Final

SULLIVAN CREEK DISPERSED RECREATION SITES

Revised Initial Restoration Plan

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Seattle City Light

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Executive Summary

The Settlement Agreement crafted by stakeholders and Seattle City Light during the Boundary Hydroelectric Project relicensing process calls for a number of tributary restoration actions including the proposed closure/restoration of Dispersed Recreation Sites (DRSs) on U.S. Forest Service land adjacent to Sullivan Creek (the Settlement Agreement is included in the new License for the Boundary Hydroelectric Project). The intended goal of this proposed effort is to improve native fish populations in Sullivan Creek by reducing adverse effects to the creek from overuse and informal expansion of these dispersed sites by users. Adverse impacts to the creek include, but are not limited to, soil compaction and streambank erosion, increased stream sedimentation, trampling and loss of vegetation, and litter and sanitation issues. This Initial Plan's proposed restoration treatments would result in improvements to fish and riparian habitat, and enhance the overall recreation setting and corresponding experiences at the DRSs along Sullivan Creek. SCL developed this Initial Plan in consultation with both the USFS and Fish and Aquatics Work Group (FAWG) in accordance with the Boundary Hydroelectric Project Fish and Aquatics Management Plan (FAMP) (SCL, 2010). The FAMP was prepared to describe the measures that will be implemented over the relicensing period to protect fish and aquatic resources.

This Initial Plan describes, in sufficient detail for NEPA purposes, the site-specific measures for each site. Prescribed measures include closure, rehabilitation, and opening of sites. In addition to this main report, this Initial Plan contains conceptual plans showing proposed restoration treatments at each of the existing and proposed DRSs. This Initial Plan also includes a biological evaluation and cultural resource review as required by regulations applicable to habitat or ground-disturbing activities on National Forest Service (NFS) lands. Using the Initial Plan, the Forest Service will lead the NEPA process, including public involvement. Development of the Final Restoration Plan will incorporate results of the NEPA process and FAWG consultation.

In general, the proposed site prescriptions include one or more of the following types of actions to help restore habitat and enhance recreational experiences:

- Use of barrier rocks to delineate appropriate use areas, in particular parking areas,
- Use of iceberging to delineate appropriate use areas, in particular camping areas, and help encourage natural revegetation of impacted areas,
- Relocate and/or place campfire rings in locations that minimize ecological impacts and potential fire hazards,
- Relocate and/or add bear boxes to help promote responsible recreation behaviors and safe food storage,
- Actively replant the streambank, riparian zone, and/or other impacted areas to reduce erosion and sedimentation, as well as promote ecological function,

- Fully or partially (day use only) close high degraded sites in the floodplain when other restoration actions are not feasible.

There are 38 originally identified DRSs along Sullivan Creek, some of which have multiple campsites within them. Five new DRS locations have been identified as potential areas for developing new campsites to offset recreational opportunities resulting from the closure of some of the original DRSs. The number of overnight campsites will remain the same. For the purpose of this study, a campsite is defined as a formalized campsite with a metal fire ring and a bear box that would accommodate one party. Overall, the distribution of site sizes (qualitative use measure based on vehicle parking capacity) will remain about the same (i.e., the percent of large, medium, and small sites will only slightly change post-restoration). Some overnight campsites proposed for closure will be converted to day-use sites. During the National Environmental Policy Act (NEPA) reporting process (required prior to any actions on federal lands), the U.S. Forest Service will consider public input.

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1.0 Introduction

As a condition of the Boundary Hydroelectric Project (FERC Project No. 2144-038) License, which includes the Sullivan Creek Project (FERC Project No. 2225-015) Settlement Agreement, Seattle City Light (SCL) agreed to restore habitat at 38 identified dispersed recreation sites (DRSs) along Sullivan Creek. SCL developed this Initial Plan in consultation with both the USFS and Fish and Aquatics Work Group (FAWG), who will provide comments and recommendations for the final report. This Initial Plan was prepared in accordance with the Boundary Hydroelectric Project Fish and Aquatics Management Plan (FAMP). The FAMP was prepared to describe the measures that will be implemented over the relicensing period to protect fish and aquatic resources. The habitat restoration includes the improvement of resource conditions at the DRSs, which directly affect native fish habitat and populations.

The proposed project is part of a broad effort to recover native fish populations in Sullivan Creek and other tributaries that flow into the Boundary Project Area. Westslope cutthroat trout have declined in recent history from habitat loss and competition for food resources with non-native trout, primarily brook trout. Soil compaction at dispersed recreation sites and the resulting loss of streambank vegetation leads to bank instability and sedimentation throughout the creek system, further degrading habitat. Though currently only observed at the mouth of Sullivan Creek, bull trout may move further into the system following the removal and restoration at Mill Pond Dam (located at River Mile 3.9 of Sullivan Creek). Habitat improvements would be necessary for the protection of this species. Currently, westslope cutthroat trout are considered a sensitive species by Region 6 of the U.S. Forest Service (USFS) and the U.S. Fish and Wildlife Service (USFWS) lists bull trout as threatened.

This Initial Plan describes, in sufficient detail for NEPA purposes, the site-specific measures for each site. Prescribed measures include closure, rehabilitation, and opening of sites. In addition to this main report, this Initial Plan contains conceptual plans that depict proposed restoration treatments at each of the existing and proposed DRSs, a draft biological evaluation, and a draft cultural resource report as required by regulations applicable to habitat or ground-disturbing activities on National Forest Service (NFS) lands. These sites (along with portions of both hydroelectric projects) are located within the Colville National Forest. The Colville National Forest provides a range of recreational opportunities (e.g., hunting, fishing, camping, hiking, horseback riding, boating, picnicking, etc.) in a spectrum of settings (developed campgrounds to Wilderness).

In addition, there are developed recreation facilities located along Sullivan Creek. Developed recreational facilities associated with the Sullivan Creek Project include campgrounds (East Sullivan, West Sullivan, Sullivan Lake Group, Noisy Creek Group, Noisy Creek, and Mill Pond campgrounds), picnic areas, trails, boat launches (on both Sullivan Lake and Mill Pond), and interpretive facilities. SCL does not own or operate any of these facilities; instead, they are operated and maintained by the USFS.

Dispersed recreation is generally any recreation that occurs in a natural setting and outside of a developed facility, site, or area (e.g., developed campgrounds, picnic areas, roads, trails, etc.). It encompasses a diverse range of activities, some of which may affect the natural, historic, and/cultural resource base of the area. Since quality of the recreation experience is intricately tied or influenced by resource conditions, the degree of undesirable change from dispersed recreation to the resource base is a primary concern of outdoor recreation and other resource planners and managers (Hammitt and Cole 1998).

In the past 10 years, the USFS has noticed that the condition of resources (in particular streambank and riparian areas) at these sites has deteriorated (e.g., soil compaction and streambank erosion, increased stream sedimentation, vegetation trampling and loss, tree damage and mortality, vandalism, litter and sanitation issues, etc.) (Figure 1-1 below). To help restore degraded resource conditions for native fish and wildlife and ameliorate recreation impacts on native fish populations, License Article 9(E)(b)(viii) and the FAMP for the Boundary Hydroelectric Project direct SCL to restore up to 38 of the originally identified dispersed recreation sites located within or directly adjacent to riparian areas along Sullivan Creek (SCL 2010).

Figure 1-1. Tree damage and trampled bank at a DRS

As an initial step in implementing this requirement, SCL and USFS staff identified and toured 38 dispersed recreation sites along Sullivan Creek in mid-July 2011 (note, the USFS had previously identified many of these dispersed recreation sites in 1996 as part of a watershed assessment [USFS 1996]). During this initial visit, SCL and USFS observed and documented site conditions, and identified potential prescriptions for these sites. The 38 dispersed recreation sites originally identified during this July 2011 field visit and documented in Appendix B of the Boundary Hydroelectric Project Tributary Management Plan (TMP) (SCL 2014) are the primary focus of this Initial Recreation Site Restoration Plan (Initial Plan). The Initial Plan also discusses the new sites that have been proposed for development further away from Sullivan Creek to offset the proposed closure of highly degraded sites located in the floodplain.

As identified in Section 5.4.10 of the FAMP, the intended outcome of the Initial Plan is a detailed set of site prescriptions, including restoration and potential closure that upon

implementation will help restore fish habitat and ultimately native fish populations. The draft biological assessment and cultural resources review included with the Initial Plan will be used by the USFS in the future National Environmental Policy Act (NEPA) process associated with the dispersed restoration enhancement effort. The Initial Plan will be considered final once the USFS has completed the NEPA process and SCL has revised it to account for any needed changes that may result from the NEPA process and consultation with the FAWG. SCL will then file the Final Initial Plan with FERC as an amendment to the existing FAMP.

2.0 Methods

The Initial Plan includes three primary elements:

1. Dispersed Recreation Site Prescriptions and Conceptual Designs
2. National Historic Preservation Act Compliance
3. Endangered Species Act Compliance

The methods associated with each of these components are described below.

2.1 Dispersed Recreation Site Prescriptions

As noted in Section 1.0, the USFS originally identified many of the dispersed recreation sites along Sullivan Creek in 1996 during a watershed assessment (USFS 1996). SCL and the FAWG used this 1996 assessment to identify and develop a list of 38 dispersed recreation sites as referenced in the TMP (SCL 2014). In mid-July 2011, staff from SCL and USFS evaluated these 38 dispersed recreation sites and developed preliminary prescriptions and rough site sketches for each one. In 2014 and 2015, SCL, along with their contractor (ESA), then used these preliminary prescriptions and sketches as the starting point for developing the Initial Plan and its associated site prescriptions and plans. SCL will also use some of the DRSs for access for other restoration activities in Sullivan Creek. These actions are described under individual sites later in this report and include stream channel enhancements such as the placement of large woody debris and engineered log jams (Section 3.0).

In August 2014, SCL and ESA staff visited the 38 dispersed recreation sites along Sullivan Creek to collect updated information and sketches for each site. This information update process included collecting more specific location information for all existing site features (e.g., fire rings, bear boxes, barrier rocks, etc.) and delineated use areas using Trimble global positioning system (GPS) units. SCL and ESA staff also took photos and confirmed or modified potential restoration prescriptions for each site. After this August 2014 field visit, ESA staff combined field-captured GPS data with USFS topographic and LIDAR maps to create geo-referenced site plans for each of the 38 identified dispersed recreation sites along Sullivan Creek.

Once the draft site plans were complete, staff from SCL, ESA, and the USFS returned to the field in October 2014 to review the plans and the revised/updated site restoration prescriptions. At each site, staff from SCL, ESA, and USFS completed the following tasks:

- Reviewed and revised, when necessary, the existing site plans so that they best reflected the current condition and layout.
- Discussed and agreed on a set of restoration, recreation enhancement, and site delineation prescriptions.

- Added sketches of the preliminary site prescriptions to each site plan so that they could be updated to graphically display the proposed enhancements.

After the August and October, 2014 site visits, the restoration actions planned would have reduced the number of DRSs from 38 to 32. To help minimize the potential loss of dispersed recreation opportunities post-restoration, the USFS and SCL discussed options to designate several new sites and increase the capacity of current sites. As a result potential new sites were identified that would maintain camping site capacity at current levels. Once draft plans for these new and expanded sites were complete, staff from SCL, ESA, and USFS again returned to the field in November 2015 to review the new restoration prescriptions. The same methods and tasks (mentioned above) were completed on the proposed new and expanded sites.

After the field visits, SCL and ESA staff revised and updated the dispersed recreation site plans to reflect field conditions and discussions. The updated site plans are included here in the Initial Plan, along with a narrative discussion of existing conditions, habitat and other resource concerns, and the anticipated outcomes of implementing the Initial Plan. Photographs of existing conditions follow the site descriptions. The draft site plans, specifications, and cost estimates for site-specific prescriptions are provided in Appendix 1. Since implementation of the dispersed recreation site restoration prescriptions is planned as a component of the Tributary Management Plan, the implementation schedule acknowledges and is coordinated with other tributary enhancement actions since many of these measures will require access through several of the dispersed recreation sites.

2.2 National Historic Preservation Act Compliance

During the August 2014 field visit, ESA staff also conducted a preliminary cultural resources survey concentrating on surficial elements and collecting information to develop the sub-surface survey protocols. Based on this preliminary survey the ESA cultural resource specialist coordinated with the USFS cultural resource specialist and developed a sub-surface survey plan. The sub-surface survey was conducted during September 2014 and preliminary results were ready for the October 28 – 30 meeting with the USFS. After design of the additional sites, surface and sub-surface surveys were conducted again during November 2015. Detailed methods can be found in the Cultural Resources Report in Appendix 2.

2.3 Endangered Species Act Compliance

An ESA botanist developed a target list of potential rare, threatened, and endangered plants that could occur in the project area based on the extensive plant surveys conducted for the Boundary Dam relicensing process and on-going monitoring. The ESA botanist coordinated with the botanist who is assisting SCL with rare plant monitoring to affirm our assumptions and obtain the most current information on plant blooming times and potential occurrence in our project area. Based on this information the ESA botanist conducted a survey of rare plants in the vicinity of each of the 38 project sites in the Sullivan Creek basin. Detailed methods and associated results can

be found in the Endangered Species Act Biological Evaluation (Appendix 3). A separate rare plant survey was conducted by a SCL contractor for the proposed new sites added in 2015. No federally listed plants were found during this survey.

Additional information developed during the Boundary Dam relicensing process was reviewed pertaining to threatened and endangered fish and wildlife that could occur in the project vicinity. These species include:

- Bull trout
- Lynx
- Grizzly bear
- Woodland caribou

Gray wolf is found in the project vicinity but in eastern WA it is not listed as threatened or endangered under the Federal Endangered Species Act. Other species listed as sensitive by the USFS are included in the evaluation.

3.0 Results

3.1 Dispersed Recreation Site Prescriptions

Dispersed recreation, including camping and other activities, is permissible on the Colville National Forest. These dispersed opportunities, in particular along Sullivan Creek, offer visitors an alternative to the myriad developed recreation opportunities that are available throughout the National Forest, including campgrounds (East Sullivan, West Sullivan, Sullivan Lake Group, Noisy Creek Group, Noisy Creek, and Mill Pond campgrounds), picnic areas, trails, boat launches (on both Sullivan Lake and Mill Pond), and interpretive facilities. In total, there are 38 originally identified dispersed recreation sites along Sullivan Creek. In addition, five new sites (DRSs-02A, 21A, 28A, 36A, and 36B) have been identified for development during implementation of the restoration actions (Figures 3-1 – 3-4). Additional camping areas have also been proposed as an expansion of DRS -14. Visitor use of the existing dispersed recreation sites has increased in the past decade leading to bank erosion, vegetation loss, and soil compaction, resulting in degradation of the stream.

Figure 3-1. Sullivan Creek Dispersed Recreation Site Restoration Project Vicinity

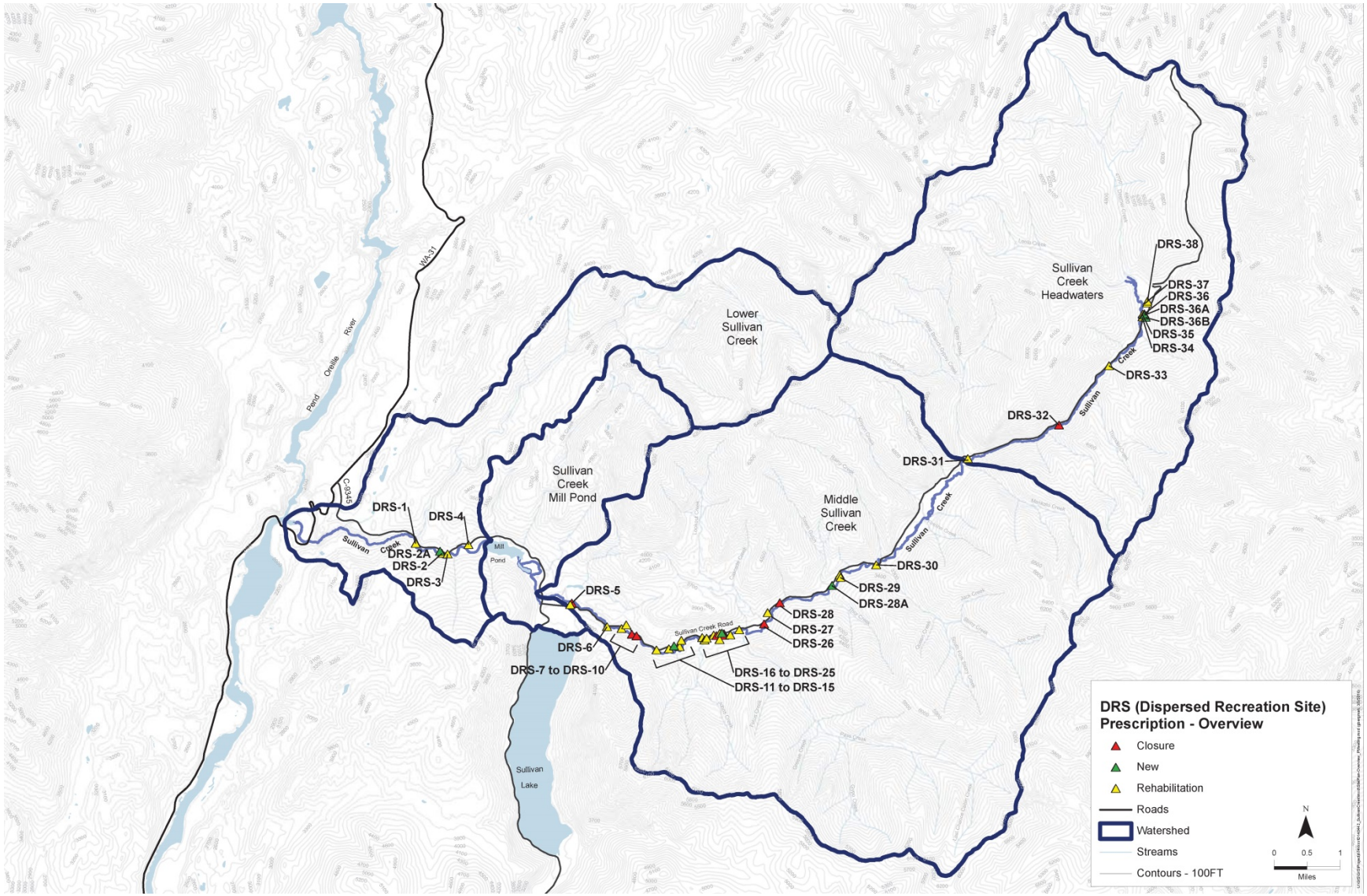


Figure 3-2. Sullivan Creek Dispersed Recreation Sites – Lower Sullivan Creek Subwatershed

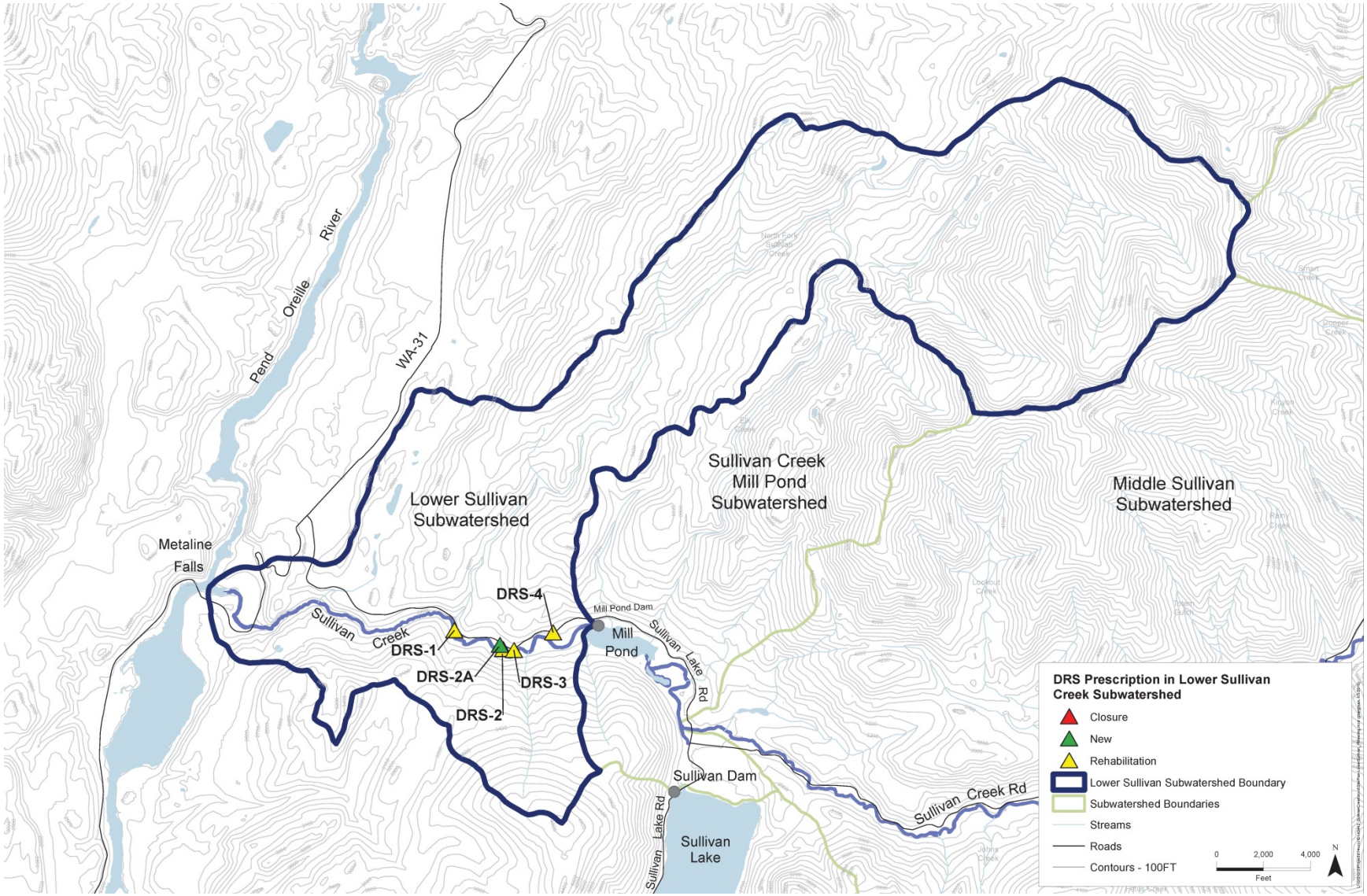


Figure 3-3. Sullivan Creek Dispersed Recreation Sites – Middle Sullivan Creek Subwatershed

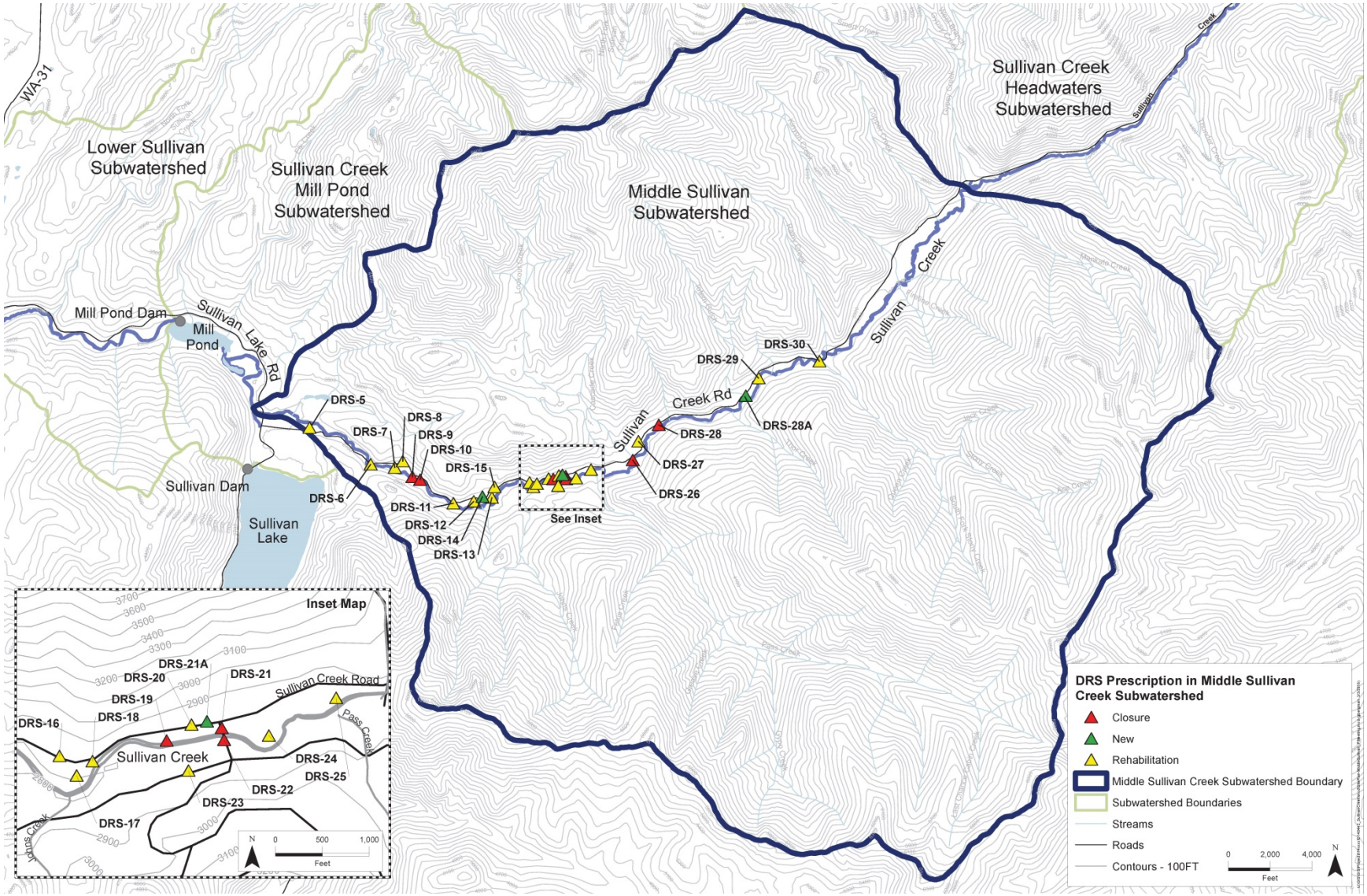
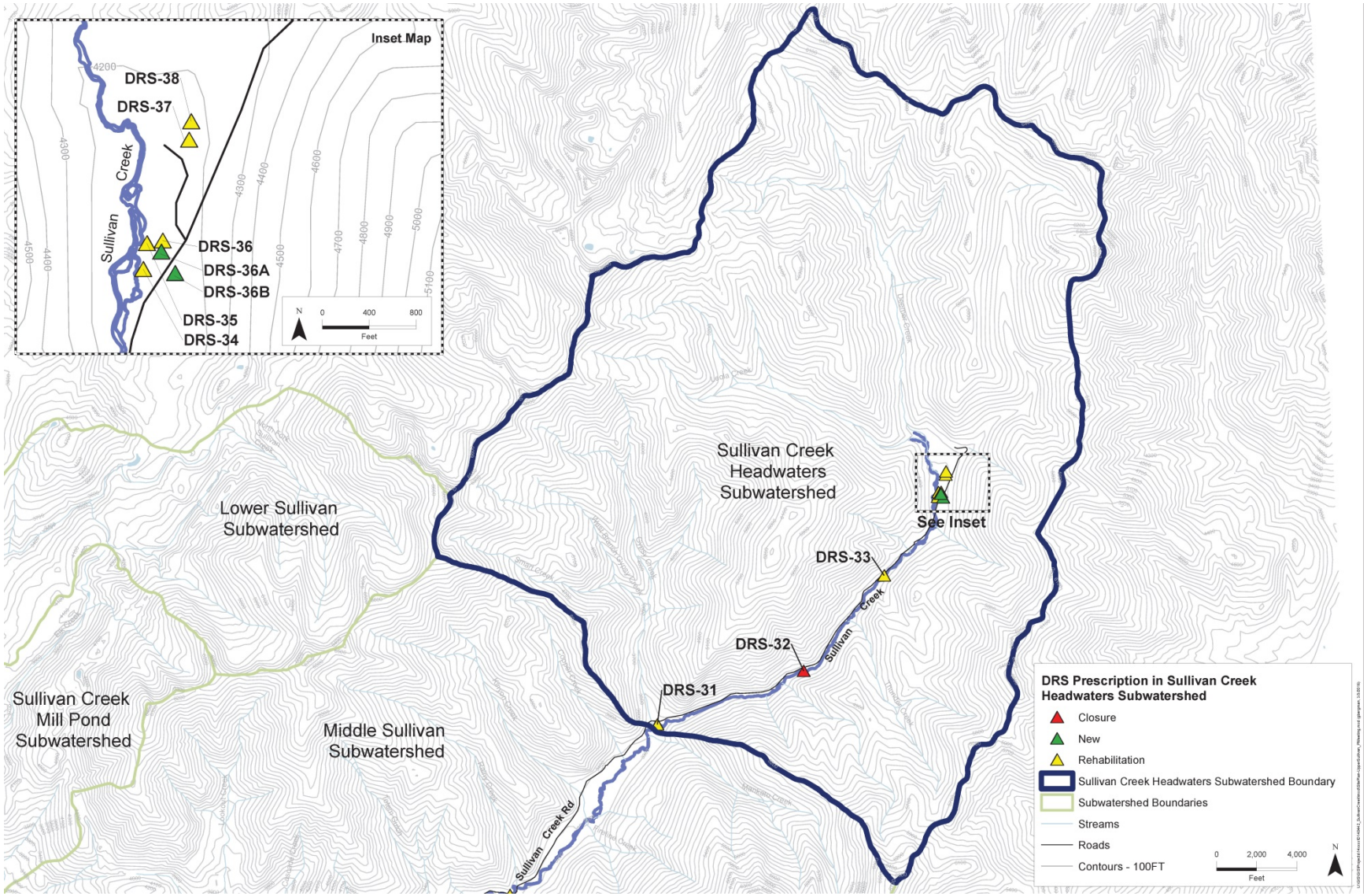


Figure 3-4. Sullivan Creek Dispersed Recreation Sites – Upper Sullivan Creek Subwatershed



Visitor motivations for preferring or prioritizing dispersed recreation opportunities are likely diverse. These sites may act as overflow areas when developed campgrounds are full, may offer a different type of experience compared to developed campgrounds, or may simply be free alternatives to the required fees at developed campgrounds. No matter the motivation, dispersed recreation use can degrade and adversely affect resources (e.g., vegetation, wildlife, historic, etc.). Large group sizes and poor camping etiquette can cause soil compaction, bank erosion, plant mortality, and sanitation issues. In turn, degradation of the site and resources ultimately detracts from the overall recreation experience of current and future visitors.

In general, there are two relevant high level recreation management strategies that are typically used to manage appropriate dispersed recreation opportunities that are particularly important to controlling or limiting potential resource impacts from dispersed recreation use. These strategies include (Manning and Anderson 2012):

1. Modifying dispersed recreation use patterns and/or activities, and
2. Enhancing the resistance (e.g., focus use to specific areas, armor or harden the site, encourage low impact behaviors and best practices, etc.) of resources in dispersed recreation settings.

These recreation management strategies can reduce adverse effects by encouraging proper use and containing camp areas. The USFS may also be able to limit/prohibit dispersed recreation in specific areas, while encouraging appropriate visitor behaviors (a variation of item three above) and enhancing the resistance of resources in others. The focus of the dispersed recreation site prescriptions is on the specific actions needed to enhance the resilience of resources (the capacity of site resources to withstand and adapt to impacts) and focus dispersed recreation use in appropriate locations along Sullivan Creek and out of sensitive environments such as floodplains. However, the long-term success of these enhancement efforts also requires a proactive approach to modifying dispersed use behaviors. This will be accomplished in part through site design, but also through a robust information and education program that is coupled with periodic monitoring and enforcement. This longer-term information and education process is beyond the scope of the Initial Plan, but should be acknowledged as a critical implementation component of the overall restoration effort along Sullivan Creek. Without it, the risk of visitors either intentionally or unintentionally disrupting the restoration actions and/or displacing their use to other, potentially new dispersed recreation sites along Sullivan Creek is high.

Outdoor recreation research studies in Wilderness areas indicate that visitors tend to prefer restoration and other active management strategies to increased restrictions and regulations (research on visitor reactions to impact levels and preferences for corresponding management actions in non-Wilderness areas is limited). Study results point to positive reactions from visitors to restoration activities in Wilderness areas. In particular, Wilderness visitors generally do not like to see heavily impacted sites, hold resource managers responsible for maintaining the natural state of a site or area, and tend to support restoration activities. Furthermore, restoration activities ultimately enhance the visitor experience and may also improve visitor perceptions of resource

managers in designated Wilderness areas (Flood 2001, Flood and McAvoy 2000). This is not to imply that Wilderness and non-Wilderness visitors will respond similarly to restoration actions; rather it shows that there is at least a precedent for positive views and outcomes associated with restoration activities among visitors.

Active restoration of degraded recreation sites tends to result in more immediate resource improvements compared to passive restoration. Vegetation at heavily degraded recreation sites in subalpine forests in the Pacific Northwest that have been closed, but not actively restored have shown little to no natural recovery 15 years after the initial closure (Cole 2013). In other settings, passive restoration facilitated by temporary site closures resulted in improvements to soil compaction at dispersed sites in the Delaware Water Gap (NJ/PA), Kings Canyon National Park (CA), and oak stands in Minnesota in varying timeframes (6 – 15 years). However, this type of passive recovery often takes much longer than deterioration (i.e., impacts occur faster than recovery) and many sites still show evidence of disturbance even after several years of temporary closure (Hammitt and Cole 1998). While sometimes challenging, it is possible to restore natural vegetation at heavily affected dispersed recreation sites. These efforts tend to be most successful when the restoration effort is intense and coupled with prohibitions on visitor use (at least in the initial stages of restoration) (Cole et al. 2012). Ultimately, managing dispersed recreation use to limit impacts in the first place should be a long-term priority given the applied and intense restoration efforts that are needed at heavily degraded sites (Cole and Spildie 2007).

