great deal of restoration has been done to improve conditions for salmon.

Finnriver Orchard stands on the site of a historic former dairy—Chimacum Dairy. The fields and structures have been renovated to create a farm-based gathering space for the community with a 10-acre cider apple orchard, a working farm collaborative, and a public tasting room with a covered pavilion, patios, and a lawn with games and a play area for children.

At the forefront of the Pacific Northwest cider revival, the folks at Finnriver have won awards for many of their fine craft ciders. Finnriver is also a popular venue for local music and hosts an engaging lecture series. The kitchen serves locally sourced, seasonal food daily and staff regularly welcome local food trucks on-site. Finnriver ciders and fruit wines can be purchased in the tasting room, from Finnriver's



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online store, at farmers markets throughout Puget Sound, and at retail stores and restaurants in more than a dozen states. Finnriver also has quarterly and monthly cider clubs.

At Finnriver Home Farm, a small crew of farmers grows a variety of fruits and vegetables and harvest chicken and duck eggs. The farm is renowned for its two acres and 10 varieties of blueberries. Although the Home Farm is not open to the public, Finnriver produce and eggs are available through the farm's community-supported agriculture subscription program and Berry Club, as well as from local farmers markets and retailers.

The farm also grows more than 20 acres of diverse organic grains, such as quinoa, wheat, and buckwheat. A variety of flours are fresh-milled to order using a traditional stone mill that is operated slowly and gently to preserve maximum nutrition. The flour is available through a subscription program and online in bulk. Additionally, Finnriver has teamed up with researchers and whole-grain advocates from the Washington State University Bread and Sustainable Seed Systems Labs to test and grow heritage and modern varieties that are selected for flavor and nutrition and that grow well in western Washington's maritime climate in organic conditions.

A key partner in the agricultural renaissance in Chimacum, Finnriver Farm & Cidery showcases and supports the community by providing fresh local organic food, craft cider, local jobs, and space for local music and learning, while also welcoming thousands of visitors and benefiting local salmon populations in Chimacum Creek.

The conservation efforts on both properties played a role in the success of Finnriver. Proceeds from the conservation easement on the Home Farm allowed the owners to buy out their original partners at the blueberry farm and launch Finnriver Cidery. Additionally, removing the development rights from the Chimacum Dairy property with a conservation easement helped to make that showcase property (now Finnriver Orchard) more affordable.

Enhancing property value

CONSERVED LANDS, TRAILS, AND PARKS HAVE A POSITIVE IMPACT ON NEARBY RESIDENTIAL PROPERTY VALUES.⁴⁰ All other things being equal, people are willing to pay more for a home close to these spaces. Further, since property tax is based on a home's value, the increased value of homes near these spaces leads to additional property taxes being generated annually. Through economic analysis, it is possible to isolate the impact that conserved lands, parks, and trails have on home values. This section estimates the enhanced property value that can be attributed to conserved lands, trails, and parks, as well as the additional tax revenue generated on an annual basis. The property value added by conserved lands, trails, and parks is separate from the value that residents gain from the recreational use of these resources. Property value goes up even if the resident never visits or uses a given park, trail, or conserved land. Rather, property value is affected by two factors: quality of and distance from the resource.

Research has found that the quality of these spaces can affect nearby property values in several ways.⁴¹ Beautiful natural areas with public access, scenic vistas, and bodies of water are



WENDY FELTHAM



markedly valuable. Less attractive or outdated trails and parks may provide only marginal value and, in some cases, may actually reduce nearby property values. When looking at the impact of individual conserved lands, trails, and parks, economic analysis is complicated by the subjective nature of quality as well as the variation in quality across time. In order to account for such variations and impacts on the premiums generated by individual spaces, The Trust for Public Land relies on a methodology that accounts for the impact of a community's entire tapestry of conserved lands, trails, and parks. The premium that is applied in this analysis of conserved lands, trails, and parks on the North Olympic Peninsula isolates the minimum average value added by these spaces collectively, separate from other locational factors that affect a home's value, such as proximity to transportation networks and central business districts. Nationwide research shows that the premium for proximity to parks and trails can affect market values by as much as 20 percent. The Trust for Public Land applies a conservative 5 percent premium that is based on the value of the entire system of conserved lands, trails, and parks rather than on any one public space. This system-wide premium accounts for variation in type and quality across the region, balancing out the differences between places that are highly desirable and those that may have parking, noise, or visual characteristics that make them less preferable. This makes it possible to generate a reliable, conservative estimate of the total impact that conserved lands, trails, and parks have on property values based on established rates from comparable studies.

Distance from these resources is the second factor influencing property values. Nationwide research shows that the premium for proximity to parks and trails can extend up to 2,000 feet and can also affect market values by as much as 20 percent.⁴² A report from the National Association of Realtors found that the premium for homes near parks can extend three blocks and start at 20 percent, declining as the distance from the park increases.⁴³ Trails also increase property values. Early work in Washington documented the positive impacts of trails. For example, in a study of the Burke-Gilman Trail in Seattle, researchers found that the trail was an amenity that helped sell homes, increase property values, and improve quality of life.⁴⁴ The Methow Valley Sport Trails Association's network of trails in Okanogan County was also found to be an important factor in real estate purchasing decisions.⁴⁵

Recent research has found that proximity to permanently protected open spaces and conservation easements increases property values.⁴⁶ Forestland protected with easements has a positive impact on nearby properties, and agricultural easements can increase property values as well.⁴⁷ This body of literature establishes the measurable impact of conserved lands, trails, and parks on property values and showcases the range of property value benefits that have been measured.

Using the most conservative method of analysis supported by these and other studies, The Trust for Public Land analyzed the enhanced property value of and increased tax revenue from residences that are in proximity to conserved lands, trails, and parks on the North Olympic Peninsula.⁴⁸ First, The Trust for Public Land identified all homes in the three counties within 500 feet of these spaces using spatial analysis.⁴⁹ The Trust for Public Land obtained property value and tax information for all homes using parcel and tax data from Clallam, Jefferson, and Kitsap Counties. This information was then combined with the spatial analysis to estimate a 5 percent value premium for residences proximate to these resources, as well as the accompanying property tax contributions due to this premium. The application of a 5 percent premium is consistent with The Trust for Public Land's conservative approach to measuring property value in dozens of studies of other communities across the country.

Table 5 shows the results of this analysis for all conserved lands, trails, and parks in the three-county region. The results indicate 32,800 homes in the region were located within 500 feet of these special spaces.⁵⁰ These park-proximate homes had a total market value of \$12.3 billion. An additional \$616 million in residential property value resulted from proximity to conserved lands, trails, and parks. Each year, \$6.11 million in additional property tax revenue is generated by conserved lands, trails, and parks.

