

The North Slope Criteria

for Forest Restoration -- Version 2

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[NOTE: This is a draft version that is subject to revision.]

Purpose and Need for these Criteria:

Purpose: To restore forests of the Northern Rockies to a condition of ecological resiliency. As far as possible under modern constraints, this should resemble the ecological resiliency they possessed in pre-Settlement times and have since lost.

Need: There does not currently exist, as far as we are aware, a system to “certify” wood that specifically focuses on wood harvested from “restoration” forestry projects.

Existing wood-certification systems such as the FSC (Forest Stewardship Council) and the SFI (Sustainable Forestry Initiative) promote wood harvested from “sustainable” forestry projects. While “sustainable forestry” is a broad term, it typically refers to forests harvested in a commercial manner but forests that, over a long period of time, can provide a steady stream of wood products. This can encompass a wide range of practices, including forest plantations, where forests are logged and replanted with little regard for natural ecological processes.

By contrast, “restoration forestry” takes a forest that has degenerated due to past abuses caused directly or indirectly by humans and works toward restoring it to a condition of ecological resiliency and to natural processes. While it is unrealistic to try to reproduce exactly the forests of “pre-Settlement” times, which in any case were dynamic and ever-changing, restoration forestry treatments resemble as much as possible natural processes and allow natural processes to reoccur. In short, restoration forestry projects aim to leave the forest in better condition than it was before a project began.

There are existing lists of “forest restoration principles” that address these issues in general terms. But we are not aware of any specific criteria that define “forest restoration” for the purpose of lumber certification. In the North Slope/Treadlight Criteria we have attempted to be both as specific as possible, and yet as simple as possible, for exactly what qualifies as a forest restoration site. It is our hope that the wood harvested from these qualifying restoration sites will be considered as a special category under “green building” programs.

Background: Many millions of acres of the Northern Rockies forests currently are severely overcrowded and at great risk of catastrophic, “stand-replacement” fires. This is due both to the fire suppression efforts of government agencies over the past hundred

Bonnie J. Arno 5/8/08 2:50 PM

Comment: This statement seems too simplistic. I'd suggest saying that much of the forest is at greater risk of stand-replacement (or severe) fire than under historical (or pre-1900) conditions. This is a result of the past logging, fire suppression, widespread development of overcrowded stands of small trees, and accumulation of dead material. You could note that Congress's Gov't Accountability Office has issued several reports (available on-line) detailing these conditions.

years and to past management practices such as “high-grade” logging. (Logging where the best and largest trees were cut for timber and the rest left.) Together, these past management practices and fire suppression efforts have resulted in the growth of overcrowded stands of small trees and accumulation of debris.

In the lower-elevation forests of the Northern Rockies, during pre-Settlement times, fires that were sparked by lightning or Native Americans periodically thinned out the forests, leaving open stands of large Ponderosa pine and, in some places, Western larch. But now without regular, low-intensity fires like these, dense stands of small Douglas fir crowd out the pine and larch. In clearcuts and “high-graded” areas, small Douglas fir trees have proliferated because they no longer were thinned by low-intensity fires, and now the overcrowding is especially severe.

In the higher-elevation forests of the Northern Rockies, in centuries past, the large stands of lodgepole pine burned in mosaic patterns as a result of infrequent fires of various intensities. Due to fire suppression over the last century, these forests have become more uniformly old across the landscape, and thus susceptible to mass mortality from bark beetle epidemics. This creates an accumulation of dead fuel that favors larger, more uniformly severe fires. Stands have become very crowded, don’t show the same “mosaic” patterns they once did, and now burn in fires that tend to be significantly larger – burning enormous swaths of the landscape -- and of greater intensity than they were in the past. These roaring, high-intensity forest fires in the Northern Rockies make the national TV news nearly every summer.

