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RE: FWS/MBSP,
LeClerc Creek Forest Restoration Project

We write to provide comment on the *LeClerc Creek Forest Restoration Project*.

Conservation Northwest is a regional conservation organization focused on protected and connecting wildlife and wild places from the Washington Coast to the British Columbia Rockies. Throughout our history, we've been deeply involved in forest management and conservation in the Pacific Northwest. Our members and supporters depend on public lands to conserve biodiversity, provide ecosystem services such as clean air and clean water, and provide recreational activities such as bird watching and hiking.

Broadly speaking, Conservation Northwest is generally in favor of projects that reduce the wildland fire hazard in Wildland Urban Interface while increasing forest resiliency. Based on observations of the LeClerc Creek Forest Restoration Project and review of the SEPA documents, Conservation Northwest provides the following comments.

Retention Levels, Tree Size and Patch Size

We'd like you to consider using the Clumps and Openings (ICO) approach (Larson & Churchill 2012). The ICO prescription is a more specified method than the skips and gaps prescription. The ICO prescription includes adding heterogeneity within stands to mimic the natural pattern (Larson & Churchill 2012). Intra-stand spatial heterogeneity is important for ecological functions and processes. It accurately replicates historical distributions of trees for stand scale areas by creating local and broad heterogeneity (Hessburg et al. 2015). To replicate the historical pattern, individual trees should be retained in clumps.

An example of recommended Individuals, Clumps and Openings along with Trees per Acre is provided below.

Plant Association Group	Individuals (1 Tree)	2-4 Trees	5-9 Trees	11-15 Trees	15-30 Trees	30+ Trees	TPA
Warm Dry DF	35%	39%	21%	3%	2%	0%	25
Mesic DF	29%	45%	18%	6%	3%	0%	50
Cold Dry DF	21%	41%	22%	7%	6%	3%	49
Cold Mesic SF	18%	31%	20%	12%	9%	10%	65

Variable spacing of the type that would occur with ICO can have a number of advantages (as summarized by Franklin et al. 2013)

- Reduces crown fire frequency

- Reduces the chance of epidemic insect outbreaks
- Reduces spread of dwarf mistletoe and pathogenic fungi
- Both the clumps and openings create bird and wildlife habitat
- Facilitates a multi-aged structure through variable regeneration of age classes in clumps and openings
- Increases abundance and diversity of understory vegetation
- Increases snow retention thus effecting soil water, understory vegetation and fuel moisture. This is especially important with the impact of climate change on snow pack.

Since large and old trees are relatively rare in eastern Washington, old and large trees (>20" DBH) should be retained, especially those that are fire resistant. In some instances, this could lead to a larger TPA in the stand. However, large trees are more fire resistant and will likely still persist during a wildland fire event, even in clumps, as large trees have done for centuries (Franklin et al. 2013).

Considering the smaller size of trees in the LeClerc Creek Project, a TPA of 40 while retaining the largest trees (>20" DBH) would be adequate to reduce the wildland fire hazard in the WUI, provide habitat for wildland and increase forest resilience.

Snags and Wildlife Trees

Conservation Northwest is pleased with the retention of snags and wildlife trees that is proposed in the LeClerc Creek project. We request that all snags greater than 20" DBH be left during the project (unless they pose a significant safety risk). Old snags are rare on the landscape and provide habitat for numerous species of wildland. Large old snags will eventually become large downed woody debris which creates more habitat for wildlife and microclimates for plant species. Many animals evolved with a large amount snags on the landscape while timber management and fire suppression has decreased the abundance of snags.

Historical Range of Variability & Landscape Analysis

The LeClerc project's consideration of the Historical Range of Variability (HRV) is a step in the right direction and Conservation Northwest is in support of this consideration. Have you looked at HRV at the landscape scale, so individual stand treatments occur within a landscape context that considers other ownerships too? The major functions on the landscape, such as forest resilience, habitat and aquatic function, are driven by large scale patterns of vegetation structure and composition (Lindenmeyer and Franklin 2002, Bisson et al. 2003, Benda et al. 2004, Jain et al. 2008, 2012, Dare et al. 2009, Ager et al. 2010, Turner 2010, Mortiz et al. 2011, Perry et al. 2011, Peterson et al. 2011, Franklin and Johnson 2012, Stine et al. 2014). Landscape evaluations allow for consideration of patch size, patch density, connectivity and edge density, which are important for restoring ecological resilience. In the future, land management on the LeClerc Creek Unit of the Sherman Creek Wildlife Area would benefit from landscape analysis to inform management decisions.

While the Historical Range of Variability can act as a metric to determine forest resiliency, it does not take into account how future conditions will differ from the past due to climate change. Basing prescriptions and treatments on Future Range of Variability (FRV) across landscapes will lead to greater forest resiliency (Hessburg et al. 2013).

Thanks for the opportunity to comment on the project. Please feel free to contact me at any time with questions or feedback on this input.

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