TABLE 5. ENHANCED PROPERTY VALUE DUE TO PROXIMITY TO CONSERVED LANDS, TRAILS, AND PARKS ON THE NORTH OLYMPIC PENINSULA⁵¹

Category	Clallam County	Jefferson County	Kitsap County	Total
Total number of residential homes	29,100	16,500	85,100	131,000
Total residential value	\$6,890,000,000	\$4,660,000,000	\$35,200,000,000	\$46,700,000,000
Total residential tax	\$69,200,000	\$45,400,000	\$354,000,000	\$469,000,000
Number of residential homes proximate to conserved lands, trails, and parks	5,950	5,280	21,600	32,800
Residential value of homes proximate to conserved lands, trails, and parks	\$1,380,000,000	\$1,480,000,000	\$9,450,000,000	\$12,300,000,000
Residential tax of homes proximate to conserved lands, trails, and parks	\$13,600,000	\$14,400,000	\$94,100,000	\$122,000,000
Enhanced residential value due to conserved lands, trails, and parks	\$69,200,000	\$73,900,000	\$472,000,000	\$616,000,000
Enhanced residential tax due to conserved lands, trails, and parks	\$680,000	\$719,000	\$4,710,000	\$6,110,000

The results of this analysis demonstrate the important role conserved lands, trails, and parks play in enhancing the value of nearby homes—with between 20 and 32 percent of all homes in the region being located within 500 feet of all the conserved lands, trails, and parks included in this analysis. A large portion of this value is attributable to homes near these resources in Kitsap County, which accounts for 65.8 percent of all the proximate homes in the region, and is consistent with the population density and prevalence of municipal- and county-owned lands. The Trust for Public Land also investigated the conserved land types that were contributing to this value and found that 56.3 percent of the park-proximate homes in the region were located near other conserved lands, driven by municipal parks and county-owned lands that are located in the population centers. The percentages of homes near state, nongovernmental organization, tribal, and federal lands were much lower, at 25.2 percent, 15.4 percent, 10.8 percent, and 5.14 percent, respectively.⁵²

In addition to boosting property values and enhancing tax revenues, protected lands frequently require less in community services (e.g., schools, police, fire, sewer) than they pay in taxes, and the ratio is even more favorable when compared to residential land use types, which typically

require more in community services than they pay in taxes. Specifically in Washington, two studies that explored the cost of community services found that for every dollar of revenue received from residential properties, the counties paid more in services to those lands but paid less than a dollar in services for every dollar of revenue received from farm, forest, and open lands. In Okanogan County, residential property cost the local government \$1.06 for every dollar paid in taxes while open land cost the local government \$0.56 for every dollar in revenue it received.⁵³ Similarly, in Skagit County, residential land cost \$1.25 for every tax dollar received while open land cost \$0.56 for every dollar of revenue.⁵⁴

CASE STUDY

Olympic Discovery Trail

The Olympic Discovery Trail (ODT) is a nonmotorized trail system that connects communities, conserved lands, and parks across the North Olympic Peninsula, stretching from Port Townsend and Puget Sound to the Pacific Ocean near La Push.⁵⁵ The trail is used by hikers, walkers, runners, cyclists, and equestrians. There are opportunities for camping in public and private campgrounds near the trail. And wherever possible, the trail is and will be compliant with the Americans with Disabilities Act (ADA), although some slopes exceed ADA requirements and will be improved over time.

The ODT stimulates the local economy by providing a destination for recreation that improves the quality of life for residents and inspires people to move to the region. The trail also attracts visitors to the region and supports local recreation-related businesses that cater to customers who participate in outdoor recreation and biking. For example, at least 10 bike shops are located along the trail.⁵⁶

The East Central Segment, which spans from Blyn to Port Angeles, is 26.1 miles long and is mostly completed. It mostly follows the abandoned railway and provides a quiet atmosphere with a rich farming tradition. It also passes through the city of Sequim, the business and cultural center for the area. According to Sam Chandler, the co-owner of Ben's Bikes in Sequim, "Ben's Bikes would not have located in Sequim if it had not been for the ODT. We see very significant business because of the trail, including 40 to 50 bike rentals per day during the summer. All these people are tourists, staying in local places. And the trail is also used for year-round commuting from Sequim to Port Angeles. There's a significant portion of the population that doesn't have a car, but the trail is also used by walkers, dog walkers, and horseback riders—successfully with minimal conflict. It's a tremendous asset and will be even more so when it is fully completed."⁵⁷

Many advocates and practitioners on the peninsula envision the ODT eventually connecting with the Hood Canal Bridge. This extension would permit trail users to travel from Bainbridge Island Ferry Dock to La Push by trail. The impact of this extension would be significant, offering visitors an alternative method to travel across the North Olympic Peninsula safely. In addition, the trail alignment could spur development in Jefferson and Clallam Counties. If properly planned as part of new communities, the trail would become a major recreational resource for the residents of these communities.

Improving water quality

WATER QUALITY IS AN IMPORTANT ISSUE FOR COMMUNITIES LOCATED NEAR PUGET SOUND AND ON THE NORTH OLYMPIC PENINSULA. The three counties have an abundance of lakes, rivers, and streams that support important fisheries, as well as several hundred miles of shoreline and dozens of beaches available for recreational shellfish harvesting. This study considers two major challenges to water quality management: stormwater and associated nutrient loading (including nitrogen, phosphorus, and suspended solids). It then explores the role that conserved lands and parks play in improving water quality and lowering management costs across the region.

Although some amount of nitrogen and phosphorus in waterbodies is essential, excess nutrients can cause aquatic plants to grow too fast. This can lead to excessive amounts of algae and lower water quality. As algae die off, they reduce the levels of dissolved oxygen, which can suffocate fish and other aquatic life. Some algae also produce harmful toxins and bacterial growth that can make people sick if they come into contact with polluted water, consume tainted fish or shellfish, or drink contaminated water. Although algae are naturally occurring, human activities frequently increase the levels of nutrients in waterbodies beyond healthy levels.⁵⁸ Sources include stormwater, animal feed lots, fertilizers, industrial waste waters, sanitary landfills, septic system leaching, and garbage dumps. Nutrient pollution can lead to economic losses (e.g., reductions in commercial fisheries, recreation, and tourism) and increased costs (e.g., treating municipal or private drinking water or complying with regulatory actions triggered by impaired water quality, such as the Safe Drinking Water Act).⁵⁹

Several agencies and organizations in the region are focused on improving water quality. For example, all three counties on the North Olympic Peninsula have established Pollution Identification and Correction (PIC) programs in response to poor water quality and shellfish bed closures.⁶⁰ The state has also approved a water quality trading system that may help achieve pollutant reductions in the future once trading begins.⁶¹

Another threat to water quality is suspended solids, or mineral and organic particles that are carried along with water as it runs off the land and into waterbodies. Frequent sources include erosion from poorly managed farmlands, logging operations, surface mining, and construction sites. Suspended sediment can be detrimental for fish, such as salmon.⁶² Stakeholders in the region acknowledge the need to limit the amount of suspended sediment that activities generate.⁶³

In several of the developed parts of the region, rainwater that flows off roads, sidewalks, and other impervious surfaces can cause flooding, erosion, and declines in water quality by carrying pollutants with it. The cities of Port Angeles and Port Townsend have stormwater utilities designed to manage stormwater, which requires municipal resources.⁶⁴



Conserved lands and parks can reduce stormwater and filter pollutants, lowering the levels of phosphorus, nitrogen, and total suspended solids that end up in waterbodies and lowering management costs. Conserved lands and parks support water quality because their pervious surfaces capture and absorb precipitation, slow runoff, infiltrate and recharge groundwater, and filter out pollutants. Meanwhile, vegetation on conserved lands and parks provides a considerable surface area that intercepts and stores rainwater, allowing some to evaporate before it ever reaches the ground. In effect, these green spaces function like storage reservoirs, reduce peak flows of runoff during rain events, and are an important form of green infrastructure, which naturally filters and infiltrates stormwater. This section uses economic analysis to determine the value of stormwater infiltration, specifically considering the management costs that are avoided because of these natural areas.

The Trust for Public Land partnered with the Davey Institute to estimate the value of water quality enhancement provided by conserved lands, trails, and parks on the North Olympic Peninsula. The Davey Institute utilized i-Tree Hydro to calculate the incremental amount of stormwater runoff and pollutant loading that conserved lands, trails, and parks prevent from entering waterbodies.⁶⁵ The i-Tree Hydro application is designed to quantify the impact that changes in tree canopy cover and impervious cover are expected to have on stream flow and water quality in an area. The model relies on several inputs, including maps of the baseline

and alternate scenarios, hourly weather data, land cover types, and elevation. First, maps of the baseline and alternative scenarios were used to understand the land cover of lands in the region. The baseline scenario represents existing conditions of conserved lands, trails, and parks. The hypothetical alternative scenario models conditions in which conserved lands, trails, and parks are not protected and are therefore developed similar to the surrounding region. To determine a robust estimate of existing land cover, the Davey Institute used the i-Tree Canopy tool to photo-interpret Google Earth imagery to classify 300 points that were randomly located within each scenario (Table 6). Overall there is a modest amount of impervious surface and a high amount of tree canopy in each scenario, with improved conditions in the baseline scenario.