With this in mind and based on field observations and discussion at each of the 38 dispersed recreation sites, the following overall strategy is proposed to restore the natural resource setting (e.g., improved fishery, enhanced riparian habitat, etc.) and associated recreation experience (e.g., improved overall satisfaction, improved visitor safety, etc.):

- Minimize net loss of camping and day use opportunities along Sullivan to help minimize visitor displacement, the potential creation of new sites, and visitor dissatisfaction;
- Use a combination of design and education/information to direct use to lower impact areas;
- Shift use areas away from channel migration zones, where feasible, to protect stream habitat for native fish and help ensure the long-term viability of dispersed recreation sites;
- Use a light development strategy (e.g., barrier rocks, fire ring, bear box, etc.) to help preserve more primitive dispersed camping experience; and
- Encourage sustainable recreation and dispersed best practices through site design (based on the existing USFS dispersed camping pamphlet):
    - Dispersed sites should be more than 100 feet from streambanks, where possible, but never closer than 25 feet

- Sites should be located out of floodplain and channel migration zone (CMZ) where possible
- Stream access should be confined, not dispersed all along the bank
- Parking at dispersed sites should be at least 100 feet from streambanks
- Each site should have appropriate food storage and where possible, ample separation between food storage and sleeping areas
- Fire rings at dispersed sites should be at least 100 feet from streambanks and in a location that also protects vegetation and minimizes fire hazards

To help accomplish this strategy, several common prescriptive actions can be used and/or combined depending on the site-specific need for reducing a site's footprint, closing the site to overnight or all recreation use, and/or restoring natural resource function along Sullivan Creek. These prescriptions include:

- Adding of barrier rocks – these are rocks up to size 5-man (48-54 inch diameter) used to prevent vehicle access to a site or to more strictly define the parking perimeter.
- Iceberging – this is a USFS technique used to close a campground or define the area for camping. It involves adding angular rock (8-10 inch) that is often mixed with soil to disturbed areas of the site and/or to areas where there is a highly likelihood of use in the future. This technique helps facilitate growth of tree seedlings and other vegetation. Use of this treatment also creates an area unfavorable for setting up tents because of the very uneven ground surface. Supplemental planting of seedlings can be included or the site can be allowed to regenerate naturally.
- Planting of woody vegetation – this technique can be applied to upland or riparian sites. Plant species are selected to meet site conditions and based on Colville National Forest restoration guidelines. This can be particularly useful to rehabilitate degraded streambanks that lack riparian cover. Increasing the woody cover can reduce sedimentation, stabilize the streambank, provide song bird habitat, and contribute to other riparian functions.
- Slash piling – this is the application of small diameter cut trees in piles to further prevent vehicle use, particularly on newly closed roads. Used with the addition of large rocks these two techniques can reinforce a road closure.
- Constructing barrier berm – this technique is recommend only for a couple of sites and consists of digging a linear trench and then piling and compacting the excavated soil adjacent to the trench. This creates a steep and deep ditch face to help prevent vehicle access and is typically used in conjunction with other methods such as the addition of barrier rock.
- Road ripping – this is a mechanical treatment of an existing road surface and used to close a road to vehicle use. This is often conducted with the tines dragged behind a bulldozer or in tandem with a backhoe.

- Adding metal campfire rings and food storage (bear) boxes – adding fire rings and bear boxes helps ensure visitors make their campfires in appropriate locations and that they properly store their food to minimize encounters with bears and other wildlife. Since these types of site improvements are not identified in the License, the USFS, along with other partners including SCL, has applied for grant funding to help provide bear boxes at the dispersed recreation sites. Similar grant opportunities will also be explored for fire rings.

In addition and as already noted by the USFS in their dispersed camping pamphlet, "[f]rom time to time, certain areas may be closed or travel barriers may be installed to protect or restore stream health, vegetation, or fish and wildlife habitats." Visitors and other dispersed recreation site users should be encouraged to respect boundaries at closed or modified sites.

SCL and ESA staff used this overall dispersed recreation site restoration strategy to develop site-specific prescriptions for each of 38 dispersed recreation sites along Sullivan Creek. For each dispersed recreation site, the following information is provided in this section:

- Site Number – a project-specific DRS number, as well as a USFS number, where applicable.
- Size – a qualitative estimate of size based on the number of vehicles that could park at the site. For purposes of this effort, site sizes include:
    - Small = 1-2 vehicles or one pop-up trailer (no recreation vehicles [RVs]),
    - Medium = 3-4 vehicles or one medium to large RV, and
    - Large = 5 or more vehicles or 1 or more RVs.

  In addition to the qualitative descriptions of site size based on parking capacity, each site description also includes an estimate of the total area of existing use patterns. This estimate includes all areas within an approximate impact boundary (i.e., area of observed impact) at each site.
- Site Description – a narrative of current conditions based on field observations.
- Estimated Use Level and Types– a qualitative estimate of use based on anecdotal USFS observations) and general types of recreation use allowed and/or occurring at the site (N. Berger, personal communication, October 28 and 29, 2014 and November 6, 2015). For purposes of this effort, estimated site use levels include:
    - Low = some summer season weekend use,
    - Moderate = summer season weekend use with some weekday use, and
    - High = summer season use during weekends and weekdays, as well as some shoulder season use.
- Habitat Issues/Concerns – a narrative of identified habitat issues and/or concerns based on field observations.

- Proposed Treatment – a narrative description of the proposed prescriptive actions at each site.
- Associated Sullivan Creek Restoration Actions – a brief description of Sullivan Creek fish habitat restoration actions at or adjacent to each site that will be completed prior to or concurrent with the dispersed recreation site restoration actions. The License requires SCL to complete substantial restoration of habitat for native fish in Sullivan Creek. SCL plans to use some of the dispersed recreation sites to access Sullivan Creek for these fish habitat enhancements.
- Anticipated Outcome – a brief description of the anticipated outcomes that are likely to result from the proposed treatment.
- Photographs – several photographs of each dispersed recreation site.

Dispersed Recreation Site 01

Site Number: DRS-01

Size: Large; the approximate area of impact of DRS-01 is 24,210 ft^2.

Site Description: This site is located at river mile (RM) 2.5 and at Sullivan Lake Road mile 1.3. It is on a low terrace along Sullivan Creek accessed via a single entrance/exit from Sullivan Lake Road. There are at least five distinct use areas (space for a tent or RV/parked vehicle) and six user-defined (user-created) campfire rings at this site. Many of these use areas are directly adjacent to the streambank. Several user-defined trails leave this site providing access to other shoreline areas primarily up creek.

Use: High. Overnight, day use, and recreational mining (primarily during the month of August).

Habitat Issues/Concerns: This site contains large areas of bare soil with little to no understory vegetation in the primary area of use. Soils throughout the site are extremely compacted from vehicle and foot traffic and drainage is problematic leading to large puddles of mud and standing water in spots. Several trees are damaged and many have exposed roots due to soil loss and compaction from recreation use. Bank erosion is prevalent at several locations throughout DRS-01, likely from recreational miners moving equipment up and down the streambanks. In addition, some hydraulic mining has been done on both sides of the creek (not an allowed use), undercutting and eroding the banks.

Proposed Treatment: The proposed treatments at this site include:

- Use barrier rock to delineate appropriate vehicle access and parking areas,
- Use iceberging to focus camping in select locations, in particular away from the streambank, and to help minimize site creep,
- Revegetate the most heavily damaged streambanks,
- Remove the user-defined campfire rings,
- Formalize access to the creek in four streambank locations (including one kayak launch) and
- Add an informational kiosk, metal campfire rings and at least one bear box.

Associated Sullivan Creek Restoration Actions: This site will likely be a staging area and access point for construction of engineered log jams, large woody debris (LWD) placement, bank improvements downstream to protect Sullivan Lake Road, and replacement of the North Fork Sullivan Creek culvert with a fish passable structure. Up to 100 pieces of LWD up to 50 feet in length and 2 feet in diameter with rootwads could be placed in this reach. Up to 20 boulders may also be used. Treatment is anticipated in 2020 and 2021. Site conditions could change substantial following Mill Pond Dam removal in 2018.

Anticipated Outcome: While this site is heavily disturbed, the proposed restoration treatments would result in improved riparian and stream habitat. The replanted streambanks and the formalized creek access points will help control erosion and sedimentation. Delineated parking areas will restrict vehicle use to previously disturbed areas and limit the tendency of dispersed recreation sites to expand as use levels increase (i.e., site creep). Iceberging will also help control site creep. The addition of official campfire rings, bear boxes, and an informational kiosk will enhance the visitor experience at this site. Once implemented, the treatments will result in a reduction in the total affected area, but given the popularity of this site, occupancy or use levels are not anticipated to change substantially. That is, while fewer visitors may be capable of using the site at one time, the frequency of the site being occupied is unlikely to change.

Photographs:

DRS-01 – Photo 1.

DRS-01 – Photo 2.

DRS-01 – Photo 3.

DRS-01 – Photo 4.

Dispersed Recreation Site 02

Site Number: DRS-02

Size: Large; the approximate area of impact of DRS-02 is 4,253 ft^2.

Site Description: This dispersed recreation site is located at RM 3.2 and is 2.4 miles along Sullivan Lake Road. The site, along with DRS-03, is commonly called Moon Flats (see below). There are three distinct use areas along the internal access road that parallels Sullivan Lake Road. The internal access road first passes DRS-02A, then DRS-02, and finally dead-ends at DRS-3. The primary use areas are located on large, flat areas adjacent to a steep slope that leads to Sullivan Creek. Each use area has an existing user-defined campfire ring. Several user-defined trails provide access from the upper use areas to a lower terrace along the creek. Visitors have also created a walk-in use area on this lower terrace with at least one identified user-defined campfire ring and space for one or more tents. DRS-2 is a popular site for large recreational vehicles because of the easy parking access.

DRS 2 is located within the Moon Flats homestead site, archaeological site number 45FS1032. The USFS has formally determined that this site is not eligible for the National Register of Historic Places (NRHP). However, this determination was based on observed above ground cultural resources. Subsurface disturbance of this site is permissible, and constitutes no adverse effect on cultural resources, but construction methods at this site should avoid significant subsurface disturbance, if possible. This is because additional documentation could be required if during the course of subsurface excavation and construction additional artifacts or structural remains are uncovered, and they significantly differ in form, age or function from the materials observed previously. Constructing a surface road prism rather than excavating a road would eliminate any risk of delays or design changes due to cultural resources.

Use: High. Overnight and day use.

Habitat Issues/Concerns: Since DRS-02 and its associated use areas are located in a large field above the creek, riparian habitat issues are limited. However, these use areas have increased in size over the years from continued vehicle and pedestrian traffic. This increase in use has led to larger areas of trampled vegetation, and exposed and compacted soil, in particular along and adjacent to the internal road corridor. The large, grassy field setting of this dispersed site provides ample unconfined areas for visitor use to expand increasing the likelihood that these types of impacts will continue to proliferate. There are also sanitation issues at the site (a primitive toilet was observed at this site during the October 2014 field visit) and potential cultural resource concerns (see above and Appendix 2).

Proposed Treatment: The proposed treatments at this site include:

- Add barrier rocks to better delineate appropriate parking areas,

- Use iceberging to focus camping in select locations, in particular away from the streambank, and to help minimize site creep,
- Remove the user-defined campfire ring,
- Add bear boxes and campfire ring, and
- Define access to site by adding a gravel drive.

Associated Sullivan Creek Restoration Actions: No instream restoration anticipated in the vicinity of this site.

Anticipated Outcome: Delineating the parking areas with barrier rocks will help confine vehicle use at this site and minimize site creep. Adding bear boxes will facilitate visitor safety and enhance the overall recreation experience (at least for some visitors). At-one-time visitor capacity of the site may be slightly reduced by the delineated parking, but the size categorization of the site will not change (i.e., it's a large site now and will be a large site after the site enhancements are implemented). Additionally, the overall use level (frequency of the site being occupied) is unlikely to change because of the proposed restoration measures.

Photographs:

DRS-02 – Photo 1.

DRS-02 – Photo 2.

DRS-02 – Photo 3.

DRS-02 – Photo 4.

Dispersed Recreation Site 02A

Site Number: DRS-02A

Size: Small; the approximate area of impact of DRS-02A is 4,665 ft^2.

Site Description: This dispersed recreation site, along with DRS-02 and DRS-03, is located at RM 3.2 and at mile 2.4 of Sullivan Lake Road. The site makes use of a relatively flat area immediately on the right-hand side of the internal road that provides access to the dispersed recreation sites in the Moon Flats area (see description in DRS-02). There are remnant vehicle tracks and indentations in the ground indicating where vehicles periodically access the site. In addition, there is a user-defined campfire ring and at least one light user-defined trail that provides access to Sullivan Creek. The site has space for one to two tents, or a vehicle with a small camper-trailer.

Use: Low; while use at the adjacent primary use area (DRS-02) at Moon Flats is high, this site likely receives lower use levels (based on observed impacts and anecdotal observations) and only when DRS-02 is at capacity (i.e., this site likely functions in part as an overflow site for when DRS-02 is in use). Overnight and day use.

Habitat Issues/Concerns: DRS-02A is not located directly on Sullivan Creek and so riparian and other habitat issues are limited. Since use tends to be more limited at DRS-02A compared to DRS-02, there is less evidence of trampled vegetation and exposed/compacted soil at this time. That said, this site shares similar characteristics to DRS-02 (e.g., grassy field with unconfined areas for expanded visitor use) and so as use potentially increases in the future, the chance of habitat impacts will also increase. Also, the clearing is recorded as the location of a 20th century homestead and archaeological site. However, the site has been previously determined as Not Eligible for the National Register of Historic Places. Modification of the meadow will not constitute an adverse effect under Section 106 of the National Historic Preservation Act. (see DRS-02 and Appendix 2).

Proposed Treatment: The proposed treatments at this site include:

- Use barrier rock to delineate appropriate vehicle access and parking areas,
- Remove the user-defined campfire rings,
- Add metal campfire ring and a bear box, and
- Add a restroom near DRS-02A that would serve all dispersed recreation sites in the Moon Flats area, as well as others in the vicinity (e.g., DRS-01, DRS-04, etc.).

Associated Sullivan Creek Restoration Actions: No instream restoration anticipated in the vicinity of this site.

Anticipated Outcome: Adding barrier rocks will help delineate appropriate visitor use areas at DRS-02A and help confine potential impacts to these areas. Similar to DRS-02,

adding a metal campfire ring and providing a bear box will help improve visitor safety and enhance the overall recreation experience at the site. Formalizing this site will add overnight capacity to help compensate for overnight capacity losses at other areas along Sullivan Creek. This will likely induce higher levels of use compared to current levels. As such, moderate to high use levels may be expected in the future.

Photographs:

DRS-02A – Photo 1.

DRS-02A – Photo 2.

DRS-02A – Photo 3.

Dispersed Recreation Site 03

Site Number: DRS-03

Size: Medium; the approximate area of impact of DRS-03 is 7,375 ft^2.

Site Description: This dispersed recreation site is accessed off Sullivan Lake Road at mile 2.4 (same access as DRS-02). It is located where an internal access road through DRS-02 dead-ends at a relatively flat, forested terrace above Sullivan Creek. Groups using DRS-02 sometimes prohibit access to this site. This site is also commonly referred to as Moon Flats and is located within the forest cover that delineates the edge of the large field that typifies the entire Moon Flats area. There is one user-defined campfire ring at the site and several user-defined trails provide access from the site downslope to the creek.

Use: High. Overnight and day use.

Habitat Issues/Concerns: This site contains large areas of bare soil with little to no understory vegetation in the primary area of use. Soils throughout the site are extremely compacted from vehicle and foot traffic. Some of the trees are damaged and have exposed roots from visitor use. Impacts (trampled vegetation, exposed soil, etc.) appear to be expanding into adjacent areas.

Proposed Treatment: The proposed treatments at this site include:

- Add barrier rocks to better delineate appropriate parking areas and create separation from camping areas,
- Formalize access to the creek near streambank,
- Create a vehicle turn-around,
- Use light iceberging (no digging due to presence of large trees and exposed roots) to pull use away from the steep slope to the creek,
- Remove the user-defined campfire rings, and
- Add a bear box and campfire ring.

Associated Sullivan Creek Restoration Actions: No instream restoration anticipated in the vicinity of this site.

Anticipated Outcome: Delineating the parking area with barrier rocks will help confine vehicle use and keep vehicles away from the trees (and exposed roots) and steep slopes at this site. The light iceberging will help restore vegetation along the top of the steep slope to the creek. Adding a bear box will facilitate visitor safety and enhance the overall recreation experience (at least for some visitors). At-one-time visitor capacity and overall use of the site is unlikely to change because of the proposed restoration measures.

Photographs:

DRS-03 – Photo 1.

DRS-03 – Photo 2.

DRS-03 – Photo 3.

DRS-03 – Photo 4.

Dispersed Recreation Site 04

Site Number: DRS-04

Size: Medium; the approximate area of impact of DRS-04 is 2,515 ft^2.

Site Description: This dispersed recreation site is located at RM 3.66 and 2.8 miles along Sullivan Lake Road. There is a small pull-out within the forest on the left-hand side of the internal access road at this site immediately after turning off Sullivan Lake Road. The internal access road continues to a small bench along Sullivan Creek where there are three distinct small use areas. The internal access road is approximately 800 feet long, and is steep and rutted in places with trees and shrubs encroaching in several places.

Use: Low. Overnight and day use.

Habitat Issues/Concerns: The three small use areas at the end of the internal access road at this site are located along the Sullivan Creek streambank and display trampled vegetation, exposed and compacted soil, and streambank erosion that is likely contributing sediment to the creek. The inaccessibility (due to the poor condition of the internal access road) of these use areas also poses a public safety risk as the site tends to be hard to access for monitoring and enforcement purposes. Habitat issues are minor at the small pull-out area near Sullivan Lake Road, though there is some vegetation loss and exposed soil.

Proposed Treatment: The proposed treatments at this site include:

- Use barrier rocks to close the internal road just beyond the small pull-out,
- Rip road for 80 feet beyond barrier (this would prevent vehicles from accessing the lower bench area at this site.), and
- Provide a bear box and campfire ring.

Associated Sullivan Creek Restoration Actions: Prior to closure and decommissioning of the internal road, it may be used as access for LWD placement in Sullivan Creek. Up to 50 pieces of LWD could be placed at the site using an excavator. Implementation is anticipated in 2020 and 2021.

Anticipated Outcome: Closing the internal road to the lower use areas will ultimately improve riparian and creek habitat by limiting access to these areas. The total capacity of this site will be reduced by the proposed treatment since the three smaller use areas near the creek will be inaccessible (accordingly, the size of the site will be reduce from medium to small). However, total use levels are not anticipated to change substantially (currently low and likely to remain low in the future), and overall visitor and staff (USFS, law enforcement, etc.) safety will improve.

Photographs:

DRS-04 – Photo 1.

DRS-04 – Photo 2.

Dispersed Recreation Site 05

Site Number: DRS-05/USFS 01

Size: Large (combination of both use areas at this site); the approximate area of impact of DRS-05 is 11,410 ft^2.

Site Description: This dispersed recreation site is located at RM 6.18 and 0.3 miles along Sullivan Creek Road. The site contains two distinct use areas, an upper use area above Sullivan Creek near Sullivan Creek Road and a lower use area on the banks of Sullivan Creek. The upper use area has a user-defined campfire ring and a metal bear box. The lower use area is accessed via an internal road and has a user-defined campfire ring. A short, but steep user-defined trail provides access from the lower use area to Sullivan Creek.

Use: High. Overnight and day use. Lower site provides access to the creek for angling.

Habitat Issues/Concerns: Recreation has caused vegetation trampling and loss, and exposed soil and compaction at both the upper and lower use areas of this dispersed site. The user-defined creek access trail at the lower use area also displays erosion and is likely contributing sediment to the creek.

Proposed Treatment: The proposed treatments at this site include:

- Use barrier rocks to delineate parking/vehicle access at the upper use area,
- Add iceberging around the periphery of the upper use area to help focus recreation use,
- Remove the user-defined campfire ring,
- Move the location of the existing bear box at the upper use area and add a campfire ring,
- Use barrier rocks to close the internal access road to the lower use area,
- Rip and revegetate the internal access road and lower use area,
- Iceberg the lower camp area, and
- Retain pedestrian access from the upper use area to the lower use area and creek. This access will be designed to direct runoff into the forest rather than down the path and into the creek.

Associated Sullivan Creek Restoration Actions: The lower site provides a potential access point for LWD placement in Sullivan Creek. Up to 25 pieces of LWD could be placed at this location with an excavator. No instream restoration work will be accessed from the upper portion of the site, however, it could potentially be used for staging. Instream restoration is anticipated to occur in 2018 and 2019.

Anticipated Outcome: The forest habitat at the upper use area will improve over time by restricting vehicle access to the site and iceberging the periphery. Closing vehicle

access to the lower use area will likely reduce use of the site, which in turn will help reduce erosion and sedimentation. Revegetating the internal access road and lower use area will improve habitat and the aesthetics of the area. Since the lower use area will be closed to vehicle use, it is less likely to continue to be used for overnight purposes (though overnight use will not specifically be prohibited). As such, the restoration actions will reduce the total capacity of the site (from large to small) and will likely result in lower overall use levels (from high to moderate).

Photographs:

DRS-05 – Photo 1.

DRS-05 – Photo 2.

DRS-05 – Photo 3.

DRS-05 – Photo 4.

Dispersed Recreation Site 06

Site Number: DRS-06

Size: Small; the approximate area of impact of DRS-06 is 4,240 ft^2.

Site Description: This dispersed recreation site is located at RM 6.93 and 1.0 miles along Sullivan Creek Road. It is a small site adjacent to the road with parking only available on the road shoulder. There is a user-defined campfire ring and a user-defined trail that provides access from the primary use area to the creek.

Use: Low. Day use only (USFS previously closed this site to overnight use).

Habitat Issues/Concerns: The USFS previously completed some restoration actions and closed this site to overnight use. This combination of actions has helped with tree, shrub, and other vegetation regeneration at the site. While use is likely low at this site, the presence of the campfire ring and user-defined creek access trail indicate that visitors still use the site and that it may be susceptible to future impacts (vegetation trampling, tree damage, soil compaction, etc.).

Proposed Treatment: The proposed treatments at this site include:

- Maintain closure to overnight camping,
- Iceberg the perimeter to limit site creep,
- Remove the user-defined campfire ring, and
- Maintain pedestrian access to the creek. This access will be designed to direct runoff into the forest rather than down the path and into the creek.

The site will remain day use only.

Associated Sullivan Creek Restoration Actions: No instream restoration is planned for this site because it is already on a trajectory toward recovery and it is directly upstream of a bridge.

Anticipated Outcome: The proposed restoration actions will help limit future recreation-related habitat degradation at this site. These actions are unlikely to result in changes to overall recreation use.

Photographs:

DRS-06 – Photo 1.

DRS-06 – Photo 2.

Dispersed Recreation Site 07

Site Number: DRS-07/USFS 03

Size: Small; the approximate area of impact of DRS-07 is 9,225 ft^2.

Site Description: This dispersed recreation site is located at RM 7.15 and 1.2 miles along Sullivan Creek Road. An approximately 120-foot-long internal access road leads from Sullivan Creek Road to the primary use area at this site. The primary use area sits on a forested bench above Sullivan Creek. There is a user-defined campfire ring and a metal bear box at the site. Several user-defined trails radiate from the primary use area and provide pedestrian access to Sullivan Creek.

Use: High. Overnight and day use.

Habitat Issues/Concerns: The USFS previously placed barrier rocks to help delineate parking at this site. However, the primary use area at this dispersed site exhibits typical overuse characteristics including trampled vegetation, vegetation loss and tree damage, and exposed and compacted soil. Furthermore, there has been a proliferation of user-defined creek access trails at this site.

Proposed Treatment: The proposed treatments at this site include:

- Add additional barrier rocks to further delineate parking,
- Iceberg along the periphery of the site closest to the creek,
- Maintain existing bear box and add campfire ring,
- Add slash to block access for off road vehicles, and
- Maintain pedestrian access to the creek. This access will be designed to direct runoff into the forest rather than down the path and into the creek.

Associated Sullivan Creek Restoration Actions: No instream restoration is anticipated in the vicinity of this site as current fish habitat conditions are excellent.

Anticipated Outcome: The additional barrier rocks will help confine vehicle use to appropriate areas at this site. The iceberging will help limit site creep and will help areas along the periphery of the site revegetate over time. Overall, the restoration actions will improve habitat conditions. The improved habitat and aesthetic conditions at the site may enhance the recreation experience for some visitors. Capacity and recreation use levels are unlikely to change due to the restoration actions at this site.

Photographs:

DRS-07 – Photo 1.

DRS-07 – Photo 2.

DRS-07 – Photo 3.

DRS-07 – Photo 4.

Dispersed Recreation Site 08

Site Number: DRS-08/USFS 04

Size: Small; the approximate area of impact of DRS-08 is 3,720 ft^2.

Site Description: This dispersed recreation site is located at RM 7.24 and 1.3 miles along Sullivan Creek Road. It is located on the north side of Sullivan Creek Road and thus does not provide direct access to the creek. There is a user-defined campfire ring and a metal bear box at this site. Two user-defined trails lead from the bear box to Sullivan Creek Road. Near the entrance to this site, there is a small pull-out with a single vault CXT restroom. The restroom is intended to be used by all nearby visitors, not just those staying at DRS-08.

Use: High. Overnight and day use.

Habitat Issues/Concerns: The user-defined trails between this site and Sullivan Creek Road may induce higher levels of use on these trails, including motorized use, but otherwise habitat issues are minor at this site.

Proposed Treatment: The proposed treatments at this site include:

- Add several barrier rocks to limit vehicular use of the user-defined trails between the bear box and Sullivan Creek Road and,
- Remove the existing user-defined campfire ring and install a new campfire ring.

Associated Sullivan Creek Restoration Actions: No instream restoration is anticipated in the vicinity of this site.

Anticipated Outcome: The addition of barrier rocks at the Sullivan Creek Road terminus of the user-defined trails will help limit any potential disturbance from vehicle use of these trails. This action will not change the capacity or overall use level at this dispersed recreation site.

Photographs:

DRS-08 – Photo 1.

DRS-08 – Photo 2.

DRS-08 – Photo 3.

DRS-08 – Photo 4 (nearby CXT).

Dispersed Recreation Site 09

Site Number: DRS-09/USFS 05

Size: Large based on availability of parking along road (6 to 8 vehicles can park along the road adjacent to this site); the approximate area of impact of DRS-09 is 2,050 ft^2.

Site Description: This dispersed recreation site is located at RM 7.33 and 1.5 miles along Sullivan Creek Road. The USFS previously placed barrier rocks and barriers at the entrance to this site so parking is only available on a widened shoulder of Sullivan Creek Road. The remnants of a cobble road provide pedestrian access to the primary use area at this dispersed recreation site. The primary use area is located on a flat terrace adjacent to Sullivan Creek and currently has one user-defined campfire ring. Breaks in the streambank vegetation allow direct visitor access from the use area to Sullivan Creek.

Use: Low. Overnight and day use.

Habitat Issues/Concerns: The primary use area of this dispersed recreation site is located in the stream overflow channel and may be subject to periodic flooding. Furthermore, visitor use has resulted in vegetation loss and soil compaction along the streambank. These impacts may contribute to sedimentation. Additionally, this site was filled with trash and other camping debris during the October 2014 field visit (see photos).

Proposed Treatment: The proposed treatment is to close this site by completing the following actions:

- Add additional barrier rocks to further prohibit access,
- Rip and revegetate access road,
- Remove the user-defined campfire ring, and
- Iceberg the primary use area.

Associated Sullivan Creek Restoration Actions: This site provides access for potential placement of LWD to reactivate a side-channel, and create pools and habitat complexity. Up to 50 pieces of LWD could be placed in close proximity to this site with an excavator. LWD may also be recruited through selective harvest from the riparian forest or through helicopter wood placement. Instream restoration is anticipated to occur in 2018 and 2019.

Anticipated Outcome: Given the location of this site within the active stream migration channel, the proposed closure of this site will help improve riparian and creek habitat over time by limiting recreation-related impacts. The closure of this site will reduce recreation capacity and use, but ultimately may enhance the recreation experience by providing a higher quality and safer visitor experience throughout the Sullivan Creek region.

Photographs:

DRS-09 – Photo 1.

DRS-09 – Photo 2.

DRS-09 – Photo 3.

DRS-09 – Photo 4.

Dispersed Recreation Site 10

Site Number: DRS-10/USFS 06

Size: Medium; the approximate area of impact of DRS-10 is 14,540 ft^2.

Site Description: This dispersed recreation site is located at RM 7.43 and 1.6 miles along Sullivan Creek Road. It sits directly on the forested streambank of Sullivan Creek. The primary use area at this site includes three lobes and that may allow several groups (or one large group) to use this site concurrently. Each lobe has a user-defined campfire ring and space for parking (vehicle, RVs, etc.) and/or tents.

Use: High. Overnight and day use.

Habitat Issues/Concerns: While the USFS previously placed barrier rocks and boulders to help focus use to appropriate areas, recreational effects are prevalent at this dispersed site. Vegetation loss, heavy tree damage, and exposed and compacted soil are evident. Furthermore, the site sits within the active stream migration channel and recreational use is exacerbating soil erosion and the undercutting of the streambank.

Proposed Treatment: The proposed treatment is to close this site by completing the following actions:

- Add additional barrier rocks to further prohibit access,
- Remove the existing user-defined campfire rings,
- Rip areas without mature trees and add iceberging to allow the main use area to revegetate naturally,
- Add barrier rocks and slash to further discourage camping, and
- Revegetate streambank.

Associated Sullivan Creek Restoration Actions: This site provides access for LWD placement to protect the road directly upstream and create habitat. LWD will likely be added to create log jams and reactivate a side channel. Up to 50 pieces of LWD could be placed in close proximity to this site with an excavator. LWD may also be recruited through selective harvest from the riparian forest or through helicopter wood. Instream restoration is anticipated to occur in 2018 and 2019. This site will also be used for staging live cuttings during implementation of the landslide bioengineering project in 2015 and 2016 upstream and downstream of the site across Sullivan Creek Road.

Anticipated Outcome: Given the location of this site within the active flood zone, the proposed closure of this site will help improve riparian and creek habitat over time by limiting recreation-related effects. The closure of this site will reduce recreation capacity and use, but ultimately may enhance the recreation experience by providing a higher quality and safer visitor experience throughout the Sullivan Creek region.

Photographs:

DRS-10 – Photo 1.

DRS-10 – Photo 2.

DRS-10 – Photo 3.

DRS-10 – Photo 4.

Dispersed Recreation Site 11

Site Number: DRS-11/USFS 07

Size: Medium; the approximate area of impact of DRS-11 is 10,900 ft^2.

Site Description: This dispersed recreation site is located at RM 7.82 and 2 miles along Sullivan Creek Road. The primary use area sits on a relatively flat area between Sullivan Creek Road and Sullivan Creek. There are two user-defined campfire rings at this site and space for two to three tents (or a large RV). User-defined trails provide access from the site to the creek.

Use: High. Overnight and day use.

Habitat Issues/Concerns: The USFS previously added some barrier rocks to this site to help delineate appropriate areas for recreational use. Nonetheless, vegetation at this dispersed recreation site is severely trampled and non-existent in areas. While some ground-level vegetation remains as a buffer along the streambank, much of the site is exposed and compacted soil. Several of the trees are damaged and exhibit exposed roots.

Proposed Treatment: The proposed treatments at this site include:

- Use barrier rock to delineate parking area,
- Add iceberging around the periphery of the current impact area (to reduce the size and extent of impacts),
- Remove the existing user-defined campfire rings,
- Add a bear box and campfire ring,
- Retain three to four of the existing pedestrian access routes to the river (these routes will be designed to direct runoff into the forest rather than down the path and into the creek), and
- Revegetate the streambank and restore vegetation along creek access routes.

Associated Sullivan Creek Restoration Actions: LWD placement of up to 20 pieces using an excavator, selective riparian harvest, or a helicopter is a possibility at this site. Instream restoration would occur in 2018 or 2019.

Anticipated Outcome: The proposed addition of barrier rocks to delineate the parking area will help keep vehicles from driving further into the site toward the streambank. This action, along with adding iceberging to better confine recreation use within a smaller footprint will help the understory recover throughout this site. Revegetating the streambank will help prevent continued erosion and sedimentation and improve riparian habitat. The restored habitat and associated aesthetic improvements may enhance the recreation experience for some visitors to this site. The proposed treatments will slightly reduce the capacity of this site by constraining the area available for parking and camping (likely changing the size of the site from medium to small). However, total use levels are not anticipated to change substantially.

Photographs:

DRS-11 – Photo 1.

DRS-11 – Photo 2.

DRS-11 – Photo 3.

DRS-11 – Photo 4.

Dispersed Recreation Site 12

Site Number: DRS-12/USFS 08

Size: Medium; the approximate area of impact of DRS-12 is 16,170 ft^2.

Site Description: This dispersed recreation site is located at RM 8.05 and 2.1 miles along Sullivan Creek Road. An internal access road from Sullivan Creek Road provides vehicular access to the primary use areas of this site. There are two primary use areas at this site, one near a widened parking area and a second one adjacent to Sullivan Creek. Both areas are accessible by vehicle, though pedestrian access from the first to the second use area is also possible. Each of the use areas has a user-defined campfire ring. There is a metal bear box located near the first use area (closer to Sullivan Creek Road).

