Conservation Northwest
Keeping the Northwest Wild

April 3, 2021

Greta Smith, District Ranger
Mount Baker Ranger District, Mount Baker Snoqualmie National Forest
810 State Route 20, Sedro-Woolley, WA 98284

Re.: North Fork Nooksack Vegetation Management Plan Draft Environmental Assessment

Dear Ranger Smith,

On behalf of Conservation Northwest (CNW), please accept these comments on the Draft Environmental Assessment (EA) for the North Fork Nooksack Vegetation Management Project. We write in support of proposed Alternative 2, modified to better designate Riparian Reserves and withdraw certain proposed treatments in unstable riparian areas.

Conservation Northwest has a 30-year history of successfully leveraging funding and public support to protect, connect, and restore habitat and wildlife in the Pacific Northwest. We represent over 17,000 members and supporters dedicated to conservation and recovery action in our state. Our success is owed in large part to our practical allegiance to science and policy, and commitment to collaboratively work with managers, scientists, user groups, industry and other stakeholders to develop and implement durable restoration plans and projects; this includes our service on several forest collaborative groups across the state.

Our roots are based in the North Cascades where we have been advocating for healthy transboundary watersheds and forests since 1987. We support efforts on the Mt. Baker-Snoqualmie National Forest (MBSNF) to restore ecological resiliency, watershed function and habitat conditions for wildlife populations at landscape scales. We also recognize the value of tribal and public access for cultural and recreational opportunities. We care deeply about this landscape, its vast wilderness, connected habitat, and wildlife and human populations that it sustains. We submitted scoping comments on the North Fork Nooksack Vegetation Management Project last year. Although some of our initial concerns were addressed in the Draft EA, we still have concerns about the departure from a more integrated, restoration-focused approach in this watershed, as well as potential negative impacts to the watershed's extensive riparian and aquatic habitat.

Lack of Integrated Restoration Approach

The MBSNF extends over 140 miles north to south and covers an area of approximately 1,724,000 acres. 47% of this area is designated Wilderness; 31% Late Successional Reserve (LSR); 9% Matrix; 38% Riparian Reserve; 6% Adaptive Management Area; and 7% is Withdrawn from timber management. Although over 60% of MBSNF stands within Reserves are at least 200 years old, there remains a lack of complex old growth forest and complex pre-forest conditions due to past timber harvest. Large-scale restoration plans are needed to improve forest health and resilience, especially amidst our quickly changing climate. Large-scale plans are best approached by integrating vegetation

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management projects, watershed restoration projects, Access and Travel Management projects, and Tribal and public partnerships, addressing forest and First Foods restoration, road removal, riparian and aquatic health, trailhead repair and other recreation needs simultaneously.

The MBSNF recognizes the benefits of integrated landscape restoration management and worked to create a holistic approach with the Snoquera Landscape Analysis. Unfortunately, with the Mount Baker Ranger District's abandonment of the Nooksack Integrated Conservation and Enhancement Project (NICE), the opportunity for cooperative stewardship and meaningful watershed restoration outcomes may be lost. In fact, the only defined "watershed restoration" outcome in the EA is the reconstruction of a bridge and removal of 200 ft of riprap armoring from the bank upstream from the bridge (EA p. 13-14). Was NICE abandoned to avoid Condition-Based NEPA? Does the departure from NICE improve ecological outcomes for the MBSNF as required by the Northwest Forest Plan (NWFP)? We are concerned that it does not, and that by moving to a scaled-down vegetation project, timber will simply be removed from the land more quickly without adequately addressing the full suite of restoration actions needed to genuinely improve the forest ecosystem.

Forest Treatments

In the project area, previously managed young, dense stands are interspersed among natural mature and older forest patches originating from past natural disturbances (EA p. 4-5). As such, the EA would benefit from more detailed descriptions of the current density and structure of existing forest stands and their locations. Besides species composition and stand structure, what are the basic stand metrics that have been measured (e.g. species, diameter at breast height (dbh), live crown ratios, height, site quality, age, defects, etc.)? Additional photos besides the EA cover photo would also provide more insight into current conditions in various parts of the project area.