TABLE 6. PERCENT LAND COVER ESTIMATES FOR THE NORTH OLYMPIC PENINSULA, 2020

Land cover	Baseline conditions (conserved lands, trails, and parks)	Alternative scenario (other lands not categorized as conserved lands, trails, or parks)
Trees	86.0%	71.7%
Grass/herbaceous*	7.3%	18.0%
Bare soil	5.7%	3.3%
Water	1.0%	1.7%
Impervious**	0.0%	5.3%

* Grass/herbaceous includes a combination of maintained and wild grass, as well as herbaceous cover including woody plants less than 12 inches in height or nonwoody plants of any height.

**There is a modest amount of impervious cover within the layer of conserved land, trails, and parks, but it is not directly connected impervious area. A directly connected impervious area is defined as a surface where stormwater conveys directly from an impervious cover to a storm drain or a waterway. Precipitation in this analysis falls on disconnected impervious area, or surfaces where stormwater runs off into a permeable area, such as a field or forest.⁶⁶

The land cover inputs were then used to simulate stream flow and water quality for the region under the two scenarios. Thus, the model isolates the volume of stormwater that is absorbed, above and beyond what would have been absorbed by the conserved lands had they been developed. The volume of stormwater runoff or surface runoff is then combined with information about the concentration of pollutants to estimate the reduced pollutant loading due to conserved lands, trails, and parks. The model estimates that conserved lands, trails, and

parks in the region reduce stormwater by 1,200 million cubic feet and reduce total suspended solids, phosphorous, and nitrogen by 79,300 tonnes, 217 tonnes, and 2,920 tonnes, respectively (Table 7).⁶⁷ Although the difference in the reduction of stormwater volume may seem small, it has a substantial impact on reducing pollutant loading.

TABLE 7. STORMWATER RUNOFF AND POLLUTANT LOADING AVOIDED BECAUSE OF CONSERVED LANDS, TRAILS, AND PARKS ON THE NORTH OLYMPIC PENINSULA, 2020				
Category	Conserved lands, trails, and parks	Other lands not categorized as conserved lands, trails, or parks	Difference between other lands and conserved lands, trails, and parks (total)	Difference between other lands and conserved lands, trails, and parks (relative)
Stormwater runoff volume (million cubic feet)	163,000	164,000	1,200	0.733%
Total suspended solids (tonnes)	10,800	90,100	79,300	732%
Total phosphorous (tonnes)	57	274	217	384%
Total nitrogen (tonnes)	2,810	5,730	2,920	104%

The Trust for Public Land then determined the economic value of stormwater retention by conserved lands, trails, and parks by estimating the cost of managing stormwater using green infrastructure (e.g., bioretention, green roofs, permeable paving, rainwater harvesting, and trees). Green infrastructure can help prevent toxic water pollution from entering waterways, which is a particular concern in communities located around Puget Sound.⁶⁸ In 2012, The U.S. Environmental Protection Agency (EPA) provided a technical assistance grant to the City of Seattle and 16 other communities to address common barriers to green infrastructure, including code review, design, and cost-benefit assessments. As part of the Seattle project, the EPA Seattle Public Utilities determined that green infrastructure–related reductions to stormwater runoff lower the variable treatment costs. Variable treatment costs account for 25 percent of the total treatment costs, including fixed cost, which continue regardless of reductions due to green infrastructure. Specifically, the study estimated the variable costs between \$910 and \$1,240 per million cubic feet.⁶⁹ To be conservative for the purpose of this analysis, The Trust for Public Land applied the lower-bound cost to the volume of reduced stormwater runoff and estimated that these spaces provide a total annual stormwater value of \$1.09 million (see Table 8).



TABLE 8. THE ECONOMIC VALUE OF THE STORMWATER BENEFITS PROVIDED BY CONSERVED LANDS, TRAILS, AND PARKS ON THE NORTH OLYMPIC PENINSULA (2020\$)

Category	Difference between other lands and conserved lands, trails, and parks (total)	Value per unit	Total value
Stormwater runoff volume (million cubic feet)	1,200	\$910	\$1,090,000

The water quality benefit provided by conserved lands, parks, and trails on the North Olympic Peninsula is conservative for two reasons. First, as mentioned above, the value of stormwater management is based on lower-bound estimates of the value. That is, The Trust for Public Land chose to use the lowest locally available estimate of treatment costs specific to communities located near Puget Sound. Second, the benefit does not directly include the value of preventing suspended solids, phosphorous, and nitrogen from entering nearby waterways. This analysis demonstrates that these lands make a significant contribution to the community. Without these lands, communities would have to invest more heavily in systems and programs designed to limit pollution, capture stormwater, and potentially treat it, or face an increased number of fisheries closures. Thus, these lands are providing value to the region as a whole by providing this natural service.

Reducing air pollution

AIR POLLUTION IS A SIGNIFICANT AND EXPENSIVE PROBLEM ASSOCIATED WITH GROWTH THAT INJURES HUMAN HEALTH AND DAMAGES STRUCTURES. Human cardiovascular and respiratory systems are affected, with broad consequences for health care costs and productivity.⁷⁰ In addition, acid rain, smog, and ozone increase the need to clean and repair buildings and other infrastructure.⁷¹

The vegetation in conserved lands, trails, and parks plays a role in improving air quality, helping nearby areas avoid the costs associated with pollution.⁷² Trees and shrubs have the ability to remove pollutants from the air. Leaves absorb gases such as nitrogen dioxide, sulfur dioxide, carbon monoxide, and ozone. By adhering to plant surfaces, particulate matter (PM), which includes small particles of dust, metals, chemicals, and acids, can also be removed.⁷³ This section uses economic analysis to determine the cost savings these spaces provide by reducing the concentration of pollutants in the air.

Air pollution is a significant issue across the country and on the North Olympic Peninsula as well. Breathing air pollutants, including fine particles and ozone, can lead to premature

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death, nonfatal heart attacks, aggravated asthma, and lost days of work and school.⁷⁴ *State of the Air* is an annual report by the American Lung Association that looks at air quality across the United States, in terms of both ozone and particle pollution. Although air quality data were not consistently collected for all three counties over the last few years and Clallam County did not receive particle pollution grades, it did receive an A grade for ozone, having no high ozone days in 2016–2018. Jefferson and Kitsap did not have ozone data collected. Despite this positive ozone grade for Clallam County, air quality reductions still remain critical as Kitsap County received an F grade for 24-hour particle pollution at the time of this analysis, although it did receive a passing grade for year-round levels of particle pollution based on average levels calculated by the EPA. The county had six days of particle pollution that were unhealthy for sensitive populations and three days that were unhealthy for all populations.⁷⁵ The positive, pollution-reducing benefits of conserved lands, trails, and parks are thus magnified in the region.

The Trust for Public Land estimated the value of air pollution removed by trees in conserved lands and parks using i-Tree Canopy.⁷⁶ The i-Tree Canopy application estimates tree cover and tree benefits for a given area using a random sampling process that classifies ground cover types with Google Earth aerial photography. The Trust for Public Land used the 300 points mapped as part of the i-Tree Hydro land cover mapping process within conserved lands, trails, and parks as one of five categories for the analysis (Table 9). Conserved lands, trails, and parks are mostly trees and shrubs at 86 percent of the land cover.

