

Ellsworth Creek, Washington

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General Site Description

Ellsworth Creek is a low-elevation coastal watershed (approximately 5,034 acres in size) located in Pacific County, Washington in the Pacific Northwest Coast Ecoregion. The site is strategically located within a larger functional landscape of approximately 81,000 acres at the southern end of Willapa Bay that contains several other significant conservation holdings. The perennial Ellsworth Creek stream system is fed by abundant seeps and springs that are found throughout the watershed and is completely undammed. Elevations within the watershed range from 0 to 1,570 feet and annual rainfall reaches more than 120 inches.

Vegetation within the watershed is dominated by various evergreen coniferous forest associations, and a 349 acre estuarine system is found where Ellsworth Creek meets the Naselle River. Upland vegetation is composed mostly of coniferous forest associations of the Sitka spruce zone. The age classes of forest stands range from 3 years to over 500 years in age within a 324 acre old-growth stand of western hemlock, Sitka spruce, and western redcedar. Old growth western redcedar trees reach sizes greater than 13 feet in diameter at breast height (d.b.h.).

The forests have been largely influenced by natural disturbance and, more recently, timber management. Areas within the old growth stands have regenerated from large scale windthrow events in the early 20th century or have been modified by limited selective harvest. As is the case throughout the Willapa Hills, most of the forested area was logged over the last 40 to 100 years. Less than 0.5% of the forests in southwest Washington remain in an old growth condition.

The surrounding southern Willapa Bay landscape contains other significant conservation projects including two Washington Natural Resource Conservation Areas, the Willapa National Wildlife Refuge, and the Bear River focus watershed (a focus area for U.S. Fish and Wildlife Service restoration). Together with Ellsworth Creek, these sites form a large functional landscape where strategically located conservation lands act in synergy to increase the viability of estuarine, freshwater aquatic, and forested habitats, and associated species such as the salmonids, amphibians, and the marbled murrelet.

Conservation Targets

Conservation targets include the lowland coniferous forests, marbled murrelet, anadromous salmonids, headwater stream amphibians, and estuarine communities.

Today, approximately 324 acres of forest within the Ellsworth Creek watershed could be classified as predominantly natural or old-growth forest. The larger landscape contains approximately 1,200 acres of old growth forest habitat, easily representing the largest complex of old growth forests in southwest Washington. These forests contain huge Sitka spruce and western redcedar trees, large snags and downed logs, and have complex multi-storied canopies. Second growth forests, by contrast, are quite simplistic in structure and composition. The average commercial rotation length is 45-50 years with forest stands being clearcut at this age.

Ellsworth Creek has up to 5,600 chum salmon along a 1.2 mile stream reach during the spawning season. This represents one of the highest spawning densities of chum salmon in the entire Willapa Bay watershed. Less quantitative observations also indicate significant populations of coho salmon (federal candidate), and coastal cutthroat trout (federal proposed threatened).

Many species found within the remaining old-growth forest habitats are of ecological concern. Of primary interest is the high density of breeding marbled murrelets (federally threatened). Initial surveys have detected breeding behavior within all mature and old-growth forest stands in Ellsworth Creek. This breeding population builds on other marbled murrelet habitat found within the nearby Willapa National Wildlife Refuge and Natural Resource Conservation Areas. Preliminary surveys of molluscs, fungi, and lichens have also found many species identified on the Northwest Forest Plan's survey and manage list of species that are rare and closely associated with old-growth forests. Finally, surveys done by the Washington Natural Heritage Program found 12 of 13 possible amphibian species for southwest Washington within the Ellsworth Creek watershed. These include several species of concern, such as the Cope's giant salamander, Columbia torrent salamander, tailed frog, Van Dyke's salamander, and Dunn's salamander. Moreover, many of these regionally endemic species were found in high density within appropriate habitat.

