APPENDIX B – CUMULATIVE EFFECTS

Cumulative effects arise from the incremental impact of an action when added to other past, present and reasonably foreseeable actions. Past, present and reasonably foreseeable future actions were considered for each resource to determine the cumulative effects associated with implementing the Dutch Oven project. The spatial extent of the cumulative effects analysis area and the activities considered can differ for each resource analyzed. A description of the areas used to determine cumulative effects and the rationale for their boundaries are discussed in Chapter 3 under each resource. Existing conditions are a result of past and current activities in the analysis area. Past management activities and effects as well as current practices and potential effects are described below.

Past Activities

Wildfire and Fire Suppression

Approximately 3500 acres of the 7,000 acre project area burned in 1889. Approximately 400 acres burned again in 1917, 800 acres in 1922 and then 72 acres in 1934. Since then, all fires have been contained at less than 10 acres. There have been 29 small fires (<10 acres) within the project boundary since 1970; the last fire start in the project area occurred in 2013.

Prescribed Fire

Broadcast burning of activities fuels following timber harvest has been the most common form of prescribed burning. This has been followed by planting.

Timber Harvest

Known timber harvest has occurred in the 7,000 acre project area since the 1950’s. A total of 2,019 acres have been harvested of which 12 acres were regeneration harvested in the 1950’s, 595 acres were regeneration harvested in the 1960’s, 186 acres were regeneration or commercial thinned in the 1970s, 562 acres were regeneration harvested or commercial thinned in the 1980s. Approximately 663 acres were regeneration harvested in the 1990’s under the Chocolate Moose Timber Sale and subsequently planted. In 2013, approximately 285 acres of these plantations from the Chocolate Moose Timber Sale area were pre-commercially thinned.

The majority of the 7,000 acre project area lies within the 14,542 acre Whiskey Creek-South Fork Clearwater River (170603050501) USGS HUC 6 watershed. This HUC 6 watershed includes the following Forest Plan prescription watersheds: Moose Creek, Allison Creek, and Dutch Oven Creek. It also contains 2 South Fork Clearwater River Face drainages which have no specific Forest Plan standards that could constrict management activities. They have no upward trend requirement.

A very small portion (<100 acres) of the project area lies within the 15,611 acre Lower American River (170603050204) USGS HUC 6 watershed. This HUC 6 watershed contains the Buffalo Gulch and Whiskey Creek Forest Plan Prescription watersheds. Portions of these prescription watersheds lie within the project area.

At the USGS HUC 6 watershed scale, known timber harvest has occurred in the Whiskey Creek –South Fork Clearwater River watershed since the 1950’s on 2902 acres. Of those, approximately 1,954 acres occurred within the project area of which approximately 12 acres were harvested in the 1950’s, 523 acres were harvested in the 1960’s, 186 acres were harvested in the 1970’s, 562 acres were harvested in the
1980’s. In the 1990’s, approximately 663 acres were harvested in Chocolate Moose Timber Sale discussed above.

In the 15,611 acre Lower American River USGS HUC 6 watershed, there have been approximately 1,682 acres of timber harvest. Of those, approximately 65 acres of timber harvest has occurred in the Dutch Oven project area; primarily during the 1960’s.

There are no other ongoing or proposed timber harvest in the Dutch Oven project area or the Whiskey Creek –South Fork Clearwater River watershed or Lower American River watershed.

**Differences between past and current practices**

Across the forest, management through the 1980’s emphasized low cost harvest methods in order to provide low-cost wood products. Logging practices were less regulated and more impactive than current practices. Harvest units were placed where access was easiest and volumes were high. In many cases, this occurred within riparian areas adjacent to streams. The removal of the largest, oldest trees also reduced hiding cover, foraging, nesting and rearing habitat for many wildlife species. Activities reduced habitats available to riparian and upland species including snag and old growth dependent species. Past timber harvest increased the availability of early seral habitats, which provided some foraging opportunities, but reduced the amount of mature forest habitat available for denning. Traditional regeneration harvesting simplified habitats by removing habitat elements/legacy trees and snags that require 150-200 years to develop. Previously harvested areas lack habitat complexity and structural elements necessary to maintain a full complement and diversity of wildlife species. Some of these changes have been beneficial by increasing or maintaining ungulate forage and early seral conditions preferred by some bird species and some small mammals.