TABLE 9. LAND COVER CLASSES OF CONSERVED LANDS, TRAILS, AND PARKS ON THE NORTH OLYMPIC PENINSULA, 2020

Cover class	Number of points	Percent cover	Acres
Bare soil	17	5.67	98,600
Grass/herbaceous	22	7.33	128,000
Impervious*	0	0.00	0
Tree/shrub	258	86.0	1,500,000
Water	3	1.00	17,400
Total	300	100	1,740,000

* The air pollution analysis relies on the vegetation of all conserved lands, trails, and parks. There is a modest amount of impervious cover within these lands, which was not identified in a random selection of such a large area; however, The Trust for Public Land does not believe that this selection would impact the overall air pollution removal value.

The i-Tree Canopy model derives change in pollutants due to the vegetation, including carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide, and particulate matter. The model estimated the value of these changes for each pollutant based on values established by i-Tree researchers. These values are determined primarily from savings in health care costs related to reduced exposure to harmful pollutants, based on the EPA’s Environmental Benefits Mapping and Analysis (BenMAP) Program. BenMAP measures the economic value of changes in air quality based on medical expenses that individuals would pay for air pollution–related hospital visits, medical care, and lost work as well as their willingness to pay to avoid the pain and suffering, loss of satisfaction, and leisure time.⁷⁷ The values for carbon monoxide and particulate matter greater than 2.5 microns and less than 10 microns were based on national externality values.⁷⁸ These values were then adjusted to 2020 values using the producer price index.⁷⁹ A total value of \$25.8 million in air pollution removal was estimated for conserved lands and parks on the North Olympic Peninsula annually (Table 10 ↗).

TABLE 10. VALUE OF ANNUAL AIR POLLUTION REMOVAL BY CONSERVED LANDS, TRAILS, AND PARKS ON THE NORTH OLYMPIC PENINSULA (2020\$)		
Pollutant	Tons	Value (2020\$)
Carbon monoxide	312	\$38,300
Nitrogen dioxide	5,630	\$80,400
Ozone	34,900	\$4,900,000
Particulate matter greater than 2.5 microns and less than 10 microns	10,600	\$3,600,000
Particulate matter less than 2.5 microns	1,390	\$17,200,000
Sulfur dioxide	235	\$8,560
Total	53,000	\$25,800,000

This analysis demonstrates the tremendous value that conserved lands, trails, and parks provide by reducing air pollution. If the vegetation in these spaces did not exist, communities would have higher health care costs related to air quality.

The Department of Defense's Readiness and Environmental Protection Integration (REPI) Program

The defense industry is an integral part of the community, culture, and economy of the North Olympic Peninsula. The successful operation of defense installations requires integrative land use planning that includes buffers around installations made up of open and working lands. These spaces allow defense training, testing, and operations to take place while minimizing encroachments from land uses that would negatively affect both citizens and the military. As the region continues to grow, its open spaces are playing an increasingly valuable role in supplying the buffer zones between military and civilian lands.

The region's military community is significant. Naval Base Kitsap, which includes the former Naval Station Bremerton and Naval Submarine Base Bangor, is located in Kitsap County as are numerous military contractors, veterans, and military retirees. A 2017 study found the Navy contributed \$40 billion in total economic activity to the Kitsap County region and employed approximately 45,500 direct and indirect workers.⁸⁰ The military presence not only contributes to the nation's defense; it also is a critical driver of the county's robust economy.

Defense installations and conserved lands were not historically thought of as related concepts. However, starting in the late 1990s the Department of Defense (DoD) became alarmed by growing populations and development on areas adjacent to installations. These developments posed a risk to successful and safe operations. DoD termed the problem "encroachment" and began searching for means of mitigation.⁸¹

One market-based solution that has proved very successful has been purchasing conservation easements on civilian property surrounding installations. These easements create buffer lands and allow for safe use and operations on installations while preventing conflicting land uses. For instance, land adjacent to an installation might be suitable for forestry, farming, and housing developments. A purchased easement by DoD would allow for forestry and farming while limiting other development. Such an arrangement allows land to remain productive and in private hands and enables DoD to maximize the impact of its budget by not having to purchase buffer lands outright.

The federal government has recognized the importance of such approaches, as well as the mutually beneficial relationship that can exist between defense lands and conservation lands, through the establishment of such programs as the Readiness and Environmental Protection Integration (REPI) Program and more recently through the Sentinel Landscapes Partnership between the U.S. Departments of Agriculture, Defense, and the Interior. These initiatives foster partnerships between military installations, landowners, conservation groups, farmland interests, and other stakeholders.

These initiatives also provide funding to create compatible land uses surrounding defense installations. From its inception in 2002 through 2016 the REPI Program generated more than \$1.32 billion in funding for land protection surrounding military installations around the country.⁸² More locally, the Navy Kitsap Partnership has used \$27 million in REPI funding and \$23 million in partner funding to protect 15,415 acres across 54 projects since 2011.⁸³ Growing federal support and spending on these programs signify the national importance of conserved buffer lands for defense readiness.

REPI lands also provide economic benefits to the surrounding community by enhancing property values, reducing air pollution, and improving water quality. In fact, 498 homes in the region are located within 500 feet of REPI lands, which boost the value of surrounding homes by \$5.78 million. Proximity to REPI lands also generates \$55,800 in additional property tax revenue each year.

Open spaces, including easements, represent compatible land use in buffer zones between military and civilian lands. They provide mutual economic benefit for both DoD installations and civilian populations in the region. As the region's growth continues, conserved open spaces will increasingly support the continued viability and economic impact of the defense industry.

Strengthening economic development

CONSERVED LANDS, TRAILS, AND PARKS ARE RESOURCES THAT DEEPLY ENHANCE QUALITY OF LIFE, FROM PROVIDING CLEAN AIR AND WATER TO PROVIDING DIVERSE LEISURE OPPORTUNITIES THAT ARE IMPORTANT GENERATORS OF ECONOMIC ACTIVITY. These special places attract talent, employers, and investment in local communities. Recent research demonstrates that rural counties in the west with more public land outperform their peers, because of faster population, employment and personal income growth. These higher-performing counties benefit from nearby public lands in multiple ways, including support from commodity sectors like timber, increased tourist and recreation spending, and steady growth from the influx of entrepreneurs and retirees.⁸⁴ Research shows that the halo effect of tourism can increase a destination's image as a desirable location to live, work, buy a second home, retire, start a business, or go to college.⁸⁵ In fact, counties focused on recreation have been found to attract new residents and have higher incomes and faster growth in earnings.⁸⁶

The local economy

The purpose of this section is to describe the current economy in the North Olympic Peninsula region, including general economic conditions and the recreation economy. Conserved lands, parks, and trails are resources that deeply enhance quality of life, from providing clean air and water to providing diverse leisure opportunities that are important generators of economic activity. Conserved lands, parks, and trails, like those in the region, attract talent, employers, and investment in local communities. This section explores how outdoor resources enhance and boost the recreation economy and support local businesses. It includes in-depth statistics on participation in recreation and annual household spending on sports and recreation equipment, indices of market and spending potential, and a comparison of these results for the region with national averages.

Local socio-demographic information

In order to understand the underlying economic conditions of the area, The Trust for Public Land utilized information from Esri Business Analyst, which helps users explore the local economy, consumer behavior, participation in leisure activities, and business activity for a defined geography.⁸⁷ Using this tool, one can begin to understand the context of different communities within the state's economy and how an area compares to U.S. averages. The Trust for Public Land used data obtained with Esri Business Analyst to analyze the economy in Clallam, Jefferson, and Kitsap Counties.