Overall, the EA could do a better job tying harvest targets back to ecological rationale such that habitat restoration would be directly tied to explicit ecological improvements. For example, define stand proportions that will exist in large clumps, smaller clumps, no clumps etc. and how these adjustments better serve terrestrial and aquatic function. In its current form, and in the Variable Retention Harvest proposal in particular, the EA does not provide enough assurance that ecological restoration objectives are the priority and that treatment outcomes will quantifiably result in sustainable, natural ecological processes.

In both treatment Alternatives 1 and 2, the EA proposes to use a timber harvest method called Tethered Logging. Appreciable research on this method of logging and its effects on soil, especially in the Pacific Northwest, remains limited and, as noted in the EA Appendix A, p. 12, the effectiveness of proposed mitigation (equipment restricted to slopes <80%) is unknown. We suggest removing Tethered Logging as a harvest method for Canyon Creek or other areas with steep, unstable slopes within rain-on-snow zones, or with other soil concerns, until mitigation effectiveness

can be established. Should Tethered Logging be used, please provide details regarding the approved monitoring criteria that will be identified prior to operations.

Variable Retention Harvest in Matrix (852 acres over 10-15 years)

We appreciate that the Forest Service (FS) would like to use Variable Retention Harvest (VRH) to maximize timber harvest, generate forage habitat, maintain biological legacies, increase connectivity between LSRs, increase pre-forest/complex early seral (CES) habitat, and restore the landscape to a more natural mosaic of structural stages and, to achieve this, has selected areas with proximity to existing foraging areas, connectivity to other forage opportunities across elevations and seasonal ranges, and on sites with a slope of <45 degrees (EA p. 8). We question if 45 degrees (100% slope) is an appropriate maximum slope when using heavy machinery. We are concerned that slopes >50% (26 degrees) may not be suitable for heavy machinery and note that 15 harvest units with >50% slope are proposed for VRH (3) and VDT (12) treatments.

We note that the EA does not quantify the amount of CES needed, only that "[c]omplex early seral/pre-forest conditions are deficit [sic] across the landscape" (EA p. 25). The amount of CES should be measured, and the calculation should take in to account the amount, distribution and quality of CES already existing in the watershed. This is important given the large amount of harvest occurring on adjacent or contiguous forests not owned by the USFS that is denuding the landscape of trees and creating pre-forest conditions which may or may not be benefiting early seral wildlife species.

VRH can create CES but must be done with appropriate amounts of retention (aggregate and dispersed) adequately distributed across the landscape. We are concerned that Alternative 1 provides too much wiggle room (i.e. forest openings between 10-75%) (EA p. 8), leaving enough room for excessively aggressive treatments at a broad scale which could have harmful effects. We would appreciate clarity regarding retention (patch size and distribution) during VRH treatments. Unless these openings are pretty small and widely dispersed, aggressive treatments could result in clearcuts, creating simple and uniform early-seral stand conditions rather than structurally complex early-seral conditions.

If VRH is used, the EA states that reforestation would occur naturally and through planting. We appreciate that consideration has been made for potential species and/or elevational adjustments due to climate change. However, there is no measure of the density of these plantings, and the fact that the EA anticipates pre-commercial thinning within 10-15 years, indicates high density planting. If this were the case, we question whether or not VRH will be supplying quality CES for an extended period of time (approximately 30 years) as would be needed to accomplish desired CES ecological objectives.

It appears that a substantial amount of proposed VRH may occur within Riparian Reserves (Canyon Creek Watershed Analysis Figure 1-5) and we are concerned that, even with the proposed no-cut buffers and best management practices, VRH will not maintain and/or incrementally help to restore Aquatic Conservation Strategy (ACS) objectives in these Riparian Reserve areas. With the rate of surface erosion being closely correlated to vegetative cover and the Canopy Cover potentially being reduced to 15% and recovery taking upwards of 50 years (Wildlife Specialist Report p. 8), we are particularly concerned about landslide risks and sedimentation, especially within the footprints of the deep-seated Jim Creek slide and Bald Mountain slide, as well as the ability to maintain and restore ACS objectives 2 (spatial and temporal connectivity), 4 (water quality), 5 (sediment regime), and 6 (timing, magnitude, duration and spatial distribution of in-stream flows). We recommend avoiding VRH in Riparian Reserves, and removing all geologically unstable areas and potentially unstable areas, as well as hydrologically connected areas and other lands proximate to potentially unstable be removed from logging units to avoid risk of management induced landslides and sedimentation.

