

9: Do you notice any differences in this area compared to the old growth area you just left? This is the second growth forest. Second growth forests are forests that were once cut, burned, or lost for various reasons. Hans C. Berthusen cleared this area in the late 1800s and early 1900s. Can you guess the age of some of the trees in this area? Some are about 80 years old. It will take many more years for this forest to reach a mature age, as it takes centuries to restore itself back to its previous state. Older trees in the old growth forest may be as old as 300 years. Take notice of the lack of understory and midstory in this area.

10: In 2001, an unusual northwest wind blew in and knocked down about 75-100 small trees. The trees along the edge of the forest act as a barrier or buffer for the rest of their neighbors. Removal of trees, either by forces of nature or by humans, causes the interior of the forest to be more susceptible to windthrow. Windthrow is the blowdown of trees due to the forces of the wind. Trees along the border of a forest often create strong root systems that help support them against the forces of wind. Some trees within the forest may not have roots as strong. This is why trees in the interior of the forest need a barrier against the wind. Trees work together to reduce the forces of the wind.

11: Plant diversity takes a long time to develop. Once a forest is cleared or destroyed, it must start all over. Species diversity is often high in the beginning, because there is plenty of sunlight and nutrients for a variety of plants to grow. Once plants, such as trees, start to grow taller, they minimize the amount of light reaching the forest floor. Plants that are shade-intolerant often do not survive. As well, plants compete for nutrients in the soil, and some are better competitors than others. This is why species diversity decreases. After more time has passed and trees begin to die and fall down, the upper canopy opens up allowing more sunlight to reach plants growing close to the forest floor.

At this time, species diversity will be at its highest, and the cycle of trees dying and new plants moving in continues.

12: Do you see the old stump out of which a tree is now growing? The stump, which has almost completely decomposed, has burn marks. Can you think of a reason why this might be? Back in the old days, cutting down trees and burning them helped clear the land faster. Trees take many years to decompose completely, and when settlers came into this region, the forests were thick and often all the wood was not needed. So, burning often occurred. The tree stump has now become a nurse log. It supplied lots of nutrients that helped the new tree grow to its current large size. Notice the stump on the other side of the trail up ahead. What plants are growing on it?

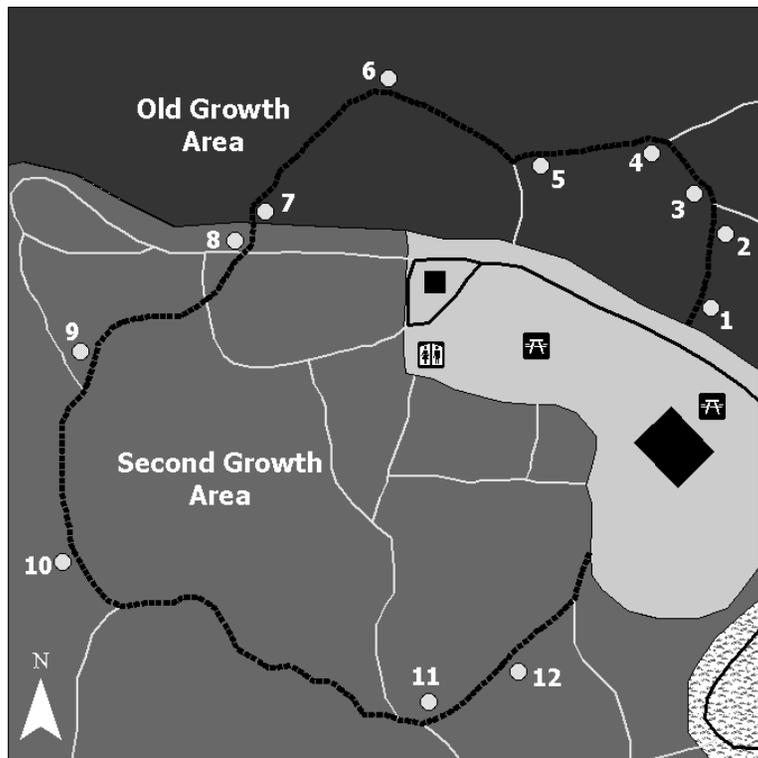
Hans Berthusen purchased this land, which is now the park, in 1883. The old growth forest was the only area he did not cut. He wanted it to be a reminder of what the land was like before settlers came. He was a dairy farmer and also cultivated the land, growing hay and grains. The barn that still stands on the property was once the largest barn in the area. Hans Berthusen left his land to the City of Lynden in 1944 as a memorial park. The old growth forest is unique, because all other old growth forests in lower Whatcom County have now been cleared for lumber and development. The Berthusen Advisory Committee, which consists of members from the Lynden community, takes an active part in maintaining the forest habitats.