Cheap, labor-intensive logging methods such as short-distance jammer systems, and tractor logging were favored, resulting in soil erosion, compaction, and sediment input into streams. Streams were sometimes used as a method to transport logs from the harvest site, causing impacts to both aquatic and riparian habitat. Much of the timber harvest was conducted using clearcut methods. These activities caused a reduction of riparian habitats, increased ECA, and some soil erosion in tractor logged areas. This caused a loss of stream shading resulting in increase in water temperatures, reduced fish usage in warm areas. There was bank destabilization in some locations due to the removal of streamside vegetation, with potential increases in stream sediment at these locations.

Currently, protection of mature and old growth forest habitats, along with the use of PACFISH buffers minimize the effects to sensitive species and their habitats. Because of PACFISH buffer retention, there is no change to stream shading or temperature. There is minimal to no effect on sediment due to well vegetated buffers. All current (instream) and future (riparian) wood is retained. Adherence to downed woody debris and snag requirements retains adequate amounts of large woody debris and snags for travel, resting, hiding cover, prey habitat, hunting and denning. Current harvest prescriptions retain trees to address issues such as wildlife habitat, watershed conditions, visual quality, soil productivity and forest health. The prescriptions include retention of snags for cavity nesters, retention of standing live and dead down wood for soil nutrition and wildlife habitat, and maintaining sediment filtering vegetation near riparian areas.

Improved logging systems reduce the threat of environmental harm. The use of best management practices and forest plan standards and guidelines also helps to reduce impacts associated with logging. Monitoring during and after the sale provides valuable feedback for future sales.

**Road Construction**

Approximately 53 miles of roads have been constructed in the project area. Road construction occurred from 1895 to 1991. The majority of the roads were built to provide access for timber harvest and mining.
In 1998, approximately 1.5 miles were decommissioned; there are currently 52 miles of system roads in this area. Road densities in the project area are 4.6 mi/mi².

### Table 42: Past road construction by watershed

<table>
<thead>
<tr>
<th>Whiskey Creek-South Fork Clearwater River (170603050501) HUC 6 watershed</th>
<th>Year Roads Built</th>
<th>Road Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moose Creek</td>
<td>1895 to 1991</td>
<td>10.9</td>
</tr>
<tr>
<td>Allison Creek</td>
<td>1895 to 1991</td>
<td>8.5</td>
</tr>
<tr>
<td>Dutch Oven Creek</td>
<td>1919 to 1991</td>
<td>6.5</td>
</tr>
<tr>
<td>South Fork Clearwater Face 06</td>
<td>1920 to 1991</td>
<td>12.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Whiskey Creek-South Fork Clearwater River (170603050501) HUC 6 watershed</th>
<th>Year Roads Built</th>
<th>Road Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffalo Gulch</td>
<td>1935 to 1965</td>
<td>0.9</td>
</tr>
<tr>
<td>Whiskey Gulch</td>
<td>1895 to 1991</td>
<td>8.5</td>
</tr>
<tr>
<td>South Fork Clearwater River Face 05</td>
<td>1927 to 1991</td>
<td>5.2</td>
</tr>
</tbody>
</table>

The 14,542 acre Whiskey Creek-South Fork Clearwater River (170603050501) USGS HUC 6 watershed includes the following Forest Plan prescription watersheds: Moose Creek, Allison Creek, and Dutch Oven Creek. It also contains the South Fork Clearwater River Face drainage 06 which have no specific Forest Plan standards that could constrict management activities. It has no upward trend requirement.