Variable Density Thinning (525 or 1377 acres in Matrix; 1530 acres in LSR over 10-15 years)
We appreciate the attempt to clarify the type of Variable Density Thinning (VDT) proposed: skips (10% of stand area) and gaps (.5-3 acres in Matrix over 10-20% of stand area in A1 and .25-3 acres in Matrix in A2,[1] and up to .25 acres in LSR over 3-10% of stand area) accompanied by thin-from-below free thinning between skips and gaps down to approximately 50 trees per acre in LSR (EA p. 9, 16, 17, 21).

We are glad to see that in both Alternatives, when implementing VDT in LSR, careful consideration would be made to leave stand components related to late-successional development such as large, broken and diseased trees, nesting habitat (including potential Marbled Murrelet nesting habitat), and large snags or logs. Please clarify if you intend to do this through negative selection (the removal of suppressed and poorly formed trees) or positive selection (the removal of competing (healthy) trees to maximize the growth of the "best" trees). We prefer Alternative 2 which would leave trees >20 DBH on the landscape. While we appreciate that the current level of competition, lack of multistoried structure and understory species composition are not part of late-successional habitat, we do not agree that retaining trees >20" dbh would preclude the achievement of late-successional forest characteristics, and that growing space could still be focused on specific trees with desired Marbled Murrelet and Northern Spotted Owl habitat qualities. We also do not agree that VDT would impair ecosystem resilience to large scale disturbances from fire, insects, or disease, if it is properly implemented. In fact, short term surface fuel loading would be slightly less under Alternative 2.

[1] In the EA, there appears to be a discrepancy regarding the size of gaps during VDT harvest in the Matrix under Alternative 1. Page 9 indicates gaps approximately .5 - 3 acres in size covering approximately 10-20% of the stand area. Page 16 indicates gaps approximately .25 - 3 acres in size without mention of cover area. VDT harvest in the Matrix under Alternative 2 lists gaps at .25 - 3 acres in size without mention of cover area.

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Extra-large trees >20 DBH take centuries to grow and provide a suite of ecosystem services amidst harvest activities including carbon storage, water retention, nutrients, site productivity, and reduced windthrow threat, while being host to hundreds of lichens, fungi, invertebrate and wildlife species. They create canopy architecture for a lot of tree species until they are large themselves. Extra-large trees provide site sustainability and better resilience to catastrophic events. As they age, they start to influence ecosystem productivity in a myriad of ways. For example, nitrogen fixing lichens such as *Lobaria oregana* and *Lobaria pulmonaria* are almost exclusive to old growth forests, account for between 35-60% of all epiphytes in Pacific Northwest forests, and are food to deer, elk, and other animals. Alternative 1 may help achieve a more desirable % of SDI max in the short term (EA Figure 7), but how have those benefits been weighed against the benefits of extra-large tree retention and the exclusion of VRH? Excluding the harvest of trees >20 dbh may also remove the need to seek an exemption from the Regional Ecosystem Office, though, because NWFP limitations on logging in LSRs are based on stand age and not tree size, we were unable to verify that this exemption would be necessary in order to take trees >20 dbh.

With the VDT parameters outlined above, Alternative 2 would have no large gap openings but both Alternative 1 and 2 would still have a reduction in canopy cover to within range of 30 to 50% (EA p. 64). Surprisingly, the words Canopy Cover do not occur in the Hydrology specialist report even though when you open up the canopy even a relatively minor amount, there is a hydrological response, i.e. more water and/or sediment entering riparian areas and streams, potentially impacting peak and base stream flows. In both Alternatives, the reduction of the Canopy Cover to 50% or below needs to be accounted for, and the potential impacts to riparian areas need to be calculated within the context of the full watershed to include timber harvest and percent canopy cover on adjacent non-federal forests.

