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Comments: TO: Erin Uloth, Mt. Baker District Ranger, Mt. Baker-Snoqualmie National Forest
RE: North Fork Nooksack Vegetation Management Project #58218 Public Scoping Comments
DATE: 7/1/2020
Thank you for the opportunity to provide scoping comments on the proposed North Fork (NF) Nooksack Vegetation Management Project. After working on the Mt. Baker Ranger District between 1984 and 2003, and becoming very familiar with the NF Nooksack River watershed, I fully support the need for thinning second growth in the NF Nooksack watershed. I am also very familiar with the NEPA process and applaud the USFS for undertaking this scoping process. Scoping is a critical first step, to identify the important management opportunities and issues for the proposed project area, which then help determine management alternatives, as part of the environmental assessment process.
The following comments are based on the information that you presented in the June 1, 2020, "North Fork Nooksack Vegetation Management Project - Public Scoping Letter" and the "North Fork Nooksack Vegetation Project Story Map" that you sent out on June 19, 2020.
General Comments:
Many of the forest stands in the NF Nooksack watershed were harvested 30-40 years ago. These stands are very dense, crowded with small trees, lack a multi-layered canopy, and are in desperate need of thinning. Forest management stand treatment methods, especially thinning, are critical for the NF Nooksack River watershed to improve overall forest conditions, facilitate the protection and creation of "Late Successional Reserve" (LSR) forest and old-growth forest ecosystems, improve habitat conditions for wildlife and other ecosystem functions, as well as contribute to the economy via timber harvest.
I agree that there is a need for forest management in the NF Nooksack River watershed that helps restore the landscape to a condition more resilient to major disturbances such as droughts, insect outbreaks and fires, and to provide and protect habitat for native species and species of concern. I also strongly support the need to maintain access to the Mt. Baker-Snoqualmie National Forest for a range of reasons, including public recreation, as well as for other forest management purposes.
Past and present management practices of fire suppression, timber harvesting, and silviculturally motivated replanting, have led to very dense forest in many regions, including the Pacific Northwest (Lundquist et al. 2013). Some management actions, such as strategically introducing canopy gaps to fire-suppressed forests, could not only optimize snow retention, but also increase fire resilience and landscape heterogeneity (Lundquist et al. 2013).
Many of the second growth stands in the NF Nooksack watershed have high stem density, are incapable of intercepting snow and rain drip due to their marginal canopy, and provide little water storage and have quick runoff due to the decreased water retention. Thinning these dense second growth stands in the NF Nooksack watershed, using strategic methods (i.e., canopy gaps), can help increase water storage and retention in these stands and lead to long term watershed benefits.
However, these vegetation management methods need to be done in such a way that maintains, or improves, aquatic habitat and watershed integrity in the NF Nooksack River project area. Thinning should be spread out over a 10-20 year period, to help reduce on the ground impacts, and speed up the water retention recovery. Thinning may also involve cutting trees and leaving them on the forest floor to help minimize ground disturbance impacts. This is especially critical for vegetation management in Canyon Creek, where mass wasting processes have altered the upper slope landscape features and stream channel configuration (USDA FS 1995). A major portion of the Canyon Creek watershed (Figure Appendix 4-1. USDA FS 1995) contains unstable soils (S8), mass wasting areas, and areas that have a high potential for mass wasting. Much of the area identified for commercial thinning, or stand regeneration (Matrix/MA 17), is located within these high risk areas.
Specific Comments:
Stand Thinning Success Example - An excellent local example of successful thinning in the NF Nooksack River

watershed is a unit of the Loretta Timber Sale along the Canyon Creek Road (FSR 31) that was commercially thinned in the 1990's by the USFS. This even-age, closed canopy second growth stand was typical of significant areas within the NF Nooksack River watershed that could be successfully thinned. Many of these stands have significant shading, as well as lack of understory/ground cover growth, and with proper thinning using strategic methods (i.e., creating canopy gaps) can have better light penetration, and result in a more diverse forest with multi-layer canopy and understory growth in the long term.

