# **Example Forest Health Sections (Resource Category 1)**

# Forest Health Example 1

#### A. Current resource conditions, issues, needs, and opportunities

#### **Insects and Diseases**

No major forest health problems associated with insects or diseases were observed. One western redcedar showed signs of infestation by carpenter ants. A few Douglas-fir in stand 2 had white streaks of resin, but these appear to be normal and not associated with beetle infestation. No conks were observed on any trees. Trees that were uprooted by the November 2015 windstorm showed no signs of root rot.

#### Fire

There is no fire damage to any stand. The most probable cause of wildfire would be lightning or outdoor burning that escapes control. Neither is likely, though more possible during extremely dry periods such as the summer of 2015. Fire protection is provided by Fire Station 33, located approximately one mile away. Entry for fire control efforts is limited to the single access road on the east side of the property. There is no hydrant system; as such, water for extended fire control efforts must be trucked in or replenished off site.

## **Environmental Factors**

The property is up---sloping, west---facing, and at the top of a ridge line approximately one mile from the shores of Puget Sound. As such, the trees are subject to considerable winds and occasionally sustain damage. There are a number of mature trees with forked tops and sucker limbs throughout the property. This may be a result of high winds or a rapid onset of freezing conditions approximately 25 years ago.

#### **Animal Damage Potential**

There is noticeable damage to the bark of young Douglas---fir and red alder trees caused by blacktail deer. Several dead trees exhibit complete girdling of the bark.

#### **Invasive Species**

The most predominant and concerning invasive species is English holly, which is scattered throughout the property; immediate action will be taken to eliminate these trees and prevent regrowth. Himalayan blackberry is also widespread and will require time and persistency to eradicate. In addition, the recent clearing of a home site may lead to the germination of noxious weeds in stand 6; this area will be closely monitored and appropriate steps taken to control growth of undesired flora.

## B. Management practices to protect, enhance, or restore these resources

By 2017 we will build a trail that will allow us to enjoy walks through our property and observe the health of the forest. In the interim we will continue to monitor the stands to determine the measures needed to meet our objectives.

Our top priority is the removal of holly trees and monitoring attempts by this invasive species to reestablish itself. In the spring and fall we will cut the holly trees below the soil line, paint the stumps

with an appropriate herbicide, cover the stumps with plastic sheeting, and fill the holes with dirt. Spots where holly trees were removed will be marked to facilitate finding and removing shoots that may come up from the extensive root system. The removal of Himalayan blackberry will be an ongoing effort of physical eradication, both above and below ground. To the maximum extent possible we will avoid broadcast application of herbicides; as with the holly, we will treat freshly cut stumps with an appropriate herbicide and monitor the area for regrowth.

We will thin the Douglas-fir in stand 2 to enhance the health of the trees and encourage growth in the understory. We will also thin red alder in stands 1 and 3 and diversify the tree population in these stands by planting bigleaf maple, black cottonwood, western paper birch, madrona, and bitter cherry.

## Forest Health Example 2

Within all stands, the understory is almost entirely common, native species: ferns, mosses, Salmon Berry, Huckleberry, native Bleeding Heart, and Trillium. In areas with more light, the Salmon Berry in particular has dominated. Along the road, some invasive species are trying to establish themselves, primarily Blackberry (Evergreen and Himalayan). Otherwise, the only invasive noted within the forest has been some small Holly seedlings (easily removed when they are found).

There is some evidence of stress, in the form of white sap on some of the trees. At least one conk has been found at the root of a tree within stand #1. Other than that, the trees are in good health, considering how densely spaced they are. No apparent insect infestations or animal damage has been noted. In all areas, as a result of recent wind storms, there has been some wind-throw. Stand #2 has been particularly affected, with much of the Red Alder on the ground now.

Recommendations: The most urgent need is to thin stand #1. Increasing the space between the trees will allow the crown ratio of each remaining tree to slowly recover over time to a healthier level, provide for reduced chances of any root rot present to spread, and will alleviate general stress on the trees that may be hindering their ability to deal with other specific stresses.

Brush control along the road will be important to provide for fire prevention, as well as to remove the invasive species present there. Elsewhere on the property, an activity that may prove helpful is to chip or grind fallen trees and debris left from logging operations, or to at least break up the debris so that it is lying flat on the ground, to aid in decomposition. Some of the larger woody debris should be retained to provide habitat for wildlife, as well as sites for mushrooms and other fungi to grow.

The thinning, as well as encouraging decomposition of woody debris, should significantly reduce the fire danger within the property. The decomposition will help reduce the fuel available for fire, and reduce ladder fuels as well, while the thinning will help by leaving the trees farther apart and generally providing for their health, which will improve their resistance to fire. Best management practices outlined in the attached 'Be Firewise' brochure will be followed.

Thinning more heavily, and then replacing some of the removed trees with trees of different species will improve the health of the forest, especially if species are chosen that are either generally disease-resistant, or at least share few common threats with the existing Douglas Firs.

# **Forest Health Example 3**

#### **Inventory and Evaluation**

Generally speaking, before the Big Fire, the land had a healthy forest, given its position towards the lower range of Ponderosa Pine elevations. There is some overstocking in stand 1, which will lead to increased susceptibility to insects, diseases and did in fact lead to greater fire damage.

As a result of the recent fire, perhaps 25% of the trees more than 8" dbh have been killed; relatively few from crown fire, more as a result of greater than 75% of crown being scorched by high intensity fire. The assessment of these numbers is not scientific; proper samples have not yet been taken. Mortality amongst the seedlings is estimated around 75% and of the saplings, around 50%. Spring of 2001 is an appropriate time for an initial assessment.

No significant problems had been seen associated with either insects or diseases, with the exception of a certain number of trees in stand 2 (around 0.5 acres) affected by dwarf-mistletoe. As a result of the fire, bark-beetles will certainly kill a certain number of the crown-damaged trees, but this will not become apparent until perhaps the summer of 2002.

There is some wind throw in areas high-graded due to the loss of protective tree canopies, generally from winter storms coming from the North; however, most of the property is protected from the worst of these winds by the local topography.

Noxious weeds, in the form of Knapweed and common Hound's Tongue have made some inroads on the skid tracks associated with logging in stand 1. We have eliminated the small amount of Knapweed found on the access jeep track, and made inroads in the Hounds-tongue by twice yearly hand-pulling these before the seeding stage, in April and July. We believe this will keep the problem under control, particularly with the elimination of cows, which are a major vector for spreading seed, and revitalizing native seeds by re-seeding before weeds have a chance to become established in disturbed areas.

#### **Protection Measures**

Some mechanical damage was done during the high-grade of 1997, but overall the land bears few scars from this. In common with most of Eastern Washington, out land is highly susceptible to wildfires, after decades of artificial suppression. There is some buildup of understory and woody debris, which can turn local brush burns into catastrophic crown fires, as happened in a few areas of dense small diameter trees. This problem might have been addressed by a controlled burn of affected areas. This problem is not as severe as in other areas, because considerable forest fuel was consumed in the XXX fire of 1976. A local fire truck from County FD-12 is located adjacent to the property, and the local fire crew chief lives just to the west of the property.

The general level of health of the trees will continue to be monitored on a quarterly basis, and professional help sought should any significant problems arise.

There is some animal damage potential, largely confined to cattle and horses, which have free range. It is addressed in the section on wildlife. Black bear and Deer also have the potential to damage seedlings and young trees. The section on wetlands and timber products discusses protection strategies.