The region accounts for approximately 5 percent of the state's population, or 383,000 individuals. Residents tend to be slightly older than those statewide. There are 155,000 households in the region, resulting in an average household size of 2.4 people. The median age

on the peninsula is older than the median age statewide; in fact, over one-fifth of the region's population is 65 years or older. Statewide, 36.0 percent of the population has a bachelor's or graduate degree, compared to 32.8 percent of residents in the North Olympic Peninsula region (Table 11 [↗](#)).

TABLE 11. POPULATION OF RESIDENTS IN THE NORTH OLYMPIC PENINSULA REGION AND WASHINGTON STATE, 2019								
Community	Population	Households	Families	Average household size	Median age	Pop. under 18 years old	Pop. 65 years and older	Pop. with a bachelors or graduate degree
3-county region	383,000	155,000	101,000	2.40	44	18.7%	21.9%	32.8%
Washington	7,610,000	2,950,000	1,880,000	2.53	39	21.7%	16.1%	36.0%

In the North Olympic Peninsula region, over 80 percent of the population reports being White and did not provide any other race category; however, a higher proportion of the population in the region reports being American Indian (2.3 percent) compared to statewide (Table 12 [↗](#)).

TABLE 12. RACE AND ETHNICITY OF RESIDENTS IN THE NORTH OLYMPIC PENINSULA REGION AND WASHINGTON STATE, 2019								
Community	White alone	Black alone	American Indian alone	Asian alone	Pacific Islander alone	Some other race alone	Two or more races	Hispanic origin
3-county region	82.1%	2.5%	2.3%	4.4%	0.7%	1.9%	6.0%	7.5%
Washington	73.1%	4.1%	1.5%	9.1%	0.7%	6.0%	5.5%	13.2%

The income and budget profiles of local residents are below those of the broader group of state residents. The Trust for Public Land examined Esri Business Analyst estimates of budget expenditures and spending potential, which represent the amount spent for products and services relative to the national average. In 2019, households in the region spent an average of \$76,900 on household budget expenditures, including items such as food, housing, transportation, health care, and education, which accounted for 64.5 percent of the budget. The region's household spending is 2 percent higher than the national average for household budget expenditures, and the state's household spending is 14 percent higher than the national average (see Table 13 [↗](#)).

TABLE 13. INCOME AND BUDGET PROFILES OF RESIDENTS IN THE NORTH OLYMPIC PENINSULA REGION AND WASHINGTON STATE, 2019 (2020\$)

Community	Median household income	Average household income	Per capita income	Total household expenditures, average amount spent	Total household expenditures, total	Total expenditures, spending index
3-county region	\$68,000	\$89,800	\$36,700	\$76,900	\$11,900,000,000	102
Washington	\$74,500	\$101,000	\$39,200	\$86,200	\$254,000,000,000	114

The service economy is a large part of the region’s economy (49.3 percent). Retail trade (11.6 percent) and public administration (10.1 percent) round out the top industries ([Table 14](#)).

TABLE 14. EMPLOYED POPULATION 16 YEARS AND OLDER BY INDUSTRY, 2019

Community	Total employed population	Agriculture	Construction	Manufact’g	Wholesale trade	Retail trade	Transpo/ utilities	Information	Finance/ insur./ real est.	Services	Public admin.
3-county region	162,899	1.2%	7.9%	8.2%	1.6%	11.6%	4.5%	1.4%	4.3%	49.3%	10.1%
Washington	3,778,305	2.1%	7.5%	9.3%	3.2%	11.3%	5.3%	2.0%	5.1%	48.8%	5.4%

Understanding the types of households living in the region further highlights residents’ preferences for and spending on recreation-related activities. By extension, this gives insight into the value residents place on outdoor resources. Esri’s Tapestry Segmentation tool allows for the analysis of household behavior by categorizing a given population into “tapestry segments” based on common demographic and consumer patterns. The Trust for Public Land utilized this tool to look at residents on the North Olympic Peninsula.

In the three-county region, 41.9 percent of the population fits into the top five tapestry segments ([see Table 15](#)). In the top tapestry segment, The Great Outdoors (14.4 percent of households), are households that actively participate in outdoor activities such as hiking, hunting, fishing, and boating. The same is true for the Green Acres segment (10.9 percent of households), which likes hunting, fishing, hiking, and camping. These household indicators, taken together with the high participation rates in recreation activities discussed in the following section, demonstrate a strong demand for and appreciation of the types of activities

available in the region's conserved lands. In Clallam County, The Great Outdoors segment is the most common, accounting for 16.9 percent of households. And the proportion is even higher in Jefferson County where The Great Outdoors segment represents 27.9 percent of residents, followed by 25.3 percent of households in the Silver and Gold segment.

TABLE 15. TOP TAPESTRY SEGMENTS IN THE NORTH OLYMPIC PENINSULA REGION, 2019 (2020\$)

Tapestry segment	Percent of 2019 households	Median age	Median household income	Household traits
The Great Outdoors	14.4%	47.4	\$56,400	Enjoy outdoor activities such as hiking, hunting, fishing, and boating.
Green Acres	10.9%	43.9	\$76,800	Outdoor living features hunting, fishing, hiking, and camping.
Old and Newcomers	6.1%	39.4	\$44,900	This group is environmentally conscience and includes an increasing number of retirees, who may have been attracted to the region for the quality of life.
Silver and Gold	5.7%	63.2	\$72,100	The most affluent senior market. Members of this group prefer a bucolic setting.
Parks and Rec	4.8%	40.9	\$60,000	Take advantage of local parks and recreational activities.

Importance of outdoor recreation in Washington

According to the Outdoor Industry Association, 72 percent of Washington residents participate in outdoor recreation. The outdoor recreation economy generates \$26.2 billion in consumer spending, which generates \$2.3 billion in state and local tax revenue and supports 201,000 direct jobs in Washington with an associated \$7.6 billion in wages and salaries. In fact, more jobs in Washington depend on outdoor recreation than on the aerospace industry (136,000 jobs).⁸⁸ In addition, the Outdoor Recreation Satellite Account developed by the Bureau of Economic Analysis shows that the outdoor recreation economy (as measured by the amount added to the economy or gross domestic product) accounted for 2.2 percent of Washington's

output.⁸⁹ These numbers together demonstrate that outdoor recreation is a growing and critical sector of the Washington economy and an important part of Washington communities.

Participation in recreation

Esri Business Analyst allows for the examination of outdoor recreation activities across the entire population (e.g., trails and private facilities). According to this tool, participation in recreation activities is prevalent among the region’s residents.⁹⁰ The top outdoor activity in the region was walking for exercise—26.7 percent of households did so in the last 12 months (see Table 16 📍). Other popular activities, with over 10 percent of residents participating, included swimming (18.5 percent), hiking (13.7 percent), freshwater fishing (13.4 percent), jogging or running (12.3 percent), and road biking (10.9 percent). Esri Business Analyst also calculates a market potential index (MPI) that measures the relative likelihood of individuals and households in an area participating in certain activities compared to the U.S. average.⁹¹ The likelihood of participation is above national averages for all listed activities with the

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exception of jogging and running. Based on the market potential index, which measures the likely demand for a product or service in an area, The Trust for Public Land knows that there is substantial potential for participation in canoeing or kayaking, saltwater fishing, boating, and hunting. These results, combined with the Tapestry Segmentation results above, suggest that demand for conserved lands and open spaces is high.