Use: High. Overnight and day use.

Habitat Issues/Concerns: Both of the primary use areas of this dispersed recreation site show signs of visitor use and associated ecological degradation. Vegetation has been trampled and exposed soil delineates the use areas. Much of the riparian vegetation at the second, lower use area has been crushed and the streambank is eroding in several locations. Furthermore, this lower use area is prone to flooding.

Proposed Treatment: The proposed treatments at this site include:

- Use barrier rock to delineate parking area (provide enough space for a vehicle turn-around),
- Iceberg and revegetate the main use area (in active flood zone).
- Remove the user-defined campfire ring near the parking area, and add a campfire ring near the primary use area (out of the overflow channel zone),
- Relocate bearbox so it is near the campfire ring,
- Maintain pedestrian access from the site to the creek (designed to direct runoff into the forest rather than down the trail and into the creek), and
- Revegetate the streambank.

Associated Sullivan Creek Restoration Actions: The channel is unconfined adjacent to the site. Habitat is currently of high quality. Up to 20 additional pieces of LWD could be placed to increase floodplain connectivity using an excavator, selective riparian harvest, or helicopter.

Anticipated Outcome: The proposed addition of barrier rocks and iceberging to better confine recreation use within a smaller footprint away from the creek and revegetation will help recover this site. Revegetating the streambank will help prevent continued erosion and sedimentation and improve riparian habitat condition. The restored habitat and associated aesthetic improvements may enhance the recreation experience for some visitors to this site. The proposed treatments will reduce the capacity of this site

by constraining the area available for parking and camping. As such, the restoration actions will reduce the total capacity of the site (from medium to small). However, total use levels are not anticipated to change substantially as a result of the proposed actions.

Photographs:

DRS-12 – Photo 1.

DRS-12 – Photo 2.

DRS-12 – Photo 3.

DRS-12 – Photo 4.

Dispersed Recreation Site 13

Site Number: DRS-13/USFS09

Size: Medium; the approximate area of impact of DRS-13 is 8,110 ft^2.

Site Description: This dispersed recreation site is located at RM 8.21 and 2.3 miles along Sullivan Creek Road. It is across Sullivan Creek Road from DRS-14 and a single vault CXT restroom. The site includes two primary use areas that are connected by a user-defined pedestrian path, though it appears vehicles may occasionally use this route. The first use area is located within and adjacent to a widened and cleared parking area. There is a user-defined campfire ring here. The second use area is located closer to Sullivan Creek and currently has a user-defined campfire ring and a metal bear box. User-defined trails continue from this second use area to Sullivan Creek.

Use: High. Overnight and day use.

Habitat Issues/Concerns: The first use area is largely clear of vegetation, as it is the end of a short spur road that provides access to this dispersed recreation site. The soil is compacted in this area from repeated vehicular and pedestrian use. The forested area adjacent to this first use area, the user-defined route connecting the use areas, and the second use area are all delineated by a lack of ground vegetation and exposed soil.

Proposed Treatment: The proposed treatments at this site include:

- Use barrier rock to delineate parking area,
- Iceberg and revegetate the current use area (in the flood prone area),
- Rip (avoiding mature trees) the old road leading from upper site,
- Remove the user-defined campfire ring and add a metal campfire ring,
- Relocate the bear box so it is near the campfire ring, and
- Maintain pedestrian access from the site to the creek. This path will be designed to direct runoff into the forest rather than down the path and into the creek.

Associated Sullivan Creek Restoration Actions: This site provides access for a small amount of LWD placement (approximately 20 pieces) and potential bank improvements to protect the road and improve habitat conditions directly upstream of the site.

Anticipated Outcome: Similar to proposed actions at other dispersed recreation sites in the Sullivan Creek region, the proposed addition of barrier rocks and iceberging, as well as active revegetation to better confine recreation use within a smaller footprint will help the understory recover throughout this site. The restored habitat and associated aesthetic improvements may enhance the recreation experience for some visitors to this site. The proposed treatments will slightly reduce the capacity of this site by constraining the area available for parking and camping. The restoration actions will reduce the total capacity of the site from medium to small. However, total use levels are not anticipated to change substantially as a result of the proposed actions.

Photographs:

DRS-13 – Photo 1.

DRS-13 – Photo 2.

DRS-13 – Photo 3.

DRS-13 – Photo 4.

Dispersed Recreation Site 14

Site Number: DRS-14/USFS 10

Size: Large; the approximate area of impact of DRS-14 is 8,285 ft^2.

Site Description: This dispersed recreation site is located across from DRS-13 at RM 8.15 and 2.31 miles along Sullivan Creek Road. It is on the opposite side of the road and so provides little direct access to the creek. The site is located on a short spur road that at one time likely functioned as a pull-through. One end of the road has been blocked essentially creating the opportunity for a dispersed use area. The area is flat and partially delineated by a steep slope along the western and southern periphery of the site. There are two user-defined campfire rings, a metal bear box, and several user-defined trails that lead up slope from the site. There is a single vault CXT restroom and large bulletin board near the entrance to this dispersed recreation site. The CXT is intended to serve all nearby visitors, not just those at this site.

Use: High. Overnight and day use.

Habitat Issues/Concerns: There are only minor habitat concerns at this dispersed site stemming primarily from potential site creep (the tendency for the area of impact at a dispersed site to expand over time from use).

Proposed Treatment: The proposed restoration treatments at this site include:

- Clear vegetation and provide light grading along the closed portion of the existing spur road such that it again functions as a pull-through off of Sullivan Creek Road.
- Delineate four specific sites within the existing footprint of DRS-14 and along the spur road. Each site will provide an appropriate parking area, metal campfire ring, and bear box.
- Add barrier rocks to better define and delineate appropriate use areas at all existing and new use areas, and
- Remove the existing user-defined campfire rings.

Associated Sullivan Creek Restoration Actions: No instream restoration is anticipated in the vicinity of this site.

Anticipated Outcome: The re-opened spur road and delineation of four distinct use areas within the footprint of DRS-14 will help retain the overall existing recreation DRS capacity by helping offset lost overnight opportunities (from the closure of several DRSs) elsewhere along Sullivan Creek. The proposed addition of barrier rocks at this site will help minimize the potential for future site creep. While the size of each delineated use area at DRS-14 will likely be small, the site will retain its functionality as a large site since it may be used by individual small groups (e.g., one group per delineated area) or by larger groups (e.g., one large groups spread out over the four delineated use areas). As such, changes to capacity and recreation use levels are not anticipated as a result of implementing the proposed actions at this site.

Photographs:

DRS-14 – Photo 1.

DRS-14 – Photo 2.

DRS-14 – Photo 3.

DRS-14 – Photo 4.

Dispersed Recreation Site 15

Site Number: DRS-15/USFS 11

Size: Small; the approximate area of impact of DRS-15 is 2,635 ft^2.

Site Description: This dispersed recreation site is located at RM 8.37 and 2.4 miles along Sullivan Creek Road. It is located on the north side of Sullivan Creek Road and thus does not provide direct access to the creek. The small site currently has a user-defined campfire ring.

Use: Low. Overnight and day use.

Habitat Issues/Concerns: The USFS previously placed barrier rocks and boulders to help focus dispersed recreation use at this site. However, there are continued minor habitat concerns at this site stemming primarily from potential site creep.

Proposed Treatment: The proposed restoration treatments at this site include:

- Adding barrier rocks to better define and delineate appropriate use areas ,
- Remove the existing user-defined campfire rings, and
- Adding a metal campfire ring and bear box.

Associated Sullivan Creek Restoration Actions: No instream restoration is anticipated in the vicinity of this site.

Anticipated Outcome: The proposed addition of barrier rocks at this site will help minimize the potential for future site creep. Changes to capacity and recreation use levels are not anticipated as a result of implementing the proposed action at this site.

Photographs:

DRS-15 – Photo 1.

DRS-15 – Photo 2.

DRS-15 – Photo 3.

DRS-15 – Photo 4.

Dispersed Recreation Site 16

Site Number: DRS-16/USFS 12

Size: Small; the approximate area of impact of DRS-16 is 2,090 ft^2.

Site Description: This dispersed recreation site is located at RM 8.6 and 2.8 miles along Sullivan Creek Road. It is located on the north side of Sullivan Creek Road across from DRS-17 and thus does not provide direct access to the creek. The small site currently has a user-defined campfire ring.

Use: Low. Overnight and day use.

Habitat Issues/Concerns: There are only minor habitat concerns at this dispersed site stemming primarily from potential site creep.

Proposed Treatment: The proposed restoration treatments at this site include:

- Adding barrier rocks to better define and delineate appropriate use areas,
- Remove the existing user-defined campfire rings and install a metal campfire ring, and
- Add a bear box to the site.

Associated Sullivan Creek Restoration Actions: No instream restoration is anticipated in the vicinity of this site.

Anticipated Outcome: The proposed addition of barrier rocks at this site will help minimize the potential for future site creep. Providing a bear box will help foster appropriate visitor behavior and promote visitor safety. Changes to capacity and recreation use levels are not anticipated as a result of implementing the proposed action at this site.

Photographs:

DRS-16 – Photo 1.

DRS-16 – Photo 2.

DRS-16 – Photo 3.

DRS-16 – Photo 4.

Dispersed Recreation Site 17

Site Number: DRS-17/USFS 13

Size: Large; the approximate area of impact of DRS-17 is 16,670 ft^2.

Site Description: This dispersed recreation site is located at RM 8.69 and 2.81 miles along Sullivan Creek Road. The large, slightly undulating site sits on a forested terrace adjacent to Sullivan Creek. The primary use areas are concentrated near a central parking area and radiate to the banks of Sullivan Creek to the east and west/southwest. There are four user-defined campfire rings and a metal bear box at this site. Several user-defined trails provide access from the primary use areas to Sullivan Creek.

Use: High. Overnight and day use.

Habitat Issues/Concerns: Similar to many of the other highly used dispersed recreation sites, DRS-17 is marked by large contiguous areas with little to no understory vegetation and exposed soil. The soil is highly compacted in areas and many of the trees have exposed roots from continued recreational use of the site. The streambank at this site is eroded, in particular where visitors access the creek, and at least a portion of the use area is within the active stream channel migration zone.

Proposed Treatment: The proposed treatments at this site include:

- Focus recreational use at the site outside of the active stream migration channel,
- Use barrier rock to delineate parking area,
- Iceberg the western leg of the affected area (to reduce the size and extent of disturbance),
- Establish a user area in the eastern leg of the site and iceberg the periphery to define use,
- Maintain two pedestrian access paths from the primary use area to the creek. Access will be designed to direct runoff into the forest rather than down the paths and into the creek), and
- Remove the user-defined campfire ring near the creek (where it is susceptible to flooding), and add a campfire ring and maintain the bear box in the primary use area.

Associated Sullivan Creek Restoration Actions: LWD placement is anticipated at this site. USFS weirs will be modified or removed during restoration to increase pool abundance and habitat complexity. Restoration will likely be completed using an excavator. Up to 25 pieces will be placed in the site vicinity. LWD may also be selectively harvested from the riparian zone or placed from a helicopter to facilitate jam formation.

Anticipated Outcome: The proposed addition of barrier rocks and iceberging to better confine recreation use within a smaller footprint will help understory vegetation recover

throughout this site. Focusing recreational use outside of the active stream migration channel will improve riparian habitat. The restored habitat and associated aesthetic improvements may enhance the recreation experience for some visitors to this site. The proposed treatments will slightly reduce the capacity of this site by constraining the area available for parking and camping. This the capacity will change from a large to a medium. However, total use levels are not anticipated to change substantially as a result of the proposed actions; that is, this site will likely remain a popular site because it's large (so can accommodate larger groups), relatively flat, and provides easy access to the creek.

Photographs:

DRS-17 – Photo 1.

DRS-17 – Photo 2.

DRS-17 – Photo 3.

DRS-17 – Photo 4.

Dispersed Recreation Site 18

Site Number: DRS-18

Size: Small; the approximate area of impact of DRS-18 is 420 ft^2.

Site Description: This dispersed recreation site is located at RM 8.87 between DRS-17 and DRS-19. DRS-18 consists of a small parking area along the shoulder of Sullivan Creek Road and a user-defined trail from the road to the creek.

Use: Low. Day use only (the USFS previously closed this site to overnight use).

Habitat Issues/Concerns: The USFS previously completed restoration actions including iceberging. Given the degree and success of these previous restoration actions, habitat concerns at this dispersed recreation site are minimal.

Proposed Treatment: The proposed restoration treatment at this dispersed site includes adding barrier rocks to better limit vehicle access.

Associated Sullivan Creek Restoration Actions: LWD placement is anticipated at this site. USFS weirs will be modified or removed during restoration to increase pool abundance and habitat complexity. Restoration will likely be completed using an excavator. Up to 25 pieces will be placed in the site vicinity. LWD may also be selectively harvested from the riparian zone or placed from a helicopter to facilitate jam formation.

Anticipated Outcome: The previous restoration actions at this dispersed site have resulted in reduced recreation-related site degradation and improved habitat condition. The addition of more barrier rocks will help reinforce these previous restoration actions and maintain site integrity. The site will remain day use only and no changes to capacity and/or use levels are anticipated.

Photographs:

DRS-18 – Photo 1.

DRS-18 – Photo 2.

DRS-18 – Photo 3.

DRS-18 – Photo 4.

Dispersed Recreation Site 19

Site Number: DRS-19/USFS14

Size: Small; the approximate area of impact of DRS-19 is 4,065 ft^2.

Site Description: This dispersed recreation site is located at RM 8.91 and 3 miles along Sullivan Creek Road. The small site is located between the creek and Sullivan Creek Road. Parking is limited to the shoulder of Sullivan Creek Road at this site. There is a user-define campfire ring and a well-worn bare area that connects Sullivan Creek Road to Sullivan Creek.

Use: Low. Overnight and day use.

Habitat Issues/Concerns: This small dispersed recreation site lacks understory vegetation and riparian vegetation along the streambank. Soils are exposed and compacted, and eroding along the streambank.

Proposed Treatment: The proposed treatment is to close this site to overnight use and make it day use only. This would be accomplished by implementing the following actions:

- Use barrier rocks along Sullivan Creek Road to prevent vehicle access to the site (parking would be allowed along the shoulder),
- Iceberg the site to promote natural revegetation,
- Remove the existing user-defined campfire ring,
- Revegetate the streambank, and
- Maintain pedestrian access from Sullivan Creek Road to the creek. This path will be designed to direct runoff into the forest rather than down the path and into the creek.

Associated Sullivan Creek Restoration Actions: LWD placement is anticipated at this site. USFS weirs will be modified or removed during restoration to increase pool abundance and habitat complexity. Restoration will likely be completed using an excavator. Up to 25 pieces will be placed in the site vicinity. LWD may also be selectively harvested from the riparian zone or placed from a helicopter to facilitate jam formation.

Anticipated Outcome: Closing this site to overnight use would reduce degradation and restore habitat, while retaining some recreation opportunities (compared to a full closure). Prohibiting overnight use will result in a loss of camping capacity at this site, but overall use levels are unlikely to change substantially because of this modification (i.e., use levels are currently low and are anticipated to remain low post implementation).

Photographs:

DRS-19 – Photo 1.

DRS-19 – Photo 2.

DRS-19 – Photo 3.

DRS-19 – Photo 4.

Dispersed Recreation Site 20

Site Number: DRS-20/USFS 15

Size: Medium; the approximate area of impact of DRS-20 is 6,970 ft^2.

Site Description: This dispersed recreation site is located at RM 8.99 and 3.1 miles along Sullivan Creek Road. It is located on the north side of Sullivan Creek Road and thus does not provide direct access to the creek. The site currently has a user-defined campfire ring. There is a single vault CXT restroom nearby (immediate to the east along Sullivan Creek Road).

Use: Moderate. Overnight and day use.

Habitat Issues/Concerns: There are only minor habitat concerns at this dispersed site stemming primarily from potential site creep.

Proposed Treatment: The proposed restoration treatments at this site include:

- Adding barrier rocks to better define and delineate appropriate use areas,
- Remove the existing user-defined campfire rings and add a metal campfire ring, and
- Add a bear box to the site.

Associated Sullivan Creek Restoration Actions: No instream restoration is anticipated in the vicinity of this site.

Anticipated Outcome: The proposed addition of barrier rocks at this site will help minimize the potential for future site creep. Providing a campfire ring and bear box will help foster appropriate visitor behavior and promote visitor safety. Changes to capacity and recreation use levels are not anticipated as a result of implementing the proposed action at this site.

Photographs:

DRS-20 – Photo 1.

DRS-20 – Photo 2.

DRS-20 – Photo 3 (nearby CXT).

DRS-20 – Photo 4 (nearby CXT).

Dispersed Recreation Site 21

Site Number: DRS-21/USFS 17

Size: Small; the approximate area of impact of DRS-21 is 3,810 ft^2.

Site Description: This dispersed recreation site is located at RM 9.01 and 3.1 miles along Sullivan Creek Road immediately to the east of the intersection with Johns Creek (USFS 2200) Road. The site has a user-defined campfire ring, space for several tents, and direct access to Sullivan Creek.

Use: High. Overnight and day use.

Habitat Issues/Concerns: The USFS previously placed barrier rocks at the site to try to focus recreation use. However, the barrier rocks have provide little relief and the site continues to display heavy recreation-related effects including a lack of understory vegetation, trampled riparian vegetation, exposed and compacted soil, and areas of erosion along the streambank.

Proposed Treatment: The proposed treatment is to close this site to overnight use and make it day use only. This would be accomplished by implementing the following actions:

- Use barrier rocks along Sullivan Creek Road to prevent vehicle access to the site (parking would be allowed along the shoulder),
- Remove the existing user-defined campfire ring,
- Iceberg the site to promote natural revegetation,
- Revegetate the streambank, and
- Maintain pedestrian access from Sullivan Creek Road to the creek. This path will be designed to direct runoff into the forest rather than down the path and into the creek.

Associated Sullivan Creek Restoration Actions: LWD placement is anticipated at this site. USFS weirs will be modified or removed during restoration to increase pool abundance and habitat complexity. Restoration will likely be completed using an excavator. Up to 25 pieces will be placed in the site vicinity. LWD may also be selectively harvested from the riparian zone or placed from a helicopter to facilitate jam formation.

Anticipated Outcome: Closing this site to overnight use will help limit adverse effects and restore habitat, while retaining some recreation opportunities (compared to a full closure). Prohibiting overnight use will reduce DRS camping capacity. As such, it is reasonable to expect use levels to decrease in the future (i.e., use levels are currently high and are anticipated to be low post implementation).

Photographs:

DRS-21 – Photo 1.

DRS-21 – Photo 2.

DRS-21 – Photo 3.

DRS-21 – Photo 4.

Dispersed Recreation Site 21A

Site Number: DRS-21A

Size: Small; the approximate area of impact of DRS-21A is 650 ft^2.

Site Description: This new dispersed recreation site is located at RM 8.99 approximately 3.1 miles along Sullivan Creek Road (note: this site was not included in the original 38 identified DRSs). It is located on the north side of the road with no direct access to the creek. The site is located between DRS-20 and USFS Site 16 (not a part of the group of dispersed sites included in the Initial Restoration Plan). Currently, the area proposed as DRS-21A is not used as a dispersed recreation site, but is used by some visitors at DRS-20 to access the restrooms at USFS Site 16 (single vault CXT restroom). A short user-defined trail through this area connects DRS-20 to the restroom at USFS Site 16.

Use: Low since this area is currently only used as a cut-through from DRS-20 to the restroom at USFS Site 16. Use can reasonably be expected to increase when the area is formalized. Overnight and day use.

Habitat Issues/Concerns: There are only minor habitat concerns (some vegetation trampling along the user-defined trail) at this dispersed site at this time.

Proposed Treatment: The proposed treatments at this site include:

- Clear an area along the current user-defined trail to create a small dispersed recreation site;
- Use barrier rock to delineate the new dispersed recreation site and parking area (near the existing restroom at USFS Site 16),
- Use barrier rock to delineate appropriate vehicle access and parking areas, and
- Add a metal campfire ring and a bear box.

Associated Sullivan Creek Restoration Actions: No instream restoration anticipated in the vicinity of this site.

Anticipated Outcome: Delineating the footprint of this new dispersed recreation site will help confine use to appropriate areas and minimize future impacts. Providing a campfire ring and bear box will help foster appropriate visitor behavior and promote visitor safety. Formalizing this site will add overnight capacity to help compensate for overnight capacity loses at other areas along Sullivan Creek. This will likely induce higher levels of use compared to current levels (from low to moderate).

Photographs:

DRS-21A – Photo 1.

DRS-21A – Photo 2.

DRS-21A – Photo 3.

DRS-21A – Photo 4.

Dispersed Recreation Site 22

Site Number: DRS-22/USFS 18

Size: Small; the approximate area of impact of DRS-22 is 1,060 ft^2.

Site Description: This dispersed recreation site is located across Sullivan Creek from DRS-21 at RM 3.1 and about 9.03 miles along Sullivan Creek Road. It is accessed by crossing a bridge over Sullivan Creek (USFS Road 2200500). The site sits on a small, flat bench above Sullivan Creek and currently has a user-defined campfire ring and user-defined trails from the site to the creek.

Use: Low. Overnight and day use.

Habitat Issues/Concerns: The USFS previously placed barrier rocks along the road entrance at this site. While this restoration action has prevented vehicles from accessing the site, recreational use has continued to degrade the site. There is limited understory vegetation and the riparian vegetation has been trampled where visitors access the creek. Soil is exposed and compacted, and eroding along the streambank.

Proposed Treatment: The proposed treatment is to close this site to all recreational use. This would be accomplished by implementing the following actions:

- Maintain existing barrier rocks and add others along USFS 2200500 Road to prevent access to the site,
- Iceberg to promote natural revegetation,
- Remove the existing user-defined campfire ring, and
- Revegetate along the damaged streambank.

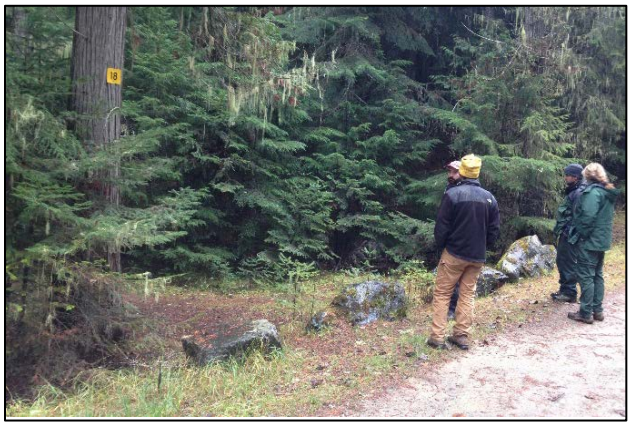
Associated Sullivan Creek Restoration Actions: No instream restoration is anticipated in the vicinity of this site.

Anticipated Outcome: Closing this site to recreational use will help limit recreation use effects and restore habitat. The closure of this site will reduce recreation capacity and use (which is already low at this site), but ultimately may enhance the recreation experience by providing a higher quality and safer visitor experience throughout the Sullivan Creek region.

Photographs:

DRS-22 – Photo 1.

DRS-22 – DRS – Photo 2.



DRS-22 – Photo 3.

DRS 22 – Photo 4.

Dispersed Recreation Site 23

Site Number: DRS-23/USFS 19

Size: Large; the approximate area of impact of DRS-23 is 18,400 ft^2.

Site Description: This dispersed recreation site is located at RM 8.94. It is accessed via the USFS 2200 Road off Sullivan Creek Road around mile 8.94. The site makes use of an old spur road and other cleared areas (likely used as staging areas for assorted logging and development actions within the National Forest) to provide a large, flat, and mostly open dispersed use setting. A portion of the site is located within the forested area between the cleared areas and Sullivan Creek. There are two user-defined campfire rings and a metal bear box at the site. There are also user-defined trails leading from the site to the creek. Given the large size and relatively secluded location of the site it often functions as a de facto group site.

Use: High. Overnight and day use.

Habitat Issues/Concerns: Since this dispersed site is not located directly along Sullivan Creek, potential creek-related habitat concerns are likely minor. That said, the popularity of the site has resulted in and increased the risk of site creep and related effects (e.g., vegetation loss, soil exposure, etc.).

Proposed Treatment: The proposed treatments at this site include:

- Use barrier rocks to better delineate parking and use areas,
- Iceberg the western use area,
- Rip and replant the spur road, while retaining a vehicle turn-around,
- Close unofficial loop road with boulders and slash,
- Remove the existing user-defined campfire rings, and
- Add campfire ring and maintain the bear box.

Associated Sullivan Creek Restoration Actions: No instream restoration is anticipated in the vicinity of this site.

Anticipated Outcome: The proposed addition of barrier rocks at this site will help minimize the potential for future site creep. Ripping and replanting the spur road will improve habitat and aesthetic conditions at the site. The proposed treatments will reduce the capacity of the site by constraining the area available for parking and camping. Thus the capacity of the site will change from large to medium. However, total use levels are not anticipated to substantially change.

Photographs:

DRS-23 – Photo 1.

DRS-23 – Photo 2.

DRS-23 – Photo 3.

DRS-23 – Photo 4.

Dispersed Recreation Site 24

Site Number: DRS-24/USFS 20

Size: Small; the approximate area of impact of DRS-24 is 8,910 ft^2.

Site Description: This dispersed recreation site is located at RM 9.09 and 3.2 miles along Sullivan Creek Road. A short spur road provides access to the primary use area at this site. The primary use area is within an active side channel of Sullivan Creek. As such, a portion of the site is inundated and unusable. There is a user-defined campfire ring and user-defined access to Sullivan Creek at this site. Parking is only available along the shoulder of Sullivan Creek Road.

Use: Low. Day use only (USFS previously closed this site to overnight use).

Habitat Issues/Concerns: The USFS previously blocked vehicular access to this site by placing barrier rocks and boulders at the entrance and prohibiting overnight use. The understory vegetation at this site and along the now closed access road is recovering. As noted previously, a side channel of Sullivan Creek cuts through the site and it is within the larger active channel migration zone. As such, habitat concerns and the threat of potential recreation-related impacts remain high.

Proposed Treatment: The proposed restoration treatment is to fully close this dispersed recreation site. The treatments here include:

- Add additional barrier rocks along Sullivan Creek Road,
- Rip and plant existing access road,
- Remove the existing user-defined campfire ring, and
- Create an earthern berm and trench to further restrict vehicle access.

Associated Sullivan Creek Restoration Actions: Selective harvesting of several trees to increase LWD loading and potentially to direct additional flow into the new side-channel is anticipated adjacent to this site.

Anticipated Outcome: Closing this site to recreational use will help limit site degradation and restore habitat. While this site was previously closed to overnight use, the full closure will further reduce recreation capacity and use (which is already low at this site). As with other dispersed recreation site closures along Sullivan Creek, this closure may enhance the overall recreation experience by providing a higher quality and safer visitor experience throughout the region.

Photographs:

DRS-24 – Photo 1.

DRS-24 – Photo 2.

DRS-24 – Photo 3.

DRS-24 – Photo 4.

Dispersed Recreation Site 25

Site Number: DRS-25/USFS 21

Size: Large; the approximate area of impact of DRS-25 is 11,960 ft^2.

Site Description: This dispersed recreation site is located at RM 9.32 and 3.3 miles along Sullivan Creek Road. A short access road provides vehicular access from Sullivan Creek Road to the primary use area at this site. The site lies along a large, relatively flat area along Sullivan Creek. There are two user-defined campfire rings and multiple locations that are likely used for camping (either to pitch a tent or park a trailer/RV). User-defined trails from the main use area provide access to Sullivan Creek.

Use: High. Overnight and day use.

Habitat Issues/Concerns: This site contains large areas of bare soil with little to no understory vegetation in the primary area of use. Soils throughout the site are extremely compacted from vehicle and foot traffic. Several trees are damaged and many have exposed roots due to soil loss and compaction from recreation use. Bank erosion is prevalent where visitors access the creek.

Proposed Treatment: The proposed treatments at this site include:

- Use barrier rock to delineate the parking and turnaround area, as well as prohibit off-highway vehicle access to the site along Sullivan Creek Road,
- Add iceberging around the periphery of the current impact area (to reduce the size and extent of impacts),
- Remove the four user-defined campfire rings,
- Add a campfire ring and bear box in the primary use area, and
- Maintain pedestrian access from the site to the creek and forest. This access will be designed to direct runoff into the forest rather than down the path and into the creek.

Associated Sullivan Creek Restoration Actions: This site provides access to Pass Creek and for proposed restoration in and in proximity to Wassan Creek. Several log jams are anticipated in this reach with up to 50 pieces of LWD. Jams adjacent to the road will likely be placed with an excavator. Selective harvest from the riparian zone and placement of LWD from a helicopter will also be employed in this reach to increase LWD loading, pools, and habitat complexity.

Anticipated Outcome: Adding barrier rocks and iceberging will help confine recreation use within a smaller footprint and will help the understory recover throughout this site, as well as along the streambank. The restored habitat and associated aesthetic improvements may enhance the recreation experience for some visitors to this site. The proposed treatments will reduce the capacity of this site by constraining the area available for parking and camping. Thus, the capacity of the site will change from large

to medium. However, total use levels are not anticipated to change substantially as a result of the proposed actions (i.e., the site is currently very popular and is anticipated to remain popular post implementation).

Photographs:

DRS-25- Photo 1.

DRS-25 – Photo 2.

DRS-25 – Photo 3.

DRS-25 – Photo 4.

Dispersed Recreation Site 26

Site Number: DRS-26/USFS 23

Size: Small; the approximate area of impact of DRS-26 is 5,760 ft^2.

Site Description: This dispersed recreation site is located at RM 9.78 and 3.8 miles along Sullivan Creek Road. Existing barrier rocks limit vehicular access to the site. There is limited parking within the shoulder of Sullivan Creek Road for visitors to this site. The primary use area is located between Sullivan Creek Road and Sullivan Creek. There are two user-defined campfire rings at this site and pedestrian access to the streambank and creek.

Use: Low. Overnight and day use.

Habitat Issues/Concerns: This dispersed recreation site may be prone to periodic flooding. Soil is exposed and compacted throughout the site, and there is erosion along the streambank. It is mostly devoid of understory and riparian vegetation.

Proposed Treatment: The proposal is to fully close this dispersed recreation site. Treatments include:

- Add barrier rocks to prevent vehicle access,
- Remove the two existing user-defined campfire rings,
- Rip and revegetate access road,
- Iceberg the primary use area, and
- Revegetate the streambank.

Associated Sullivan Creek Restoration Actions: This site is a likely location for additional LWD placement and some excavation at the head of a flood overflow channel to facilitate reactivation of a side channel. Excavation would be limited to near the river bank, and up to 10 pieces of LWD could be added to the channel, perhaps as a log jam, to increase pool area and redirect flows into the side channel.

Anticipated Outcome: Closing this site to recreational use will reduce user effects and restore habitat condition. The closure of this site will reduce recreation capacity and use, but may enhance the overall recreation experience by providing a higher quality and safer visitor experience throughout the Sullivan Creek region. Revegetation of the streambank will improve riparian function and reduce erosion.

Photographs:

DRS-26 – Photo 1.

DRS-26 – Photo 2.

DRS-26 – Photo 3.

DRS-26 – Photo 4.

Dispersed Recreation Site 27

Site Number: DRS-27/USFS 24

Size: Medium; the approximate area of impact of DRS-27 is 5,495 ft^2.

Site Description: This dispersed recreation site is located at RM 10.04 and 4 miles along Sullivan Creek Road. It is on the western, non-creek side of Sullivan Creek Road so does not provide direct access to the creek. The site is at the end of a short spur road and surrounded by forest vegetation. There is currently a user-defined campfire ring near the end of the spur road. The large, open setting of this site makes it amenable to larger groups.

Use: High. Overnight and day use.

Habitat Issues/Concerns: Given its location on the non-creek side of Sullivan Creek Road, there are minimal creek habitat-related issues and only minor habitat concerns at this dispersed site stemming primarily from potential site creep.

Proposed Treatment: The proposed restoration treatments for this site include:

- Add barrier rocks to better define and delineate appropriate use areas,
- Remove the user-defined campfire ring would,
- Add a campfire metal campfire ring and bear box.

Associated Sullivan Creek Restoration Actions: No instream restoration is anticipated in the vicinity of this site.

Anticipated Outcome: The proposed addition of barrier rocks at this site will help minimize the potential for future site creep. Removing the user-defined campfire ring and adding a bear box and metal campfire ring will help promote responsible visitor behavior and visitor safety. Changes to capacity and recreation use levels are not anticipated as a result of implementing the proposed actions at this site.

Photographs:

DRS-27 – Photo 1.

DRS-27 – Photo 2.

Dispersed Recreation Site 28

Site Number: DRS-28/USFS 25

Size: Small; the approximate area of impact of DRS-28 is 5,100 ft^2.

Site Description: This dispersed recreation site is located at RM 10.25 and 4.3 miles along Sullivan Creek Road. Parking is available along the shoulder of Sullivan Creek Road. The site sits on a small terrace that is downslope from the road. There is a user-defined campfire ring at the site and user-defined access to the creek.

Use: Low. Overnight and day use.

Habitat Issues/Concerns: This site appears to be subject to periodic flooding and there is currently a large log jam in the adjacent creek segment. The USFS previously placed barrier rocks at the site entrance to limit and focus recreation use. Nonetheless, recreational use has removed understory vegetation and heavily compacted the soil at this site. There is some streambank erosion that may be due in part to recreational use.

Proposed Treatment: The proposal is to fully close this dispersed recreation site. The treatments for this site include:

- Add barrier rock along Sullivan Creek Road,
- Iceberg the primary use area,
- Remove the existing user-defined campfire rings, and
- Revegetate the disturbed streambank.