Stand Improvement (Non-Commercial Thinning) (1150 acres)

We understand non-commercial thinning is planned for 1150 acres across the project area in both the Matrix and LSR with a focus on LSR lands south of FR 3100 and surrounding FR 3160 (which crosses Bear Creek three times) and 3170. Combined with VDT and/or VRH proposed on the western half of Canyon Creek, the main tributary of the Canyon Creek subwatershed is nearly surrounded by timber harvest, possibly with insufficient buffers in place or accurate accounting of slope and soil stability. Due to the volume of inner gorge habitat, landslide history, and high potential for mass wasting/erosion upslope in this steep subwatershed, please re-consider the combined volume and location and timing of thinning proposed in the LSR of Canyon Creek.

We note that VDT and non-commercial thinning is also proposed in the Glacier Creek subwatershed surrounding the southern section of FR 3900 and that harvest units g33, g34, and g36 overlap with existing alluvial/debris flow fan deposits and a small area with landslide certainty.

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Riparian Reserves and Aquatic Conditions

One of our primary concerns regarding the EA is the potential exclusion of areas that qualify as Riparian Reserves, which must include water bodies, inner gorges, all riparian vegetation, 100-year floodplain, landslides and landslide prone areas (NWFP B-17). Accurate identification of these Riparian Reserves is critical to the safe and correct implementation of this project and the achievement of ACS objectives. It appears there is a total of 1,693 acres of treatment proposed in Riparian Reserves within the project area (537 acres of VDT in LSR, 575 acres of treatment of VRH or VDT in Matrix, and 581 acres of non-commercial thinning). The EA states that this constitutes only 4% of the total Riparian Reserve area in the Upper North Fork Nooksack (EA p. 52). However, if the project's Riparian Reserves include the extent of unstable and potentially unstable areas (including earthflows) and water drafting sites, and ensure that stream channel measurements extend to the top of inner gorges, it may be that the Riparian Reserve area will align more similarly with Riparian Reserves as they were designated in the Canyon Creek Watershed Analysis (Figure 1-5) and the NF Nooksack Watershed Analysis (Figure 5-1).

The EA states that harvest will be prohibited on inner gorges and unstable ground and yet it doesn't explicitly identify those locations. The EA uses Riparian Reserve widths from the NWFP, but these widths only apply until a watershed and site analysis has been completed (NWFP B-13). The Riparian Reserves identified in the Canyon Creek Watershed analysis and the North Fork Nooksack Watershed analysis identified critical hillslope, riparian, and channel processes in order to delineate Riparian Reserves that assure protection of riparian and aquatic functions, and yet the Riparian Reserve map in the EA does not appear to align with the Riparian Reserve boundaries established by these watershed analyses. To change Riparian Reserves widths in all watersheds, a new Watershed analysis would be required (NWFP C-3). We recommend a site-specific analysis be completed and rationale for the project's Riparian Reserve boundaries presented through this NEPA decision-making process prior to implementation (NWFP B-13). This is especially important in the steep unstable terrain of the Canyon Creek subwatershed, directly above critical trout and salmon habitat.

We are concerned that the difference in hydrologic impacts in the Matrix between Alternative 1 and Alternative 2 have not been fully investigated and it is remarkable that the Hydrology Specialist Report was limited to considering only sediment and temperature, when flood events and rain-on-snow events in the area are common, well publicized, and often quite damaging to important aquatic habitat and property. It is not clear how Alternative 1 will meet Aquatic Conservation Strategy requirements to maintain and restore in-stream flows by protecting the timing, magnitude, duration, and spatial pattern of peak, high, and low flows (NWFP B-11). The extensive area of state and private commercial forestry in Canyon Creek that is hydrologically immature contributes to the risk of aquatic habitat damage caused by additional canopy reductions proposed on federal land and must be factored in the analysis. Given its disturbance history and rain-on-show area (likely increasing as climate changes), it appears likely that Canyon Creek is "functioning at risk" or "not properly functioning" where actions that do not maintain or restore aquatic conditions must not be