Viability Rankings

Systems(Target) Viability	Size		Condition		Landscape Context		Viability Rank
	Grade	Weight	Grade	Weight	Grade	Weight	
Lowland Coniferous Forest	Very Good	1	Poor	1	Fair	1	Fair
Marbled Murrelet	Fair	1	Good	1	Fair	1	Fair
Headwater Stream Amphibians	Fair	1	Good	1	Poor	1	Fair
Anadromous Fish	Good	1	Good	1	Good	1	Good
Estuarine Communities	Very Good	1	Fair	1	Good	1	Good
Site Biodiversity Health Rank							Fair

Major Threats

Imminent threats to this landscape include further timber harvest, increased sediment delivery to the stream system from forest roads, landslides and debris flows, invasion of tidelands by Spartina, and cattle grazing in estuarine communities.

Impaired stream systems and forest habitat remain as a legacy from past timber management practices. Although the creek remains in relatively good condition, there are areas with large sediment loads, decreased coarse woody debris, riparian areas with lost function, and other signs of past or ongoing disturbance. Forest stands lack genetic, species, or structural diversity as they recover from the last harvest and have been managed as a single cohort with the next harvest scheduled between age 45 and 50 years of age.

Of primary ecological concern is the extensive road network (over 55 miles) developed for timber management purposes. Chronic sedimentation, catastrophic road failure, and the synchronized routing of water to the stream system increase sediment loads and create flashy flood events following heavy rainfall events. As long as these conditions persist, the recovery of the Ellsworth Creek stream system cannot begin. Similarly, the overly simplified forest stand composition and structure hinders the capacity of these forests to provide habitat for the diverse range of obligate species found in mature or old-growth coastal coniferous forests.

Major Stakeholders, Partners, and Socio-Economic Setting

Major partners include the U.S. Fish and Wildlife Service (Refuge system and ecosystems conservation division), Washington State Department of Natural Resources, Department of Fish and Wildlife, and Columbia Pacific Resource Conservation and Development District (employs displaced natural resource

workers). Private stakeholders and partners include the major timberland holders; The Campbell Group, Weyerhauser, Longview Fibre, and Hampton Affiliates. Willapa Bay is also one of the major oyster and cranberry producing areas in the world and those industries form another important group of stakeholders.

Willapa Bay has economically been driven by natural resource extraction through the timber, fishing, oyster, and cranberry industries. Many of those industries are facing significant downsizing as timber and cranberry markets decline and salmon numbers plummet. Today, tourism has become a growing industry in the southwest part of Pacific County.

Primary Conservation and Management Strategies

The Nature Conservancy's initial conservation strategy is to acquire all of the timberland within the Ellsworth Creek watershed to prevent further industrial logging and begin the process of restoration. We hope to develop and implement cutting edge forest and watershed restoration techniques upon ownership of the watershed. These techniques are expected to include road realignment, decommissioning, and rehabilitation, and the thinning of forest stands to promote structural diversity. Pre-commercial and commercial thinning of the forest stands is expected to increase the growth rates of dominant trees, increase the snag and downed log components, and revitalize the forest understory.

The Conservancy also plans to form partnerships with the scientific community including forest ecologists within the public agencies and local universities. These partnerships will be essential for answering many of the questions related to the assumptions we are making regarding restoration success. We also will promote research that helps guide specific restoration prescriptions.

Outside of the watershed, we intend to strengthen partnerships and begin open communication with public and private stakeholders. Other managers of conservation areas in Willapa Bay are facing similar restoration questions and there is ample opportunity to learn together. The Conservancy is also planning to explore future options for strategically increasing the conservation value of nearby industrial timberlands. Options may include conservation easements or other strategies for conducting sustainable timber management while limiting the ecological impact from roads, narrow streamside buffers, and simplistic forest structures. We are also developing alternative funding strategies for fee acquisition of timberland or conservation easements. These include carbon mitigation credits, habitat conservation plan mitigation funds, and jobs in the woods funding for restoration using displaced natural resource workers.

Management Activities To-Date

Our efforts have currently focused on the acquisition of timberland within Ellsworth Creek. We are also beginning intensive surveys of the road systems and forests to identify immediate threats and plan our future restoration actions.

Monitoring

As the project gets further underway the Conservancy will develop extensive monitoring systems. Monitoring is expected to include permanent forest plots (required for carbon monitoring), stream and rainfall gauging, and some way to track the current distribution and future dispersal of conservation targets as restoration progresses. A foundation has even indicated interest in using Ellsworth Creek as a model watershed for establishing baseline conditions and tracking ecological changes as the watershed is restored.