In pre-Settlement times in the drier sites of the Northern Rockies, such as east of the Continental Divide and around Yellowstone Park, Douglas fir grew in patchy, open, grassy stands where low-intensity fires came through at intervals of 20 to 40 years and served as a natural thinning agent. Some of these Douglas fir trees grew to four feet in diameter and 500 years old. Since heavy cattle grazing began around 1900, combined with fire suppression, many of these areas where large, openly spaced Douglas fir once flourished have become choked with dense thickets of small Douglas fir trees. These thickets, too, are susceptible to large fires of great heat and intensity.

Where, in the past, fire was a natural agent that thinned and shaped the forests of the Northern Rockies into mosaics of open stands of larger trees interspersed with somewhat denser stands, today’s fires can kill all trees over a wide area and damage soils and watersheds. In other words, the forests today possess far less ecological resiliency.

Criteria to Qualify for a Forest Restoration Site:

Note on Unmanaged Forests and Poorly-Managed Forests: The Forest Restoration criteria listed below apply only to unmanaged forests and poorly-managed forests. These are forests that have never been harvested or that have been formerly clear-cut or “high-graded” and then abandoned. High-grading refers to logging in past decades that focused on removing the valuable trees in the most inexpensive manner and ignored the effects of this on the future forest. Typically, these former clearcuts and high-graded areas are densely overgrown with small, “suppressed-growth” trees.

Criteria:

- 1) **Retention:** Forest restoration work should leave standing a **minimum** of 50% of the dominant trees of the fire-dependent species. (See below under “Methods and Definitions for Criteria 1” for definition of “dominant.”)
- 2) **Soils:** Projects should be undertaken in a manner that minimizes soil and hydrological disturbance, maintains organic matter in the soil, and appropriate large, woody debris. Projects should strive to keep long-term, detrimental soil disturbance below 15% of the project area.
- 3) **Aesthetics:** Thinning patterns should strive to imitate the aesthetics of natural forests and natural fire processes. Clearcutting is acceptable only in forest types where it imitates natural fire regimes, only in minimally-sized areas that fit the contours of the landscape, and leaving behind “legacy” trees or “snags” in the clearcuts. (See below under “Methods and Definitions.”)
- 4) **Wildlife Habitat:** Thinning should leave occasional, strategically-located patches of thick forest for wildlife cover, wildlife bedding areas and thermal cover, especially in known areas of wildlife use or migration. Overall, projects should enhance habitat for native species, both terrestrial and aquatic.
- 5) **Watercourses:** Thinning should follow all applicable Stream Management Zone (SMZ) state laws. Overall, projects should protect and improve watershed health and enhance riparian zones. By carefully controlling and repairing soil disturbance (see Criteria 2), projects should minimize sediment from run-off and erosion that can flow into watercourses.

Methods and Definitions for Criteria 1 (Retention):

This is the single most important factor in meeting the North Slope Criteria for Forest Restoration: At least 50% percent retention of dominant trees of fire-dependent species.

The overall idea is that the restoration thinning imitates fires that occurred naturally in these forests in pre-Settlement times, while acknowledging that, due to permanent human habitation in or near these forests, it is not practical to allow fire to burn as widely as it did then.

“Fire-dependent species” refer to trees native to the Northern Rockies Region that depend on natural fires to help them regenerate. These species vary from area to area, and across a range of elevations. In the middle-elevations and drier areas, inland Douglas fir is the primary fire-dependent species. In moister areas and lower elevations, fire-dependent species include ponderosa pine and Western larch. At higher elevations, lodgepole pine is a fire-dependent species.

“Dominant” refers to those trees that are usually larger than the average and receive full light from above and the sides, often standing above the rest. Traditional targets for logging due to their size and timber value, these trees in particular are also the best genetic stock for regeneration and for retaining a healthy forest.

Thus, to qualify as “restoration forestry” under the North Slope/Treadlight Criteria, a thinning project in a middle-elevation dry forest would typically leave at least 50% of the dominant Douglas fir trees standing. Some projects will leave up to 90% or more. This

restoration thinning opens up the forest, as low-intensity fires did naturally in pre-Settlement times, but leaves the largest, healthiest trees standing, as those fires did.