Scoping Map - Why are there no stand treatments proposed in the second growth (old clear-cut units) stands along the Deadhorse Creek Road (FSR# 37), North Fork Nooksack, Boyd Creek, and west side of Wells Creek? These are prime areas that desperately need thinning to speed up the process of younger forest growing into LSR, or old-growth forest, and are easily accessible from roads in these areas.

Riparian Reserves (RR) - The scoping letter states that "There is a need to improve the forest condition adjacent to bodies of water, known as 'Riparian Reserves.' Prior harvest in these areas has reduced species composition and structural diversity that supports plant, insect, and animal species dependent on these ecosystems." While I concur with the idea that many of these RR's are not in ideal condition due to past management activities, I do not support falling (tipping) existing trees from these RR's directly into streams, in the name of improving stream habitat for fish and other aquatic organisms, without taking proper precautions ahead of time. Great care and consideration need to be taken to determine the potential impacts, and unintended consequences, that these trees will have on stream hydrology, channel morphology, and channel dynamics.

There are two recent examples of the USFS falling trees from RR's into streams that caused unintended channel damage on the Mt. Baker Ranger District, illustrate this danger. Trees (< 20 inches dbh) were cut and fallen into Ruth Creek in the vicinity of the Hannegan Horse Camp near the end of the Hannegan Road (FSR 32). These fallen trees created a log jam that was responsible for an unintended channel shift that caused significant damage to the road and to Ruth Creek. At the Excelsior Group Campground trees (< 20 inches dbh) were cut and fallen into and along the North Fork Nooksack River. The trees were too small and could easily float away during the next high flow.

Road Connection FSR # 3132 to FSR # 3120-035 - The scoping letter proposes to add a new road connection to the east of the Jim Creek Slide area, which is located along the Canyon Creek Road (FSR 31) in order "circumvent the unstable area, so that access in this area is maintained." Unfortunately, S-8 soils (unstable soils) were identified in that area in the 1980's and 1990's and a fault and slide debris is also located there (Roger Nichols personal communication), which may preclude build a new road connection in that area. See key findings from the Canyon Creek Watershed Analysis (USDA FS 1995) discussed below.

Thompson Creek Bridge Replacement - I support replacing the Thompson Creek Bridge (MP 0.95 on FSR 39), located just upstream from Glacier Creek, as the timber piles and planking have reached the end of their service life. In addition, the pilings may also contain creosote, which is very toxic to aquatic organisms.

Thompson Creek is a very important clear water (non-glacial) tributary to Glacier Creek (glacial), and the North Fork Nooksack River in general, that is heavily used by a number of anadromous fish species for spawning and rearing. The new bridge is proposed to have an increased span length because "The existing bridge opening currently constricts the channel with the main flow path up against the timber abutment along the north bank." I urge you to look very closely at the fish passage issues (channel morphology, hydrology, flows, etc.) in the bridge area. Log structures were placed in Thompson Creek (1990-1992) just below and upstream from the bridge to improve fish passage. Replacing the existing bridge, with a wider span, may not necessarily solve the problem, and may actually exacerbate fish passage problems, especially at lower stream flows.

Acres of Treatment Proposed - As proposed, the proposed action could potentially treat up to the following number of acres, by treatment:

Commercial thin within LSR: 1798 acres
Non-commercial thinning: 2054 acres
Stand regeneration, in Matrix: 1881 acres
Total Acres: 5733 acres

I think it is important to clarify that even though much of the area identified for "Stand Regeneration, in Matrix," includes MA 17 Timber Management Emphasis lands, in which clear-cuts are common, that does not mean that

all 1881 acres will be clear-cut in these lands. Also, it is important to point out that existing stands in the Matrix area are 30-50 year old, second growth forest stands, and do not contain old-growth forest, although there may be some old-growth trees in the adjacent Riparian Reserves.