TABLE 16. ESTIMATED ANNUAL PARTICIPATION IN OUTDOOR RECREATION, SPENDING, AND MARKET POTENTIAL IN THE NORTH OLYMPIC PENINSULA REGION (2019)

Activity	Expected number of households	Percent of households	Market potential index*
Walking for exercise	83,200	26.7%	108
Swimming	57,500	18.5%	113
Hiking	42,800	13.7%	112
Fishing (freshwater)	41,700	13.4%	116
Jogging or running	38,500	12.3%	96
Bicycling (road)	34,100	10.9%	113
Canoeing or kayaking	27,300	8.8%	129
Boating (power)	18,500	5.9%	126
Hunting with rifle	15,800	5.1%	120
Fishing (saltwater)	15,600	5.0%	128
Bicycling (mountain)	14,200	4.5%	109
Backpacking	12,200	3.9%	114
Hunting with shotgun	11,000	3.5%	105
Archery	9,510	3.1%	112
Horseback riding	7,600	2.4%	105

* The MPI is tabulated to represent a value of 100 as the overall demand for the United States. An MPI of more than 100 represents high demand; a value of less than 100 represents low demand. For example, an MPI of 120 implies that demand is likely to be 20 percent higher than the national average.

Recreation expenditures and spending potential

To enhance their experiences, individuals who participate in recreation activities purchase products such as exercise clothing, footwear, bicycles, and hunting equipment. In 2019, 69,400 households, or 22.3 percent, of all households in the North Olympic Peninsula region spent money on sports and recreation equipment. Esri's Business Analyst tool compiles estimates of recreation expenditures and calculates a spending potential index (SPI) that represents the amount spent on products and services relative to the national average.⁹² As with the MPI, the SPI can be useful for comparing the region to U.S. averages. The region's residents spend \$33.1 million annually on sports, recreation, and exercise equipment, and households spend an average of \$214. This spending—among other recreation equipment expenditures—includes \$71.20 on hunting and fishing equipment, \$70.10 on exercise equipment,⁹³ \$30.10 on bicycles, and \$19.40 on camping equipment (Table 17). In addition, households in the region spend \$26.1 million annually on recreational vehicles and fees (including boats), or \$169 on average per

TABLE 17. ANNUAL HOUSEHOLD SPENDING ON SPORTS, RECREATION, AND EXERCISE EQUIPMENT ON THE NORTH OLYMPIC PENINSULA (2020\$)

Spending category	Average amount spent per household	Total spending	Spending potential index*
Sports, recreation, and exercise equipment	\$214.00	\$33,100,000	102
Exercise equipment and gear, game tables	\$70.10	\$10,800,000	106
Bicycles	\$30.10	\$4,660,000	100
Camping equipment	\$19.40	\$3,010,000	97
Hunting and fishing equipment	\$71.20	\$11,000,000	100
Winter sports equipment	\$5.62	\$869,000	102
Water sports equipment	\$8.22	\$1,270,000	108
Other sports equipment	\$6.73	\$1,040,000	100
Rental and repair of sports, recreation, and exercise equipment	\$2.66	\$412,000	104

* The SPI is tabulated to represent a value of 100 as the overall spending for the United States. When the SPI is equal to 100 for a specific type of merchandise, consumers are spending at a rate equal to the national average. The SPI is an indicator of what level of discretionary income consumers are willing to devote to a particular good or service.



household.⁹⁴ Conserved lands and open spaces enable a wide array of recreation activities and support recreation expenditures.⁹⁵

Local recreation businesses

Conserved lands and open spaces are used for multiple types of activities that generate economic activity and support businesses across the region, including those that sell related equipment and experiences. Esri's Business Analyst tool contains information for 80 recreation related businesses in the region.⁹⁶ These businesses include bike retailers; those that sell equipment and apparel for camping, fishing, and running; wholesalers; and many others. In total, these businesses generate \$110 million in sales each year and employ 962 people. Whether through selling or renting equipment directly to park users or leading outdoor tours, many businesses support outdoor recreation-related activities in the region. Not all of these businesses will be directly enhanced by conserved lands and open spaces, but many support the same sort of activities and users, and the existence of a private market further demonstrates the value of these resources to residents of the region.

Local tourism businesses

Conserved lands and open spaces also support the regional tourism economy. Data are not currently available to isolate the exact number of businesses, sales and employees that is directly attributable to tourist expenditures; however, economists frequently look at the industries that have travel and tourism potential, sometimes referred to as "tourism-sensitive" sectors.⁹⁷ Using this definition of travel and tourism sectors, The Trust for Public Land utilized Esri's Business Analyst tool to identify 2,080 businesses in this industry. These businesses support 20,400 jobs and generate \$1.83 billion in sales.

Country Aire Natural Foods Market: economic expansion funded in part by conservation easement

By North Olympic Land Trust

For many North Olympic Peninsula community members, Country Aire Natural Foods Market is a staple of the local economy. Longtime peninsula residents remember navigating the narrow, crowded aisles of the original store, with groceries and household products overflowing on every available surface. Country Aire's move to its spacious new location in the spring of 2012 resulted in enormous upgrades to the quality and quantity of service that the store is able to provide to locals and visitors alike. The expansion of the store, funded in part by the sale of a conservation easement to North Olympic Land Trust, filled a large vacant building in the heart of downtown Port Angeles and created 50 new jobs. It has become nearly impossible to imagine Port Angeles without this thriving cornerstone business comfortably situated on the southwest corner of First and Oak Streets.



LAWRENCE G. MILLER, FLICKR.COM

Country Aire owner Robyn Miletich grew up on her family's berry farm, just east of Port Angeles. Her parents purchased their 21-acre property in 1955. In 1975, when Robyn was just 24 years old, she followed her dream to open a natural foods store in Port Angeles with her husband, John Miletich. As the business grew over the next 36 years, it became clear that community demand was strong but that the building's small footprint was a limiting factor. In 2011, Robyn and John purchased a large vacant building in Port Angeles, just a few blocks west of their original store. Formerly a department store, the new building was purchased at a cost of \$650,000

and renovated over the following year. When Country Aire opened in this new location in spring of 2012, customers were treated to a beautifully transformed space that effortlessly preserves the comfortable, homey feel of a downtown market.

This bold step forward was made possible in part by well-timed funds obtained when the Miletichs sold a conservation easement to North Olympic Land Trust in spring of 2011. The Land Trust, in turn, was able to buy the conservation easement using funding from the Washington State Recreation and Conservation Office (RCO). Under the legal agreement, Robyn and John continue to own the family farm and can sell or pass it along as desired. However, the sale of the easement ensures that the 21 acres will be protected from development in perpetuity, conserving 1,500 feet of critical salmon habitat along Siebert Creek. In combination with several other conserved properties along the creek, the Miletich easement completes the protection of the lower two miles of creek. Siebert Creek is currently home to healthy populations of winter steelhead trout and coho salmon and is said to have historically supported chum salmon and several other species of trout, including cutthroat, rainbow, and Dolly Varden.

When the Miletichs sold the conservation easement and invested the resulting funds into upgrading Country Aire, gains were made for the entire community. Country Aire shoppers can now choose from a huge selection of fresh local and regional produce and other products, as well as bulk foods and environmentally friendly household necessities. In 2013, Country Aire was recognized as a "Business of the Year" at Washington Main Street's "Excellence on Main" award ceremonies. Meanwhile, the natural environment over at Siebert Creek is permanently protected from development and able to provide nourishing habitat for fish and other wildlife.

Generating travel and tourism

FROM OLYMPIC NATIONAL PARK TO PORT ANGELES, CLALLAM BAY, CHIMACUM VALLEY, PORT TOWNSEND, SEQUIM, AND THE DUNGENESS VALLEY, THE CONSERVED LANDS, TRAILS, AND PARKS ON THE NORTH OLYMPIC PENINSULA ATTRACT TOURISTS WHO ENJOY THE SCENERY, SENSE OF PEACE, AND RECREATIONAL OPPORTUNITIES THAT THESE PLACES PROVIDE. Travelers who visit these resources spend money on food, travel, and lodging during their stay, bringing new dollars and new tax receipts into the community.