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implemented (NWFP B-10). Alternative 2 would not leave the same large gap openings as Alternative 1, better protecting snow accumulation, soils, and slope stability. Recent research on snow-cover dynamics in forest gaps indicates that small to medium-sized openings correlate to later snow melt, offering protection from solar radiation and rain on snow events which are common in these watersheds. Small to medium-sized gaps can significantly increase low season flows, and a "greater number of distributed small gaps can have greater potential for longer snow retention than a smaller number of large gaps."[2] In the Matrix, please measure and document how greater canopy cover may help protect hydrologic function (i.e. slow snow melt, and prevent landslides and increased sediment flows). We recommend avoiding VRH in Canyon Creek and potentially modifying VDT to retain a canopy closure that maintains or restores in-stream flows.

We appreciate that highly incised Class III streams shall be evaluated during the project planning process to determine if special measures may be required to protect significant riparian and/or associated riparian values (Hydrology Specialist Report p. 7). As part of your Riparian Reserve site-specific analysis, please calculate and map these highly incised Class III streams in the Final EA, and detail what special measures will be taken to protect riparian values in these areas.

To maintain the bank, flood plain, and shore stability of riparian areas, actions to prevent all forms of accelerated soil erosion and soil compaction, and the retention of the live root mat must be implemented. We note that slash mats are frequently listed as a mitigation tool to prevent surface erosion and long-term soil damage (EA Appendix A p. 9, 11, 13). However, in our experience when used on steep slopes, slash mats are often pulled down by gravity leaving bare spots. To achieve forest floor protections in the steep terrain of Canyon Creek, the project may need to exclude mechanical thinning (i.e. VDT treatments) from Riparian Reserves, or no cut buffers may need to be widened significantly (currently 30-foot slope distance minimum no-cut buffer around unstable and potentially unstable areas identified by a soils scientist and/or hydrologist) (EA Appendix A p. 7).

The EA reports that "some projects may alter Riparian Reserves... but that the effects of the project would be site specific and, due to separation in space, would have no cumulative effects" (EA p. 29). We request that the Riparian Reserve locations expected to be altered or lost are identified during the Final EA and the effects of these changes be quantified. Please include things such as:

- stream bank condition (<90% stable = at risk)
- change in peak/base stream flows
- increases or decreases in the drainage network density
- the concentration of disturbance in unstable or potentially unstable areas
- the connectivity of Riparian Reserves (<80% connectivity = at risk)

[2] Sun, N., Wigmosta, M., Zhou, T., Lundquiest, J., Dickerson-Lange, S., and Cristea, N. 2018. Evaluating the functionality and streamflow impacts of explicitly modelling forest-snow interactions and canopy gaps in a distributed hydrologic model. *Hydrological Processes*, 1-13. DOI: 10.1002/hyp.13150

We understand that impacts to fish are "expected to be minimal and localized with the implementation of best management practices and no-treatment riparian buffers, and not result in measurable effects to MIS fish habitat or populations," but we remain concerned that increased sediment runoff from road work and soil disturbance, combined with a reduction in riparian trees that could potentially recruit to streams, would impair aquatic function in the long-term. In the EA, the no-cut buffers proposed for streams are minimum widths required by the NWFP (NWFP C-30-31) and could be widened to increase stream protections. We await the results of the Section 7 ESA consultation and EFH consultations to know if these impacts would be outweighed by long-term road and AOP improvements.

Roads

The Hydrology Specialist Report indicates that 124.6 miles of road will be moved into storage or decommissioned post-project (miles of road pre-project subtract miles of road post-project) (Table 2 on p. 3). Notably, it does not measure the ecological impact of such changes to basin hydrology, sediment dynamics, or wildlife habitat connectivity and security. However, the Transportation Specialist Report states that the "project does not change the overall miles of road in the project area." (p. 19). The Transportation Specialist Report indicates the project would use, maintain and restore approximately 62 miles of FS system roads as well as 20 miles of temporary road which would be decommissioned post-project, but only under Alternative 2. Please clarify:

- the miles of road that will be touched, closed, and decommissioned throughout the duration of this project
- whether or not road maintenance, restoration and/or decommissioning is included under Alternative 1.