Approximately 88 miles of road were constructed in the Whiskey Creek-South Fork Clearwater River USGS HUC 6 watershed. Four miles have been decommissioned. There are currently 84 miles of road within this HUC 6 watershed. Road densities are 3.7mi/mi².

A very small portion (<100 acres) of the project area lies within the 15,611 acre Lower American River (170603050204) USGS HUC 6 watershed. This HUC 6 watershed contains the Buffalo Gulch and Whiskey Creek Forest Plan Prescription watersheds as well as the South Fork Clearwater River Face drainage 05. Small portions of these prescription watersheds lie within the project area. Approximately 56 miles of roads were constructed in the Lower American River USGS HUC 6 watershed. Five miles have been decommissioned. There are currently 51 miles of road within this HUC 6 watershed. Road densities are 2.08 mi/mi².

**Differences between past and current practices**

Most of the current road work in the project area consists of routine maintenance and repairs. Past road construction may have resulted in a reduction of riparian habitat and increase of sediment to streams. Roads caused loss of stream shading due to tree removal resulting in increased water temperature and sediment in stream channels, blocked fish passage and reduced fish habitat. In some cases, riparian habitat and road cut and fills have re-vegetated resulting in minimal soil erosion. Permanent loss of trees and future wood still exists where roads remain in riparian areas. Roads fracture wildlife habitat and cause disturbance to individuals. Motorized access reduced big game security.

Forest Service Best Management Practices are used during all road construction/reconstruction activities on the Forest. Special road construction and surfacing techniques are sued to prevent or control surface erosion and thus sediment delivery into streams. Aggregate surfacing is increasingly used as a direct result of research studies showing reductions in sediment potential of 80 to 90 percent from the travelway. Highly erosive or unstable slopes are avoided. Slash filter windrows below the toe of constructed fills are a very effective sediment mitigation technique (Burroughs and King, 1989) utilized wherever appropriate. Overall sediment mitigation levels of up to 80% for road development are currently achieved.

Road crossings (culverts) are located at more stable sites and are designed to mimic the stream itself, rather than just move water quickly through the site. Roads are located well away from streams and
riparian areas wherever practicable; and the numbers of crossings are minimized. In the past, when a road was no longer needed it was simply abandoned. Many of these abandoned roads continued to erode or experience fill failures due to a lack of maintenance. In many cases, they developed into chronic sediment sources for local streams. Current decommissioning practices restore unneeded roads to a “hydrologically neutral” condition. This involves the removal and recontouring of all stream crossings and wet areas. Recontouring hillslopes also occurs where deemed necessary to provide for slope stability. Woody material and duff from the surrounding area are placed on the decommissioned surface to provide nutrients to the soil and erosion control. Standardized travel management prescriptions keep motorized vehicles off unsurfaced roads during wet seasons, reducing sediment delivery.

**Grazing**

The 7,000 acre Dutch Oven project area lies within the 19,128 acre Elk Summit grazing allotment. This allotment is active. Up to 150 cow/calf pairs (795 AUM’s) are allowed on this allotment from June 16 to October 15. From 1950’s through 1990’s approximately 5,302 acres of timber harvest occurred in the Elk Summit allotment. The majority of harvest occurred in the 1960s. Wildfire has burned on 6,254 acres. There were also 28 small fire starts that involved less than 50 acres. Approximately 61 miles of system roads were constructed within the allotment; primarily in the 1930s and 1960s for mining and timber harvest. Approximately two miles of road decommissioning has occurred; therefore there are currently 59 miles of system road in this allotment. There are approximately 40 miles of motorized and/or non-motorized trails in the grazing allotment.