Methods and Definitions for Criteria 2 (Soils): Impact to soils from harvesting should be reduced when possible by working on dry or frozen ground. Impacts should be further reduced when possible through the use of rubber-tired forwarders to remove logs from the forest instead of the traditional methods of dragging logs with skidders. Road-building should be kept to an absolute minimum. The use of forwarders can help minimize roadbuilding. Line machines that lift the leading ends of the logs should be used on steeper slopes, those above 45% sustained grade. Any disturbed areas of soil from road building should be reseeded with native grass species from local stock or non-aggressive species that will allow native plants to occupy the site over time. Standard weed mitigation practices should be employed during harvesting procedures, including cleaning of machinery to prevent carrying weed seeds between sites.

Methods and Definitions for Criteria 3 (Forest Aesthetics): The pattern of thinning should imitate the thinning work of natural fires. Thus:

- Avoid creating hard, straight-line edges that define the boundary of thinned area.
- Edges should be “feathered” so they blend gradually from thicker forest to thinned forest.
- Adequate tree cover should be left along access roads so the roads are screened from sight when viewed from afar.
- Clearcuts are usually not acceptable in Douglas fir, ponderosa pine, or mixed ponderosa and Western larch forests, as this was not generally a pattern left in these forests by fire before European settlement.
- Small clearcuts are acceptable in lodgepole pine forests, as in pre-Settlement times lodgepole forests burned in “stand replacement” fires (although fires of smaller size and intensity than in modern times). It is encouraged to leave some of the best genetic stock standing in clearcuts for regeneration.
- When using a line machine on a steep slope, avoid cutting “corridors” down the slope for the line. Instead, the slope should be thinned first to leave the dominant trees, and then the line’s route should be chosen among those openings that have occurred due to the thinning.
- Of the trees left standing after thinning, no more than 3 or 4 trees per acre should show scars from machinery or felling impacts from the thinning operation.

Methods and Definitions for Criteria 4 (Wildlife Habitat): Properly undertaken, restoration forestry will maintain existing wildlife habitat. It will help restore former wildlife habitat that has been damaged due to human actions, directly or indirectly.

Methods and Definitions for Criteria 5 (Watercourses): Laws in some states regulate the use of heavy machinery and thinning in riparian zones. Check applicable state laws. It should be noted that fire did occur in riparian zones in pre-Settlement forests, so the North Slope Criteria allow thinning as appropriate in riparian zones.

Special Conditions and Exceptions

Wood from Salvage Logging

Salvage logging is the logging of stands of forest in which there is widespread mortality due to forest fire, disease, or insects such as pine beetles. Salvage logging is not generally considered “forest restoration” under the North Slope Criteria. However, wood from salvage logging sites will be considered for use on a case-by-case basis under the following conditions, at a minimum:

- It amounts to less than 50% of the “restoration wood” being considered for use in a structure or purchased as part of a “restoration wood” inventory.
- If the salvage site where the wood originates is over 10 acres in size, at least 2 or 3 snags per acre must be left standing for wildlife habitat.
- On salvage sites where the majority of trees have been killed, any trees that have a reasonable chance of surviving should be left standing.

Wood from Well-Managed Forests

The criteria above all apply to “unmanaged” forests or “poorly-managed” forests that have been “high-graded.” (High-grading refers to logging in past decades that focused on removing the valuable trees in the most inexpensive manner and ignored the effects of this on the forest that was left behind.) In contrast, “well-managed” forests under these criteria are those that have already been using restoration forestry. They have been thinned over the years, but have consistently left behind a **majority** of the dominant trees. On a case-by-case basis, wood will be considered that comes from **long-term, well-managed forests**, under the following conditions:

- Due to good past management practices, the site includes dense stands of dominant trees.

Documentation for all sites to qualify under the North Slope Criteria for Forest Restoration:

Documentation of a forest restoration site should include:

- a map showing thinned area
- exact GPS location
- photographs of the area before and after restoration
- a brief written description of the forest before thinning, how the thinning was conducted, and the condition of the forest after thinning, including percentage retention of dominant trees of the fire-resistant species.

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