Canyon Creek Watershed Vegetation Management - I am sure that you are aware, that there is a lot of good information and key findings to draw from about the watershed conditions (stand conditions, in Canyon Creek in the "Pilot Watershed Analysis for the Canyon Creek Watershed" (USDA FS 1995). Because most of the public may not be aware of this important watershed analysis for Canyon Creek, I am summarizing key findings below. Canyon Creek is a 19,679 acre fifth-field "Tier 1 Key Watershed," with approximately 87% being national forest and the remaining 13% being in private (11%) and state (2%) ownership. Through a forest-wide hydrologic cumulative effects assessment (USDA FS 1990) the Canyon Creek watershed was identified as being in unacceptable hydrologic conditions in the Mt. Baker-Snoqualmie National Forest Land and Resource Management Plan (USDA FS 1991 & 1995).

Canyon Creek Watershed Analysis Summary & Key findings:
*Canyon Creek is one of five significant tributaries to the NF Nooksack River upstream from Warnick Bridge, and one of the two tributaries that has no glacial runoff influence, and contributes 20-25% of the annual discharge of the NF Nooksack River upstream from Warnick Bridge.
*The Canyon Creek watershed is characterized by steep slopes, multiple active landslides, large areas with a high potential for landslide activity.
*Canyon Creek is characterized by highly unstable landforms (i.e., 2400 acres of inner gorge, 4900 acres of lands with high potential for mass wasting) and has experienced many large flood events and wide fluctuations in erosion and sediment production.
*Canyon Creek has a long history of disturbance from fires, timber harvest, and rain-on-snow related floods that has shaped the physical and biological characteristics of the watershed.
*Mass wasting processes have altered both the upper slope landscape features and stream channel configurations in the Canyon Creek watershed and is expected to continue to be the most significant soil erosion process in Canyon Creek. A mass wasting inventory conducted by the USFS in 1985 (utilizing a series of historical aerial photos), found a total of 100 mass wasting events within the basin, with the majority occurring in the 1970's and 1980's. Six types of mass wasting were identified and a strong correlation was found between mass wasting events, and management activities, and most events occurred within clearcut associated areas, or road cuts and fills.
*The majority of soils within the Canyon Creek watershed are highly susceptible to erosion.
*Past disturbances in the watershed include heavy timber harvesting in the lower elevations, large stand-replacing fires, and major flood events.
*Disturbance in the watershed has increased peak flows and mass erosion, especially during the 1970's and 1980's, causing detrimental changes to stream channels, aquatic habitats, and riparian areas.
*In 1995 (25 years ago), about 8% of the vegetation in the Canyon Creek watershed was younger than 80 years and 83% being over 200 years old.
*Most of Canyon Creek is within the area where rain-on-snow events can occur, i.e., in the Western Cascade Mountains from 1,000 to 3,500 feet in elevation. The effects of large rain-on-snow floods have been extensive.
*During the 1960's, there was a major increase in timber harvest in the watershed and the main road systems was extended to upper Canyon Creek (for a total of ~ 64 miles).
*In 1995, the commercial timber supply from both federal and non-federal lands in Canyon Creek was judged to be severely limited, for at least the next two decades, as ¾ of the watershed was allocated to LSR. In 1995, much of the LSR is either much older than 80 years, or was harvested since 1960, and judged to not yet provide commercially marketable products from thinning.
*The Canyon Creek watershed contributes 12,270 acres to the 73,540-acre Nooksack LSR (RW111).
*In 1995, the extent of the Riparian Reserves (RR), as defined by the ROD, was determined to be adequate for providing proper riparian function in 60% of the watershed. However, the current condition (in 1995) of the RR's