Associated Sullivan Creek Restoration Actions: The channel is very active at this location. Up to 10 pieces of LWD will be added at this site using an excavator to increase side-channel formation.

Anticipated Outcome: Closing this site to recreational use will help limit site degradation and restore habitat. The closure of this site will reduce recreation capacity and use (which is already low at this site), but may enhance the overall recreation experience by providing a higher quality and safer visitor experience throughout the Sullivan Creek region.

Photographs:

DRS-28 – Photo 1.

DRS-28 – Photo 2.

DRS-28 – Photo 3.

DRS-28 – Photo 4.

Dispersed Recreation Site 28A

Site Number: DRS-28A

Size: Small; the approximate area of impact of DRS-28A is 1,643 ft^2.

Site Description: The area identified as DRS-28A is located between DRS-28 and DRS-29 at RM 11.23 and approximately 5.5 miles along Sullivan Creek Road (note: this site was not included in the original 38 identified DRSs). There is a small (1-2 vehicles) pullout along Sullivan Creek Road where visitors to this site can park and access the area. Visitors access the site via a user-defined trail that leads to several flat areas that provide space for tent camping. Two user-defined trails also provide access to Sullivan Creek. Overnight use at this site is currently prohibited.

Use: Low. Currently day use only, but will facilitate overnight use post-restoration actions. Overnight and day use.

Habitat Issues/Concerns: Currently, there are only minimal habitat-related issues and concerns at this dispersed recreation site. Vegetation trampling is limited and primarily focused along the user-defined trails at this site. There is some streambank erosion where one of the user-defined trails accesses Sullivan Creek.

Proposed Treatment: The proposed treatments at this site include:

- Use barrier rock to delineate the pullout along Sullivan Creek Road and limit vehicular access to the site,
- Use iceberging to focus camping in select locations to help minimize site creep,
- Retain one of the user-defined trails to Sullivan Creek (close the trail that access the creek via a steep streambank with signs of erosion), and
- Add a metal campfire ring and a bear box.

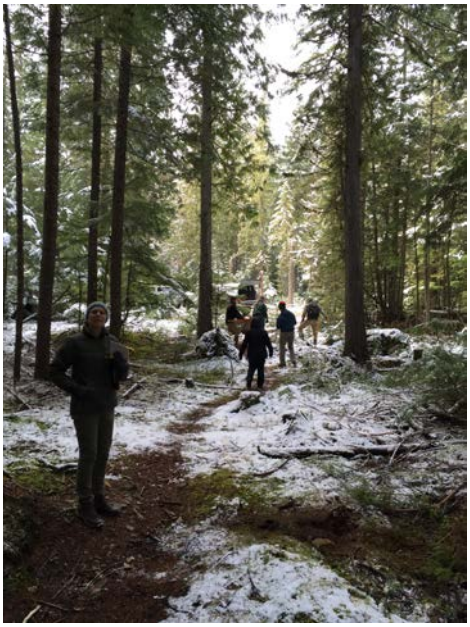
Associated Sullivan Creek Restoration Actions: No instream restoration anticipated in the vicinity of this site.

Anticipated Outcome: The proposed actions at this new dispersed recreation site will help minimize potential future recreation-related habitat impacts, while enhancing the overall recreation experience along Sullivan Creek. In particular, the addition of DRS-28A will add overnight capacity to help compensate for loses at other areas including DRS-28. Initially, use levels are not anticipated to increase substantially, but the enhancements coupled with nearby site closures could result in moderate use levels in the future.

Photographs:

DRS-28A – Photo 1.

DRS-28A – Photo 2.



DRS-28A – Photo 3.

DRS-28A – Photo 4.

Dispersed Recreation Site 29

Site Number: DRS-29/USFS 26

Size: Medium; the approximate area of impact of DRS-29 is 7,240 ft^2.

Site Description: This dispersed recreation site is located at RM 11.38 and 5.4 miles along Sullivan Creek Road. There are two primary use areas associated with this dispersed site. The first use area is located on a small bench along the streambank. This first use area is bound on the west and south by roads (Sullivan Creek Road and USFS Road 2200280) and the east and north by Sullivan Creek. The site provides direct access to the creek and has a user-defined campfire ring. The second use area is located across a short bridge (Old Pass Creek Bridge) on USFS Road 2200280. Barrier rocks currently prohibit vehicular access to this second use area, but visitors may access the site by foot. The second use area occupies the existing road bed and has a user-defined campfire ring. This road is blocked about 100 feet from the bridge.

An historic period archaeological site was discovered during the cultural resources survey of the first use area at this dispersed recreation site. The site, a buried rock cairn containing domestic items from the first part of the 20th century, is buried roughly 1 foot (30 cm) below the surface. Two caches of metal cans were observed, one of which is eroding out of the creek bank. The site is being recommended potential eligible for the NRHP. All landscaping and engineering measures used in the first use area should avoid subsurface disturbance within the bounds of the archaeological site (see Cultural Resource Report, Appendix 2).

Use: High. Overnight and day use.

Habitat Issues/Concerns: Most of the resource concerns at this dispersed recreation site are associated with the first use area. The USFS previously added barrier rock to focus use at the site, but recreational use has continued to affect the site. Understory vegetation is nonexistent at the site and there is severe streambank erosion. There are some cultural resource concerns at this first site (see above and Cultural Resources Report, Appendix 2) Since the second use area is located within an old road bed, recreational effects here are negligible.

Proposed Treatment: The proposed treatment is to refocus recreation use at this site away from the streambank and instead encourage use along the USFS Road 2200280. This would be accomplished by completing the following actions:

- Close the stream-side use area by adding barrier rocks and slash,
- Remove the user-defined campfire ring along the streambank and on opposite (southern) side of bridge,
- Allow vehicles and RVs to continue to park on the western side of the Old Pass Creek Bridge,

- Add barrier rocks at the western end of the Old Pass Creek Bridge to limit vehicle access, and
- Maintain pedestrian access across the Old Pass Creek Bridge to the walk-in campsite on the opposite (eastern) side of the creek, and
- Add a campfire ring and bear box to define the camp area on the eastern side of Old Pass Creek Bridge.

Associated Sullivan Creek Restoration Actions: Add LWD (10 pieces) at the site with an excavator above the bridge. Downstream of the bridge, use selective harvest of the riparian zone to increase wood loading in the reach.

Anticipated Outcome: The proposed restoration actions will help improve streambank conditions and habitat at this site while protecting cultural resources. While access to and use of the streambank area will be restricted, the capacity and overall use of the site is not anticipated to change substantially. Visitor use is already focused on the USFS 2200280 roadbed and will likely continue in the future.

Photographs:

DRS-29 – Photo 1.

DRS-29 – Photo 2.

DRS-29 – Photo 3.

DRS-29 – Photo 4.

Dispersed Recreation Site 30

Site Number: DRS-30

Size: Small; the approximate area of impact of DRS-30 is 1,210 ft^2.

Site Description: This dispersed recreation site is located at RM 12.10 and 6 miles along Sullivan Creek Road. Parking for this site is provided along the shoulder of Sullivan Creek Road. The primary use area consists of a user-defined, worn trail from the road to the creek.

Use: Low. Day use only (USFS previously closed this site to overnight use).

Habitat Issues/Concerns: The user-defined trail from Sullivan Creek Road to the creek is devoid of understory vegetation. The soil is exposed and eroding in places. The steep trail to the creek likely facilitates run-off and sedimentation of the creek.

Proposed Treatment: The following treatments are proposed:

- Add barrier rocks to further limit potential vehicle entry to the site,
- Iceberg the steep upper portion of the trail where soil compaction and erosion is worst, and
- Retain pedestrian access from the road through the iceberged area to the creek to focus recreation use. This path will be designed to direct runoff into the forest rather than down the path and into the creek.

The site will remain open for day use only.

Associated Sullivan Creek Restoration Actions: Several pieces of LWD (approximately 5) may be placed at this site using an excavator or rigging to fell trees into the channel from the riparian zone.

Anticipated Outcome: The proposed treatments will help promote understory growth (by focusing recreational use along a narrower trail), and curb erosion and sedimentation. The general aesthetics of the site will improve once vegetation becomes reestablished, which may enhance the recreational experience for some visitors. Use levels are unlikely to change as use is currently low and the proposed restoration treatments are unlikely to reduce or induce additional use.

Photographs:

DRS-30 – Photo 1.

DRS-30 – Photo 2.

Dispersed Recreation Site 31

Site Number: DRS-31/USFS 28

Size: Large; the approximate area of impact of DRS-31 is 13,810 ft^2.

Site Description: This dispersed recreation site is located at RM 14.55 and 8.3 miles along Sullivan Creek Road. The site generally includes two use areas, a large upper use area and a smaller, lower use area. The upper use area is undulated bench above the creek with several flat areas that are likely used for camping. There is a user-defined campfire ring in the upper use area, as well as several user-defined trails that provide access to the creek. A propane tank and other equipment associated with a fish pit tag array were recently placed adjacent to this upper use area. The lower use area is accessed via an internal spur road that leads to a point where Gypsy Creek drains into Sullivan Creek. There is a second user-defined campfire ring in this lower use area and several locations along the creek banks where visitors can access the water.

Use: Moderate. Overnight and day use.

Habitat Issues/Concerns: Both the upper and lower use areas at this site are heavily disturbed by dispersed recreation use. The upper use area is devoid of understory vegetation. Exposed and compacted soil delineates the extent of the heaviest used areas along this upper bench. Visitors have also damaged several trees in the upper use area. The road spur to the lower use area is eroded. Most of the understory vegetation has been removed due to recreational use of the lower use area. Soil is exposed and compacted. Visitors have trampled vegetation along the streambanks and there are signs of erosion in several locations.

Proposed Treatment: The proposed treatments at this site include:

- Reduce the area of impact by using barrier rocks to delineate parking areas,
- Rip the existing access spur and close the lower use area to most use, though allow several clearly defined pedestrian routes from the upper use area to the creek,
- Iceberg lower site and the outer perimeter of the western use area,
- Remove the existing user-defined campfire rings, and
- Add a metal campfire ring and bear box.

The dispersed site would remain open to both overnight and day use, provided safety measures are implemented at the adjacent propane tank associated with the fish pit tag array.

Associated Sullivan Creek Restoration Actions: 25 pieces of LWD will be placed in lower Gypsy Creek downstream of the road and mainstem Sullivan Creek upstream of the confluence with Gypsy Creek. Some of the wood may be placed with an excavator through this site.

Anticipated Outcome: The delineated parking and iceberging will help focus both vehicle and camping use at this site in appropriate areas (those where additional impacts are minimized). Closure of the lower use area will help stop streambank erosion and sedimentation. Improving the natural setting of the site may enhance the recreational experience of some visitors. Additionally, the provision of a fire ring and metal bear box will encourage appropriate visitor behavior. The proposed treatments will reduce the capacity of the site by constraining parking (change from large to medium). Total use levels are not anticipated to substantially change, however.

Photographs:

DRS-31 – Photo 1.

DRS-31 – Photo 2.

DRS-31 – Photo 3.

DRS-31 – Photo 4.

Dispersed Recreation Site 32

Site Number: DRS-32/USFS 29

Size: Small; the approximate area of impact of DRS-32 is 1,420 ft^2.

Site Description: This dispersed recreation site is located at RM 16.06 and 9.8 miles along Sullivan Creek Road. This site currently consists of a small parking and camping area, a user-defined campfire ring, and user-defined trails to the creek.

Use: Low. Overnight and day use.

Habitat Issues/Concerns: Recreational use at this dispersed recreation site has resulted in a loss of understory vegetation and exposed soil throughout the general impact area. The soil is heavily compacted in areas and eroding along the streambank.

Proposed Treatment: The proposed treatment is to close this site to overnight use and designate it for day use only. This would be accomplished by implementing the following actions:

- Use barrier rocks along Sullivan Creek Road to prevent vehicle access to the site (parking would be allowed along the shoulder),
- Iceberg and revegetate the degraded areas,
- Remove the existing user-defined campfire ring, and
- Maintain pedestrian access from Sullivan Creek Road to the creek. This access will be designed to direct runoff into the forest rather than down the path and into the creek.

Associated Sullivan Creek Restoration Actions: Approximately 5-10 pieces of LWD will be placed in the creek in the vicinity of this site.

Anticipated Outcome: Closing this site to overnight use would limit adverse user-induced effects and restore habitat, while retaining some recreation opportunities (compared to a full closure). Prohibiting overnight use will result in a loss of camping capacity at this site, but overall use levels are unlikely to change substantially because of this change (i.e., use levels are currently low and are anticipated to remain low post implementation).

Photographs:

DRS-32 – Photo 1.

DRS-32 – Photo 2.

Dispersed Recreation Site 33

Site Number: DRS-33/USFS 30

Size: Small; the approximate area of impact of DRS-33 is 2,400 ft^2.

Site Description: This dispersed recreation site is located at RM 17.30 and 11.1 along Sullivan Creek Road. The site consists of a small parking and two use areas. The first use area is located above the creek near the parking area and has a user-defined campfire ring. The second use area is located along the streambank and contains a user-defined campfire ring.

Use: Low. Overnight and day use.

Habitat Issues/Concerns: Recreational use at this dispersed recreation site has resulted in a loss of understory vegetation and exposed soil throughout the general impact area. The soil is heavily compacted in areas and eroding along the streambank.

Proposed Treatment: The proposed treatments at this site include the following:

- Use barrier rocks to delineate and create separation between the parking and camping areas,
- Iceberg along the periphery of the site, in particular near the top of the slope that leads down to the creek,
- Remove the three existing user-defined campfire rings, including one near the creek, but
- Maintain pedestrian access to the creek from Sullivan Creek Road (this path will be designed to direct runoff into the forest rather than down the trail and into the creek),
- Create an area for tents, and
- Add a bear box and fire ring.

Associated Sullivan Creek Restoration Actions: No instream restoration is anticipated in the vicinity of this site.

Anticipated Outcome: The proposed treatments will improve habitat at this site by promoting understory growth and limiting future soil compaction. The general aesthetics of the site will improve once vegetation becomes reestablished, which may enhance the recreational experience for some visitors. In general, recreation capacity and use levels here would slightly decrease.

Photographs:

DRS-33 – Photo 1.

DRS-33 – Photo 2.

DRS-33 – Photo 3.

DRS-33 – Photo 4.

Dispersed Recreation Site 34

Site Number: DRS-34

Size: Medium; the approximate area of impact of DRS-34 is 4,400 ft^2.

Site Description: This dispersed recreation site is located at RM 18.29, on USFS Road 2200250, and about 12 miles along Sullivan Creek Road. It is within the Lower Gypsy Meadow area, along with DRS-35, DRS-36, and DRS 36A (all four sites are located in a row along a short spur road off Sullivan Creek Road). The site consists of an open area between the internal access/spur road and a side channel of Sullivan Creek. There is a user-defined campfire ring at the site, as well as user-defined trails from the site to the creek. A single vault CXT restroom is located nearby (adjacent to DRS-36).

Use: High. Overnight and day use. This site, along with others in the Lower and Upper Gypsy Meadows area, is popular with equestrian users and hikers since several trails are accessible nearby.

Habitat Issues/Concerns: This dispersed recreation site contains areas of trampled vegetation and bare soil. Drainage is problematic leading to large puddles of mud and standing water in spots. Given the unconfined nature of this site, use tends to expand or shift to avoid areas of standing water and mud.

Proposed Treatment: The proposed treatments at this site include:

- Use barrier rocks to better delineate appropriate use areas,
- Iceberg near the side channel access,
- Add gravel to define parking area and provide improved drainage near the road,
- Remove the user-defined campfire ring and add a metal campfire ring and bear box, and
- Maintain pedestrian access to the creek. This access will be designed to direct runoff into the forest rather than down the path and into the creek.

Associated Sullivan Creek Restoration Actions: Up to 5 pieces of LWD will be felled and positioned in the creek in proximity to this site.

Anticipated Outcome: The addition of barrier rocks will help confine vehicle use to appropriate areas at this site. The iceberging will help limit site creep and will help areas along the periphery of the site revegetate over time. Overall, the restoration actions would improve habitat condition. The improved habitat and aesthetic conditions at the site may enhance the recreation experience for some visitors. Capacity and recreation use levels are unlikely to change due to the restoration actions at this site.

Photographs:

DRS-34 – Photo 1.

DRS-34 – Photo 2.

DRS-34 – Photo 3.

DRS-34 – Photo 4.

Dispersed Recreation Site 35

Site Number: DRS-35

Size: Medium; the approximate area of impact of DRS-35 is 5,660 ft^2.

Site Description: This dispersed recreation site is located at RM 18.3 and about 12 miles along Sullivan Creek Road. It is the second of four dispersed recreation sites along USFS Road 2200250, a spur off of Sullivan Creek Road, and is within the Lower Gypsy Meadow area. The site consists of an open area between USFS Road 2200250 and a side channel of Sullivan Creek. There is a user-defined campfire ring at the site, as well as user-defined trails from the site to the creek. There is an existing metal bear box and a pedestrian trail that leads through DRS-36 to the nearby single vault restroom.

Use: High. Overnight and day use. This site, along with others in the Lower and Upper Gypsy Meadows area, is popular with equestrian users and hikers since several trails are accessible nearby.

Habitat Issues/Concerns: The primary area of use at this dispersed recreation site is devoid of understory vegetation. The soil is exposed and extremely compacted in many locations.

Proposed Treatment: The proposed treatments at this site include:

- Use barrier rocks to better delineate appropriate use areas,
- Rip and revegetate the existing eastern vehicle access,
- Add iceberging along the periphery of the site,
- Relocate the existing campfire ring,
- Maintain the existing bear box, and
- Maintain pedestrian access to the creek (designed to direct runoff into the forest rather than down the path and into the creek), as well as to the nearby toilet.

Associated Sullivan Creek Restoration Actions: Up to 5 pieces of LWD will be felled and positioned in the creek in proximity to this site.

Anticipated Outcome: The addition of barrier rocks will help confine vehicle use to appropriate areas at this site. The iceberging will help limit site creep and will help areas along the periphery of the site revegetate over time. Overall, the restoration actions would improve habitat condition. The improved habitat and aesthetic conditions at the site may enhance the recreation experience for some visitors. Capacity and recreation use levels are unlikely to change due to the restoration actions at this site.

Photographs:

DRS-35 – Photo 1.

DRS-35 – Photo 2.

DRS-35 – Photo 3.

DRS-35 – Photo 4.

Dispersed Recreation Site 36

Site Number: DRS-36

Size: Medium; the approximate area of impact of DRS-36 is 3,690 ft^2.

Site Description: This dispersed recreation site is located at RM 18.3 and about 12 miles along Sullivan Creek Road. It is the third of three dispersed recreation sites along USFS Road 2200250, a spur off of Sullivan Creek Road, and is within the Lower Gypsy Meadow area. The site consists of a pull-through open area along USFS Road 2200250 that is suitable for parking vehicles and/or camping. There is a user-defined campfire ring at the site, as well as user-defined trails to the adjacent single vault CXT restroom and dispersed recreation site DRS-35.

Use: High. Overnight and day use. This site, along with others in the Lower and Upper Gypsy Meadows area, is popular with equestrian users and hikers since several trails are accessible nearby.

Habitat Issues/Concerns: This dispersed recreation site contains areas of trampled vegetation and bare soil. Given the unconfined nature of this site, use tends to expand or shift based on group size and site conditions.

Proposed Treatment: The proposed treatments at this site include:

- Use barrier rocks to better delineate appropriate use areas,
- Remove the user-defined campfire ring and add a metal campfire ring and bear box, and
- Maintain pedestrian access to DRS-35 and the nearby CXT.

Associated Sullivan Creek Restoration Actions: Up to 5 pieces of LWD will be felled and positioned in the creek in proximity to this site.

Anticipated Outcome: The addition of barrier rocks will help confine vehicle use and camping to appropriate areas at this site and limit the potential for site creep. This will also allow vegetation along the periphery of the site to recover over time. The improved habitat and aesthetic conditions at the site may enhance the recreation experience for some visitors. Capacity and recreation use levels are unlikely to change due to the restoration actions at this site.

Photographs:

DRS-36 – Photo 1.

DRS-36 – Photo 2.

DRS-36 – Photo 3.

DRS-36 – Photo 4 (nearby CXT).

Dispersed Recreation Site 36A

Site Number: DRS-36A

Size: Small; the approximate area of impact of DRS-36A is 722 ft^2.

Site Description: DRS-36A is a new dispersed recreation site that is located across USFS Road 2200250 from DRS-36 (note: this site was not included in the original 38 identified DRSs). The area is currently forested and not used for recreational purposes. It does have a small, relatively flat area that would be suitable for a small parking area and other recreation site amenities (e.g., tent location, fire ring, bear box, etc.).

Use: Low since this area is currently not being used for extensive recreational purposes. Use can reasonably be expected to increase when the area is formalized. Overnight and day use.

Habitat Issues/Concerns: Habitat issues and concerns are minimal since the area is not currently used as a dispersed recreation site.

Proposed Treatment: The proposed treatments at this site include:

- Add gravel to delineate an appropriate parking area,
- Minor vegetation removal to create a focused use area, and
- Add a metal campfire ring and bear box.

Associated Sullivan Creek Restoration Actions: No instream restoration anticipated in the vicinity of this site.

Anticipated Outcome: The proposed actions at this new dispersed recreation site will help minimize potential future recreation-related habitat impacts, while enhancing the overall recreation experience along Sullivan Creek. The addition of DRS-36A will add overnight capacity in the Lower Gypsy Meadow area and help compensate overnight closures and limitations at other areas. While use of this area is currently low, it can reasonably be expected to increase once the site is formalized. Given the current high use levels at adjacent sites 35 and 36, similar levels of high use may be expected at DRS-36A in the future.

Photographs:

DRS-36A – Photo 1.

DRS-36A – Photo 2.

DRS-36A – Photo 3.

DRS-36A – Photo 4.

Dispersed Recreation Site 36B

Site Number: DRS-36B

Size: Medium; the approximate area of impact of DRS-36B is 3,149 ft^2.

Site Description: This dispersed recreation site is located at RM 18.3 and about 12 miles along Sullivan Creek Road (note: this site was not included in the original 38 identified DRSs). It is located across Sullivan Creek Road from DRS-35 and DRS-36, and currently functions as an overflow area when these sites are in use. The site consists of a short access road and parking area, as well as several flat areas that may be used for tent camping.

Use: Moderate. Overnight and day use.

Habitat Issues/Concerns: There are some current habitat issues at this dispersed recreation site, including damage to several trees, trampled vegetation, and a couple of user-defined trails. The user-defined trails do not provide access to specific areas, but rather appear to be used by visitors as an outdoor restroom and to dump trash away from the main use area of the site.

Proposed Treatment: The proposed treatments at this site include:

- Add gravel to delineate appropriate vehicle parking areas, and
- Add a metal campfire ring and bear box.

Associated Sullivan Creek Restoration Actions: No instream restoration anticipated in the vicinity of this site.

Anticipated Outcome: The addition of DRS-36B will also add new overnight capacity in the Lower Gypsy Meadows area, as well as the larger Sullivan Creek region. The site enhancements will help focus recreation use and limit potential future impacts. Use levels will likely remain moderate, though the site may reach high use levels in the future given the overall high use levels in the Upper and Lower Gypsy Meadow area.

Photographs:

DRS-36B – Photo 1.

DRS-36B – Photo 2.

DRS-36B – Photo 3.

DRS-36B – Photo 4.

Dispersed Recreation Site 37

Site Number: DRS-37

Size: Large; the approximate area of impact of DRS-37 is 4,895 ft^2.

Site Description: This dispersed recreation site is access via USFS Road 2200252 at RM 18.5 and approximately 12.3 miles along Sullivan Creek Road. It is one of two dispersed recreation sites in Upper Gypsy Meadow (along with DRS-38). The primary use area at this dispersed recreation site is adjacent to Sullivan Creek, though visitors often make use of other locations along the access road and highlines to set up camp. The use area near the creek includes a metal campfire ring and bear box. A well-worn user-defined trail provides pedestrian and equestrian access to the creek.

Sites 37 and 38 are located within an archaeological site number 45FS1205, Gypsy Meadows. The site is a depression area Civilian Conservation Corps spike camp. The site has been recommended potential eligible for the NRHP. Based on surface survey, archival research and satellite imagery it appears as though the site encompasses the entire meadow. Multiple concrete features and pits are visible at the surface. Historic photos show the meadow filled with tents and structures, and satellite images clearly show the outline of past structures. The USFS archaeologist has expressed concern over subsurface disturbance, or the placement of additional roads in the meadow. Any planned campsite relocation, or significant changes must be approved by the USFS archaeologist. Approval of any significant changes is likely to require additional cultural resources survey and excavation.

Use: High. Overnight and day use. This site, along with others in the Lower and Upper Gypsy Meadows area, is popular with equestrian users and hikers since several trails are accessible nearby.

Habitat Issues/Concerns: From a habitat perspective, most of the critical issues are adjacent to Sullivan Creek. The vegetation in this area is trampled and there are large areas of exposed soil. The user-defined trail to the creek is heavily eroded and likely contributes sediment to the creek. The soil around many of the nearby trees is disturbed due to horses that dig around the base of the trees when tied here. Given the open, meadow setting of this dispersed recreation site (and the entire Upper Gypsy Meadow), the potential for visitors to spread out and disturb other areas is high. The Gypsy Meadows vicinity was a former Civilian Conservation Corp camp and it is highly likely that subsurface remnants of this activity occur throughout the area (see above and Appendix 2 for additional detail and discussion of historic resource concerns at Gypsy Meadows).

Proposed Treatment: The proposed treatments at this site and DRS-38 would better align future recreation use of the Upper Gypsy Meadows area with the intended restoration goals of improved fish habitat and historic/cultural resource protection. Given the current and proposed access and recreation site amenity configuration of this area, the proposed treatments consider DRS-37 and DRS-38 as one large dispersed

recreation site (as opposed to separate sites). The proposed treatments at this combined DRS-37 and DRS-38 site include:

- Add a gate on the access road to better control vehicular access to the site. The gate would likely be placed near the restrooms adjacent to DRS-36 to facilitate a vehicle turnaround within the existing road footprint. Public use of the site would be coordinated with the Sullivan Creek Ranger Station likely on a first-come, first-served basis.
- Provide a designated kitchen area near Sullivan Creek in the trees at the western edge of the meadow (current location of a fire ring and bear box). No permanent amenities will be added in the kitchen area
- Add a second pair of highlines along the eastern side of the meadow.
- Relocate all campfire rings and bear boxes to the eastern side of the meadow adjacent to the existing and proposed new highlines. In total, the combined DRS-37 and DRS-38 area will provide 2 sets of campfire rings and bear boxes.
- Retain equestrian access to Sullivan Creek at the western edge of the meadow.
- Use barrier rocks to control vehicular access through the site and to help protect documented historic/cultural resources at this site.

Additional disturbances from new recreation amenities and site features throughout the Upper Gypsy Meadows area are not recommended beyond those listed above (see the Cultural Resources Report in Appendix 2 for details on the historic/cultural resources at this site).Furthermore, all restoration treatments at this site will be limited to surface enhancements only. There will be no below-ground disturbance so as to minimize potential impacts to any subsurface historic/cultural resources at this site.

Associated Sullivan Creek Restoration Actions: Up to 5 pieces of LWD will be felled and positioned in the creek in proximity to this site. Spawning habitat for Westslope Cutthroat trout in Sullivan Creek will be monitored periodically to help identify potential future impacts from continued recreation access to the creek at this site. If necessary, the kitchen area will be moved further away from the creek if site conditions degrade from overuse.

Anticipated Outcome: The proposed site enhancements, including gated access, fencing/barrier rocks and relocated camping areas, will help limit potential recreation impacts to the documented cultural resources at this site. Capacity and recreation use levels are unlikely to change as a result of the restoration actions, though users will have to modify their visits to include a stop at the Sullivan Creek Ranger Station to secure access to the site (likely a temporary inconvenience as users learn about and become accustomed to this new process). Recreation use is currently high and will remain high post enhancements due to the popularity of this site.

Photographs:

DRS-37 – Photo 1.

DRS-37 – Photo 2.

DRS-37 – Photo 3.

DRS-37 – Photo 4.

Dispersed Recreation Site 38

Site Number: DRS-38

Size: Large; the approximate area of impact of DRS-38 is 2,175 ft^2.

Site Description: This dispersed recreation site is access via USFS Road 2200252 at RM 18.5 and approximately 12.3 miles along Sullivan Creek Road. It is one of two dispersed recreation sites in Upper Gypsy Meadow (along with DRS-37). This primarily undefined use area is located near the northern end of Upper Gypsy Meadow and includes a user-defined campfire ring and a bear box.

Use: High. Overnight and day use. This site, along with others in the Lower and Upper Gypsy Meadows area, is popular with equestrian users and hikers since several trails are accessible nearby. That said, this use area likely receives less use than DRS-37 given its distance from Sullivan Creek.

Habitat Issues/Concerns: Existing habitat concerns are likely minor at this site. The presence of the campfire ring indicates that visitors use the site and that it may be susceptible to future degradation (vegetation trampling, tree damage, soil compaction, etc.). Similar to DRS-37, there is a high likelihood of the occurrence of subsurface cultural resources here and ground disturbing activities should be avoided (see DRS 37 and Appendix 2).

Proposed Treatment: See the proposed treatments described under DRS-37.

Associated Sullivan Creek Restoration Actions: See the restoration and monitoring actions described under DRS-37.

Anticipated Outcome: See the anticipated outcomes described under DRS-37.

Photographs:

DRS-38 – Photo 1.

DRS-38 – Photo 2.

DRS-38 – Photo 3.

DRS-38 – Photo 4.

3.2 National Historic Preservation Act Compliance

Coordinating with the USFS Archaeologist, background research and a surface and subsurface cultural resource survey was conducted at each DRS to reflect the scope of proposed site-specific treatments.

The only above ground feature found was at Gypsy Meadows, where there is a remnant foundation from the Civilian Conservation Camp that once occupied the site. It is highly likely that subsurface elements are present in the vicinity because of the extent and length of time it was occupied by this camp. Because of these potential subsurface features any ground disturbing activity would require additional cultural resource surveys and is generally not recommended. ESA will develop a cultural resources testing plan for the two proposed new campsite locations within the archaeological site. ESA archaeologists will distribute the plan to USFS cultural resources staff, and the Washington State Department of Archaeology and Historic Preservation (DAHP) for comments. Depending on comments received, and the final proposed design elements within Gypsy Meadows, additional subsurface cultural resources survey and archival research may be required.

DRS-2 and DRS-2A are located within a former homestead site and any subsurface disturbance should be avoided. At DRS-29 the subsurface remnants of a miner's camp was located during the cultural resource survey, recorded, photographed, and reburied. This site will be closed to recreation use and treatments conducted to discourage use but not disturb subsurface resources.

Except as noted above, the proposed actions for the dispersed recreation sites would not affect cultural resources. Additional details can be found in the full Cultural Resources Report (Appendix 2).

3.3 Endangered Species Act Compliance

Research was conducted on the potential occurrence of rare and federally listed threatened or endangered plant species in or adjacent to each of the DRSs. These sites are very disturbed and contain little or no vegetation within the main use areas. Adjacent areas are well-used and lack downed wood because of scavenging for fire wood. No rare or federally listed plants were observed during a field survey by the team botanist.

Bull trout, a federally threatened fish species, is known to inhabit the lower reaches of Sullivan Creek. In addition, three wide-ranging species, woodland caribou, northern lynx, and grizzly bear can occur in the general project vicinity. The biological evaluation (BE) relied on existing information on the occurrence of these species and no species-specific surveys were conducted. No work would be conducted in the wetted perimeter of Sullivan Creek or within the ordinary high water mark. DRS closure and restoration would prevent further degradation of these sites and corresponding effects from erosion and sedimentation. Because the three listed mammal species are wide-ranging and

infrequent visitors to the area, and because of the small scale of the project, there would be no effects to listed fish, wildlife or plants from the project.

Details are available in the BE (Appendix 3), which concludes that the project would have No Effect under the federal Endangered Species Act guidelines and would not affect species listed as sensitive by the USFS.

4.0 Summary

As noted in the Tributary Management Plan, dispersed recreation is one of the activities that contribute to the overall degradation of aquatic and riparian habitat in the tributaries of Boundary Reservoir, including Sullivan Creek (SCL 2014). Most of the identified dispersed recreation sites are located adjacent to Sullivan Creek within the riparian zone. Recreation at these sites impacts aquatic habitat and native fish population by contributing sediment to the creek through run-off and erosion. Other adverse effects to aquatic habitat from dispersed recreation use include the overall loss of riparian function, soil compaction, the accumulation of garbage and other rubbish, and sanitation concerns.

Despite the ecological challenges posed by dispersed recreation within the Sullivan Creek riparian zone, there are substantial opportunities for restoration efforts that would help improve aquatic conditions and fish habitat at Sullivan Creek and its tributaries. Furthermore, improved aquatic conditions will help support recovery of native westslope cutthroat trout.

The proposed site prescriptions include one or more of the following types of actions to help restore habitat and enhance recreational experiences:

- Use of barrier rocks to delineate appropriate use areas, in particular parking areas,
- Use of iceberging to delineate appropriate use areas, in particular camping areas, and help encourage natural revegetation of impacted areas,
- Relocate and/or place campfire rings in locations that minimize ecological impacts and potential fire hazards,
- Relocate and/or add bear boxes to help promote responsible recreation behaviors and safe food storage,
- Replant the streambank, riparian zone, and/or other impacted areas to more quickly reduce erosion and sedimentation, as well as promote ecological function, and
- Fully or partially (day use only) close high impact sites when other restoration actions are not feasible and replace closed sites where they wouldn't pose a new potential source of impacts to the health and function of fish habitat in Sullivan Creek and its tributaries.