We appreciate that there is a history of deferred road maintenance in this watershed that would, at least under Alternative 2, be addressed in the reconstruction and maintenance of approximately 62 miles of system roads (up to 30% of the road system in the Upper North Fork Nooksack) and the decommissioning of 20 miles of temporary road, providing aquatic upgrades and open edge effects that increase forage and pollinator habitat. However, as "most system roads would remain the same after project implementation" (Transportation Report p. 11) and "no new road decommissioning is planned for the NF Nooksack Veg Project" (Transportation Report p. 17), the EA misses an opportunity to better integrate additional recommendations from the 2016 NF Nooksack Access and Travel Management Plan which could strategically increase the number of decommissioned roads listed as high risk to aquatics in the Nooksack ATM, further contributing to aquatic restoration. We request additional review for decommissioning and closure of the 60 miles of ATM high aquatic risk road and roads causing density to exceed 2.2 mi/m2 in deer and elk winter range. Money is available or coming for these types of projects, and the proposal should be updated to reflect how ATM and watershed analysis direction will be fully accomplished.

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Wildlife

The Wildlife Specialist Report indicates minimal long-term impacts to indicator wildlife species. There will be no net loss of Grizzly bear core habitat and post-project road closures may increase core habitat (EA p.58, 65). We understand there may be temporary disturbances to wolf dispersal but that there are no know pairs in the Nooksack watershed right now (P. Reed personal comms. March 26, 2021).

It appears there is VDT planned in designated Mountain Goat habitat (harvest units dw2, dw3, dw5, and possibly dw65 and dw66) to improve forage in their winter range and that seasonal operating limits would minimize potential disturbance of animals from proposed treatment activities (EA p. 74). We understand that the areas designated as Mountain Goat habitat were identified in 1990 and are approximations of where the animals might be, but that they have not been confirmed (P. Reed personal comms. March 26, 2021). We recommend field checking these areas for Mountain Goat presence/absence prior to treatment and noting whether or not these areas also provide necessary escape and security cover.

We understand that the Wildlife Specialist Report used Northern Spotted Owl (NSO) and Marbled Murrelet (MAMU) suitable habitat as a surrogate to on-the-ground surveys (Phyllis Reed personal comms. March 26, 2021) and this is because "no suitable NSO or MAMU nesting habitat would be degraded or removed" during this project (EA p. 61). We appreciate that appropriate Limited Operating Periods and seasonal operating limits have been proposed to mitigate machinery noise within NSO and MAMU range and that, due to "the limited scale and scope of the disturbance" within the broader landscape, treatments are not expected to "contribute to a negative trend in the viability of spotted owl as a management indicator species on the forest" (EA p. 62-63). However, we are concerned about the expected adverse short-term impacts to Primary Constituent Elements caused by VDT in NSO and MAMU critical habitat (i.e. the removal of second growth trees with potential nesting platforms), and whether or not the mitigation measures (i.e. retaining trees with interlocking branches with suitable nest structure) will be sufficient to protect NSO dispersal habitat and MAMU nesting habitat in the LSR and critical habitat units. We await the results of the Section 7 ESA consultation to better understand if these impacts would be outweighed by long-term vegetation diversity and structure improvements designed to "facilitate flight movement between existing old-growth stands" and "provide nesting, roosting, and foraging habitat for the owl and nesting habitat for the murrelet" (EA p. 77).

