

Plant Stories from the Elwha

People have been telling stories for time immemorial about the plants that we share this world with. What stories do you tell about the plants you know?

Little Mouse and the Douglas Fir Cone

Once there was a huge forest fire burning through the forest. Little mouse got scared and decided to ask the big trees to help him escape the fire. Bigleaf Maple and Western Red Cedar both said, "We are sorry Little Mouse, but we do not think that we will be able to survive this fire ourselves." Finally, Little mouse found Douglas Fir, who said, "Little mouse, I think my strong bark will let me survive the fire. Climb up my branches and crawl under the scales of my cones and you will be protected."

Little mouse thanked the great tree and burrowed his body under the scale of Douglas Fir's cone, with just his small tail peeking out. To this day, you can tell which trees are Douglas firs by looking for small mouse tails on the scales of the cones.



The Humbled Hemlock

Long ago, when all of the cone bearing tree species were asking God for their cones, Western Hemlock greedily demanded the largest ones. God was offended by this lack of humility and said, "For your pride, you will get the smallest cones and must forever hang your head in shame." To this day, you can identify western hemlocks by their drooping posture and small dark brown cones.



Wise Willows

Willows are the source of a natural precursor to aspirin and are "smart." It is said that when herbivores munch on their leaves, the willows can alter the nutritional content of the leaves to deter predation.

New Growth in the Elwha River Valley

The Elwha River Valley is a dynamic and exciting place in its first stages of ecological succession following the removal of the Glines Canyon Dam and the exposure of approximately 424 acres of new terrain. Plants are the basic fabric of the ecosystem and determine what kinds of life can inhabit a given landscape. Learn about some of the plants that are contributing to the continued restoration of the Elwha River Valley!

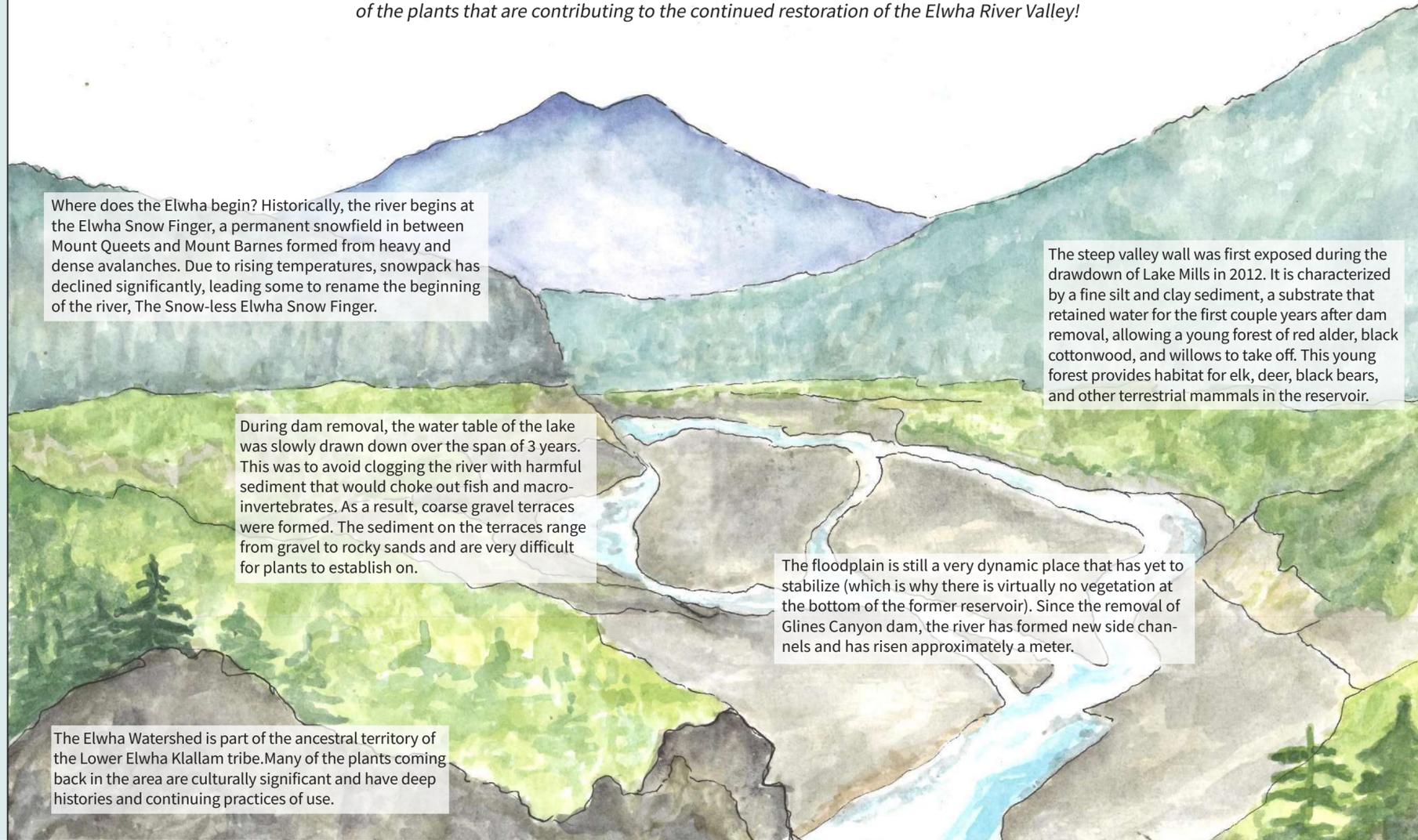
Where does the Elwha begin? Historically, the river begins at the Elwha Snow Finger, a permanent snowfield in between Mount Queets and Mount Barnes formed from heavy and dense avalanches. Due to rising temperatures, snowpack has declined significantly, leading some to rename the beginning of the river, The Snow-less Elwha Snow Finger.

