NORTHWEST NATURAL RESOURCE GROUP

FOREST HEALTH ASSESSMENT

This form guides the reader through a basic assessment of the overall health and condition of their forest. It can be used to evaluate an entire forest, or a specific section of forest. Observations do not need to be precise – they are meant to provide an overall picture of the health of the forest.

This assessment can act as a basis for discussion with a professional forester, who can make management recommendations for your forest based on your assessment and goals.

Scoring: each attribute in this form is assigned a value. Lower values indicate a better health score. If a set of forest attributes are considered neutral in relation to each other, they are all scored 0. Once the assessment is complete, add up the values and compare them to the health scoring system at the end of this document.

Age

Approximately what age is the typical stand in your forest?

Younger forests tend to be more simplified in their species and stocking than older forests. Forests with multiple cohorts, or ages of trees, are more commonly older forests, or forests that have more open and porous canopies.

- ▢ Young (0)
- ▢ Mid-aged (0)
- ▢ Older (0)
- ▢ Mixed-age (0)

Tree Species

Is the forest dominated by hardwoods, or conifers - or a mix of species of both types of trees, and in what proportion to one another?

- ▢ Mostly hardwoods (3)
- ▢ Mostly conifers (3)
- ▢ Mix of species:
  - >20% hardwoods (3)
  - <20% hardwoods (0)

Canopy composition

The crown of a tree is the upper portion of the tree that is composed of leaves or needles. Are the tree crowns crowding each other, or do they each receive full sun?

- ▢ Crowns tend to be well-spaced (1)
- ▢ Crowns are crowding each other (3)

Do some trees have very compressed, or minimal crowns, and appear to be struggling in the understory of the canopy beneath more dominant trees?

- ▢ Many trees with suppressed crowns (5)
- ▢ Some trees with suppressed crowns (2)
- ▢ No trees with suppressed crowns (0)

Distribution/Density

How dense is the forest? Is the forest composed of a lot of small-diameter trees packed together, or is it more open with fewer and/or bigger trees, or a mix of the two? Are there areas with higher densities of trees than others, or even gaps in the canopy with no trees at all?

- ▢ Dense forest (4)
- ▢ Open forest (2)
- ▢ Patchy, irregular density (1)

Understory vegetation

As the trees give clues to the environmental conditions of a site, so does the often high diversity of understory shrubs and groundcovers. How lush and diverse is the understory? A lack of diversity may be indicative of a dense canopy that limits sunlight to the forest floor.

▢ Understory is bare/sparse (5)
▢ Understory is fairly lush and diverse (2)
▢ Understory is very lush and diverse (0)

Timber quality

Often the more crooked or deformed a tree is, the more valuable it is to wildlife. But at the mill, straightness is highly valued. Look for signs of log “defect” within trees, or physical characteristics that may diminish the economic value of the tree. Defects include:

“Spike knot”: where a large branch connects to a tree at a very acute angle, creating a large knot that often penetrates all the way to the center of the tree.

“Dog leg”: A spot where the top broke out, and a side branch took over as the new leader for the tree, causing the base of the branch to twist up in the shape of an upside down dog’s leg.

Forked or broken tops

Curved or “waning” trunks.

with spike knots: _____
with dog legs: _____
with broken tops: _____
with forked tops: _____
with curved trunks: _____

Timber value scoring:
▢ >20% of trees have defect. (4)
▢ <20% of trees have defect. (1)

Wildlife value scoring:
▢ >20% of trees have defect. (0)
▢ <20% of trees have defect. (4)

Wildlife & Habitat

Keep your eyes open for evidence of wildlife within the forest. Do you hear bird calls? How many different bird species can you distinguish by their calls? You may not be able to identify all of the species, but at least you may get a clue as to the abundance of different species of birds, or the abundance of a particular species.

Deer/animal trails _____
Antler rub on trees _____
Animal scat _____
Bird calls _____
Woodpecker holes _____
Wildlife observed _____

▢ 5 or more observations of wildlife: (0)
▢ 2-5 observations of wildlife: (3)
▢ < 2 observations of wildlife: (5)

Mortality (snags & down logs)

Snags (standing dead trees) and downed logs are as architecturally grand as they are critical to the forage and shelter of myriad wildlife. The impact of natural mortality agents (i.e. pests, disease) must be weighed in balance with the objectives for a forest.

Are there snags and down logs visible in the forest? A total absence of dead wood in the forest may indicate insufficient wildlife habitat. Try to count the number of snags and down logs you see walking 80 paces through the forest on a path or road.

▢ <1 snags & down logs (5)
▢ 2-5 snags & down logs (3)
▢ >5 snags & down logs (0)
*If scoring for timber value, reverse the scores above.