*Berthusen Advisory Committee: Marlin Hendricks (chair), Paul DeBeeld, Terry DeValois, Bill Jennings, Harlan Kredit, Karen Steensma and Alyce Werkema.
Lynden City Parks staff members: Vern Meenderinck, Nancy Norris.*

Hans C. and Lida H. Berthusen Memorial Park Interpretive Trail



Julie Bartlett
Environmental Studies
Trinity Western University



Data Source: Lynden Parks Department. "Hans C. and Lida H. Berthusen Memorial Park." [map] Scale unknown. (Trail Map.mxd) Lynden, Washington. Using ArcView 9.0. Redlands, CA: Environmental Systems Research Institute, Inc., 1999-2002

1: To the left you can see a Western red cedar. This tree, as well as the Douglas fir to your right, is a dominant tree species in this forest. The Western red cedar can grow over 200 feet tall, and its trunk gets wider at the base. The bark is gray to reddish-brown and comes off in long, stringy strips. Its needles look like overlapping scales. The Douglas fir has deeply grooved bark and flat, pointed needles. It can grow over 250 feet tall and have a diameter of 8 feet. Both of these tree species like moist soil, so they are well suited for this region. Other common plants that can be seen in this forest include salmonberry, vine maple, vanilla-leaf, and sword fern.

2: Taking a look around the forest floor, you can see many sword ferns. Sword ferns get

their name from the shape of their fronds. Their fronds can get as long as 6 feet. They are commonly seen in moist, shaded areas, under the cover of large firs and cedars. Another plant that is common in this area is the vine maple. The vine maple is a shrub or small tree that belongs to the same family as the big leaf maple tree. The leaves of a vine maple are very similar in appearance to the big leaf maple leaves, but they are smaller in size. This plant can reach a height of 40 feet.

Notice the abundance of plants in this forest. Forests are divided into three main sections: upper canopy, midstory, and understory. Within the old growth forest, all of these sections are well developed. It creates a denser habitat in which animals can live and hide. How far can you see through the forest?

3: Can you see the ferns growing on the trees? These are called licorice ferns and they can be seen growing on big leaf maples throughout the forest. Licorice ferns get their name from the taste of their rhizome (like a root, but actually an underground stem). They grow on moss-covered trees, rocks, and logs. Big leaf maples are often covered in mosses and lichens; sometimes their bark is not visible due to the abundance of mosses. The moss can build up thick layers, creating a layer of soil from which tree roots can sprout.

4: This root mass is one of many that can be seen as you walk along the trails. Large trees that die and begin to decay may fall down taking their roots with them. Notice the lichens and mosses growing on the roots.

Other plants seen growing near the base of the tree include vine maples and ferns. As trees decay, they put nutrients back into the soil. This provides a rich source of nutrients for other plants to use.

5: Look up and down to see some fallen trees. Some trees fall due to wind and often cause others to be knocked down as well. You can also see some trees leaning on one another. When trees fall down, it opens up the upper canopy. This allows more sunlight to reach the forest floor, which helps plants that cannot live in the shade to grow.

6: Straight ahead in the upper canopy there are visible snags. Snags are any dead or dying trees that are left standing. They provide shelter for birds and small mammals. Many snags have natural cavities, but birds, like the woodpecker, carve some out. Many birds, amphibians, reptiles, and mammals use snags as shelter and for nests. Without these important trees, many animal species would not survive. Therefore, snags play a crucial role in maintaining biodiversity. How many snags do you see? Can you see any animals poking their heads out? As you continue to walk along the trail, you will see many more snags.

7: You are now leaving the old growth forest. Straight ahead you can see a fallen tree, which acts as food for new plants. This tree is called a nurse log. Trees take their nutrients from the soil, and when a tree dies, it returns the nutrients back to the soil. This provides a very fertile place for plants to grow. Not only do plants grow around decomposing trees, but also on top. Without leaving the trail, how many different plants can you see growing on the tree?

8: This area used to have campsites. The soil in the area has been greatly compacted,