**Differences between past and current practices**

Where cattle access to streams is not managed, cattle can trample and browse on streamside vegetation. This results in the loss of vegetation and a decrease in bank stability. The removal of vegetation also allowed stream temperatures to increase due to increased sun exposure. Where cattle cross streams, banks can slough, creating an input of sediment into the stream. Riparian fencing, reduction in permitted livestock numbers and administrative actions have avoided most impacts and reduced effects. Various methods are used to manage cattle and limit damage such as fencing to better contain cattle and limit damage to streams or other sensitive areas, regulating seasons of use and making adjustments in stocking levels to protect forage, and manage forage utilization.

**Mining**

Elk City was established in 1861 when gold was discovered. Quartz lode operations began in 1902 and dredging in 1935. Mining activities were curtailed during World War II. The effects of past mining are still visible today.

**Differences between Past and Current Practices**

Mining-related activities include construction of access roads, digging of exploration trenches, construction of portals, shafts, mine and mill buildings, settling ponds, water impoundment sites and power corridors. Past mining activities removed woody debris from stream channels and reduced channel stability through riparian vegetation removal, and streambank and hydraulic mining. This input large quantities of sediment into streams contributing to a reduction in water quality and aquatic habitat. Mining continues to the present time on a much smaller scale. Currently, there are no large commercial mines on the Forest. Most are recreational miners who work their claims on a part time basis.

Current mining activities require annual operating plans that are approved by Forest officials before operations begin. Federal and State permits, specific operating conditions, and mitigation measures designed to protect threatened fish species and their habitat are implemented. They typically include instream work period restrictions and regulations on the type and size of equipment that can be used instream. The Forest has been very successful in working with the miners to minimize impacts to streams.
In addition, various stream bank stabilization and mine reclamation projects have been implemented to correct past practices.

**Small-scale Suction Mining**

The Small-Scale Suction Dredging Decision Notice and Findings of No Significant Impact was signed on July 1, 2016; on the North Fork, Red River, and Salmon River Ranger Districts of the Nez Perce-Clearwater National Forest and Bureau of Land Management. Alternative 2, as described in the Environmental Assessment (EA) was selected. The decision allows the programmatic approval of up to a maximum of 35 small-scale suction dredging operations in any year; 20 in Orogrande and French Creeks and 15 in the South Fork of the Clearwater River (SFCWR). The EPA and IDWR approved and issued permits for the suction dredging actions.

Following the decision in 2016, twenty-one Plans of Operations for Mining Activities on Forest Systems Lands (POO) for placer mining were approved. Eleven POOs were approved for the South Fork of the Clearwater River and implemented over 30 day periods, in specific approved mining reaches (2 approved by the BLM). The decision included specific design criteria and mitigation measures for the operations, including monitoring. Dredging activities were approved in the South Fork Clearwater River from July 15th to August 15th, - consistent with IDWR and EPA regulations. The location of the dredging activities each year is dependent on the specific approved mining reaches of the river described in the approved POO. The dredge operations may be in the South Fork Clearwater River, from the confluence with Green Creek to the confluence of Red and American Rivers.

In 2016, monitoring of twenty suction dredge operations (nine on the SFCWR) was completed. Forests staff did not observe and were not notified of any unauthorized suction dredging in the project areas described in this report, or elsewhere on Forests-managed public lands in 2016. Despite substantial effort by Forests staff and a generally cooperative response from miners, full compliance with the terms and conditions of the consultations for suction dredging on the NP-CNWS was not always achieved. The shortfalls in this effort were almost entirely in the form of record-keeping and monitoring information quality, rather than in substantive effects to fish or fish habitat, however. Potential unanticipated effects to fish and fish habitat from authorized suction dredging appeared to be minor and/or brief in 2016. Adequate screening of dredge intake hoses was initially not provided by several miners, but, where this issue was observed, Forests staff provided firm instructions not to operate until this was remedied, and screening was improved promptly in all cases. No interaction between dredging sites and redd construction was observed. Dredging outside of authorized and delineated reaches is described above and generally did not result in effects to channel elevations and substrate composition beyond that anticipated in the consultations. A few dredge holes were not or were inadequately filled, but these should be transitory and not entirely adverse stream channel features. To the extent that efforts are necessary to improve fish and fish habitat protection in 2017, the experience of the 2016 season should result in better organization and effectiveness of Forests staff.