prevented attainment of this objective because LSR habitat was judged to be fragmented and discontinuous, and small tree sizes predominated, especially in the lower eight miles of the watershed.
*Some thinning for wildlife and habitat condition in LSR stands under 80 years old, and perhaps in RR's, may be done over the next two decades (after 1995) and merchantable timber volumes that can be removed from these areas will be relatively small.
*The combination of timber harvest and fire since 1900, has reduced the amount of connectivity of large tree and old-growth habitats, especially in the lower elevations and riparian areas.
*The ability of the Canyon Creek watershed to supply commercial timber from both federal and non-federal lands will be severely limited for at least the next two decades (after 1995).
*Some commercial thinning in LSR may be allowed in stands less than 80 years old to move forest stand structure more rapidly to old-growth condition, however, in 1995 there were few stands meeting this condition with LSR, being either too young or too old.
*In 1995, there were only a relatively few acres left in MA 17 (Timber Management Emphasis) in the northwest part of the watershed, off the Canyon Ridge Road, that may be suitable for regeneration harvest in the next 10-20 years.
*The aquatic species of most immediate concern in the Canyon Creek watershed are Spring Chinook Salmon and native char (Dolly Varden).
*The mainstem Canyon Creek channel is approximately 13 miles long and anadromous fish populations have access to the lower 4.5 miles, due a series of cascades and falls in the inner gorge slump area, between River Miles (RM) 4.5 and 4.9, near Jim Creek.
*Lower Canyon Creek, from the mouth upstream to the RM 4.5, has probably been utilized by Spring Chinook, Coho, Chum, and Pink salmon and Steelhead Trout over the past 90-100 years.
*In 1981, 181 Spring Chinook were observed in lower Canyon Creek and since then the number observed spawning in Canyon Creek has declined, and similar trends appear to be occurring with Pink and Coho salmon and Steelhead Trout populations.
*Aquatic habitat in the upper watershed will remain of high quality and native char species (Dolly Varden) in the upper watershed should thrive in the refugia habitat, especially if the risk of mass failure from roads in the upper watershed is reduced through decommissioning and stormproofing.
*The Canyon Creek alluvial fan is an important sediment deposition area for long term sediment storage in the NF Nooksack River system, has been volatile during flood events, and historically has provided the majority of spawning, rearing and holding habitat for anadromous fish (salmon and Steelhead). The alluvial fan will remain a volatile area, particularly as long as the Jim Creek Slide remains active upstream.
*The potential for accelerating the recovery of fish habitat in the mainstem of Canyon Creek, through instream work (short term), is very limited.
*Recovery of aquatic habitat conditions impaired from recent floods is expected, but the rate of recovery will depend on the reoccurrence of damaging floods, and the recovery of stabilizing functions of the watershed.
*The potential, or future trend in, aquatic habitat conditions in Canyon Creek will be influenced by two major factors: the rate and magnitude of sediment delivery, and hydrologic recovery of riparian vegetation, that will dictate the quality and quantity of habitat for fish stocks and populations and other aquatic organisms.
*Aquatic habitat recovery in general, will be limited in the near term, as channels seek a stable configuration and because of the lack of large woody debris (LWD), and any viable recruitment from surrounding riparian areas for many decades. Impaired stream channels upstream of the Jim Creek Slide have the best opportunities for recovery from reduced peak flows and sediment loads, while stream reaches below the slide will remain at high risk of impact.
*Aquatic habitat diversity will recover slowly as watershed processes stabilize and the Jim Creek Slide will persist as a high risk source for catastrophic sediment input in the channel.
*Surface processes, as well as mass wasting, will continue to have a significant influence on the geomorphology of Canyon Creek. Events originating from harvested areas will be less frequent as the new stands mature, however, a lack of adequate road maintenance could increase the frequency of road-related events.
*Surface soil erosion is expected to decrease through the next decade as the last clearcut harvest on National Forest lands occurred in 1988 and revegetation of those sites is expected to restore natural erosion rates.

References Cited

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