During dam removal, the water table of the lake was slowly drawn down over the span of 3 years. This was to avoid clogging the river with harmful sediment that would choke out fish and macro-invertebrates. As a result, coarse gravel terraces were formed. The sediment on the terraces from gravel to rocky sands and are very difficult for plants to establish on.

The floodplain is still a very dynamic place that has yet to stabilize (which is why there is virtually no vegetation at the bottom of the former reservoir). Since the removal of Glines Canyon dam, the river has formed new side channels and has risen approximately a meter.

The steep valley wall was first exposed during the drawdown of Lake Mills in 2012. It is characterized by a fine silt and clay sediment, a substrate that retained water for the first couple years after dam removal, allowing a young forest of red alder, black cottonwood, and willows to take off. This young forest provides habitat for elk, deer, black bears, and other terrestrial mammals in the reservoir.

The Elwha Watershed is part of the ancestral territory of the Lower Elwha Klallam tribe. Many of the plants coming back in the area are culturally significant and have deep histories and continuing practices of use.



Foraging the Edible Wonders

Many of the plants involved in revegetation project are edible and can be found all over the Pacific Northwest. Olympic National Park permits up to 1 quart per person per day, but be sure to leave enough for important seed dispersers like birds and small mammals.



Salmonberry has pinkish-orange berries that are zesty and zingy. Some say that salmonberry got its name because the berries are the same color as salmon eggs. The prickly bark and sharply-toothed leaves can be made into a tea to treat diarrhea.

Thimbleberry has berries that look like raspberries and are soft, juicy, and ripe when red. They're so soft that they will literally melt in your mouth. The leaves are large, fuzzy, and look like maple leaves and the stems don't have thorns.



Look down to spot trailing blackberry (also known as Devil's shoelace). Little black berries follow this trailing ground vine. Each leaf has three leaflets and the stems have curved prickles.

Don't be too intimidated by the curved and flattened prickles on blackcap raspberry stems. These raspberries are delicious and ripe when they are a dusty, dark-purple hue. The leaves are a similar shape to the trailing blackberry, but you can tell them apart because the raspberry is upright, with thicker, whiter stems and bigger thorns.

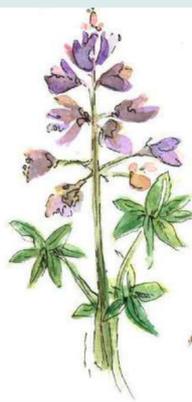


Riverbank Lupine: Thriving on the Moonscape

When the Glines Canyon Dam was built and Lake Mills was created, riverbank lupine no longer had an appropriate riparian habitat and became locally extinct in the Elwha Valley. After Lake Mills was drained, the Elwha Revegetation team sowed riverbank lupine seeds (collected from the Dungeness River) on the gravelly terraces. Little did they know that it would be the most important thing they could do for facilitating restoration of the riparian ecosystem.

Riverbank lupine is a short-lived species that forms a symbiotic relationship with nitrogen fixing bacteria, which allows them to convert atmospheric nitrogen into biologically usable forms in the soil. The lupine out on the terraces are helping to accelerate soil development and are paving the way for other species to grow.

The lupine growth on the terraces has provided new habitat for birds like the white-crowned sparrow and nighthawk as well as for small mammals like deer mice. The white crowned sparrow have been building nests in the lupine and small mammals are facilitating seed dispersal.



The New Forests of the Valley Wall

Most of the young valley wall forest is composed of red alder, an early successional species that lives up to 100 years and can contribute 320 kg/ha of nitrogen per year to soil. Red alder is a hardy species that thrives in poor soil conditions and accelerates soil development through its contributions of nitrogen-rich leaf litter.

You may not recognize some of the Douglas fir, western hemlock, and western red cedar trees growing on the valley wall, because most are still less than a meter tall! As the forest shifts to one dominated by conifers, these baby trees will grow tall and more closely resemble the characteristic old growth forests of the Olympic peninsula.



Because the river valley was converted into a freshwater lake when the dam was built, there are some wetland species growing in the young forests on the valley wall, such as horsetail grass, sedges, black cottonwood, and willows.



Humans in the Landscape

Ecological succession usually works on a very slow timescale, but the revegetation of the Elwha River Valley has been facilitated by the hard work of human allies. Restoration work has been guided by the goal of restoring culturally and ecologically valuable salmon runs, focusing on controlling erosion and facilitating the return of forests to the area.



Dedicated volunteers and staff have helped to propagate 322,049 native plants and sow over 6,360 pounds of seed for the revegetation of the Mills Reservoir.



Before dam removal, tribal and park invasive plant crews worked to remove noxious weeds around Lake Mills to minimize their seed dispersal as part of the ongoing effort to encourage native plant regeneration. Since 2012, the ONP Elwha Revegetation Project has monitored how plant communities are establishing post-dam removal with scientific surveys.

Plants are a vital component of healthy salmon habitat because they reduce erosion of sediment into the river, offer shade that stabilizes temperatures, and provide habitat for other species in the watershed. In turn, salmon spawns bring marine nutrients back into the forest.



This poster was created and illustrated by Lydia Petroske and Olivia Won in the summer of 2017 as part of the Doris Duke Conservation Scholars Program at UW.