Project mitigation measures and inspections appear to be very effective in eliminating or minimizing effects at all temporal and spatial scales. However, it seems evident that frequent and standardized inspections, consistent feedback to the miners, and enforcement of the mitigation measures are necessary to maintain the mitigation effectiveness. Reach delineation, monitoring, inspection, and reporting of the 2016 operations required substantial time and attention from Forests staff, and modifications will be suggested/made to improve the effectiveness and efficiency of implementation and monitoring efforts.

General future effects of the approved suction dredging activities would be direct and indirect temporary (one-month dredging season of any one year) and short term (one to ten years) to aquatic species and habitat, water quality and some wildlife species and habitat. State water quality standards would not be exceeded.
In the SFCWR, implementation of 15 approved POOs could occur annually in a one-month dredging season over the next 10 years (2016-2025).

**Aquatic Restoration Activities**

Various aquatic restoration projects have been completed to improve aquatic habitat and curb chronic sediment delivery. This includes culvert removal and replacement, road outsloping, installation of driveable dips or drainage outlets. In the project area, in 1998, approximately 1.5 miles of roads were decommissioned in the Dutch Oven project area. Portions of 2 USGS HUC 6 watersheds lie in the project area. At this larger scale, five miles of roads have been decommissioned in the Lower American River USGS HUC 6 watershed. Four miles of roads have been decommissioned in the Whiskey Creek-South Fork Clearwater River USGS HUC 6 watershed.

**Highway 14 Landslide of 2016 and clean up**

On February 18, 2016 a large landslide occurred, covering Highway 14 and depositing material into the South Fork Clearwater River. This area had been identified as landslide prone. Addressing this emergency situation involved removing timber from the top of the slide, blasting boulders, and moving heavy equipment to load and haul material offsite. The finer materials deposited by the landslide are not a fisheries concern because 1) the landslide was a natural event and 2) the majority of material was hauled offsite and did not enter the river. The large boulders deposited may constrict flow and present a velocity barrier; hydraulic modelling may resolve this question. Stabilization was completed in 2016.

**Ongoing Activities**

**Recreation Activities**

Camping, hunting, fishing, hiking, and firewood cutting are ongoing in the project area. Firewood cutting is permitted on open roads under the Firewood Woodcutting Permit system. There is one trailhead (Elk Summit Trail 815) that lies on the project area boundary and one dispersed campsite near the headwaters of Moose Creek.

**Road and Trail maintenance**

Various levels of maintenance on roads and trails in the project area.

**Weed management**

Forestwide, integrated weed management under the guidelines of the Upper Clearwater River Cooperative Weed Management Area (USDA Forest Service 1998, 2008) is conducted.

**Mining Activities**

The Forest Service and BLM have approved up to 15 suction dredging permits in South Fork Clearwater River for activity July 15th to August 15th, annually. Approved Plans of Operation could occur annually in a one-month dredging season over the next 10 years (2016-2025).

**Future Foreseeable Activities**

**Newsome Creek Watershed Road Restoration Project**

This decision was signed in June 2014. Implementation is expected 2019. The southern corner of the Newsome project area overlaps into the northern portion of the Dutch Oven Project. The Newsome Creek
Watershed Road Restoration decision authorizes watershed improvement activities to improve fisheries habitat in Newsome Creek by reducing sediment delivery to streams and improving hydrologic function within the watershed. The Decision authorizes decommissioning 71 miles of road through re-contouring, decommissioning through abandonment 3 miles and improving 95 miles of road. The Decision will install one full size vehicle bridge across the West Fork of Newsome Creek on Road1834 and one trail bridge across Newsome Creek on the Easter Mine Trail 824.