Table 4-1 summarizes the habitat concerns, proposed prescriptions, and pre- and post-restoration impact areas at each site. Taking into account both day use and overnight DRSs, Figure 4-1 summarizes the pre-and post-restoration changes in site size, use level, and percentage of day versus overnight use sites available.

Proposed prescriptions will address dispersed recreation site impacts to fish and wildlife by defining use areas, restoring vegetation, and closing high impact sites located in the channel migration zone and floodplain. Additional campsites in lower impact areas (i.e.,

further away from Sullivan Creek) are proposed to offset lost recreational opportunities, resulting in no net loss.

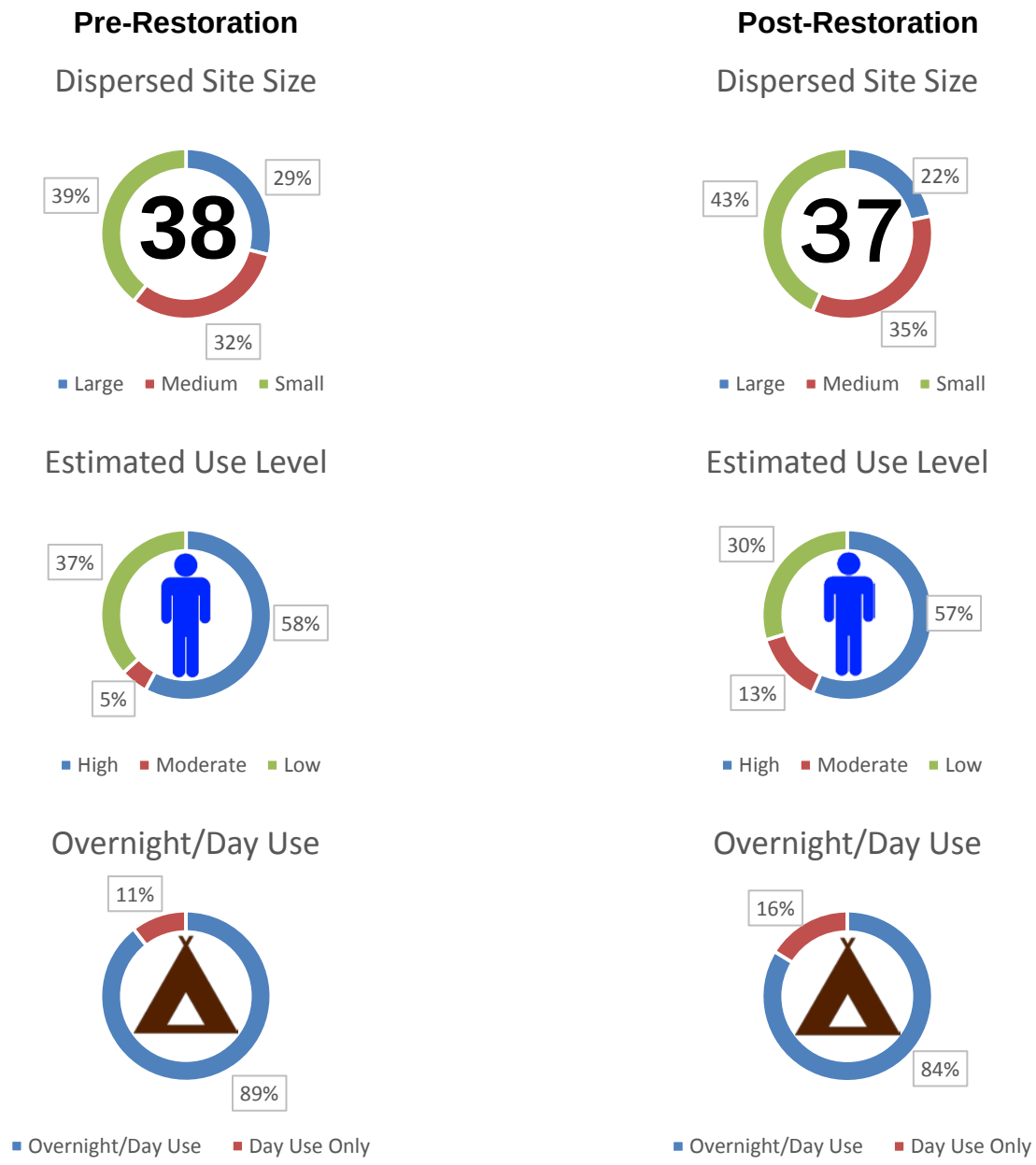


Figure 4-1. Dispersed Recreation Site Comparison: Pre- and Post-Restoration.

Table 4-1. Summary of Existing Conditions and Proposed Prescriptions at the 38 Existing and the 5 Proposed New Sullivan Creek Dispersed Recreation Sites.

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
DRS-01	Large	High	• Lack of understory vegetation and exposed soil • Compacted soil and drainage issues • Tree damage and exposed roots • Streambank erosion (in particular from dredge mining)	• Use barrier rock to delineate appropriate vehicle access and parking areas • Use iceberging to focus camping in select locations, in particular away from the streambank, and to help minimize site creep • Revegetate along the most heavily damaged streambanks • Remove the user-defined campfire rings • Formalize access to the creek in four streambank locations (including one kayak launch) • Add an informational kiosk, campfire rings and bear boxes	Large	High
DRS-02	Large	High	• Trampled vegetation • Exposed and compacted soil • Sanitation issues • Potential for future site creep	• Add barrier rocks to better delineate appropriate parking areas • Use iceberging to focus camping in select locations, in particular away from the streambank, and to help minimize site creep • Add a bear box and campfire ring • Define access to site by adding a gravel drive	Large	High

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
DRS-02A (new)	Small	Low	• Some trampled vegetation • Small areas of exposed and compacted soil	• Use barrier rock to delineate appropriate vehicle access and parking areas • Remove the user-defined campfire rings • Add a metal campfire ring and bear box • Add a restroom that would serve all dispersed recreation sites in the vicinity of Moon Flats	Small	High
DRS-03	Medium	High	• Lack of understory vegetation • Exposed and compacted soil • Tree damage and exposed roots • Potential for future site creep	• Add barrier rocks to better delineate appropriate parking areas and create separation from camping areas • Create a vehicle turn-around • Use light iceberging to pull use away from the steep slope to the creek • Remove the user-defined campfire rings • Add a bear box and campfire ring	Medium	High
DRS-04	Medium	Low	• Trampled vegetation • Exposed and compacted soil • Streambank erosion	• Use barrier rocks to close the internal access road just beyond the small pull-out • Rip road for 80 feet beyond barrier rocks • Provide a bear box and campfire ring	Small	Low

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
DRS-05	Large	High	• Trampled and lost vegetation • Exposed and compacted soil • Streambank erosion	• Use barrier rocks to delineate parking/vehicle access at the upper use area • Add iceberging around the periphery of the upper use area to help focus recreation use • Move the location of the existing bear box at the upper use area and add a campfire ring • Use barrier rocks to close the internal access road to the lower use area • Rip and revegetate the internal access road and lower use area • Iceberg the lower camp area • Retain and focus pedestrian use from the upper use area to the lower use area and creek	Small	Moderate
DRS-06	Small	Low (day use only)	• Potential for future impacts and site creep	• Maintain closure to overnight camping • Iceberg the perimeter to limit site creep • Remove the user-defined campfire ring • Maintain pedestrian access to the creek	Small	Low (day use only)

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
DRS-07	Small	High	• Proliferation of user-defined trails to the creek • Potential for future impacts and site creep	• Add additional barrier rocks to further delineate parking • Iceberg along the periphery of the site closest to creek • Maintain existing bear box and add campfire ring Add slash to block access for off road vehicles • Maintain pedestrian access to the creek	Small	High
DRS-08	Small	High	• Potential for increased user-defined trail use • Minor recreation-related habitat issues	• Add several barrier rocks to limit vehicular use of user-defined trails • Remove the existing user-defined campfire ring and install a new campfire ring	Small	High
DRS-09	Large	Low	• Located in active stream migration channel • Vegetation trampling and loss • Soil compaction • High amounts of trash and recreation-related debris	• Close site • Add additional barrier rocks to further prohibit access • Rip and revegetate access road • Remove the user-defined campfire ring • Iceberg the primary use area	None (closed)	None

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
DRS-10	Medium	High	• Located in active stream migration channel • Vegetation loss • Heavy tree damage • Exposed and compacted soil • Soil erosion and undercutting of streambank	• Close site • Add additional barrier rocks to further prohibit access • Remove the existing user-defined campfire rings • Rip areas without mature trees and add iceberging to allow the main use area to revegetate naturally • Add barrier rock and slash to further discourage camping • Revegetate streambank	None (closed)	None
DRS-11	Medium	High	• Trampled vegetation • Exposed and compacted soil • Tree damage and exposed roots	• Use barrier rock to delineate parking area • Add iceberging around the periphery of the current impact area (to reduce the size and extent of impacts) • Maintain trail access from the site to the creek • Add a bear box and campfire ring • Retain three to four of the existing pedestrian access routes to the river • Revegetate the streambank.	Small	High
DRS-12	Medium	High	• Partially within the active stream migration channel • Trampled vegetation • Exposed soil • Streambank erosion	• Use barrier rock to delineate parking area (provide enough space for a vehicle turn-around) • Iceberg and revegetate around the periphery of the current impact area (to reduce the size	Small	High

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
				and extent of impacts) • Relocate bearbox so it is near the campfire ring • Remove the user-defined campfire ring near the parking area and add a campfire ring outside the flood prone area • Maintain pedestrian access from the site to the creek • Revegetate the streambank		
DRS-13	Medium	High	• Lack of understory vegetation • Exposed and compacted soil	• Use barrier rock to delineate parking area • Iceberg and revegetate main use area • Rip the old road leading from upper site • Relocate the existing bear box • Remove the user-defined campfire ring near the parking area, and add a campfire ring • Maintain pedestrian access from the site to the creek	Small	High
DRS-14	Large	High	• Potential for future impacts and site creep	• Clear vegetation and provide light grading along the closed portion of the existing spur road such that it again functions as a pull-through off of Sullivan Creek Road • Delineate four specific sites within the existing footprint of DRS-14 and along the spur road • Provide an appropriate parking area, metal campfire ring, and	Large	High

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
				bear box at each site • Add barrier rocks to better define and delineate appropriate use areas at all existing and new use areas • Remove the existing user-defined campfire rings		
DRS-15	Small	Low	• Potential for future impacts and site creep	• Add barrier rock to better delineate parking area • Remove the existing campfire rings • Add a campfire ring and bear box	Small	Low
DRS-16	Small	Low	• Potential for future impacts and site creep	• Add barrier rock to better delineate parking area • Remove the existing user-defined campfire rings • Add a bear box and campfire ring	Small	Low
DRS-17	Large	High	• Partially within the active stream migration channel • Lack of understory vegetation • Exposed and highly compacted soil • Exposed roots • Erosion along streambank	• Focus recreational use at the site outside of the active stream migration channel • Use barrier rock to delineate parking area • Iceberg the western leg of the affected area (to reduce the size and extent of impacts) • Establish a user area in eastern leg of the site and iceberg the periphery to define use in this area • Maintain pedestrian access from	Medium	High

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
				the primary use area to the creek • Remove the user-defined campfire ring near the creek (in stream migration channel), and add a campfire ring and maintain the bear box in the primary use area		
DRS-18	Small	Low (day use only)	• Minor habitat concerns	• Add barrier rocks to better limit vehicle access	Small	Low (day use only)
DRS-19	Small	Low	• Lack of understory and riparian vegetation • Exposed and compacted soil • Soil erosion along streambank	• Close to overnight use • Use barrier rocks along Sullivan Creek Road to prevent vehicle access to the site (parking would be allowed along the shoulder) • Iceberg the site to promote natural revegetation • Maintain pedestrian access from Sullivan Creek Road to the creek	Small	Low (day use only)
DRS-20	Medium	Moderate	• Potential for future impacts and site creep	• Add barrier rock to better delineate parking area • Remove the existing user-defined campfire ring • Add a bear box and fire ring	Medium	Moderate
DRS-21	Small	High	• Lack of understory vegetation • Trampled riparian vegetation • Exposed and compacted soil • Soil erosion along streambank	• Close to overnight use • Use barrier rocks along Sullivan Creek Road to prevent vehicle access to the site (parking would be allowed along the shoulder) • Remove the existing user-defined campfire ring • Iceberg the site to promote natural revegetation,	Small	Low (day use only)

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
				• Revegetate the streambank • Maintain pedestrian trail access from Sullivan Creek Road to the creek		
DRS-21A (new)	Small	Low	• Some vegetation trampling along the user-defined trail that currently bisects the site	• Clear an area along the current user-defined trail to create a small dispersed recreation site • Use barrier rock to delineate the new site and associated parking area • Add a metal campfire ring and bear box	Small	Low
DRS-22	Small	Low	• Trampled understory and riparian vegetation • Exposed and compacted soil • Soil erosion along streambank	• Close site • Use barrier rocks along USFS 2200500 Road to prevent access to the site • Iceberg and actively revegetate, in particular along the streambank	None (closed)	None
DRS-23	Large	High	• Potential for future impacts and site creep	• Use barrier rocks to better delineate parking and use areas • Iceberg western use area • Rip and replant the spur road, while retaining a vehicle turn-around • Close unofficial loop road with boulders and slash • Add a campfire ring and maintain the bear box	Medium	High

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
DRS-24	Small	Low (day use only)	• Within active stream migration channel • Potential for future impacts	• Close site • Add additional barrier rocks along Sullivan Creek Road • Rip and plant existing access road • Remove the existing user-defined campfire ring • Create an earthern berm and trench to further restrict vehicle access	None (closed)	None
DRS-25	Large	High	• Lack of understory vegetation • Exposed and compacted soil • Tree damage and exposed roots • Soil erosion along streambank	• Use barrier rock to delineate parking area, as well as prohibit off-highway vehicle access to the site along Sullivan Creek Road • Add iceberging around the periphery of the current impact area (to reduce the size and extent of impacts) • Remove the user-defined campfire ring, and add a campfire ring and bear box in the primary use area • Maintain access from the site to the creek	Medium	High

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
DRS-26	Small	Low	• Within the active stream migration channel • Lack of understory and riparian vegetation • Exposed and compacted soil • Soil erosion along streambank	• Close site • Add more barrier rocks to prevent vehicle access • Remove two existing user-defined campfire rings • Rip and revegetate access road • Iceberg the primary use area • Revegetate the degraded streambank	None (closed)	None
DRS-27	Medium	High	• Potential for future impacts and site creep	• Add barrier rocks to better define and delineate appropriate use areas • Remove user defined fire ring • Add a metal campfire ring and bear box	Medium	High
DRS-28	Small	Low	• Within the active stream migration channel • Lack of understory and riparian vegetation • Exposed and compacted soil • Soil erosion along streambank	• Close site • Add barrier rock along Sullivan Creek Road • Iceberg the primary use area • Revegetate the disturbed streambank	None (closed)	None

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
DRS-28A (new)	Small	Low (day use only)	• Limited areas of trampled vegetation • Some streambank erosion	• Use barrier rock to delineate the pullout along Sullivan Creek Road and limit vehicular access to the site • Use iceberging to focus camping in select locations to help minimize site creep • Retain one of the user-defined trails to Sullivan Creek (close the trail that access the creek via a steep streambank) • Add a metal campfire ring and a bear box	Small	Moderate
DRS-29	Medium	High	• Lack of understory vegetation • Cultural resource concerns	• Close the stream-side use area by adding barrier rock and slash • Remove the user-defined campfire ring along the streambank • Allow vehicles and RVs to continue to park on the western side of the Old Priest Lake Bridge • Add barrier rocks at the western end of the Old Priest Lake Bridge to limit vehicle access • Maintain pedestrian access across the Old Priest Lake Bridge to the walk-in campsite on the opposite (eastern) side of the creek • Add campfire ring and bear box to define camp area on eastern side of bridge.	Medium	High

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
DRS-30	Small	Low (day use only)	• Lack of understory vegetation along user-defined trail • Exposed and eroded soil	• Add barrier rocks to further limit potential vehicle entry to the site • Iceberg the steep upper portion of the trail where soil compaction and erosion is worst • Retain a pedestrian access from the road through the iceberged area to the creek to focus recreation use	Small	Low (day use only)
DRS-31	Large	Moderate	• Trampled riparian/streambank vegetation • Lack of understory vegetation • Exposed and compacted soil • Tree damage • Soil erosion	• Reduce the area of impact by using barrier rocks to delineate parking areas • Rip the existing access spur and close the lower use area to most use, though allow several clearly defined pedestrian routes from the upper use are to the creek • Iceberg lower site and western use area • Remove the user-defined campfire rings • Add a campfire ring and bear box	Medium	Moderate

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
DRS-32	Small	Low	• Lack of understory vegetation • Exposed and compacted soil • Soil erosion along streambank	• Close to overnight use • Use barrier rocks along Sullivan Creek Road to prevent vehicle access to the site (parking would be allowed along the shoulder) • Iceberg and actively revegetate the impact areas • Remove the existing user-defined campfire ring • Maintain pedestrian access from Sullivan Creek Road to the creek	Small	Low (day use only)
DRS-33	Small	Low	• Lack of understory vegetation • Exposed and compacted soil • Soil erosion along streambank	• Use barrier rocks to delineate and create separation between the parking and camping areas • Iceberg along the periphery of the site, in particular near the top of the slope that leads down to the creek • Remove the user-defined campfire rings M • Maintain pedestrian trail access to the creek from Sullivan Creek Road • Create tent area • Add a bear box and fire ring	Small	Low
DRS-34	Medium	High	• Trampled vegetation and exposed soil • Problematic drainage • Site creep (to avoid standing water and mud)	• Use barrier rocks to better delineate appropriate use areas • Add iceberging along the periphery of the site • Add gravel to define parking area • Remove user defined campfire	Medium	High

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
				ring and add a new metal ring • Maintain pedestrian access to the creek		
DRS-35	Medium	High	• Lack of understory vegetation • Exposed and compacted soil	• Use barrier rocks to better delineate appropriate use areas • Add iceberging along the periphery of the site • Rip and revegetate the eastern vehicle access • Relocate the existing campfire ring and maintain bear box • Maintain pedestrian access to the creek, as well as the nearby CXT	Medium	High
DRS-36	Medium	High	• Trampled vegetation and exposed soil • Site creep	• Use barrier rocks to better delineate appropriate use areas • Remove user-defined campfire ring and add a metal campfire ring and a bear box • Maintain pedestrian access to DRS-35 and the nearby CXT	Medium	High
DRS-36A (new)	Small	Low	• None	• Minor vegetation clearing to create a focused use area • Use gravel to delineate an appropriate parking area • Add a metal campfire ring and bear box	Small	High
DRS-36B (new)	Medium	Moderate	• Some tree damage • Trampled vegetation • Several user-defined trails	• Use gravel to delineate appropriate vehicle parking areas • Add a metal campfire ring and bear box	Medium	Moderate

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
DRS-37	Large	High	• Trampled vegetation • Exposed and compacted soil • Erosion along streambank • Soil disturbance around trees (from horses) • High potential for site creep • Historic/cultural resource concerns	• Add a gate on the access road to better control vehicular access to the site • Relocate all campfire rings and bear boxes along the eastern side of the meadow adjacent to the existing and proposed new highlines (the combined DRS-37 and DRS-38 area will provide 2 sets of campfire rings and bear boxes) • Provide a designated kitchen area near Sullivan Creek in the trees at the western edge of the meadow • Retain equestrian access to Sullivan Creek at the western edge of the meadow • Use barrier rocks to control vehicular access through the site and to help protect documented historic/cultural resources at this site	Large	High
DRS-38	Large	High	• Potential for future impacts and site creep • Historic/cultural resource concerns	• See DRS-37	Large	High

[1] *Impact area and use area are qualitative area estimates based on the number of vehicles that can currently (Impact Area) and in the future (Use Area) park at each dispersed recreation site.*

5.0 References

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Personal Communications

Berger, N. USFS Recreation Specialist. Personal communication with S. Capozzi, Red Canoe, LLC. October 28 and 29, 2014.

Appendix 1:
Site Plans, Specifications, and Cost Estimates

(Site plans and specifications are attached separately)

Sullivan Creek Dispersed Recreation Site Restoration and Closure
Quantity Summary - Preliminary Opinion of Costs
22-Apr-16
Total Costs - Final Draft

DRS	Price
1	$37,152
2	$7,225
2A	$30,722
3	$8,290
4	$1,792
5	$13,475
6	$1,998
7	$7,636
8	$1,700
9	$2,949
10	$31,550
11	$15,623
12	$26,959
13	$11,965
14	$8,060
15	$1,750
16	$2,450
17	$27,384
18	$525
19	$6,991
20	$3,675
21	$9,406
21A	$1,511
22	$2,920
23	$15,255
24	$2,155
25	$13,972
26	$13,547
27	$2,625
28	$8,188
28A	$4,754
29	$7,875
30	$1,121
31	$16,055
32	$3,560
33	$5,900
34	$8,200
35	$7,589
36	$2,800
36A	$971
36B	$1,803
37 & 38	$8,399
All - Mobility	$33,000
All - Temporary Traffic Control	$8,000
Subtotal	$388,477
Contingency (%)	10
WA Sales Tax (%)	8
TOTAL	**$456,849**

Sullivan Creek Dispersed Recreation Site Restoration and Closure
Quantity Summary - Preliminary Opinion of Costs
22-Apr-16
Unit Prices and Individual DRS Costs - Final Draft

UNIT PRICES

Bid Item	Item	Unit	Quantity	Unit Price	Notes
1	Mobilization	LS	1	$30,000	Equals 10 percent of total materials and labor cost
2	Project Temporary Traffic Control	LS	1	$10,000	
3	Haul	CY		$25	
4	Boulder	EA		$150	Angular rock 5'x5'
5	Iceberging	CY		$40	Angular rock 6"-8"
6	Road Ripping	CY		$10	12" deep
7	Seeding	ACRE		$5,000	
8	Streambank Planting	ACRE		$19,000	Livestakes planted 3' OC
9	Restoration Planting	ACRE		$25,000	Trees and shrubs planted 3' OC
10	Gravel Surfacing	TON		$30	
11	Fire Ring	EA		$300	
12	Bear Box	EA		$400	
13	Grading	SY		$5	
14	Earthen Berm	EA		$200	3'X3'X6' = 54 CF = 2 CY
15	Large Woody Debris	EA		$250	
16	Split Rail Fence	LF		$10	
17	Vault Toilet	EA		$25,000	Unit price is estimated and is subject to change
18	Highline	EA		$250	Unit price is estimated and is subject to change
19	Gate	EA		$1,500	Unit price is estimated and is subject to change
				Subtotal	
				Contingency (%)	
				WA Sales Tax (%)	
				TOTAL	

DRS 1

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	273	$25	$6,837	
4	Boulder	EA	92	$150	$13,800	Angular rock 5'x5'
5	Iceberging	CY	181	$40	$7,259	Angular rock 6"-8"
8	Streambank Planting	ACRE	0.09	$19,000	$1,662	Livestakes planted 3' OC
10	Gravel Surfacing	TON	160	$30	$4,794	
11	Fire Ring	EA	4	$300	$1,200	
12	Bear Box	EA	4	$400	$1,600	
				Subtotal	$37,152	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 1 TOTAL	**$43,691**	

DRS 2

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	47	$25	$1,176	
4	Boulder	EA	25	$150	$3,750	Angular rock 5'x5'
5	Iceberging	CY	22	$40	$881	Angular rock 6"-8"
10	Gravel Surfacing	TON	24	$30	$717	
11	Fire Ring	EA	1	$300	$300	
12	Bear Box	EA	1	$400	$400	
				Subtotal	$7,225	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 2 TOTAL	**$8,496**	

DRS 2A

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	26	$25	$650	
4	Boulder	EA	26	$150	$3,900	Angular rock 5'x5'
10	Gravel Surfacing	TON	16	$30	$472	
11	Fire Ring	EA	1	$300	$300	
12	Bear Box	EA	1	$400	$400	
14	Vault Toilet	EA	1	$25,000	$25,000	
				Subtotal	$30,722	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 2A TOTAL	**$36,129**	

DRS 3

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	71	$25	$1,777	
4	Boulder	EA	27	$150	$4,050	Angular rock 5'x5'
5	Iceberging	CY	44	$40	$1,763	Angular rock 6"-8"
11	Fire Ring	EA	1	$300	$300	
12	Bear Box	EA	1	$400	$400	
				Subtotal	$8,290	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 3 TOTAL	**$9,749**	

DRS 4

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	5	$25	$125	
4	Boulder	EA	5	$150	$750	Angular rock 5'x5'
6	Road Ripping	CY	22	$10	$217	12" deep
8	Fire Ring	EA	1	$300	$300	
9	Bear Box	EA	1	$400	$400	
				Subtotal	$1,792	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 4 TOTAL	**$2,107**	

DRS 5

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	114	$25	$2,854	
4	Boulder	EA	36	$150	$5,400	Angular rock 5'x5'
5	Iceberging	CY	78	$40	$3,126	Angular rock 6"-8"
6	Road Ripping	CY	137	$10	$1,370	12" deep
7	Seeding	ACRE	0.08	$5,000	$425	
11	Fire Ring	EA	1	$300	$300	
				Subtotal	$13,475	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 5 TOTAL	**$15,846**	

DRS 6

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	31	$25	$769	
5	Iceberging	CY	31	$40	$1,230	Angular rock 6"-8"
				Subtotal	$1,998	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 6 TOTAL	**$2,350**	

DRS 7

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	73	$25	$1,814	
4	Boulder	EA	17	$150	$2,550	Angular rock 5'x5'
5	Iceberging	CY	56	$40	$2,222	Angular rock 6"-8"
11	Fire Ring	EA	1	$300	$300	
15	Large Woody Debris	EA	3	$250	$750	
				Subtotal	$7,636	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 7 TOTAL	**$8,980**	

DRS 8

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	8	$25	$200	
4	Boulder	EA	8	$150	$1,200	Angular rock 5'x5'
11	Fire Ring	EA	1	$300	$300	
				Subtotal	$1,700	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 8 TOTAL	**$1,999**	

DRS 9

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	40	$25	$994	
4	Boulder	EA	2	$150	$300	Angular rock 5'x5'
5	Iceberging	CY	38	$40	$1,511	Angular rock 6"-8"
6	Road Ripping	CY	11	$10	$109	12" deep
7	Seeding	ACRE	0.01	$5,000	$34	
				Subtotal	$2,949	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 9 TOTAL	**$3,468**	

DRS 10

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	388	$25	$9,712	
4	Boulder	EA	32	$150	$4,800	Angular rock 5'x5'
5	Iceberging	CY	356	$40	$14,259	Angular rock 6"-8"
6	Road Ripping	CY	15	$10	$148	12" deep
8	Streambank Planting	ACRE	0.07	$19,000	$1,381	Livestakes planted 3' OC
15	Large Woody Debris	EA	5	$250	$1,250	
				Subtotal	$31,550	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 10 TOTAL	**$37,103**	

DRS 11

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	166	$25	$4,142	
4	Boulder	EA	14	$150	$2,100	Angular rock 5'x5'
5	Iceberging	CY	152	$40	$6,067	Angular rock 6"-8"
9	Restoration Planting	ACRE	0.06	$25,000	$1,412	Trees and shrubs planted 3' OC
11	Fire Ring	EA	1	$300	$300	
12	Bear Box	EA	1	$400	$400	
				Subtotal	$15,623	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 11 TOTAL	**$18,372**	

DRS 12

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	337	$25	$8,416	
4	Boulder	EA	27	$150	$4,050	Angular rock 5'x5'
5	Iceberging	CY	310	$40	$12,385	Angular rock 6"-8"
8	Streambank Planting	ACRE	0.03	$19,000	$641	Livestakes planted 3' OC
11	Fire Ring	EA	1	$300	$300	
13	Grading	SY	233	$5	$1,167	
				Subtotal	$26,959	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 12 TOTAL	**$31,703**	

DRS 13

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	134	$25	$3,350	
4	Boulder	EA	24	$150	$3,600	Angular rock 5'x5'
5	Iceberging	CY	110	$40	$4,400	Angular rock 6"-8"
6	Road Ripping	CY	31	$10	$315	12" deep
11	Fire Ring	EA	1	$300	$300	
				Subtotal	$11,965	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 13 TOTAL	**$14,071**	

DRS 14

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	18	25	$450	
4	Boulder	EA	18	$150	$2,700	Angular rock 5'x5'
3	Road Ripping	CY	29	$10	$292	12" deep
6	Restoration Planting	ACRE	0.02	$25,000	$452	Trees and shrubs planted 3' OC
7	Gravel Surfacing	TON	46	$30	$1,366	
11	Fire Ring	EA	4	$300	$1,200	
9	Bear Box	EA	4	$400	$1,600	
				Subtotal	$8,060	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 14 TOTAL	**$9,479**	

DRS 15

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	6	25	$150	
4	Boulder	EA	6	$150	$900	Angular rock 5'x5'
11	Fire Ring	EA	1	$300	$300	
12	Bear Box	EA	1	$400	$400	
				Subtotal	$1,750	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 15 TOTAL	**$2,058**	

DRS 16

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	10	$25	$250	
4	Boulder	EA	10	$150	$1,500	Angular rock 5'x5'
11	Fire Ring	EA	1	$300	$300	
12	Bear Box	EA	1	$400	$400	
				Subtotal	$2,450	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 16 TOTAL	**$2,881**	

DRS 17

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	378	25	$9,459	
4	Boulder	EA	18	$150	$2,700	Angular rock 5'x5'
5	Iceberging	CY	360	$40	$14,415	Angular rock 6"-8"
8	Streambank Planting	ACRE	0.03	$19,000	$510	Livestakes planted 3' OC
11	Fire Ring	EA	1	$300	$300	
				Subtotal	$27,384	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 17 TOTAL	**$32,204**	

DRS 18

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	3	25	$75	
4	Boulder	EA	3	$150	$450	Angular rock 5'x5'
				Subtotal	$525	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 18 TOTAL	**$617**	

DRS 19

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	98	25	$2,448	
4	Boulder	EA	2	$150	$300	Angular rock 5'x5'
5	Iceberging	CY	96	$40	$3,837	Angular rock 6"-8"
8	Streambank Planting	ACRE	0.02	$19,000	$406	Livestakes planted 3' OC
				Subtotal	$6,991	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 19 TOTAL	**$8,221**	

DRS 20

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	17	$25	$425	
4	Boulder	EA	17	$150	$2,550	Angular rock 5'x5'
11	Fire Ring	EA	1	$300	$300	
12	Bear Box	EA	1	$400	$400	
				Subtotal	$3,675	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 20 TOTAL	**$4,322**	

DRS 21

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	116	$25	$2,896	
4	Boulder	EA	14	$150	$2,100	Angular rock 5'x5'
5	Iceberging	CY	102	$40	$4,074	Angular rock 6"-8"
8	Streambank Planting	ACRE	0.02	$19,000	$336	Livestakes planted 3' OC
				Subtotal	$9,406	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 21 TOTAL	**$11,062**	

DRS 21A

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	3	$25	$75	
4	Boulder	EA	3	$150	$450	Angular rock 5'x5'
7	Gravel Surfacing	TON	10	$30	$286	
8	Fire Ring	EA	1	$300	$300	
9	Bear Box	EA	1	$400	$400	
				Subtotal	$1,511	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 21A TOTAL	**$1,777**	

DRS 22

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	34	$25	$841	
4	Boulder	EA	4	$150	$600	Angular rock 5'x5'
5	Iceberging	CY	30	$40	$1,185	Angular rock 6"-8"
8	Streambank Planting	ACRE	0.02	$19,000	$294	Livestakes planted 3' OC
				Subtotal	$2,920	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 22 TOTAL	**$3,434**	

DRS 23

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	126	25	$3,158	
4	Boulder	EA	33	$150	$4,950	Angular rock 5'x5'
5	Iceberging	CY	93	$40	$3,733	Angular rock 6"-8"
6	Road Ripping	CY	93	$10	$926	12" deep
7	Seeding	ACRE	0.06	$5,000	$287	
11	Fire Ring	EA	1	$300	$300	
12	Bear Box	EA	1	$400	$400	
15	Large Woody Debris	EA	6	$250	$1,500	
				Subtotal	$15,255	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 23 TOTAL	**$17,939**	

DRS 24

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	5	$25	$125	
4	Boulder	EA	5	$150	$750	Angular rock 5'x5'
6	Road Ripping	CY	25	$10	$252	12" deep
7	Seeding	ACRE	0.02	$5,000	$78	
14	Earthen Berm	EA	1	$200	$200	3'X3'X6' = 54 CF = 2 CY
15	Large Woody Debris	EA	3	$250	$750	
				Subtotal	$2,155	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 24 TOTAL	**$2,534**	

DRS 25

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	158	$25	$3,946	
4	Boulder	EA	16	$150	$2,400	Angular rock 5'x5'
5	Iceberging	CY	142	$40	$5,674	Angular rock 6"-8"
8	Streambank Planting	ACRE	0.07	$19,000	$1,252	Livestakes planted 3' OC
11	Fire Ring	EA	1	$300	$300	
12	Bear Box	EA	1	$400	$400	
				Subtotal	$13,972	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 25 TOTAL	**$16,431**	

DRS 26

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	192	25	$4,812	
4	Boulder	EA	5	$150	$750	Angular rock 5'x5'
5	Iceberging	CY	187	$40	$7,499	Angular rock 6"-8"
6	Road Ripping	CY	14	$10	$141	12" deep
7	Seeding	ACRE	0.01	$5,000	$44	
8	Streambank Planting	ACRE	0.02	$19,000	$301	Livestakes planted 3' OC
				Subtotal	$13,547	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 26 TOTAL	**$15,931**	