The region boasts a large and growing tourism industry. Visitor spending at the state level grew by 5.6 percent between 2017 and 2018. Although growth in Kitsap County was slightly less than statewide (5.2 percent), Clallam and Jefferson County tourism growth outpaced the state, increasing 7.5 percent and 8.4 percent, respectively. Together, this growth translates to \$848 million in visitor spending in the region, which combined with other travel spending supports 10,000 direct jobs and an associated \$250 million in direct labor income as well as \$62.5 million in state and local taxes each year.⁹⁸ This section explores how conserved lands, trails, and parks contribute to this critical sector of the region's economy.



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Conserved lands, trails, and parks attract visitors to the region and ensure the beautiful landscape that visitors seek when exploring the peninsula. Conserved lands, trails, and parks offer recreational opportunities, river and ocean access, and destinations for events and other activities. Outdoor recreation, such as that provided by these lands, is recognized as a driver of the economy. Outdoor recreation seekers are a target audience for the Washington Tourism Alliance, which recognizes the important role that outdoor recreation plays.⁹⁹

Many visitors may come to the North Olympic Peninsula for the primary purpose of accessing the outdoors, such as those who travel to the region specifically to discover Olympic National Park. In addition, outdoor spaces enhance the visitor experience for people already traveling to the region. Outdoor activities can often extend the length of a stay in the region for visitors who have a varied itinerary, such as those who might stay an extra night to experience local farms in Dungeness and Chimacum after visiting Seven Cedars Casino, which was the driver of their visit. Either way, visitors can enjoy these special places and will have several expenditures related to their trip that contribute to the local economy. Beyond parking or entrance fees they pay, they may purchase gas for their vehicle during the trip, eat at local restaurants, buy paddling gear from nearby sporting-goods stores, or hire a guide.

In this analysis, The Trust for Public Land considers the tourism value of conserved lands, trails, and parks to the fullest extent possible. To conservatively estimate the tourism value provided by these lands, The Trust for Public Land collected all the available data that could be used to understand the visits made by travelers to conserved lands, trails, and parks as well as the associated spending these travelers generate. This included isolating the spending of nonlocal users at each type of conserved land, trail, or park and then summing the spending across these resources for an overall tourism value.¹⁰⁰


The Trust for Public Land collected information on visitors to Olympic National Park, the major tourism attraction in the region.¹⁰¹ In 2018, the most recent year for which data were available, the park received 3.10 million visits, which generated \$269 million in visitor spending (2020\$). Of this spending, \$265 million, or 98.4 percent, was from nonlocal visitors. This visitor spending supported 2,970 jobs with \$131 million in associated labor income (Table 18 )¹⁰²

TABLE 18. NONLOCAL SPENDING BY VISITORS TO OLYMPIC NATIONAL PARK, 2018 (2020\$)		
Parkland	Total annual expenditures	Total jobs
Olympic National Park	\$265,000,000	2,970

State parks on the North Olympic Peninsula also contribute to the tourism economy. For example, visitors are attracted to Fort Worden Historical State Park, a former army fort that features more than two miles of beachfront and high bluffs with spectacular views, as well as camping, dormitories, and vacation homes.¹⁰³ To account for the value of state parks in the region, The Trust for Public Land gathered information on state park visitors. Overall across the state, one study found that visitors spent \$802 million on their state park-related trips. This included local, nonlocal, day, and overnight visitors; however, the study was primarily concerned with nonlocal visitors, who account for 32.8 percent of visits and 47.4 percent of visitor expenditures. On the North Olympic Peninsula, state park visitor expenditures amount to \$86.0 million annually.¹⁰⁴ Assuming this breakout of local versus nonlocal visitor expenditures is consistent at the county level as well, The Trust for Public Land estimated the total state park expenditures within the region, resulting in an estimated \$40.7 million in visitor spending at state parks in Clallam, Jefferson, and Kitsap Counties (Table 19). This spending supported 337 jobs and generated \$2.13 million in state and local taxes.

TABLE 19. NONLOCAL SPENDING BY VISITORS TO STATE PARKS ON THE NORTH OLYMPIC PENINSULA, 2015 (2020\$)

County	Total annual expenditures	Jobs	State and local tax revenue
Clallam	\$2,530,000	20	\$128,000
Jefferson	\$29,800,000	244	\$1,570,000
Kitsap	\$8,370,000	73	\$434,000
Total	\$40,700,000	337	\$2,130,000

In addition to national and state parks, local parks are part of the tapestry of resources that make the outdoors accessible to tourists. The Trust for Public Land compiled data on local parks, including county parks, city parks, parks managed by special districts, and municipal golf courses. In the three-county region, visitors to local parks spend \$80.3 million annually. Information was not available to isolate the proportion of local versus nonlocal visitors to these amenities; however, based on its work across the country, The Trust for Public Land knows that federal, state, and regional parks are the most likely to draw significant tourist visits and that local amenities are more often designed to meet the recreational needs of local residents. Existing data highlight the importance of local parks for the citizens of Washington. Residents spend an average of 56 days per year recreating outside, with 27 visits per year to local parks, making them the most visited land type for outdoor recreation.¹⁰⁵ Thus, spending by visitors to local parks was not included in this assessment of tourism value.

Tribal conserved lands also play an important role in making the region a desirable destination that tourists will visit. There have been studies about the vast economic impact of tribal governments in Washington, such as a recent study that found that at least 55,700 jobs in Washington are traceable to the economic activity of tribal governments and that tribes are diversifying into golf courses, hotels, convenience stores, conference centers, entertainment venues, and other businesses.¹⁰⁶ This study did not highlight the specific role of their conserved lands for tourism, or provide a breakout of activity by region or county that could be included in this analysis.

In addition, land trusts and other nongovernmental organizations conserve tracts of land that preserve the natural beauty of the peninsula and encourage nature-based recreation. This conservation work makes that area a desirable destination for visitors who make a trip or extend their visit to recreate outdoors, visit a farm, or simply enjoy the landscape's beauty. Lyre Conservation Area, a 280-acre property owned by North Olympic Land Trust that is located 20 miles west of Port Angeles, features a half mile of shoreline along the Strait of Juan de Fuca. This makes Lyre an ideal spot for bird and wildlife viewing, picnicking, beach walking, and surfing, which attract visitors. Finnriver Farm & Cidery (featured on page 26) and the Dungeness





Valley Creamery are two farms that have been protected by Jefferson Land Trust and North Olympic Land Trust, respectively. In addition to producing food for the community, these farm businesses have developed into amenities that visitors enjoy. Data do not exist to isolate the direct contribution (i.e., direct spending) made by nonlocal tourists who visit these iconic lands. As a result, this spending is not included in this report's estimate of tourism value.

In addition to the conserved lands, trails, and parks in the region, there are other outdoor spaces that attract visitors. These areas are frequently related to or supported by conserved lands, trails, and parks in the region. For example, the Coho Ferry brings visitors to the region from Victoria, Canada. In 2018, the ferry company reported 475,000 passengers who annually spend \$15 million on shopping, \$10.9 million on accommodations, \$10.4 million on food and beverages, and \$5.5 million on non-Coho transportation. Many outdoor spaces draw these visitors, who participate in 800 tours of Olympic National Park each year, and another 10,000 visitors who come to the region for the annual Dungeness Crab and Seafood, Lavender, and Juan de Fuca festivals.¹⁰⁷

At the time of this report's writing, none of the lavender farms in the region were protected; however, having opportunities for lavender-related activities certainly boosts the region's reputation as an agritourism destination. Although recent data are unavailable about the economic impact of the Sequim Lavender Festival, a past study indicated that in 2005 the festival had generated an overall \$3.65 million economic impact, \$1.97 million of which was due to visitors and visiting vendors who traveled more than 50 miles to attend the event.¹⁰⁸

Whale watching and surfing are activities that depend on an intact ecosystem that conserved lands, trails, and parks help protect. They also generate economic benefits. Whale watching

in Puget Sound has been found to create economic benefits for the region. Estimates of whale watching show a range of 210,000 to 391,000 participants and expenditures between \$19.3 million and \$74.0 million annually. This spending supports between 297 and 750 jobs with an associated \$13.9 million to \$34.9 million in labor income.¹⁰⁹ In addition, a 2015 study found that surfers in Washington spent \$481 million on recreation expenditures, or an average of \$117 per trip.¹¹⁰

Looking at the direct visitor spending by nonlocal visitors to the region’s conserved lands, trails, and parks, The Trust for Public Land concludes that these lands provide at least \$306 million annually (Table 20). This direct spending supports local businesses and employees.