Are most snags & down logs a single species, or a mix of species? If mortality appears predominantly across a particular species, perhaps that species is not well-suited for the site.

▢ Mix of species (0)
▢ Most are one species: _____ (3)

Do dead trees occur fairly randomly, or in clumps? Clumps of dead trees may indicate the presence of a pathogenic root fungus in the soil.

▢ Dead trees are randomly spaced (0)
▢ There are clumps of dead trees (4)

Are there small holes or evident sawdust in or around the base of the tree that might indicate the presence of insects in the tree?

▢ Significant evidence of insects (5)
▢ Some evidence of insects (3)
▢ No evidence of insects (0)

Non-native plant species

The cast of non-native plants in the Pacific Northwest includes several aggressive, pioneering species that quickly colonize disturbed sites and outcompete native plants. Others are extremely shade tolerant and will persist and slowly spread throughout the shady understory of the forest, again, gradually outcompeting existing native plants and often leading to a diminishment of plant diversity.

Note any non-native invasive species you spot in your forest.

▢ Himalayan blackberry
▢ Scotch broom
▢ English ivy
▢ English holly
▢ Japanese knotweed
▢ Other _____
▢ Other _____

▢ >5 invasive plant species (5)
▢ 2-5 invasive plant species (3)
▢ <2 invasive plant species (2)
▢ No invasive plant species (0)

Topography

Note overall aspect of the site, in particular if it's on a slope. Both species composition and topography can look quite different between a warmer south-facing slope and the cooler north-facing slope on the other side of the hill.

▢ No determinable aspect (0)
▢ North (0)
▢ South (0)
▢ East (0)
▢ West (0)

Where does the forest occur on the topography? Topography and soil types directly influence moisture availability in the soil, a significant limiting factor in tree growth.

▢ Hilltop or ridge (0)
▢ Midslope (0)
▢ Base of hill (0)
▢ Valley bottom (0)
▢ Flat area, little variance in topography (0)

Soil

Knowing what the soils are on a given site provides the biggest clue as to what tree species will grow the best on that site. You can generate a soil map via the Natural Resource Conservation Service's online Web Soil Survey. However, without a soil map, your next best clue is the vegetation itself.

Some plants are indicative of wet soils, such as salmonberry and thimbleberry. Some plants are indicative of dry soils, such as salal and Oregon grape. Some plants indicate rich and productive soils, such as sword fern.

The understory is dominated by (check all that apply):

- ▢ Salal, Oregon grape, ocean spray (2)
  (indicating well draining & drier soil)
- ▢ Sword fern, salmonberry, thimbleberry (0)
  (indicating richer & wetter soil)

You can also dig a shallow hole, or look at cutbanks along roadsides, to discern how well the soil in a particular area may drain. If you see rocks or sand, assume the soil is well draining and may become droughty as the summer progresses. If instead you see dark soil, the soil may have the capacity to hold water much later into the season, and therefore be more productive to trees and plants.

- ▢ Rocks or sand (5)
- ▢ Peat/bog (4)
- ▢ Clay (3)
- ▢ Silt (2)
- ▢ Loam (0)

Hydrology

Take note of the hydrologic nature of the site. Do you encounter streams, ponds, lakes, or other sources of perennial surface water? Are there wetlands throughout the forest, and do they appear to hold water throughout the year, or go dry during summer months? Do you notice changes to vegetation that may indicate wetter soils in some places, such as red alder or salmonberry in low lying areas, or Douglas-fir and evergreen huckleberry on higher sites?

▢ Streams (0) ▢ Ponds/lakes (0)

What is the condition of the forest adjacent to wet sites (referred to as riparian areas)? Older mixed conifer and hardwood forests tend to provide more protective functions to streams and wetlands than younger forests. If streams and wetlands are very exposed, without the benefit of forest cover, you may begin thinking about how to the restore forest to these sensitive hydrologic sites.

- ▢ Riparian areas are near or in older forest (0)
- ▢ Riparian areas are near or in younger forest (3)
- ▢ Riparian areas are very exposed, with little forest cover nearby (5)

Do forest access roads intersect with either streams or wetlands? If they do, do you notice erosion on the road's surface that may be leading towards surface water? Further, do stream crossings (e.g. culverts) appear to be adequately passing storm water, or are they compromised in some way?

- ▢ Roads cross or are immediately adjacent to surface water (3)
- ▢ There is evidence of erosion leading to surface water (5)
- ▢ Stream crossings appear undersized or otherwise incapable of passing storm water (5)
- ▢ Road surfaces and drainage systems appear in good shape (0)

Scoring

Add up your scores and compare them to the graph below. If you score low on the graph, your forest is likely in good health and very capable of meeting your objectives. If you score towards the middle or higher on the graph, you should consider consulting with a professional forester or agent from a public natural resource agency about your forest.