Within the Dutch Oven project area, the Newsome Decision will decommission by abandonment one mile of Roads 307B1, 78388A1, 78389, 78395, and 78397; decommission by obliteration 0.3 miles of Roads 307B1, 307F and 78396; and improve nine miles of Roads 1808, 1808D, 1858, 307, 307B, 307C, 471, 78388, 78388A and 78392.

**Eastside Allotment EA**

This proposed project was scoped in December 2011. This project is currently on hold. The proposed action would incorporate adaptive management strategies on 7 active grazing allotments on the forest. Proposed activities are designed to continue to improve trends in rangeland health, vegetation, watershed conditions, and in ecological sustainability relative to livestock grazing. The Eastside Allotment EA is considering soil restoration on up to 50 acres within that portion of the Elk Summit Allotment that lies within the Dutch Oven Project area (Elk Summit Area #2). Soil restoration activities would be completed over a 6 year period.

**Allison Dam Pond Removal CE**

This project proposes to remove failing outlet pipes and earthen fill from 3 sites in Allison Creek which lie within the Dutch Oven Project area. Activities would occur approximately 200 yards upstream of Road 307A, 150 yards southeast of Road 307/987 junction and southwest of the end of Road 9874. Proposed activities would occur in 2017.

Allison Creek does not meet Forest Plan objectives. Proposed activities would restore hydrologic stream channel processes, reduce sediment and improve aquatic conditions in this degraded (below Forest Plan objective) Forest prescription watershed.

**DRAMVU**

The 2005 Travel management Rule requires each National Forest to designate those roads, trails and areas where motorized travel will be permitted, while minimizing effects on resources and values identified in the Nez Perce Forest Plan. The Nez Perce Forest is currently analyzing travel route designation changes on the Forest. A Designated Routes and Areas for Motor Vehicle Use (DRAMVU) Draft Environmental Impact Statement (DEIS) was issued in December 2008. A Supplemental DEIS was issued in December 2010. A Final EIS and Record of Decision are expected in 2017. This Decision would restrict motorized cross country travel and designate routes for roads and trails. Effects from these actions cannot be analyzed as a decision has not yet been made. The Dutch Oven Project proposes to decommission or place into long term storage approximately 5 miles of roads. About 3.6 miles of these roads are currently restricted yearlong to all vehicles.

**Lochsa Land Exchange**

In 2006, Western Pacific Timber (WPT) proposed to exchange approximately 40,000 acres of former Plum Creek Timber Company checkerboard land with Forest Service lands. A DEIS was issued in November 2010. A Supplemental DEIS was issued in November 2011. On September 30, 2013 the Chief of the Forest Service received a letter signed by the Idaho Congressional Delegation requesting the Forest pause the administrative exchange process. In the letter the Delegation acknowledged the exchange may
be better reconciled by the additional authorities and protections that could be embodied in an exchange directed by authorizing legislation. The Forest Service was asked to stand ready to assist in the development of a balanced legislative proposal. In May 2014 WPT informed the Forest they had plans to begin harvesting and subdividing their land in the Upper Lochsa since legislation was slow to materialize.

Approximately 2,175 acres of the 7,000 acre Dutch Oven project area are considered for exchange in the Lochsa Land Exchange DEIS. The Dutch Oven Project proposes harvest on 331 acres and 1.5 miles of temporary road construction within those 2,175 acres.

Private Land Fuel Treatments

Twenty one acres of private land may be treated along the National Forest boundary in 2017. A fuel break will be created that would be 100 feet or 150 feet wide depending on the location. All dead or dying trees, trees 8” DBH or smaller, and all brush and ladder fuels within the fuel break would be removed. All down woody material within the fuel break including logs, brush piles, limbs, forest debris and stumps would be masticated. All live trees would be pruned to 12 feet above ground level, or 1/3 of the live crown.
APPENDIX C – UPWARD TREND ANALYSIS