DRS 27

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	11	$25	$275	
4	Boulder	EA	11	$150	$1,650	Angular rock 5'x5'
11	Fire Ring	EA	1	$300	$300	
12	Bear Box	EA	1	$400	$400	
				Subtotal	$2,625	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 27 TOTAL	**$3,087**	

DRS 28

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	2	$25	$50	
4	Boulder	EA	2	$150	$300	Angular rock 5'x5'
5	Iceberging	CY	186	$40	$7,437	Angular rock 6"-8"
8	Streambank Planting	ACRE	0.02	$19,000	$401	Livestakes planted 3' OC
				Subtotal	$8,188	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 28 TOTAL	**$9,629**	

DRS 28A

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	6	$25	$150	
4	Boulder	EA	6	$150	$900	Angular rock 5'x5'
5	Iceberging	CY	53	$40	$2,127	Angular rock 6"-8"
8	Streambank Planting	ACRE	0.01	$19,000	$258	Livestakes planted 3' OC
7	Gravel Surfacing	TON	21	$30	$618	
8	Fire Ring	EA	1	$300	$300	
9	Bear Box	EA	1	$400	$400	
				Subtotal	$4,754	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 28A TOTAL	**$5,590**	

DRS 29

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	31	$25	$775	
4	Boulder	EA	31	$150	$4,650	Angular rock 5'x5'
11	Fire Ring	EA	1	$300	$300	
12	Bear Box	EA	1	$400	$400	
15	Large Woody Debris	EA	7	$250	$1,750	
				Subtotal	$7,875	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 29 TOTAL	**$9,261**	

DRS 30

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	10	$25	$262	
4	Boulder	EA	4	$150	$600	Angular rock 5'x5'
5	Iceberging	CY	6	$40	$259	Angular rock 6"-8"
				Subtotal	$1,121	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 30 TOTAL	**$1,319**	

DRS 31

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	196	$25	$4,894	
4	Boulder	EA	18	$150	$2,700	Angular rock 5'x5'
5	Iceberging	CY	178	$40	$7,111	Angular rock 6"-8"
6	Road Ripping	CY	23	$10	$230	12" deep
7	Seeding	ACRE	0.01	$5,000	$71	
8	Streambank Planting	ACRE	0.02	$19,000	$349	Livestakes planted 3' OC
11	Fire Ring	EA	1	$300	$300	
12	Bear Box	EA	1	$400	$400	
				Subtotal	$16,055	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 31 TOTAL	**$18,881**	

DRS 32

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	43	$25	$1,073	
4	Boulder	EA	7	$150	$1,050	Angular rock 5'x5'
5	Iceberging	CY	36	$40	$1,437	Angular rock 6"-8"
				Subtotal	$3,560	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 32 TOTAL	**$4,187**	

DRS 33

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	53	$25	$1,323	
4	Boulder	EA	16	$150	$2,400	Angular rock 5'x5'
5	Iceberging	CY	37	$40	$1,477	Angular rock 6"-8"
11	Fire Ring	EA	1	$300	$300	
12	Bear Box	EA	1	$400	$400	
				Subtotal	$5,900	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 33 TOTAL	**$6,939**	

DRS 34

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	42	$25	$1,054	
4	Boulder	EA	24	$150	$3,600	Angular rock 5'x5'
5	Iceberging	CY	18	$40	$726	Angular rock 6"-8"
10	Gravel Surfacing	TON	71	$30	$2,121	
11	Fire Ring	EA	1	$300	$300	
12	Bear Box	EA	1	$400	$400	
				Subtotal	$8,200	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 34 TOTAL	**$9,644**	

DRS 35

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	76	$25	$1,899	
4	Boulder	EA	13	$150	$1,950	Angular rock 5'x5'
5	Iceberging	CY	63	$40	$2,519	Angular rock 6"-8"
6	Road Ripping	CY	70	$10	$704	12" deep
7	Seeding	ACRE	0.04	$5,000	$218	
11	Fire Ring	EA	1	$300	$300	
				Subtotal	$7,589	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 35 TOTAL	**$8,925**	

DRS 36

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
3	Haul	CY	12	25	$300	
4	Boulder	EA	12	$150	$1,800	Angular rock 5'x5'
11	Fire Ring	EA	1	$300	$300	
12	Bear Box	EA	1	$400	$400	
				Subtotal	$2,800	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 36 TOTAL	**$3,293**	

DRS 36A

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension
7	Gravel Surfacing	TON	9	$30	$271
11	Fire Ring	EA	1	$300	$300
12	Bear Box	EA	1	$400	$400
				Subtotal	$971
				Contingency (%)	10
				WA Sales Tax (%)	7.6
				DRS 36A TOTAL	**$1,142**

DRS 36B

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension
7	Gravel Surfacing	TON	37	$30	$1,103
11	Fire Ring	EA	1	$300	$300
12	Bear Box	EA	1	$400	$400
				Subtotal	$1,803
				Contingency (%)	10
				WA Sales Tax (%)	7.6
				DRS 36B TOTAL	**$2,120**

DRS 37 & 38

Bid Item	Item	Unit	Quantity	Unit Price	Cost Extension	
1	Boulder	EA	30	$150	$4,500	Angular rock 5'x5'
2	Iceberging	CY	62	$40	$2,499	Angular rock 6"-8"
8	Fire Ring	EA	2	$300	$600	
9	Bear Box	EA	2	$400	$800	
14	Highline	EA	2	$250	$500	
15	Gate	EA	1	$1,500	$1,500	
				Subtotal	$8,399	
				Contingency (%)	10	
				WA Sales Tax (%)	7.6	
				DRS 36 TOTAL	**$9,878**	

Appendix 2: National Historic Preservation Act Compliance Methodologies and Report

(Attached separately)

Appendix 3:
Endangered Species Act Compliance Methodologies and Report

ESA

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April 22, 2016
Andy Haas, Watershed Ecologist
Seattle City Light
700 5th Avenue, Suite 3200
Seattle, WA 98104-5031

Subject: Sullivan Creek Dispersed Recreation Site Restoration Project – Biological Assessment Letter of "No Effect"

Dear Mr. Haas:

This memo provides an analysis of the potential effects to plants, fish, and wildlife that are listed as threatened or endangered, or designated critical habitat, under the federal Endangered Species Act from the proposed closure or restoration of 38 dispersed recreation sites (DRSs) and addition of five new sites (resulting in a no net loss of sites) on U.S. Forest Service Land (USFS) along Sullivan Creek, a tributary to the Pend Oreille River, in northeast Washington. In the addition, the memo addresses terrestrial and aquatic sensitive species for the Colville National Forest, as well as Colville National Forest Plan management indicator species (MIS).

Introduction

To meet obligations of the Boundary License, Seattle City Light (SCL) is working with the USFS to restore or close 38 DRSs and develop five new sites on the Colville National Forest along approximately 16.2 miles of Sullivan Creek. The five new DRS locations have been identified as potential new campsites to offset recreational opportunities resulting from the closure of some of the original DRSs. The five new sites, along with the expansion of one existing site, will result in the number of overnight sites remaining the same pre-and post-rehabilitation.

Sullivan Creek is a right bank tributary to the Pend Oreille River, located east of Metaline Falls, Washington in Pend Oreille County. The recreation sites are generally adjacent to Sullivan Creek as well as paved and unpaved forest roads (Sullivan Lake Road and Sullivan Creek Road). The proposed restoration actions are part of a package of protection, mitigation, and enhancement (PM&E) measures that are being implemented as part of the Federal Energy Regulatory Commission (FERC) Boundary License (FERC #2144) for the Boundary Dam located in Pend Oreille County, Washington.

A combination of site-specific measures would be implemented at each recreation site. These measures include: place boulders and/or angular rock to prevent or contain occupancy/use of existing camping, move informal fire rings and replace these with precast fire rings, define

vehicle and access locations with large rock, rip access roads and compacted soils, revegetate uplands and riparian areas with locally native trees and shrubs; suppress invasive weed species; and remove fire pits, trash, and makeshift toilets.

SCL has prepared this assessment on behalf of the USFS to address project related effects to federally listed species under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS). No species are present that are under the jurisdiction of the National Marine Fisheries Services. The project will be implemented on USFS lands, which provides the federal nexus for the project.

Based on a review of the distribution and life history of federally listed species in the vicinity, an evaluation of potential environmental effects of the proposed project, and three visits to the project area (July 28 – 31, 2014, October 27-30, 2014, and November 6, 2015) by project biologists, it is determined that the project will have "no effect" on ESA listed and proposed species. A summary of the species evaluated and the specific reasons for these determinations are provided in Table 1.

Listed Species Potentially Present

Both NMFS and USFWS provide listings of threatened and endangered species under their jurisdiction (Attachment A). Of these species, those listed in Table 1 could potentially occur within or near the project area. Though mentioned in Attachment A, the USFWS reclassified the gray wolf (*Canis lupis*) Rocky Mountain distinct population segment (DPS) from Threatened to Delisted on February 27, 2009 (73FR10514), and thus this species is not evaluated in this biological assessment. Critical habitat for gray wolf has not been proposed or designated within or adjacent to the project Action Area. No anadromous salmon under the purview of NMFS are present within Sullivan Creek, as dams downstream of the Boundary Hydroelectric block fish passage to the project area. The project specific USFWS species list for Pend Oreille County (Attachment A) indicates that one fish species and five wildlife species are potentially present in the project area.

Table 1. Federally Threatened and Endangered Species Potentially Present Within the Project Vicinity and Rationale of "No Effect" Determination

Species Name (*Scientific Name*)	ESA Listing Status	Suitable Habitat Evaluation	Rationale for ESA "No Effect" Determination
Bull trout (*Salvelinus confluentus*)	Threatened	Suitable habitat for spawning, foraging and migrating bull trout present in Sullivan Creek. Bull trout sub-populations are documented to utilize these areas within the Action Area	Project does not include in-water work, or negative alterations to water quality
Yellow-Billed Cuckoo (*Coccyzus americanus*)	Threatened	No suitable habitat (large blocks of riparian cottonwood forest) within the Action Area.	Cuckoo is extremely rare in Washington State. Action Area does not include suitable habitat.
Canada Lynx (*Lynx canadensis*)	Threatened	Suitable habitat within Action Area, but no high quality foraging, denning, or security habitats within project sites.	Summer construction and project does not include significant clearing. No blasting, helicopter use, or increases in road or site use.

Species Name (*Scientific Name*)	ESA Listing Status	Suitable Habitat Evaluation	Rationale for ESA "No Effect" Determination
Grizzly Bear (*Ursus arctos horribilis*)	Threatened	Suitable habitat within Action Area, but no high high-quality foraging or security habitats within project sites.	Summer construction and project does not include significant clearing. No blasting, helicopter use, or increases in road or site use.
Woodland Caribou (*Rangifer tarandus caribou*)	Endangered	Suitable habitat within Action Area, but no high quality foraging, calving, or security habitats within project sites.	Summer construction and project does not include significant clearing. No blasting, helicopter use, or increases in road or site use.

No federally threatened or endangered plants were listed as potentially occurring in the project area by USFWS (Attachment A). However, whitebark pine (*Pinus albicauilis*) a federal candidate species was listed as potentially occurring in the Action Area. Based on the habitat requirements of whitebark pine, only the eastern end of the project area, where elevations are above 4,000 feet, has the potential to support this species However, a field survey of the project area, conducted by a qualified botanist, did not detect any occurrences of rare or listed plant species, including whitebark pine (ESA, 2014). Therefore, whitebark pine will not be discussed further in this document. In addition, technical reports prepared for the Boundary Project relicensing process applicable to the resources of Sullivan Creek were reviewed.

The potential presence of listed species within the project area was further evaluated by reviewing Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) data (WDFW, 2016a), the Salmonscape database (WDFW, 2016b), and the WDFW Stock Inventory Data (WDF and WWTIT, 1994; WDFW 1998, 2004, 2006).

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) requires federal agencies to consult with National Marine Fisheries Service (NMFS) on activities that may adversely affect Essential Fish Habitat (EFH). No EFH is present within the project area, therefore EFH will not be addressed further in this document.

Colville National Forest Sensitive and Management Indicator Species

Based on consultation with United States Forest Service staff, a list of Colville National Forest Sensitive and Management Indicator Species potentially present within the project vicinity was determined (Table 2).

Table 2. Colville National Forest Sensitive and Management Indicator Species

Species Name (*Scientific Name*)	Species Type	Suitable Habitat Evaluation	Rationale for Determination of No Adverse Affect
Westlsope cutthroat trout (*Oncorhynchus clarki lewisi*)	Fish	Suitable habitat for spawning, foraging and migrating Westslope cutthroat trout present in Sullivan Creek. Cutthroat populations are documented to utilize reaches adjacent to DRS sites.	Project does not include in-water work, or negative alterations to water quality. Summer construction and project does not include significant clearing.
Moose (*Alces alces*)	Terrestrial mammal	Suitable habitat is present in the project vicinity.	Although species is ubiquitous in Colville NF, project will occur adjacent to well used road and does not include blasting, helicopter use, or increases in road or site use. No significant clearing or negative alteration of habitat would occur.
Wolverine (*Gulo gulo*)	Terrestrial mammal	Suitable habitat within project vicinity, but primary habitat is high elevation forests, especially where the snow persists late in the year. No high quality foraging, denning, or security habitats within project sites.	Summer construction and project does not include significant clearing. No blasting, helicopter use, or increases in road or site use.
American pygmy shrew (Sorex hoyi)	Terrestrial mammal	Habitat needs not well understood. Found in conifer stands with dense ground vegetation. Project sites do not generally contain large areas of soft, moist soil and leaf litter, preferred for digging.	Summer construction and project does not include significant clearing or regrading of uncompacted soil. No blasting, helicopter use, or increases in road or site use.
Townsend's big-eared bat (Corynorhinus townsendii)	Terrestrial mammal	Some suitable roosting habitat within project vicinity, but no known communal nesting habitat (caves or mines) in the vicinity of the DRSs. Abandoned buildings are sometimes used by nursery colonies, however no suitable structures occur in the project areas.	Project does not include significant clearing or disruption of cave or abandoned buildings. No blasting, helicopter use, or increases in road or site use.
Harlequin duck (*Histrionicus histrionicus*)	Bird	Suitable habitat is present in the project vicinity, including habitat for pair bonding, nesting, and brood-rearing	Project does not include in-water work, or negative alterations to water quality. No significant clearing or regrading of uncompacted soil.
Fir Pinwheel (*Radiodiscus abietum)*	Terrestrial Invertebrate	Suitable habitat is present in the project vicinity, but DRSs do not contain preferred habitat (rocky sites in Douglas fir forests).	Summer construction and project does not include significant clearing or regrading of non-compacted soil. No blasting, helicopter use, or increases in road or site use.
Magnum mantleslug (*Magnipelta mycophaga)*	Terrestrial Invertebrate	Limited habitat in project vicinity, preferred dominant trees include subalpine fir, white-bark pine, and Engelmann spruce.	Rare locally. This species is thought to be intolerant of habitat alteration and is found only at undisturbed sites (Frest 1999). Work will occur only in previously disturbed DRSs.

Project Purpose and Background

The Boundary Hydroelectric Project, FERC License #2144, Article 9(E)(b)(viii) and Fish and Aquatic Management Plan Section 5.4.10 identifies a PM&E measure leading to the restoration by SCL of up to 38 recreation sites located in riparian areas along Sullivan Creek to help restore fish habitat. As part of the initial phase of this PM&E, SCL has developed a Recreation Site Restoration Plan (RSRP) (ESA, 2016), in consultation with the Fish and Aquatics Work Group (FAWG) and the USFS.

According to the Sullivan Creek Watershed Assessment (USFS, 1996), many of the dispersed campsites in the vicinity of Sullivan Creek are located in riparian areas. The dispersed sites receive heaviest use during the summer recreation season, with a second high-use period occurring during the fall hunting season. Few of the dispersed sites are equipped with sanitary facilities. Many of the dispersed sites received heavy or extreme impact ratings at the time of the watershed assessment (USFS, 1996). Dispersed recreation has diminished the supply of large woody debris (LWD) and resulted in a lack of shrubs and herbaceous cover in some riparian areas. Restoration of the selected dispersed recreation sites is anticipated to improve riparian function, channel stability, and water quality in Sullivan Creek.

Based on field observations and discussion at each of the 38 dispersed recreation sites, the following overall strategy is proposed to restore the natural resource setting (e.g., improved fishery, enhanced riparian habitat, etc.) and associated recreation experience (e.g., improved overall satisfaction, improved visitor safety, etc.):

- Minimize net loss of dispersed recreation sites to help minimize visitor displacement, the potential creation of new sites, and visitor dissatisfaction;

- Use a combination of design and education/information to direct use to lower impact areas;

- Shift dispersed recreation sites, where feasible, out the floodplain and channel migration zone to help ensure the long-term viability of dispersed recreation sites and minimize effects on the riverine environment;

- Use a light development strategy (e.g., barrier rocks, fire ring, bear box, etc.) to help preserve more primitive dispersed camping experience; and

- Encourage sustainable recreation and dispersed camping best practices through site design (based on the existing USFS dispersed camping pamphlet):

- Dispersed sites should be more than 100 feet from stream banks, where possible, but no closer than 25 feet

- Parking at dispersed sites should be 100 feet from stream banks

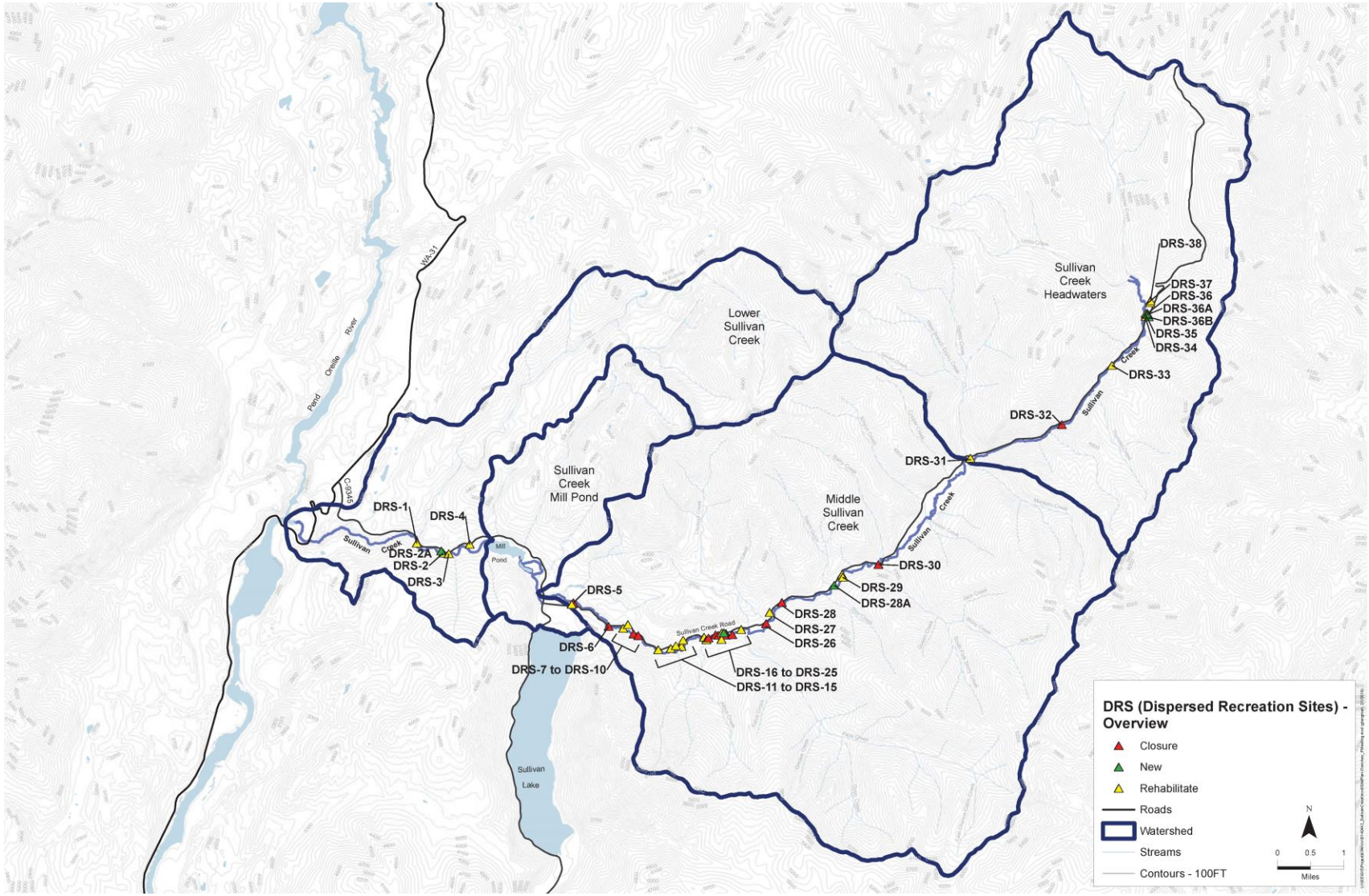
- Each site should have appropriate food storage and where possible, ample separation between food storage and sleeping areas

- Fire rings at dispersed sites should be 100 feet from stream banks and in a location that also that protects vegetation and minimizes fire hazards

Project Location and Site Description

The proposed project is located in Pend Oreille County, Washington east of the City of Metaline Falls (Figure 1). The majority of the 38 dispersed recreation sites are located within close proximity of Sullivan Creek and are accessed by both paved and unpaved roadways. The project sites are distributed over approximately 16.2 miles of Sullivan Creek in Township 39 North, Ranges 43, 44, and 45 East, Willamette Meridian (WM). Sullivan Creek (6^{th} Field HUCs: 170102160402 and 170102160403) is located in Water Resources Inventory Area (WRIA) 62, the Pend Oreille basin. Sullivan Creek is the largest of 28 tributaries to Boundary Reservoir, with a drainage area of 143.2 square miles (R2 Resources, 2014). Sullivan Creek is 21.4 miles in length and drains the area east and northeast of Sullivan Lake. Three dams, all barriers to upstream fish migration, are located on the Sullivan Creek system; Mill Pond Dam, Sullivan Lake Dam, and a small diversion dam on North Fork Sullivan Creek. The Sullivan Creek watershed is the major focus of recreational users in the Boundary Project vicinity. The watershed includes several large campgrounds established by the USFS and numerous dispersed campsites.

Figure 1. Sullivan Creek Dispersed Recreation Site Restoration Project Vicinity



Major land uses within the project area and immediately surrounding lands include undeveloped uses (forested land, wetlands, and waterbodies) as well as developed uses (timber production). Presently, residential development in the drainage is very limited (<30 residences). In the vicinity of the Sullivan Creek/Harvey Creek confluence, there are about nine residences located on private land.

The watershed is accessed by Sullivan Lake Road, which connects Ione and Metaline Falls, while following the west shore of Sullivan Lake and along Sullivan Creek downstream of Outlet Creek. A network of USFS roads (233.7 total miles) and approximately 4.4 miles of private roads provide access to other areas of the Sullivan Creek drainage (USFS, 1996). Camping is the predominant recreational activity in the watershed. Recreational mining also occurs; legal use allows for gold panning and limited suction dredging under permits from the Washington Department of Fish and Wildlife (USFS, 1996).

Existing uses at the individual sites range from larger sites immediately adjacent to Sullivan Creek with at least five distinct use areas (space for a tent or RV/parked vehicle) and six user-defined (user-created) campfire rings with associated user-defined trails (e.g., Site DRS-01) to small sites with one user –defined campfire ring with parking only available on the road shoulder (e.g., Site DRS-06).

Commonly identified problems at the sites include large patches of bare, exposed, and compacted soils, lack of understory vegetation, trees with exposed roots/damaged trees, bank erosion along Sullivan Creek, sanitation issues due to lack of facilities, public safety risk due to site inaccessibility, areas subject to flooding, and sites located in active stream channel migration zones.

Action Area

An action area is defined to be "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR §402.02). Based upon the geographic extent of anticipated project impacts, the action area for the project includes the project footprint and terrestrial habitat extending within a 0.5 mile radius around each DRS. This represents a conservative estimate of the area in which increased noise and human presence during construction may be elevated above baseline noise levels based on the construction activities proposed. The action area for hydrologic and water quality effects includes only those portions of Sullivan Creek directly adjacent (within 25 feet) of dispersed sites where ground disturbing activities are proposed (estimated as less than 10 sites).

Project Description

The *Dispersed Recreation Sites Revised Initial Restoration Plan* (ESA, 2016) describes the potential sites to be open, closed, and restored and describes some combination of the following measures to be implemented at each recreation site. Table 3 summarizes the specific actions and locations for each DRS and Figures 3 through 5 shows the location of individual DRSs, by watershed.

1. Iceberging –this activity will include placement of angular rock (5-8 in diameter) with soil on existing use areas to discourage camping. Material would be deposited on the site by dump truck and then distributed using a small Bobcat. This activity would be conducted during the summer dry season. Planting of sapling conifers and shrubs will occur on sites where natural regeneration appears more difficult.

2. Placement of boulders to prevent vehicle access – this activity will involve placement of larger boulders between the forest roadway and those informal access roads that provide access to the dispersal site. The two-man or greater size boulders will likely be installed with smaller-size heavy equipment (e.g., Bobcats) and may be partially buried. Boulders may also be placed in other locations to eliminate formation of additional access roads and to better define parking and use areas.

3. Loosening of compacted soils – In limited circumstances access roads and compacted soil through recreation use would be ripped to prevent access/use and to improve soil conditions for revegetation efforts as well as natural plant recruitment. This activity would be limited to a handful of sites and would not extend closer than 50 feet to Sullivan Creek or other surface waters. Revegetation would follow this treatment.

4. Streambank revegetation – this activity will involve planting disturbed and bare riparian areas within recreation sites to stabilize the banks. This activity will include hand planting of live willow stakes within and on the top of the affected streambanks.

5. Revegetation with native trees and shrubs – this activity would occur on uplands within dispersed recreation sites that are closed or rehabilitated. Planting will occur to increase the forest and shrub cover. The plantings will consist of native trees and shrubs.

6. Suppression of invasive weed species– this one-time activity would be conducted in concert with revegetation (#5 above). Removal of invasive species will occur by hand, using smaller-size heavy equipment (e.g., Bobcats), and/or using USFS approved herbicide treatment. All invasive plant material would be transported off-site and disposed of properly, to ensure no spread of invasive species or their seeds.

7. Removal of existing trash, fire pits, and informal toilets – this activity would occur during closure of individual recreation sites. All removed materials would be hauled off-site and properly disposed of at a licensed facility. The ground areas previously occupied by these features may be rehabilitated, as described in #5 and #6, above.

8. Addition or repositioning of fire ring and bear boxes – this activity would occur during rehabilitation of existing sites. At certain sites, precast fire rings and bear boxes would be added or moved to more ideal locations.

Table 3. Summary of Existing Conditions and Proposed Prescriptions at the existing 38 and 5 Proposed New Sullivan Creek Dispersed Recreation Sites.

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
DRS-01	Large	High	• Lack of understory vegetation and exposed soil • Compacted soil and drainage issues • Tree damage and exposed roots • Streambank erosion (in particular from dredge mining)	• Use barrier rock to delineate appropriate vehicle access and parking areas • Use iceberging to focus camping in select locations, in particular away from the streambank, and to help minimize site creep • Revegetate along the most heavily damaged streambanks • Remove the user-defined campfire rings • Formalize access to the creek in four streambank locations (including one kayak launch) • Add an informational kiosk, campfire rings and bear boxes	Large	High
DRS-02	Large	High	• Trampled vegetation • Exposed and compacted soil • Sanitation issues • Potential for future site creep	• Add barrier rocks to better delineate appropriate parking areas • Use iceberging to focus camping in select locations, in particular away from the streambank, and to help minimize site creep • Add a bear box and campfire ring • Define access to site by adding a gravel drive	Large	High

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	**Estimated Use Level**	**Habitat Concerns**	**Proposed Prescriptions**	**Use Area[1]**	**Anticipated Use Level**
DRS-02A (new)	Small	Low	• Some trampled vegetation • Small areas of exposed and compacted soil	• Use barrier rock to delineate appropriate vehicle access and parking areas • Remove the user-defined campfire rings • Add a metal campfire ring and bear box • Add a restroom that would serve all dispersed recreation sites in the vicinity of Moon Flats	Small	High
DRS-03	Medium	High	• Lack of understory vegetation • Exposed and compacted soil • Tree damage and exposed roots • Potential for future site creep	• Add barrier rocks to better delineate appropriate parking areas and create separation from camping areas • Create a vehicle turn-around • Use light iceberging to pull use away from the steep slope to the creek • Remove the user-defined campfire rings • Add a bear box and campfire ring	Medium	High
DRS-04	Medium	Low	• Trampled vegetation • Exposed and compacted soil • Streambank erosion	• Use barrier rocks to close the internal access road just beyond the small pull-out • Rip road for 80 feet beyond barrier rocks • Provide a bear box and campfire ring	Small	Low
DRS-05	Large	High	• Trampled and lost vegetation • Exposed and compacted soil • Streambank erosion	• Use barrier rocks to delineate parking/vehicle access at the upper use area • Add iceberging around the periphery of the upper use area to help focus recreation use • Move the location of the existing bear box at the upper use area and add a campfire ring • Use barrier rocks to close the internal access road to the lower use area • Rip and revegetate the internal access road and lower use area	Small	Moderate

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	**Estimated Use Level**	**Habitat Concerns**	**Proposed Prescriptions**	**Use Area[1]**	**Anticipated Use Level**
				• Iceberg the lower camp area • Retain and focus pedestrian use from the upper use area to the lower use area and creek		
DRS-06	Small	Low (day use only)	• Potential for future impacts and site creep	• Maintain closure to overnight camping • Iceberg the perimeter to limit site creep • Remove the user-defined campfire ring • Maintain pedestrian access to the creek	Small	Low (day use only)
DRS-07	Small	High	• Proliferation of user-defined trails to the creek • Potential for future impacts and site creep	• Add additional barrier rocks to further delineate parking • Iceberg along the periphery of the site closest to creek • Maintain existing bear box and add campfire ring Add slash to block access for off road vehicles • Maintain pedestrian access to the creek	Small	High
DRS-08	Small	High	• Potential for increased user-defined trail use • Minor recreation-related habitat issues	• Add several barrier rocks to limit vehicular use of user-defined trails • Remove the existing user-defined campfire ring and install a new campfire ring	Small	High
DRS-09	Large	Low	• Located in active stream migration channel • Vegetation trampling and loss • Soil compaction • High amounts of trash and recreation-related debris	• Close site • Add additional barrier rocks to further prohibit access • Rip and revegetate access road • Remove the user-defined campfire ring • Iceberg the primary use area	None (closed)	None

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	**Estimated Use Level**	**Habitat Concerns**	**Proposed Prescriptions**	**Use Area[1]**	**Anticipated Use Level**
DRS-10	Medium	High	• Located in active stream migration channel • Vegetation loss • Heavy tree damage • Exposed and compacted soil • Soil erosion and undercutting of streambank	• Close site • Add additional barrier rocks to further prohibit access • Remove the existing user-defined campfire rings • Rip areas without mature trees and add iceberging to allow the main use area to revegetate naturally • Add barrier rock and slash to further discourage camping • Revegetate streambank	None (closed)	None
DRS-11	Medium	High	• Trampled vegetation • Exposed and compacted soil • Tree damage and exposed roots	• Use barrier rock to delineate parking area • Add iceberging around the periphery of the current impact area (to reduce the size and extent of impacts) • Maintain trail access from the site to the creek • Add a bear box and campfire ring • Retain three to four of the existing pedestrian access routes to the river • Revegetate the streambank.	Small	High
DRS-12	Medium	High	• Partially within the active stream migration channel • Trampled vegetation • Exposed soil • Streambank erosion	• Use barrier rock to delineate parking area (provide enough space for a vehicle turn-around) • Iceberg and revegetate around the periphery of the current impact area (to reduce the size and extent of impacts) • Relocate bearbox so it is near the campfire ring	Small	High

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	**Estimated Use Level**	**Habitat Concerns**	**Proposed Prescriptions**	**Use Area[1]**	**Anticipated Use Level**
				• Remove the user-defined campfire ring near the parking area and add a campfire ring outside the flood prone area • Maintain pedestrian access from the site to the creek • Revegetate the streambank		
DRS-13	Medium	High	• Lack of understory vegetation • Exposed and compacted soil	• Use barrier rock to delineate parking area • Iceberg and revegetate main use area • Rip the old road leading from upper site • Remove the user-defined campfire ring near the parking area, and add a campfire ring • Maintain pedestrian access from the site to the creek	Small	High
DRS-14	Large	High	• Potential for future impacts and site creep	• Clear vegetation and provide light grading along the closed portion of the existing spur road such that it again functions as a pull-through off of Sullivan Creek Road • Delineate four specific sites within the existing footprint of DRS-14 and along the spur road • Provide an appropriate parking area, metal campfire ring, and bear box at each site • Add barrier rocks to better define and delineate appropriate use areas at all existing and new use areas • Remove the existing user-defined campfire rings	Large	High

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
DRS-15	Small	Low	• Potential for future impacts and site creep	• Add barrier rock to better delineate parking area • Remove the existing campfire rings • Add a campfire ring and bear box	Small	Low
DRS-16	Small	Low	• Potential for future impacts and site creep	• Add barrier rock to better delineate parking area • Remove the existing user-defined campfire rings • Add a bear box and campfire ring	Small	Low
DRS-17	Large	High	• Partially within the active stream migration channel • Lack of understory vegetation • Exposed and highly compacted soil • Exposed roots • Erosion along streambank	• Focus recreational use at the site outside of the active stream migration channel • Use barrier rock to delineate parking area • Iceberg the western leg of the affected area (to reduce the size and extent of impacts) • Establish a user area in eastern leg of the site and iceberg the periphery to define use in this area • Maintain pedestrian access from the primary use area to the creek • Remove the user-defined campfire ring near the creek (in stream migration channel), and add a campfire ring and maintain the bear box in the primary use area	Medium	High
DRS-18	Small	Low (day use only)	• Minor habitat concerns	• Add barrier rocks to better limit vehicle access	Small	Low (day use only)
DRS-19	Small	Low	• Lack of understory and riparian vegetation • Exposed and compacted soil • Soil erosion along streambank	• Close to overnight use • Use barrier rocks along Sullivan Creek Road to prevent vehicle access to the site (parking would be allowed along the shoulder)	Small	Low (day use only)