TABLE 20. ANNUAL TOURISM VALUE PROVIDED BY CONSERVED LANDS, TRAILS, AND PARKS IN CLALLAM, JEFFERSON, AND KITSAP COUNTIES (2020\$)		
Land type	Direct spending by nonlocal visitors	Jobs
Olympic National Park	\$265,000,000	2,970
State parks	\$40,700,000	337
Total	\$306,000,000	3,310

This report’s estimated tourism value is conservative for several reasons:

- Data are not available to measure the direct spending by visitors to local parks, tribal conserved lands, or conserved lands protected by land trusts and other nongovernmental organizations.
- Furthermore, spending by outdoor visitors ripples through the economy, adds value, and supports additional jobs. Businesses serving tourists must purchase labor and supplies from other businesses within the local economy. These businesses, in turn, increase their purchases and employ more individuals who spend their earnings on local goods and services. These impacts, known as indirect and induced impacts, are not included in this report.

Conclusion

ALTHOUGH REAMS OF RESEARCH HAVE BEEN CARRIED OUT ON THE ECONOMICS OF HOUSING, MANUFACTURING, RETAIL, AND EVEN THE ARTS, THERE HAS BEEN UNTIL NOW NO COMPREHENSIVE STUDY ON THE VALUE OF CONSERVED LANDS, TRAILS, AND PARKS ON THE NORTH OLYMPIC PENINSULA.

The Trust for Public Land believes that answering this question—“How much value does the tapestry of conserved land bring to a region?”—can be profoundly helpful and useful. For the first time, these spaces can be assigned the kind of numerical underpinning long associated with transportation, trade, housing, and other sectors. Urban analysts, park planners, economic development professionals, and regional decisionmakers will be able to obtain a major piece of missing information about how the region works and how conserved lands, trails, and parks fit into the equation. Business leaders, policymakers, and other regional constituencies may uncover the solid, numerical motivation to strategically acquire conserved lands, trails, and parks and may be able to find a new ally in conservation advocates.

This study illustrates that conserved lands, trails, and parks are key economic drivers that contribute hundreds of millions of dollars annually in economic benefits. The benefits studied in this report are just a selection of the many varied and robust economic contributions generated by these spaces on the North Olympic Peninsula. The results demonstrate that the tapestry of conserved lands, trails, and parks in the region contributes to the economy in numerous ways with each type of conserved land making a unique and significant contribution.

Local residents value being close to conserved lands, trails, and parks and are willing to pay for that proximity. These resources increase the value of nearby residential properties by \$616 million and property tax revenues by \$6.11 million per year.

Conserved lands, trails, and parks provide natural goods and services. Specifically, by reducing the amount of stormwater, these natural spaces provide a value of \$1.09 million each year. They also filter out pollutants that damage water quality. In addition, by removing air pollutants that cause damage to structures and endanger human health, the trees and shrubs within conserved lands, trails, and parks reduce health care costs and lower pollution control costs by \$25.8 million per year.

Conserved lands, trails, and parks drive the tourism economy. By enabling outdoor experiences, these lands generate \$306 million in direct tourism spending each year.

The region’s conserved lands contribute to the high quality of life, which plays an important role in attracting business and employees and supporting a robust recreation economy. By providing opportunities for recreation, these recreational resources support \$33.1 million



in resident spending on sports, recreation, and exercise equipment annually, or an average of \$214 per household. Along with tourist expenditures, this spending helps support 80 outdoor recreation businesses that generate \$110 million in sales and provide 962 jobs, further demonstrating that parks and trails are significant contributors to the regional economy.

Land conservation also supports the forestry, farming, and commercial fishing industries in the region by helping to maintain the working landscape on which they depend. The forest products industry in the region supports local livelihoods by providing 1,440 direct jobs with an associated \$92.1 million in wages. The trees on conserved lands, trails, and parks also store \$4.23 billion of carbon and sequester \$168 million of carbon annually. Together, the 1,450 farms in Clallam, Jefferson, and Kitsap Counties generate approximately \$29.4 million in agricultural products annually. And finally, conservation lands protect water quality and nursery grounds that are essential to the region's \$5.59 million commercial fishery.

This report is the first time that the significant economic benefits of conserved lands, trails, and parks have been analyzed. The methodology reflects current best practices for economic analysis and finds that these spaces provide extensive economic value, with these investments paying dividends throughout the region.

Appendix

The following individuals participated in the stakeholder group meeting and provided insight and information at the outset of the project.

Karen Affeld, North Olympic Peninsula Resource Conservation & Development Council

Kevin Belanger, Rails-to-Trails Conservancy

Karen Best, The Chamber of Jefferson County

Jeff Bohman, Peninsula Trails Coalition

Greg Brotherton, Board of Jefferson County Commissioners

Navarra Carr, North Olympic Land Trust

Chris Clark, Jefferson Land Trust

Richard Corff, The Trust for Public Land

Kate Dean, Board of Jefferson County Commissioners

Robin Fitch, Jefferson Land Trust

Kate Godman, Jefferson Land Trust

Kellie Henwood, Washington State University Extension

David Morris, North Olympic Land Trust

David Patton, The Trust for Public Land

Ron Puff, North Olympic Land Trust

Clea Rome, Washington State University Extension

Jon Rose, Rayonier

Tom Sanford, North Olympic Land Trust

Sarah Spaeth, Jefferson Land Trust

Richard Tucker, Jefferson Land Trust

Marianne Wesley Fowler, Rails-to-Trails Conservancy

Jack Williams, North Olympic Land Trust

Endnotes

- 1 All numbers in the text and tables are rounded to three significant digits unless otherwise noted. Because of rounding, some report figures and tables may not appear to sum. Unless otherwise noted, the values of the economic benefits estimated in this analysis are reported in 2020 dollars (2020\$), having been adjusted using the most recent consumer price index (CPI) and producer price index (PPI) data available at the time of analysis.
- 2 One tonne, also known as a “metric ton,” is equal to 1,000 kilograms or 2,204.62 pounds.
- 3 The Trust for Public Land used the most recent market value and tax data available. Clallam County market value data are from 2017 and tax amounts are from 2019. Jefferson County market and tax data are from 2018. Kitsap County market and tax data are from 2020. The results have not been adjusted for inflation and represent an underestimate of the current value.
- 4 This map displays the 1.76 million acres of conserved lands, trails, and parks that were included in this report’s GIS-based air pollution, water quality, and stormwater analyses. This lands layer was finalized with the working group in January 2020. The GIS-based property value analysis was conducted using 1.75 million acres of conserved lands, trails, and parks, excluding federal lands in Kitsap County. See the enhanced property value section for more information.
- 5 For the purposes of this research, the North Olympic Peninsula is the region of interest, which refers to Clallam, Jefferson, and Kitsap Counties. For simplification, throughout the report The Trust for Public Land refers to conserved farms and forests as conserved lands.
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