While forest treatments will open up the canopy and temporarily reduce habitat suitability for NSO and MAMU, we recognize that this same treatment will temporarily benefit early seral species such as deer and elk who forage in pre-forest habitat containing forbs, shrubs and meadows. We note that the amount and distribution of Dietary Digestible Energy (DDE) was not calculated at the watershed scale to include pre-forest habitat that is available (and will continue to be available) outside USFS lands and simply states that "[c]omplex early seral/pre-forest conditions are deficit

[sic] across the landscape" (EA p. 25). We request that the amount, distribution, and quality of current pre-forest/complex early seral habitat be quantified and compared to desirable pre-forest conditions at the landscape scale and include availability on adjacent non-federal lands. This will help quantify the need for CES and improve recommendations regarding CES placement. Furthermore, as we noted in our scoping comments, simply increasing forage but not addressing the security habitat/roads issue (see Roads section) is not likely to genuinely improve conservation outcomes for elk and deer in this region.

Visuals

To maintain visual quality along the Recommended Wild and Scenic River land management allocation, the lower ¾ of timber harvest unit c137 should be removed from the proposal.

Climate Change

We appreciate the EA's use of the North Cascades Climate Change Vulnerability Assessment (Raymond et al. 2014) and recognition of anticipated climate-related events including decreased snowpack, earlier peak flows and declines in summer stream flows, increased landslides, sediment movement, and flooding (EA p. 37-38). The EA would benefit from identifying potential locations of climate refugia within the project area and at the watershed scale. That is, what areas are expected to be most resilience to the effects of climate change, where valuable physical, ecological and socio-cultural resources will persist?

We note that, although there are no 303(d) listed impaired waters within treatment areas, sections of the North Fork Nooksack and several of its tributaries are listed as impaired, including 1.5 miles of Canyon Creek where the North Fork Nooksack and Canyon Creek intersect. Healthy waters are critical to the health of fish and aquatic species, but also to downstream communities, all the way out to Puget Sound. As noted in our scoping comments, Whatcom County and others have invested nearly $6 million to address flood damage and debris flow deposition from landslides originating in Canyon Creek where treatments are being proposed. It is critical that management actions mitigate threats to water quality, infrastructure, property, and public safety for surrounding communities and visiting recreationists.

We understand that the EA purposely does not address or calculate carbon sequestration loss or gain because how this will be calculated and accounted for is still being decided at a national level (K. James personal comms. March 29, 2021). We look forward to when this USFS policy is available for use in planning.

Stewardship and Monitoring

Very little is said about stewardship and monitoring in the EA. We regret that stewardship contracting opportunities such as Stewardship Agreements, Expanded K-V Funds and/or Good Neighbor Authority are not considered for more expansive restoration outcomes. Use of these would ensure that revenues from the project's timber harvest stay on the forest and would be used

toward terrestrial, aquatic, and/or watershed restoration activities, including the control of noxious and exotic weeds and reestablishment of native plant species. We understand that, even though the proposed project area is different from NICE, that the stewardship area could be aligned to the larger NICE proposal (K. James personal comms. March 29, 2021). We would advocate for this broader restoration footprint across multiple subwatersheds, that recommendations from the Nooksack ATM be considered for inclusion, and that restoration actions not only improve natural ecological processes, but also support and advance ecosystem services (provisioning, regulating, and cultural services).[3] We note that, should they be used, stewardship contracts must be included in the timber sale contract and would need to be determined prior to the timber contract being finalized.

Plans for implementation, effectiveness, and validation monitoring should be included in the Final EA. While a more detailed monitoring plan can be drafted collaboratively outside the EA, the Final EA should have a monitoring section that includes:

- what are you already planning to do
- what else needs to be done and how it might be prioritized
- where the gaps are in capacity and funding
- which monitoring activities the IDTeam will be a part of
- how the sale administrator will be involved in monitoring activities

Project planners might consider doing a pre-bid review by a collaborative monitoring group to help add redundancy and build confidence in the project. This could be especially helpful during a project such as this which is taking place in unique and steep terrain with extensive riparian assets.

We are excited to see these prioritized North Cascades watersheds receive investment at this time. The right treatments in the right locations will more quickly restore the ecological processes necessary for long-term resilience, better preparing these forests to withstand the impacts of climate change and future fire events. Thank you for considering our comments.

Sincerely,

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Cc: Dave Werntz, M.S., Science and Conservation Director

[3] https://www.nwf.org/Educational-Resources/Wildlife-Guide/Understanding-Conservation/Ecosystem-Services