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
				• Iceberg the site to promote natural revegetation • Maintain pedestrian access from Sullivan Creek Road to the creek		
DRS-20	Medium	Moderate	• Potential for future impacts and site creep	• Add barrier rock to better delineate parking area • Remove the existing user-defined campfire ring • Add a bear box and fire ring	Medium	Moderate
DRS-21	Small	High	• Lack of understory vegetation • Trampled riparian vegetation • Exposed and compacted soil • Soil erosion along streambank	• Close to overnight use • Use barrier rocks along Sullivan Creek Road to prevent vehicle access to the site (parking would be allowed along the shoulder) • Remove the existing user-defined campfire ring • Iceberg the site to promote natural revegetation, • Revegetate the streambank • Maintain pedestrian trail access from Sullivan Creek Road to the creek	Small	Low (day use only)
DRS-21A (new)	Small	Low	• Some vegetation trampling along the user-defined trail that currently bisects the site	• Clear an area along the current user-defined trail to create a small dispersed recreation site • Use barrier rock to delineate the new site and associated parking area • Add a metal campfire ring and bear box	Small	Low
DRS-22	Small	Low	• Trampled understory and riparian vegetation • Exposed and compacted soil	• Close site • Use barrier rocks along USFS 2200500 Road to prevent access to the site	None (closed)	None

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
			• Soil erosion along streambank	• Iceberg and actively revegetate, in particular along the streambank		
DRS-23	Large	High	• Potential for future impacts and site creep	• Use barrier rocks to better delineate parking and use areas • Iceberg western use area • Rip and replant the spur road, while retaining a vehicle turn-around • Close unofficial loop road with boulders and slash • Add a campfire ring and maintain the bear box	Medium	High
DRS-24	Small	Low (day use only)	• Within active stream migration channel • Potential for future impacts	• Close site • Add additional barrier rocks along Sullivan Creek Road • Rip and plant existing access road • Remove the existing user-defined campfire ring • Create an earthern berm and trench to further restrict vehicle access	None (closed)	None
DRS-25	Large	High	• Lack of understory vegetation • Exposed and compacted soil • Tree damage and exposed roots • Soil erosion along streambank	• Use barrier rock to delineate parking area, as well as prohibit off-highway vehicle access to the site along Sullivan Creek Road • Add iceberging around the periphery of the current impact area (to reduce the size and extent of impacts) • Remove the user-defined campfire ring, and add a campfire ring and bear box in the primary use area • Maintain access from the site to the creek	Medium	High

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	**Estimated Use Level**	**Habitat Concerns**	**Proposed Prescriptions**	**Use Area[1]**	**Anticipated Use Level**
DRS-26	Small	Low	• Within the active stream migration channel • Lack of understory and riparian vegetation • Exposed and compacted soil • Soil erosion along streambank	• Close site • Add more barrier rocks to prevent vehicle access • Remove two existing user-defined campfire rings • Rip and revegetate access road • Iceberg the primary use area • Revegetate the degraded streambank	None (closed)	None
DRS-27	Medium	High	• Potential for future impacts and site creep	• Add barrier rocks to better define and delineate appropriate use areas • Remove user defined fire ring • Add a metal campfire ring and bear box	Medium	High
DRS-28	Small	Low	• Within the active stream migration channel • Lack of understory and riparian vegetation • Exposed and compacted soil • Soil erosion along streambank	• Close site • Add barrier rock along Sullivan Creek Road • Iceberg the primary use area • Revegetate the disturbed streambank	None (closed)	None
DRS-28A (new)	Small	Low (day use only)	• Limited areas of trampled vegetation • Some streambank erosion	• Use barrier rock to delineate the pullout along Sullivan Creek Road and limit vehicular access to the site • Use iceberging to focus camping in select locations to help minimize site creep • Retain one of the user-defined trails to Sullivan Creek (close the trail that access the creek via a steep streambank) • Add a metal campfire ring and a bear box	Small	Moderate

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
DRS-29	Medium	High	• Lack of understory vegetation • Cultural resource concerns	• Close the stream-side use area by adding barrier rock and slash • Remove the user-defined campfire ring along the streambank • Allow vehicles and RVs to continue to park on the western side of the Old Priest Lake Bridge • Add barrier rocks at the western end of the Old Priest Lake Bridge to limit vehicle access • Maintain pedestrian access across the Old Priest Lake Bridge to the walk-in campsite on the opposite (eastern) side of the creek • Add campfire ring and bear box to define camp area on eastern side of bridge.	Medium	High
DRS-30	Small	Low (day use only)	• Lack of understory vegetation along user-defined trail • Exposed and eroded soil	• Add barrier rocks to further limit potential vehicle entry to the site • Iceberg the steep upper portion of the trail where soil compaction and erosion is worst • Retain a pedestrian access from the road through the iceberged area to the creek to focus recreation use	Small	Low (day use only)

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	**Estimated Use Level**	**Habitat Concerns**	**Proposed Prescriptions**	**Use Area[1]**	**Anticipated Use Level**
DRS-31	Large	Moderate	• Trampled riparian/streambank vegetation • Lack of understory vegetation • Exposed and compacted soil • Tree damage • Soil erosion	• Reduce the area of impact by using barrier rocks to delineate parking areas • Rip the existing access spur and close the lower use area to most use, though allow several clearly defined pedestrian routes from the upper use are to the creek • Iceberg lower site and western use area • Remove the user-defined campfire rings • Add a campfire ring and bear box	Medium	Moderate
DRS-32	Small	Low	• Lack of understory vegetation • Exposed and compacted soil • Soil erosion along streambank	• Close to overnight use • Use barrier rocks along Sullivan Creek Road to prevent vehicle access to the site (parking would be allowed along the shoulder) • Iceberg and actively revegetate the impact areas • Remove the existing user-defined campfire ring • Maintain pedestrian access from Sullivan Creek Road to the creek	Small	Low (day use only)

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	**Estimated Use Level**	**Habitat Concerns**	**Proposed Prescriptions**	**Use Area[1]**	**Anticipated Use Level**
DRS-33	Small	Low	• Lack of understory vegetation • Exposed and compacted soil • Soil erosion along streambank	• Use barrier rocks to delineate and create separation between the parking and camping areas • Iceberg along the periphery of the site, in particular near the top of the slope that leads down to the creek • Remove the user-defined campfire rings M • Maintain pedestrian trail access to the creek from Sullivan Creek Road • Create tent area • Add a bear box and fire ring	Small	Low
DRS-34	Medium	High	• Trampled vegetation and exposed soil • Problematic drainage • Site creep (to avoid standing water and mud)	• Use barrier rocks to better delineate appropriate use areas • Add iceberging along the periphery of the site • Add gravel to define parking area • Remove user defined campfire ring and add a new metal ring • Maintain pedestrian access to the creek	Medium	High
DRS-35	Medium	High	• Lack of understory vegetation • Exposed and compacted soil	• Use barrier rocks to better delineate appropriate use areas • Add iceberging along the periphery of the site • Rip and revegetate the eastern vehicle access • Relocate the existing campfire ring and maintain bear box • Maintain pedestrian access to the creek, as well as the nearby CXT	Medium	High

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	**Estimated Use Level**	**Habitat Concerns**	**Proposed Prescriptions**	**Use Area[1]**	**Anticipated Use Level**
DRS-36	Medium	High	• Trampled vegetation and exposed soil • Site creep	• Use barrier rocks to better delineate appropriate use areas • Remove user-defined campfire ring and add a metal campfire ring and a bear box • Maintain pedestrian access to DRS-35 and the nearby CXT	Medium	High
DRS-36A (new)	Small	Low	• None	• Minor vegetation clearing to create a focused use area • Use gravel to delineate an appropriate parking area • Add a metal campfire ring and bear box	Small	High
DRS-36B (new)	Medium	Moderate	• Some tree damage • Trampled vegetation • Several user-defined trails	• Use gravel to delineate appropriate vehicle parking areas • Add a metal campfire ring and bear box	Medium	Moderate
DRS-37	Large	High	• Trampled vegetation • Exposed and compacted soil • Erosion along streambank • Soil disturbance around trees (from horses) • High potential for site creep • Historic/cultural resource concerns	• Add a gate on the access road to better control vehicular access to the site • Relocate all campfire rings and bear boxes along the eastern side of the meadow adjacent to the existing and proposed new highlines (the combined DRS-37 and DRS-38 area will provide 2 sets of campfire rings and bear boxes) • Provide a designated kitchen area near Sullivan Creek in the trees at the western edge of the meadow • Retain equestrian access to Sullivan Creek at the western edge of the meadow • Use barrier rocks to control vehicular access through the site and to help protect	Large	High

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
				documented historic/cultural resources at this site		
DRS-38	Large	High	• Potential for future impacts and site creep • Historic/cultural resource concerns	• See DRS-37	Large	High
DRS-01	Large	High	• Lack of understory vegetation and exposed soil • Compacted soil and drainage issues • Tree damage and exposed roots • Stream bank erosion (in particular from dredge mining)	• Use barrier rock to delineate appropriate vehicle access and parking areas • Use iceberging to focus camping in select locations, in particular away from the stream bank, and to help minimize site creep • Revegetate along the most heavily damaged stream banks • Formalize access to the creek in three (including one kayak launch) stream bank locations • Add an informational kiosk, campfire rings and bear boxes	Large	High
DRS-02	Medium	Low	• Some trampled vegetation • Potential for future site creep • Potential cultural resource concerns	• Formalize site to include two distinct camping areas (DRS-02 and DRS-02A) • Use barrier rock to delineate appropriate vehicle access and parking • Remove user-defined campfire rings • Add metal campfire ring and bearbox	Medium	High
DRS-02A	Small	High	• Trampled vegetation • Exposed and compacted soil • Sanitation issues • Potential for future site creep	• Formalize site to include two distinct camping areas (DRS-02 and DRS-02A) • Add barrier rocks to better delineate appropriate parking areas • Add a bear box and campfire ring to each site	Small	High

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
				• Define access to site by adding a gravel drive • Install a vault toilet to be shared by DRS-2A two		
DRS-03	Medium	High	• Lack of understory vegetation • Exposed and compacted soil • Tree damage and exposed roots • Potential for future site creep	• Add barrier rocks to better delineate appropriate parking areas and create separation from camping areas • Create a vehicle turn-around • Use light iceberging to pull use away from the steep slope to the creek • Add a bear box and campfire ring • Formalize access to the creek at two stream bank locations	Medium	High
DRS-04	Medium	Low	• Trampled vegetation • Exposed and compacted soil • Stream bank erosion	• Use barrier rocks to close the internal access road just beyond the small pull-out • Rip road for 80 feet beyond barrier rocks • Provide a bear box and campfire ring	Small	Low
DRS-05	Large	High	• Trampled and lost vegetation • Exposed and compacted soil • Stream bank erosion	• Use barrier rocks to delineate parking/vehicle access at the upper use area • Add iceberging around the periphery of the upper use area to help focus recreation use • Move the location of the existing bear box at the upper use area and add a campfire ring • Use barrier rocks to close the internal access road to the lower use area • Rip and revegetate the internal access road and lower use area • Iceberg the lower camp area • Retain and focus pedestrian use from the	Small	Moderate

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
				upper use area to the lower use area and creek • Formalize access to the creek at one streambank location		
DRS-06	Small	Low	• Potential for future impacts and site creep	• Iceberg the perimeter to limit site creep • Maintain pedestrian access to the creek	Small	Low
DRS-07	Small	High	• Proliferation of user-defined trails to the creek • Potential for future impacts and site creep	• Add additional barrier rocks to further delineate parking • Iceberg along the periphery of the site closest to creek • Add a campfire ring and bear box • Add slash to block access for off road vehicles • Maintain pedestrian access to the creek	High	Low
DRS-08	Small	High	• Potential for increased user-defined trail use • Minor recreation-related habitat issues	• Add several barrier rocks to limit vehicular use of user-defined trails • Relocate the campfire ring	High	Low
DRS-09	Large	Low	• Located in active stream migration channel • Vegetation trampling and loss • Soil compaction • High amounts of trash and recreation-related debris	• Close site • Add additional barrier rocks to further prohibit access • Rip and revegetate access road • Remove the user-defined campfire ring • Iceberg the primary use area	None (closed)	None
DRS-10	Medium	High	• Located in active stream migration channel • Vegetation loss • Heavy tree damage	• Close site • Add additional barrier rocks to further prohibit access • Remove the existing user-defined campfire	None (closed)	None

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
			• Exposed and compacted soil • Soil erosion and undercutting of stream bank	rings • Rip areas without mature trees and add iceberging to allow the main use area to revegetate naturally • Add barrier rock and slash to further discourage camping • Revegetate stream bank		
DRS-11	Medium	High	• Trampled vegetation • Exposed and compacted soil • Tree damage and exposed roots	• Use barrier rock to delineate parking area • Add iceberging around the periphery of the current impact area (to reduce the size and extent of impacts) • Maintain trail access from the site to the creek • Add a bear box and campfire ring • Retain three of the existing pedestrian access routes to the river • Revegetate the stream bank.	Small	High
DRS-12	Medium	High	• Partially within the active stream migration channel • Trampled vegetation • Exposed soil • Stream bank erosion	• Use barrier rock to delineate parking area (provide enough space for a vehicle turn-around) • Iceberg and revegetate around the periphery of the current impact area (to reduce the size and extent of impacts) • Remove the user-defined campfire ring near the parking area and add a campfire ring away from stream bank • Maintain pedestrian access from the site to the creek • Revegetate the stream bank	Small	High

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	**Estimated Use Level**	**Habitat Concerns**	**Proposed Prescriptions**	**Use Area[1]**	**Anticipated Use Level**
DRS-13	Medium	High	• Lack of understory vegetation • Exposed and compacted soil	• Use barrier rock to delineate parking area • Iceberg and revegetate main use area • Rip the old road leading from upper site • Remove the user-defined campfire ring near the parking area, and add a campfire ring • Relocate existing bear box • Maintain pedestrian access from the site to the creek	Small	High
DRS-14	Large	High	• Potential for future impacts and site creep	• Add barrier rock to better define existing camping area • Add three gravel parking areas and three tent pads to delineate three new camping areas • Add barrier rock to better delineate parking area • Clear existing road to connect to Sullivan Creek Road and form a loop road • Add a campfire ring and bear box at the four defined camping areas	Large	High
DRS-15	Small	Low	• Potential for future impacts and site creep	• Add barrier rock to better delineate parking area • Add a campfire ring and bear box	Small	Low
DRS-16	Small	Low	• Potential for future impacts and site creep	• Add barrier rock to better delineate parking area • Add a bear box and campfire ring	Small	Low
DRS-17	Large	High	• Partially within the active stream migration channel • Lack of understory vegetation • Exposed and highly compacted soil	• Focus recreational use at the site outside of the active stream migration channel • Use barrier rock to delineate parking area • Iceberg the western leg of the affected area	Large	High

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
			• Exposed roots • Erosion along stream bank	(to reduce the size and extent of impacts) • Establish a user area in eastern leg of the site and iceberg the periphery to define use in this area • Maintain pedestrian access from the primary use area to the creek • Remove the user-defined campfire ring near the creek (in stream migration channel), and add a campfire ring and maintain the bear box in the primary use area		
DRS-18	Small	Low (day use only)	• Minor habitat concerns	• Add barrier rocks to better limit vehicle access	Small	Low
DRS-19	Small	Low	• Lack of understory and riparian vegetation • Exposed and compacted soil • Soil erosion along stream bank	• Close to overnight use • Use barrier rocks along Sullivan Creek Road to prevent vehicle access to the site (parking would be allowed along the shoulder) • Iceberg the site to promote natural revegetation • Maintain pedestrian access from Sullivan Creek Road to the creek	Small	Low
DRS-20	Medium	Moderate	• Potential for future impacts and site creep	• Add barrier rock to better delineate parking area • Add a bear box and fire ring	Medium	Moderate
DRS-21	Small	High	• Lack of understory vegetation • Trampled riparian vegetation • Exposed and compacted soil • Soil erosion along stream bank	• Close to overnight use • Use barrier rocks along Sullivan Creek Road to prevent vehicle access to the site (parking would be allowed along the shoulder) • Remove the existing user-defined campfire ring	Small	Low

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	**Estimated Use Level**	**Habitat Concerns**	**Proposed Prescriptions**	**Use Area[1]**	**Anticipated Use Level**
				• Iceberg the site to promote natural revegetation, • Revegetate the stream bank • Maintain pedestrian trail access from Sullivan Creek Road to the creek		
DRS-21A	Small	Low	• Some vegetation trampling along user-defined trail.	• Clear an area along the user-defined trail to create a small dispersed recreation site • Use barrier rock to delineate the new site, parking area, and vehicle access • Add a metal campfire ring and a bear box	Small	Moderate
DRS-22	Small	Low	• Trampled understory and riparian vegetation • Exposed and compacted soil • Soil erosion along stream bank	• Close site • Use barrier rocks along USFS 2200500 Road to prevent access to the site • Iceberg and actively revegetate, in particular along the stream bank	None (closed)	None
DRS-23	Large	High	• Potential for future impacts and site creep	• Use barrier rocks to better delineate parking and use areas • Iceberg western use area • Rip and replant the spur road, while retaining a vehicle turn-around • Close unofficial loop road with boulders and slash • Add a campfire ring and maintain the bear box	Medium	High
DRS-24	Small	Low (day use only)	• Within active stream migration channel • Potential for future impacts	• Close site • Add additional barrier rocks along Sullivan Creek Road • Rip and plant existing access road	None (closed)	None

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
				• Create an earthern berm and trench to further restrict vehicle access		
DRS-25	Large	High	• Lack of understory vegetation • Exposed and compacted soil • Tree damage and exposed roots • Soil erosion along stream bank	• Use barrier rock to delineate parking area, as well as prohibit off-highway vehicle access to the site along Sullivan Creek Road • Add iceberging around the periphery of the current impact area (to reduce the size and extent of impacts) • Remove the user-defined campfire ring, and add a campfire ring and bear box in the primary use area • Maintain access from the site to the creek	Large	High
DRS-26	Small	Low	• Within the active stream migration channel • Lack of understory and riparian vegetation • Exposed and compacted soil • Soil erosion along stream bank	• Close site • Add more barrier rocks to prevent vehicle access • Rip and revegetate access road • Iceberg the primary use area • Revegetate the degraded streambank	None (closed)	None
DRS-27	Medium	High	• Potential for future impacts and site creep	• Add barrier rocks to better define and delineate appropriate use areas • Remove user defined fire ring • Add a metal campfire ring and bear box	Medium	High
DRS-28	Small	Low	• Within the active stream migration channel • Lack of understory and riparian vegetation • Exposed and compacted soil • Soil erosion along stream bank	• Close site • Add barrier rock along Sullivan Creek Road • Iceberg the primary use area • Revegetate the disturbed streambank	None (closed)	None

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	**Estimated Use Level**	**Habitat Concerns**	**Proposed Prescriptions**	**Use Area[1]**	**Anticipated Use Level**
DRS-28A	Small	Low	• Some vegetation trampling along the user-defined trails • Some streambank erosion where one of the user-define trail accesses Sullivan Creek	• Add barrier rock to delineate vehicle pullout along Sullivan Creek Road • Use boulders and iceberging to focus camping to help minimize creep • Retain one of the user-defined trails to the Creek • Add a metal bear box and campfire ring.	Small	Moderate
DRS-29	Medium	High	• Lack of understory vegetation • Cultural resource concerns	• Close the stream-side use area by adding barrier rock and slash • Remove the user-defined campfire ring along the stream bank • Allow vehicles and RVs to continue to park on the western side of the Old Priest Lake Bridge • Add barrier rocks at the western end of the Old Priest Lake Bridge to limit vehicle access • Maintain pedestrian access across the Old Priest Lake Bridge to the walk-in campsite on the opposite (eastern) side of the creek • Add campfire ring and bear box to define camp area on eastern side of bridge.	Medium	High
DRS-30	Small	Low (day use only)	• Lack of understory vegetation along user-defined trail • Exposed and eroded soil	• Add barrier rocks to further limit potential vehicle entry to the site • Iceberg the steep upper portion of the trail where soil compaction and erosion is worst • Retain a pedestrian access from the road through the iceberged area to the creek to focus recreation use	Small	Low

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	**Estimated Use Level**	**Habitat Concerns**	**Proposed Prescriptions**	**Use Area[1]**	**Anticipated Use Level**
DRS-31	Large	Moderate	• Trampled riparian/stream bank vegetation • Lack of understory vegetation • Exposed and compacted soil • Tree damage • Soil erosion	• Reduce the area of impact by using barrier rocks to delineate parking areas • Rip the existing access spur and close the lower use area to most use, though allow several clearly defined pedestrian routes from the upper use are to the creek • Iceberg lower site and western use area • Add a campfire ring and bear box • Formalize access to the creek at one streambank location	Medium	Moderate
DRS-32	Small	Low	• Lack of understory vegetation • Exposed and compacted soil • Soil erosion along stream bank	• Close to overnight use • Use barrier rocks along Sullivan Creek Road to prevent vehicle access to the site (parking would be allowed along the shoulder) • Iceberg and actively revegetate the impact areas • Maintain pedestrian access from Sullivan Creek Road to the creek	Small	Low

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	**Estimated Use Level**	**Habitat Concerns**	**Proposed Prescriptions**	**Use Area[1]**	**Anticipated Use Level**
DRS-33	Small	Low	• Lack of understory vegetation • Exposed and compacted soil • Soil erosion along stream bank	• Use barrier rocks to delineate and create separation between the parking and camping areas • Iceberg along the periphery of the site, in particular along the slope that leads down to the creek • Remove the user-defined campfire ring near the creek, but maintain pedestrian trail access to the creek from Sullivan Creek Road • Create tent area • Add a bear box and fire ring	Small	Low
DRS-34	Medium	High	• Trampled vegetation and exposed soil • Problematic drainage • Site creep (to avoid standing water and mud)	• Use barrier rocks to better delineate appropriate use areas • Add iceberging along the periphery of the site • Add gravel to define parking area • Remove user defined campfire ring and add a new metal ring • Maintain pedestrian access to the creek	Medium	High
DRS-35	Medium	High	• Lack of understory vegetation • Exposed and compacted soil	• Use barrier rocks to better delineate appropriate use areas • Add iceberging along the periphery of the site • Rip eastern vehicle access • Relocate the existing campfire ring and maintain bear box • Maintain pedestrian access to the creek, as well as the nearby CXT	Medium	High

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	**Estimated Use Level**	**Habitat Concerns**	**Proposed Prescriptions**	**Use Area[1]**	**Anticipated Use Level**
DRS-36	Medium	High	• Trampled vegetation and exposed soil • Site creep	• Use barrier rocks to better delineate appropriate use areas • Remove user-defined campfire ring and add a metal campfire ring and a bear box • Maintain pedestrian access to DRS-35 and the nearby CXT	Medium	High
DRS-36A	Small	Low	• Minimal since area is not currently used	• Use barrier rock to delineate an appropriate parking area • Clear vegetation to create a focused use area • Add a metal campfire ring and bear box	Small	High
DRS-36B	Medium	Moderate	• Damage to several trees and trampled vegetation • User-defined trails lead to outdoor restrooms and trash dump sites	• Use barrier rock to delineate appropriate vehicle parking areas • Add metal campfire ring and bear box	Medium	High
DRS-37	Large	High	• Trampled vegetation • Exposed and compacted soil • Erosion along stream bank • Soil disturbance around trees (from horses) • High potential for site creep • Historic/cultural resource concerns	• Use barrier rocks to protect documented cultural resources at this site. • Define camping areas by placing campfire rings and bear boxes in locations that will not further damage concrete foundations. • Define a kitchen area to be used by visitors to DRS-37 and DRS-38 • Maintain horse access to stream • Install a gate at entrance to sites DRS-37 and DRS-38 to control access to Gypsy Meadows	Large	High
DRS-38	Large	High	• Potential for future impacts and site creep • Historic/cultural resource concerns	• Use barrier rocks to protect documented cultural resources at this site. • Define camping areas by placing campfire rings and bear box in locations that will not	Large	High

Site	Pre-Restoration			Post-Restoration		
	Impact Area[1]	Estimated Use Level	Habitat Concerns	Proposed Prescriptions	Use Area[1]	Anticipated Use Level
				further damage concrete foundations. • Define a kitchen area to be used by visitors to DRS-37 and DRS-38 • Maintain horse access to stream • Install additional highline poles near camping area • Install a gate at entrance to sites DRS-37 and DRS-38 to control access to Gypsy Meadows		

Figure 2. Sullivan Creek Dispersed Recreation Sites – Lower Sullivan Creek Watershed

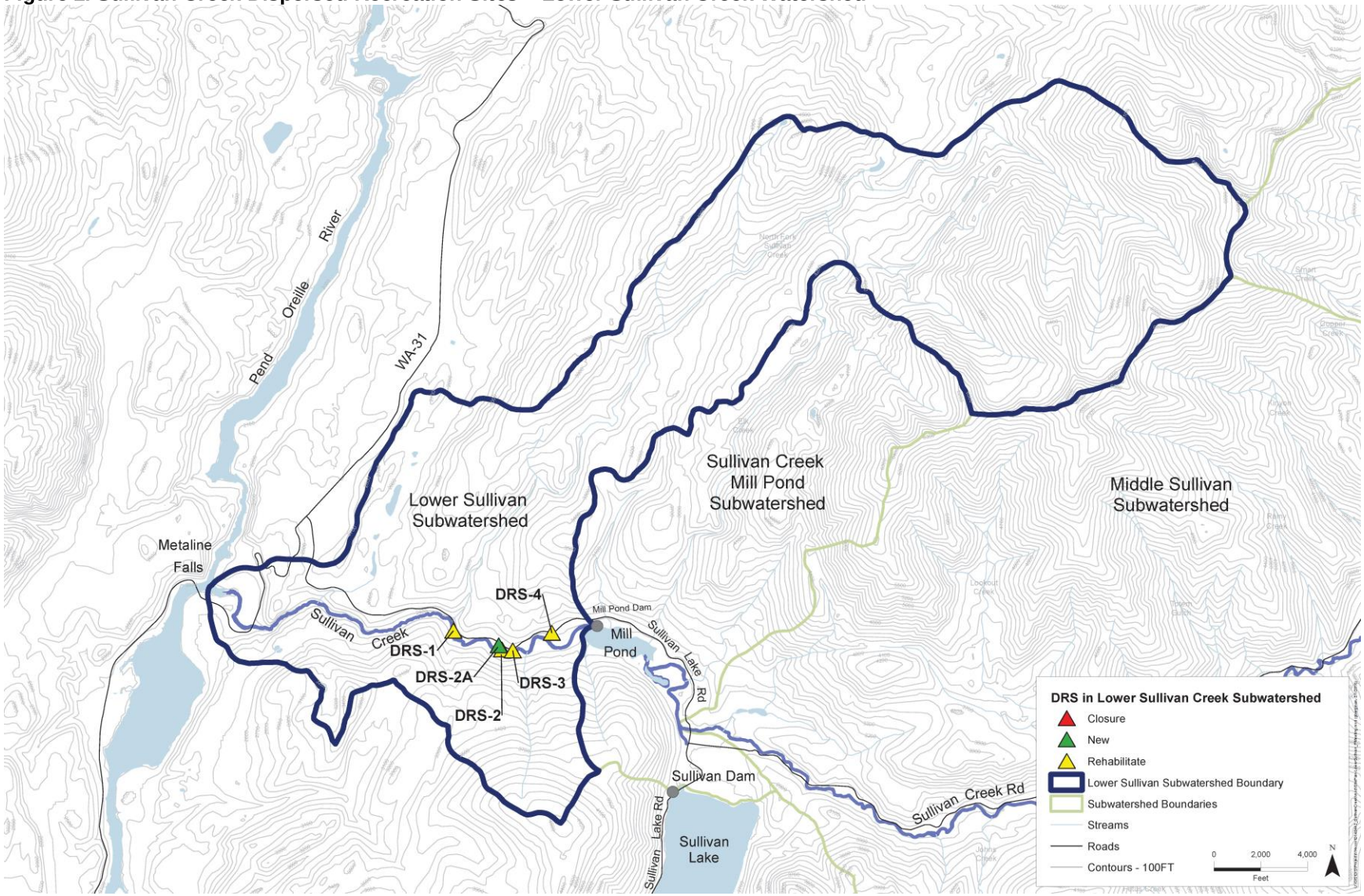


Figure 3. Sullivan Creek Dispersed Recreation Sites – Middle Sullivan Creek Watershed

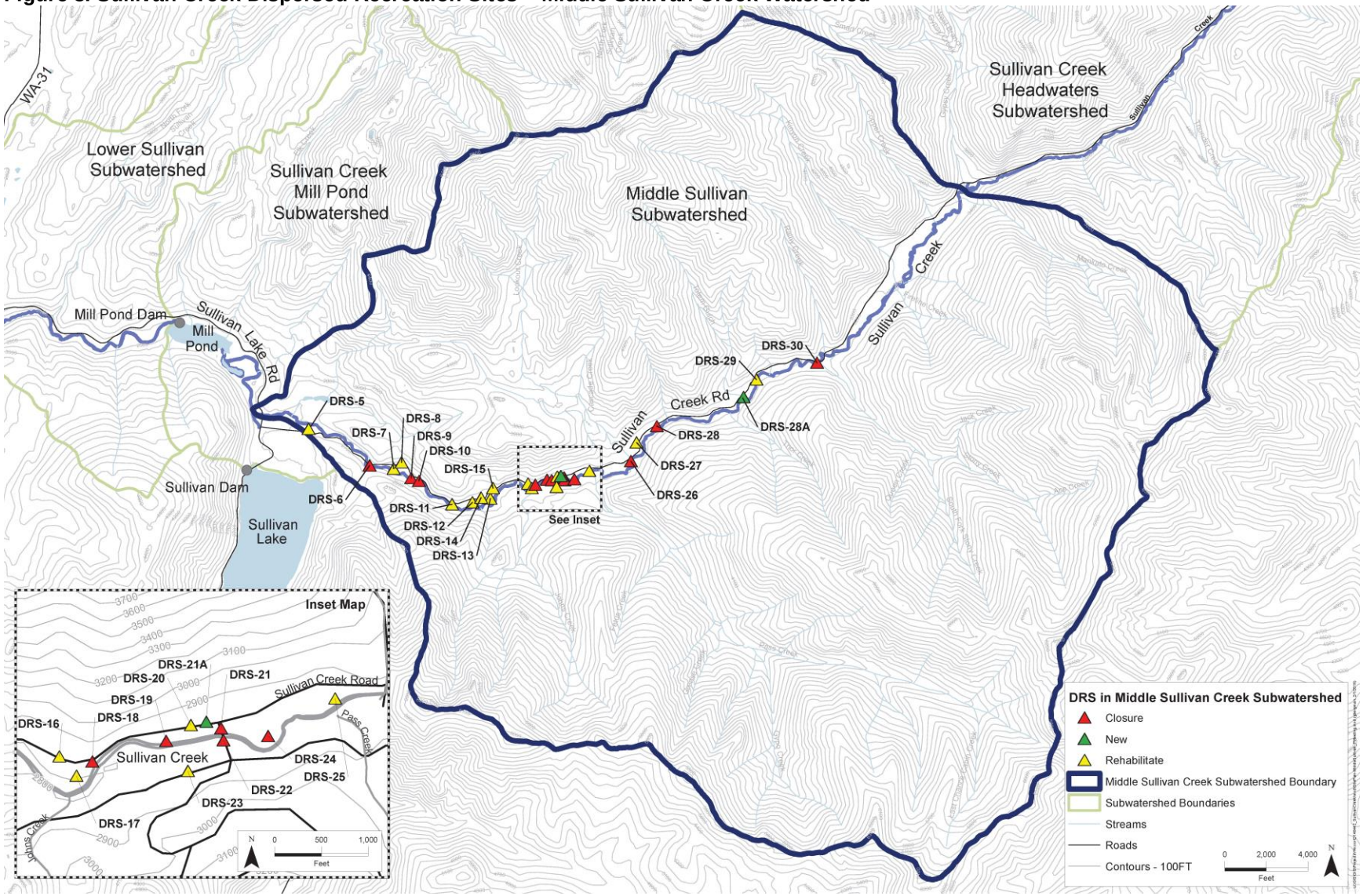
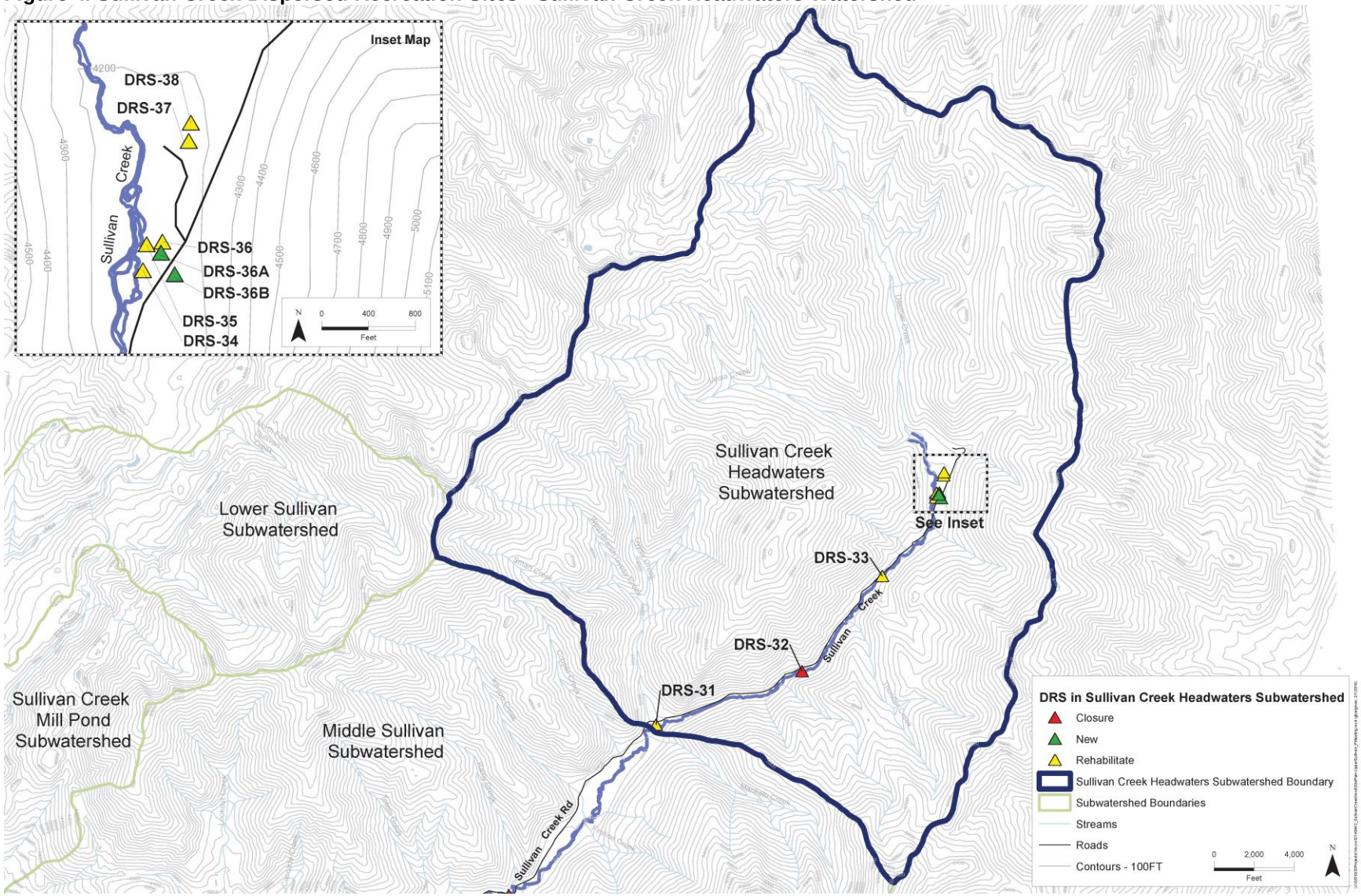


Figure 4. Sullivan Creek Dispersed Recreation Sites –Sullivan Creek Headwaters Watershed



With the exception of the planting of live willow stakes along the stream banks of Sullivan Creek, the project will not involve work below the ordinary high water mark (OHWM) and no work will occur within the wetted perimeter of Sullivan Creek. In addition, no activities that produce high amounts of sound energy (e.g., pile driving, blasting or helicopter use) will be part of the proposed project.

Construction Equipment and Staging/Stockpiling

Construction machinery that will be used includes typical medium and small-size contraction equipment such as front-end loaders, small bull dozers and excavators, flatbed trucks, dump trucks, rollers, backhoes, and pickup trucks. Construction stockpiling and staging areas for the project will be within already developed areas and cleared portions of the site, likely at the road pull-outs that serve as parking or access to the dispersed recreation sites or a nearby gravel borrow pit. No additional clearing or grading will be required for staging and stockpile areas and these sites will be located outside of critical areas and the associated buffers.

Construction Sequence and Schedule

Proposed construction is tentatively scheduled to begin in 2018 and will last for approximately two summer work seasons, with an anticipated end date of 2020. Work at some of the 38 sites will occur concurrently. It should be noted that this schedule is only a likely representation and that variations in work timing may occur due to delays in project funding, permitting, or due to contractor delays or adverse weather conditions. Applicability of treatments depends on site-specific conditions. The general sequence of construction activities at each individual site is as follows (as applicable):

1. Mobilize;
2. Install temporary erosion and sediment control (TESC) installation;
3. Remove existing trash, fire pits, and toilets at DRSs to be removed
4. De-compact soils;
5. Place boulders and iceberg rock to eliminate or contain camper and/or vehicle access
6. Stabilize streambanks through revegetation with live willow stakes
7. Revegetate closed or off-limit areas with native trees and shrubs and suppress of invasive weed species;
8. Post signs indicating those sites are closed to use and
9. Cleanup site, remove TESC and demobilize.

Listed Species/Critical Habitat Occurrence

Fish Species

The WDFW Priority Habitats and Species (PHS) database indicates the documented presence of westslope cutthroat trout, rainbow trout (*O. mykiss*), and kokanee (*O. nerka*) within Sullivan Creek (WDFW, 2016a). These species use the project vicinity primarily for migration to and from their spawning grounds in Sullivan Creek and Sullivan Lake, although rearing of rainbow and cutthroat likely occurs occur in the project area.

The WDFW Salmonscape database indicates documented bull trout presence in the lower 0.9 miles of Sullivan Creek, downstream of the project area and historic documented presence in approximately 3 miles of the North Fork Sullivan Creek (WDFW, 2016b). Bull trout have rarely been observed in Boundary Reservoir or its tributaries, with only 33 documented observations of bull trout within the Pend Oreille River system between Albeni Falls and Boundary dams since 1975 (WDFW, 1998). No known breeding populations currently exist in the Boundary Reservoir area. Four documented bull trout have been observed in Sullivan Creek. A dead bull trout was observed along the bank of the stream at river mile 0.65 (downstream from the proposed project) in 1993; however, subsequent snorkel surveys in the vicinity were not able to find other occurrences (CES, 1996). One bull trout observed in Sullivan Creek during 1993 was gutted, indicating it had been captured by an angler, and presumably captured in Sullivan Creek. Single bull trout were observed during a snorkeling survey in 2007 (SCL, 2009) and during sampling by WDFW in 2010 and by SCL in 2013 (R2 Resources, 2014).

The historic disruption of habitat and the lack of connectivity to more suitable habitat (dams) prevent the Sullivan Creek Watershed from functioning appropriately to sustain bull trout populations (USFS, 1999). High summer stream temperatures likely preclude bull trout from the lower portions of Sullivan Creek within the aquatic Action Area. No occurrence of bull trout in Mill Pond Dam has been documented and any current occurrence of bull trout in Sullivan Creek, particularly upstream of Mill Pond Dam, would be extremely rare. However, once dam removal has occurred, there is the potential for bull trout use of Sullivan Creek upstream of the dam site.

In the October 2010 final rule designating critical habitat for Bull Trout (75 FR 63898), the USFWS identified Boundary Reservoir, Sullivan Creek downstream of the impassable fish barrier at Mill Pond Dam (RM 4.18) as critical habitat.

Wildlife Species

Information on federally listed wildlife species (see Table 1) were determined through a review of species information provided by various sources, including the USFWS (Attachment A) and on habitat information provided by WDFW (WDFW, 2016a,b).

The proposed project occurs within the general range of several ESA listed wildlife species including Canada lynx, grizzly bear, and woodland caribou. The project area is located in a forested setting, largely on USFS lands. However, all of the individual dispersed recreation sites have been highly disturbed through vegetation clearing and ground compaction and are located adjacent to well-used paved and unpaved roads.

Canada Lynx

Although there are multiple records of Canada lynx occurring within the project vicinity over the past several decades, most records of Canada lynx within the action area occur in upper elevation habitats to the east of the Pend Oreille River (USFWS, 2012). Furthermore, nearly all of these sightings represent winter observations of Canada lynx tracks. There are no known Canada lynx denning sites in the vicinity of the specific areas identified for DRS restoration. In addition, all of the DRSs are located in close proximity of well-used paved and unpaved forest roads, which receive relatively high volumes of traffic as they serve as the primary transportation access point for entire Sullivan Creek basin.

Grizzly Bear

There are several records of grizzly bears occurring within the project vicinity over the past several decades, including at least three sightings along Sullivan Creek Road above Sullivan Lake. The proposed project involves activities at eight dispersed recreation sites (Sites DRS 31 through 38) located along the upper portion of Sullivan Creek (Figure 4), which forms the boundary between the Salmo-Priest and Sullivan-Hughes grizzly bear management units (BMU) of the Selkirk Recovery Zone. The specific DRS areas proposed for restoration may occasionally be used by grizzly bears, although this is relatively rare because no high-quality foraging (e.g., berry-producing shrub fields), security habitats, or denning habitats are located within the Action Area. Furthermore, all of these sites are located in close proximity of well-used paved and unpaved forest roads, which receive relatively high volumes of traffic as they serve as the primary transportation access point for entire Sullivan Creek basin. Critical habitat for grizzly bear has not been proposed or designated within or adjacent to the project Action Area.

Woodland Caribou

There are numerous records of woodland caribou occurring within the action area over the past several decades. Most of the records occur in upper elevation habitats to the east of the Pend Oreille River within the Salmo, Crowell, and Thunder-Hall caribou management units (CMU) (USFWS, 2012). The vast majority of these observations represent relocations of radio-collared woodland caribou reintroduced to northern Idaho and northeastern Washington from the mid-1980s to mid-1990s. Most woodland caribou sightings on the Colville National Forest, as well as the presence of important caribou habitat, occur in alpine habitats above 4,000 feet in elevation (no alpine habitats are present within the Action Area).

The proposed project involves activities at eight dispersed recreation sites (Sites DRS 31 through 38) located along the upper portion of Sullivan Creek (Figure 4), which are within or adjacent to CMUs. However, all proposed project activities would occur outside of, and at lower elevations compared to habitats used during the critical late-winter and calving seasons for woodland caribou (i.e., February through June). In addition, all of the DRSs are located in close proximity of well-used paved and unpaved forest roads, which receive relatively high volumes of traffic as they serve as the primary transportation access point for entire Sullivan Creek basin.

In November, 2012 the USFWS designated critical habitat for the Southern Selkirk Mountains Population of Woodland Caribou (50 CFR Part 17). None of the DRS sites associated with the proposed project are located within designated critical habitat for woodland caribou, which is limited to habitat with elevations above 5,000 feet. All DRS sites are at elevations less than 4,200 feet. However, a portion of the Action Area, in the northeast portion of the project area upstream of the Sullivan Creek-Gypsy Creek confluence, extends close to the boundary of designated critical habitat for woodland caribou.

Colville National Forest Sensitive and Management Indicator Species

Information on the potential occurrence of Colville National Forest Sensitive and Management Indicator Species wildlife species (see Table 2 and text below) were determined through a review of available sources on species habitats and distributions.

Westslope Cutthroat Trout

Westslope cutthroat trout are native to the Boundary project area, including Sullivan Creek (R2 Resources, 2014) In addition, cutthroat Trout of both Westslope and Yellowstone Hatchery genetic origin have been stocked into tributaries to Boundary Reservoir (McLellan, 2001). Juvenile cutthroat trout within the project area exhibit a fluvial life history pattern, as access to Sullivan Lake is currently precluded by the Mill Pond and Sullivan Lake Dams (of which removal is being planned as part of the FERC relicensing agreements). Westslope cutthroat trout that exhibit the fluvial or adfluvial life history pattern usually spend one to four years rearing in natal streams before outmigration (McIntyre and Rieman, 1995). During the summer, juvenile Cutthroat Trout rear in low velocity riffles, pool tailouts, and runs. Fall can be a period of movement between summer rearing habitat and overwintering habitat. Winter habitat for juveniles consists of pools and side channels in association with woody debris and large substrate with suitably-sized interstices. The WDFW PHS database indicates the documented presence of westslope cutthroat trout throughout Sullivan Creek and its tributaries, adjacent to the project area (WDFW, 2016a).

Moose

In the summer, moose feed on submergent and emergent aquatic vegetation in areas of slow moving water, ponds and wetlands. They forage on shrub species year-round including willows, maples, evergreen ceanothus and serviceberry. Forest clearings, including burned or logged areas, in 15 to 30 year old successional stages are heavily used. Moose may utilize roadless blocks of mature timber (80+ acres) for calving and hiding / escape cover (WDFW, 1991). Although moose could be occasionally present at an individual DRS, all of the sites is located on or adjacent to an existing, well-traveled road where wildlife is already prone to disturbance from log trucks and other vehicle traffic. No large ponds or wetlands are adjacent to the DRS sites.

North American Wolverine

Wolverines typically den in higher elevation rock slides, caves, and crevices; often in glacial cirque basins. They forage in all higher elevation forested habitats but particularly those where carrion can be found. They require seclusion from human disturbance (Copeland, 1996).

Although wolverine could be occasionally present at an individual DRS, the sites are located at lower elevations than preferred for foraging, and all of the DRSs are located on or adjacent to an existing, well-traveled road where wildlife is already prone to disturbance from log trucks and other vehicle traffic.

Pygmy Shrew

Although habitat needs are not understood well, pygmy shrews have been found in coniferous and deciduous forests, swamps, grassy clearings, bogs and floodplains. In Washington, pygmy shrews have been captured in upland, even-aged second-growth conifer forests (WDFW, 1991). An equally wide array of microhabitats is acceptable to these animals, including sphagnum moss, moist soil, mammalian tunnel networks, insect tunnel networks, leaf litter, root systems, and stumps (Baker, 1983). The shrew is a proficient digger in soft, moist soil and leaf litter. Pygmy shrews can also use tunnel networks made by other animals such as beetles, voles, or moles to find food. The location of the DRS sites adjacent to riverine habitats indicate a relatively high groundwater table. In conjunction with compacted soils at the DRS sites, such locations would not represent preferred habitat for this species.

Townsend's Big-eared Bat

This bat utilizes caves or mines for day roosting / winter hibernation. Abandoned buildings are sometimes used by nursery colonies (WDFW, 1991). No suitable cave habitat or structures occur in the immediate vicinity of the DRSs.

Harlequin duck

Harlequins breed on cold, fast-moving mountain streams, such as Sullivan Creek, with adjacent dense shrub and timber stands and an absence of human disturbance. The mountain streams are usually at low to subalpine elevations within a closed forest canopy, and have midstream gravel bars or rocks for roosting. They winter on boulder strewn coastal waters (Lewis and Krage, 2003). Breeding harlequins could be present near the proposed DRSs, although existing human activity and road traffic at the sites would likely discourage breeding activity at those locations.

Fir Pinwheel

Most often found in moist and rocky Douglas fir forest at mid-elevations in valleys and ravines and sometimes in western redcedar. It is often found in or near talus of a variety of rock types, or under fallen logs (Duncan, 2008). No significant occurrence of talus formations are present within the immediate vicinity of the DRSs.

Magnum Mantleslug

This species prefers very moist habitats with permanent or persistent water sources. It is often associated with rock talus, deep leaf and needle duff, and large woody debris. In Washington it is found in subalpine fir plant associations (Frest and Johannes, 1995). The species is relatively

rare and is unlikely occur within the DRSs, which are generally characterized by compacted soils and contiguous areas of ground disturbance.

Listed Species Impacts Assessment

Fish Species

The only water bodies within the project area are the Sullivan Creek mainstem and Gypsy and Deemer Creeks, tributaries to Sullivan Creek. Only one ESA-listed fish species, bull trout, is potentially present in the Action Area. Bull trout are extremely rare in Sullivan Creek, no spawning occurs in the watershed, and several dams preclude upstream fish passage. Only four sites (DRS-1 through 4) adjacent to Sullivan Creek (downstream of Mill Pond Dam) could support migrants from Lake Pend Oreille and its tributaries. However, although currently no bull trout are present upstream of Mill Pond Dam, a few may move into the area once planned dam removal activities are completed.

The proposed project will not require in-water work or work within wetlands. Although some ground disturbing activities will occur at the dispersed sites adjacent to Sullivan Creek, the scope of these activities is limited to minor grading and excavation and revegetation with native species. In order to minimize or eliminate erosion or sedimentation, a temporary sediment and erosion control (TESC) plan will be prepared and implemented during project construction. The TESC plan will specify best management practices (BMPs) for sediment and erosion control. Examples of potentially appropriate BMPs include sediment fencing, erosion control blankets, and the delineation of clearing and grubbing limits with high visibility fencing. Based on the implementation of these measures, and the distance of the project to fish-bearing surface waters, there is no chance that sedimentation or contaminants from project construction runoff would affect ESA-listed fish species. Furthermore, all work will be conducted during the summer months, further eliminating the chance of sediment entering the stream. Therefore, no direct or indirect effects on listed fish species due to sedimentation would occur.

The project does not include tree clearing or large woody debris (LWD) removal clearing (except for potential invasive species). The project does include revegetation within multiple dispersed sites, which would result in a small overall long-term improvement to riparian functions within the project area, including LWD recruitment, bank stability, and stream shading.

It is not anticipated that hazardous or potentially hazardous materials or soils will be encountered during demolition or construction at the DRSs. However, if such material is encountered, it will be hauled offsite, and properly disposed of at a licensed facility, meeting all local, state, and federal requirements.

As discussed above, no direct effects would occur if small numbers of bull trout were present during project implementation (which may occur if the Mill Pond Dam is removed prior to project implantation). Furthermore, the project will not result in long-term degradation to Sullivan Creek or associated aquatic habitat.

The proposed project is consistent with existing land use patterns and does not add transportation capacity (new roadways). No new roads trails, or improvements to existing roads, are planned as

part of this project and there would be no significant increases in open or total road densities, trail mileage, or expected use levels by the public within the Action Area as a result of the proposed action. No impervious surface will be created and stormwater runoff volumes within the project area would be maintained, resulting in no change to the hydrology in Sullivan Creek or its tributaries. Completion of the proposed project will not induce growth in the project vicinity. There are no anticipated changes in land use, transportation concurrency, or induced growth that have the potential to negatively affect ESA-listed species. For these reasons, it is anticipated that the proposed project will have *no effect* on bull trout.

Wildlife Species

The project will not involve tree removal or otherwise degrade habitat for woodland caribou, grizzly bear, and Canada lynx. The greatest potential for disturbance to these species in the project area would be from the use of heavy equipment at some of the DRSs. However, these activities are expected to be of short duration (e.g., several hours within a single day) and spatially limited to the individual DRSs. The project does not involve construction activities that produce significant levels of noise (e.g, blasting or pile driving) and noise disturbance levels from project-related construction activities will similar to that from other on-going human activities that occur in the vicinity (truck traffic, logging, off-road vehicle use, shooting, etc.). Furthermore, no new roads, trails, or improvements to existing roads, are planned as part of this project and there would be no significant increases in open or total road densities, trail mileage, or expected use levels by the public within the Action Area as a result of the proposed action.

In addition, nearly all proposed project activities would occur in the summer months, outside of, and at lower elevations compared to habitats used during the critical late-winter and calving seasons for woodland caribou (i.e., February through June). Based on the above information and the project description, the proposed action will not impact any foraging, security, or calving habitats potentially used by woodland caribou or create any significant disturbance in areas likely to be occupied by woodland caribou at the time of the proposed action. For these reasons, it is anticipated that the proposed project will have *no effect* on woodland caribou.

Similar to caribou, the proposed action will not affect any high-quality foraging, denning, or security habitats potentially used by grizzly bears or create any significant disturbance in areas likely to be occupied by grizzly bears at the time of the proposed action. In addition, construction crews will be required to comply with all applicable USFS rules and regulations (36 CFR 261) regarding work conduct, including proper storage and disposal of all food, waste, and other potential bear attractants while conducting work activities. These actions will likely eliminate any potential negative impacts due to human-bear interactions in the Action Area. For these reasons, and others discussed above, it is anticipated that the proposed project will have *no effect* on grizzly bear.

Lastly, the project would be consistent with current management guidelines that have been developed in the multi-agency Canada Lynx Conservation Assessment and Strategy. Based on the specific activities comprising the proposed action, the project will not impact any high-quality foraging, denning, or security habitats potentially used by Canada lynx or create any

significant disturbance in areas likely to be occupied by Canada lynx at the time of the proposed action. Therefore, it is anticipated that the proposed project will have *no effect* on Canada lynx.

Colville National Forest Sensitive and Management Indicator Species Impact Assessment

Westslope Cutthroat Trout

Although westslope cutthroat trout will likely be present within Sullivan Creek and its tributaries during project construction, and the majority of the DRSs are located in proximity to these waterbodies, the project will have no negative impacts on westslope cutthroat trout. The rationale for this impact assessment is based on the fact that no inwater work will occur, the implementation of appropriate BMPs and TESC measures, the minimal amount of clearing within the riparian areas, and other factors as presented above under the discussion of bull trout impacts.

Moose, Wolverine, American Pygmy Shrew

Although moose, wolverine, and American pygmy shrew may occasionally be present within the vicinity of the project, no negative impacts to these species would result from the proposed project. The existing DRSs are located adjacent to well-used logging roads and undergo regular human disturbance. Furthermore, these sites display compacted soil conditions and trampled and cleared native vegetation. The site-specific habitats and use patterns of the DRSs do not represent conditions conducive to the use of the habitat for any of the three mammals.

The project would occur at lower elevations than those normally frequented by wolverine and no negative impacts to food plants for moose or wolverine would occur (portions of the DRSs would be actively re-vegetated with native vegetation). The project will not result in changes in road densities, transportation patterns or human-use patterns within the project area. No talus or other rock features that support pygmy shrew are generally present in the DRSs and loss of forest cover in streamside riparian zone will be minimal.

Harlequin Duck

Some of the DRSs within the project area likely contain habitat for harlequin duck. However, no inwater work will occur as part of the project, and grading work immediately adjacent to project waters occurs in just a few cases. As discussed above, the existing DRSs are located adjacent to well-used logging roads and undergo regular human disturbance. Many of the individual DRSs are screened from riverine habitats by intervening, dense forest stands. Lastly, the project would occur during the brood rearing period when young are mobile and able to readily displace from any project-related disturbances. Based on these factors, the project is anticipated to result in no negative impacts to this species.

Towsend's Big-Eared Bat

The project vicinity does not contain suitable habitat for day roosting/winter hibernation, or nursery habitat. The species occasionally roosts in hollow trees or under peeling bark, and such

habitat is present within the DRSs. However, the existing DRSs are located adjacent to well-used logging roads and undergo regular human disturbance, making use of these areas by roosting bats extremely unlikely. Furthermore, the project will result in minimal clearing of such features and will not increase site use patterns. Therefore, the project is anticipated to result in no negative impacts to this species.

Fir Pinwheel and Magnum Mantleslug

These relatively rare species prefer moist conditions in a variety of rock types and talus, fallen logs, and subalpine fir plant associations. No significant occurrence of these habitat features are present within the DRSs, which are disturbed with soil conditions, vegetation, and coarse woody debris patterns significantly altered from undisturbed site conditions. Based on these factors, the project is anticipated to result in no negative impacts to this species.

Effects Determinations Summary for Listed Species

Based on the information provided above, the proposed project would have *no effect* on bull trout, grizzly bear, woodland caribou, and Canada lynx for the following reasons:

- Bull trout are extremely rare within Sullivan Creek, no spawning populations are present, and upstream passage is precluded to the majority of the Action Area.

- The project will not increase open or total road densities, trail mileage, or expected use levels by the public within the Action Area.

- No in-water work will be required as part of the project and no tree removal or removal of native riparian vegetation removal would occur.

- Sedimentation from project runoff will not enter fish-bearing surface waters, based on the project location and implementation of a project TESC plan.

- The project will be constructed in the summer months, when listed wildlife species are unlikely to be within the project vicinity.

- Noise from construction activities will be slightly elevated from background levels at the DRSs. However, because auto and truck traffic, logging, off-road vehicle use, shooting, and hiking are regularly present within and adjacent to the project area, these activities are not expected to negatively affect listed wildlife species.

Designated critical habitat for bull trout is present within the lower reaches of Sullivan Creek, adjacent to several of the dispersed sites. However, based on the above discussion on the absence of potential project impacts, the project would not affect critical habitat or any individual primary constituent elements (PCEs) of critical habitat, for bull trout. Similarly, the project the project will occur adjacent to designated critical habitat for woodland caribou and no physical, chemical, or biological changes to woodland car critical habitat will result from the project.

Therefore, the proposed project would have *no effect* on critical habitat for both bull trout and woodland caribou. Critical habitat for the other species listed in Table 1 (grizzly bear and Canada lynx) has not been designated or is not designated within the project vicinity.

Effects Determinations Summary for Colville National Forest Sensitive and Management Indicator Species

Based on the reasons listed above, the project will not negatively impact any Colville National Forest Sensitive and Management Indicator Species, specifically westlope cutthroat trout, moose, wolverine, American pygmy shrew, Townsend's big-eared bat, harlequin duck, fir pinwheel, or magnum mantleslug.

Conclusions

Based on the above analysis, the proposed project will have *no effect* on all listed species discussed above. Additionally, for the same reasons discussed above, the proposed project will have *no effect* on designated critical habitat for these species. Lastly, the project will have no negative impact on the Colville National Forest Sensitive and Management Indicator Species potentially present within the project area, based upon the analysis above.

It is our understanding that this assessment satisfies USFS's responsibility under Section 7(c) of the Endangered Species Act at this time. We are prepared to reevaluate potential project impacts if new species are listed or if the project description changes resulting in project-related affects that were not previously described in this document.

In compliance with the Magnuson-Stevens Fishery Conservation and Management Act, Essential Fish Habitat (EFH) was assessed for the proposed project. Designated EFH for the Pacific salmon fishery does not occur in the vicinity of the proposed project. Therefore, it was determined that the project will have *no adverse affect* on EFH for Pacific Salmon.

Please contact me if you have any questions or concerns about the proposed project.

Sincerely,

Pete Lawson

James J Keany

Pete Lawson, Senior Fisheries Biologist

Jim Keany, Project Manager/Senior Ecologist

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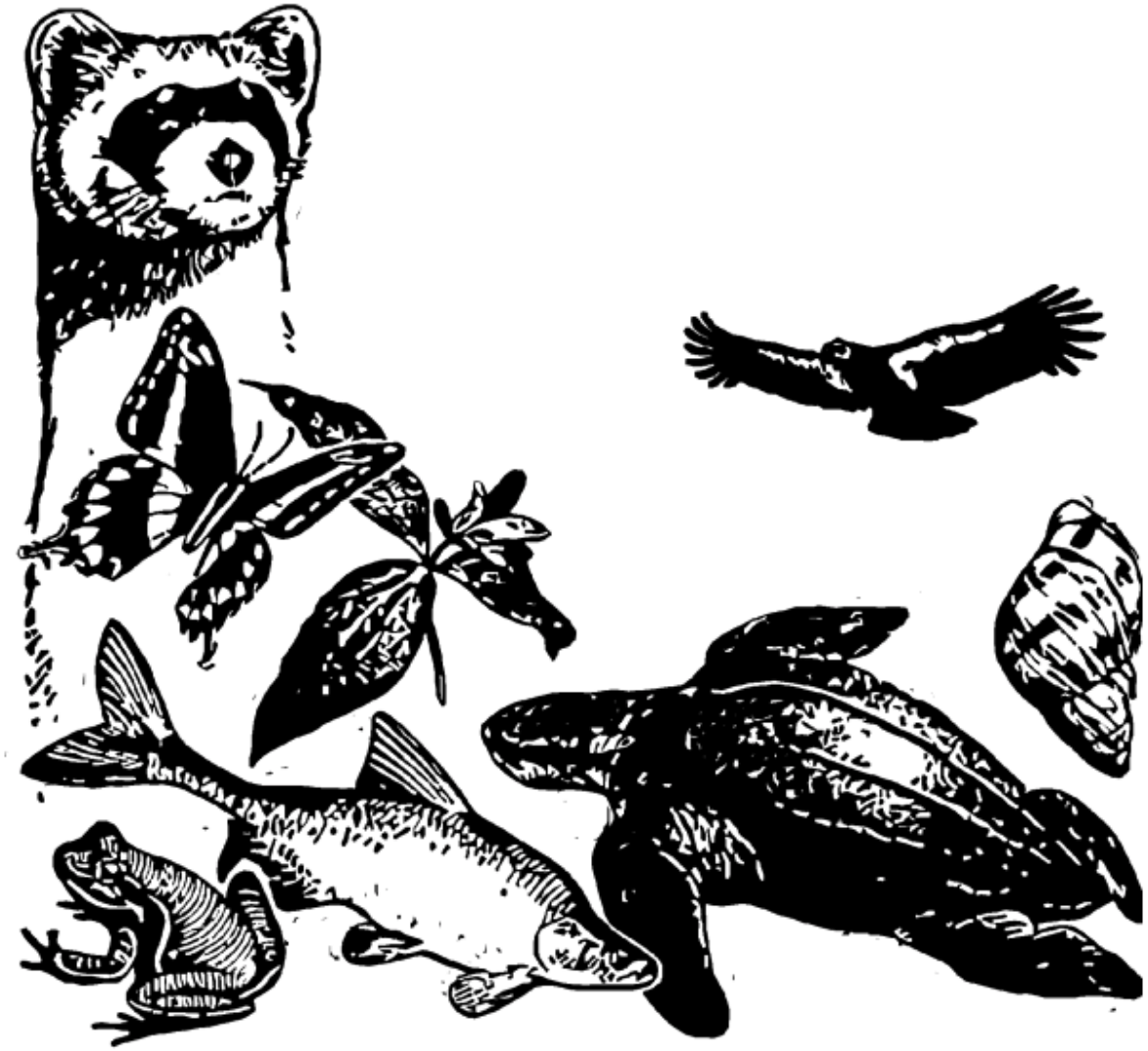
Attachment A – Species Lists

Sullivan Creek Dispersed Recreation Sites

IPaC Trust Resource Report

Generated January 19, 2016 04:00 PM MST, IPaC v2.3.2

This report is for informational purposes only and should not be used for planning or analyzing project level impacts. For project reviews that require U.S. Fish & Wildlife Service review or concurrence, please return to the IPaC website and request an official species list from the Regulatory Documents page.



IPaC - Information for Planning and Conservation (https://ecos.fws.gov/ipac/): A project planning tool to help streamline the U.S. Fish & Wildlife Service environmental review process.

US Fish & Wildlife Service

IPaC Trust Resource Report

NAME

Sullivan Creek Dispersed Recreation Sites

LOCATION

Pend Oreille County, Washington

IPAC LINK

https://ecos.fws.gov/ipac/project/OSVK3-F3MHR-HKLKZ-JD3ZH-6HPK2M

U.S. Fish & Wildlife Contact Information

Trust resources in this location are managed by:

Washington Fish And Wildlife Office
510 Desmond Drive Se, Suite 102
Lacey, WA 98503-1263
(360) 753-9440

Endangered Species

Proposed, candidate, threatened, and endangered species are managed by the Endangered Species Program of the U.S. Fish & Wildlife Service.

This USFWS trust resource report is for informational purposes only and should not be used for planning or analyzing project level impacts.

For project evaluations that require FWS concurrence/review, please return to the IPaC website and request an official species list from the Regulatory Documents section.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list from the Regulatory Documents section in IPaC.

The list of species below are those that may occur or could potentially be affected by activities in this location:

Birds

Yellow-billed Cuckoo Coccyzus americanus — Threatened

CRITICAL HABITAT
There is **proposed** critical habitat designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B06R

Conifers and Cycads

Whitebark Pine Pinus albicaulis — Candidate

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=R00E

Fishes

Bull Trout Salvelinus confluentus — Threatened

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=E065

Mammals

Canada Lynx Lynx canadensis — Threatened

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=A073

Gray Wolf Canis lupus — Endangered

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=A00D

Grizzly Bear Ursus arctos horribilis — Threatened

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=A001

Woodland Caribou Rangifer tarandus caribou — Endangered

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=A088

Critical Habitats

This location overlaps all or part of the critical habitat for the following species:

Bull Trout Critical Habitat Final designated
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=E065#crithab

Migratory Birds

Birds are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Any activity which results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service (1). There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

Additional information can be found using the following links:

- Birds of Conservation Concern
  http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Conservation measures for birds
  http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data
  http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/akn-histogram-tools.php

The following species of migratory birds could potentially be affected by activities in this location:

Bald Eagle Haliaeetus leucocephalus — Bird of conservation concern
Year-round
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B008

Black Swift Cypseloides niger — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FW

Calliope Hummingbird Stellula calliope — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0K3

Cassin's Finch Carpodacus cassinii — Bird of conservation concern
Year-round
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0J6

Flammulated Owl Otus flammeolus — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0DK

Fox Sparrow Passerella iliaca — Bird of conservation concern
Season: Breeding

Lewis's Woodpecker Melanerpes lewis — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HQ

Olive-sided Flycatcher Contopus cooperi — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0AN

Peregrine Falcon Falco peregrinus — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FU

Rufous Hummingbird selasphorus rufus — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0E1

Short-eared Owl Asio flammeus — Bird of conservation concern
Year-round
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HD

Swainson's Hawk Buteo swainsoni — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B070

Western Grebe aechmophorus occidentalis — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0EA

Willow Flycatcher Empidonax traillii — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0F6

Refuges

Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuges in this location

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal Statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

DATA LIMITATIONS

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

DATA EXCLUSIONS

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

DATA PRECAUTIONS

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

This location overlaps all or part of the following wetlands:

Freshwater Emergent Wetland

PEM1A	11.0 acres
PEM1C	4.64 acres
PEM1F	0.983 acre

Freshwater Forested/shrub Wetland

PSS1C	14.5 acres
PFO1C	5.11 acres

Freshwater Pond

PUBH	0.437 acre

Riverine

R3USC 8.02 acres

A full description for each wetland code can be found at the National Wetlands Inventory website: http://107.20.228.18/decoders/wetlands.aspx