ENVIRONMENTAL ASSESSMENT

WALLACE SOUTH HILL

EA NO. ID-410-2006-EA-1050

US Department of the Interior
Bureau of Land Management
Coeur d'Alene Field Office
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I. INTRODUCTION

A. Purpose and Need for Action

About 100 years ago, the historic 1910 fire burned Wallace and the surrounding forest, including the project area. The forest is now a mosaic of mixed conifer species depending upon aspect and elevation. The lower elevation southern aspect is primarily dry conifer forest, the lower elevation northern aspect is mostly a wet/warm conifer forest, and the higher elevation is typically a wet/cold forest. The majority of the trees are now about 100 years old. For many species of conifer trees, their juvenile stage is over, and they're now entering a mature stage of development, except for the lodgepole pine. Lodgepole pine trees mature faster on some sites, and begin to die before they're 100 years old. These sites usually are moisture deficient, have shallower soils, and are located along ridgelines. As the trees reach maturity, they have a weakened ability to withstand attacks by the mountain pine beetle (*Dendroctonus ponderosae*) due to moisture stress. Upper elevation forests are more prone to mortality because of more frequent extremes in weather events in those areas and subsequent stress to damaged trees (Filip et al. 2007). Trees under stress (low vigor) are more susceptible to pests, primarily bark beetles (Furniss and Carolin 1977, Waring and Pitman 1983, 1985, Christiansen et al. 1987, Kolb et al. 1998). Bark beetles are the most important forest insects causing mortality of western conifers (Furniss and Carolin 1977, Schowalter and Filip 1993). Bark beetles are opportunists that can rapidly expand their populations in trees experiencing stress caused by disease, defoliation, fire damage, lightning and wind damage, competition, drought, or soil problems (Gast et al. 1991, Schowalter and Filip 1993, Edmonds et al. 2000). Tree mortality from bark beetles is especially acute in older forests with high stocking densities that experience additional stress (Hopkins 1909, Emmingham et al. 2005). Forest inventories completed in 2004 and 2006 have confirmed this finding. About 60% of the lodgepole pine trees are now dead and the remaining lodgepole pine trees will likely exhaust all resources, die, and become snags (Filip et al. 2007). Currently, there's about 170 acres of dead and dying lodgepole pine trees located on the project area, and another 230 acres are located close by, see map in Appendix II.1. Dead trees are more easily consumed by fire than live trees (Edmonds et al. 2000) and thus may increase wildfire severity more than live trees and make fire control much more difficult (Brown et al. 2003).

The Proposed Action would transition forests on public lands closer to their presettlement species mix, density, structure, and diversity so it would be more resilient and resistant to the effects of insects, disease, and wildfire (Fulé 2001; Graham 2004). Pre-settlement fire behavior would have typically been low intensity, frequent understory burning in the western white pine, ponderosa pine and Douglas-fir forest types at lower elevations. Higher elevation forest types would be more conducive to stand replacing crown fires in lodgepole pine and Douglas-fir forests. Crown fires are extremely difficult for firefighters to contain and can spread rapidly. To decrease the probability of a crown fire, thinning of the overstory and reducing understory fuels (ladder fuels that can lead to a crown fire) would reduce the ability of wildfire to migrate to the

tree crown. The first principle of a fire-resilient forest is to manage surface fuels to limit the flame length of a wildland fire that might enter the stand. This is generally done by removing fuel through prescribed fire, pile burning, or mechanical removal. These treatments make it more difficult for a fire to jump into the canopy (Scott & Reinhardt 2001). The second principle is to make it more difficult for canopy torching to occur by increasing the height to flammable crown fuels. This can be accomplished through pruning, prescribed fire that scorches the lower crown, or removal of small trees. The third principle is to decrease crown density by thinning overstory trees, making tree-to-tree crowning less probable. The fourth principle is to keep large trees of fire-resistant species (Hummel & Agee 2003; Brown, Agee & Franklin 2004). Reducing in-growth by thinning is essential for conserving dominate trees, and old growth Douglas-fir and western larch trees that did not burn in 1910. The Proposed Action would enhance continued development of the forests from their current mid-successional stage toward the late successional stage (mature, large tree, old growth), and initiate early seral vegetation in areas that are now dominated by dead and dying lodgepole pine forests and old brush fields. This is the first BLM timber sale in the project area, and the fourth treatment of hazardous fuels. The proposed action is the preferred alternative.

B. Scoping, Public Involvement and Issues

Listed below is a chronology of the collaboration outreach for the Wallace South Hill Project:

June 8, 2005	Letter to interested parties about field tour;
June 14, 2005	First field tour;
July 20, 2005	Second field tour;
August 1, 2005	Letter to interested parties about third field tour;
August 9, 2005	Shoshone News Press advertisement of field tour;
August 10, 2005	Shoshone News Press advertisement of field tour;
August 13, 2005	Third field tour;
June 7, 2006	Wallace Chamber of Commerce public scoping meeting;
June 17, 2006	Shoshone News Press coverage of June 7 meeting;
May 8, 2007	Project scoping meeting with Shoshone County Commissioners';
May 11, 2007	Shoshone News Press advertisement of Wallace South Hill Project Public Meeting;
May 10-15, 2007	Notice of Public Meeting handbill distributed to prominent businesses in the Wallace, Silverton and Kellogg area;
May 15, 2008	Public Scoping meeting at the Wallace Inn. Thirty people in attendance reached a unanimous decision that Bureau of Land Management (BLM) undertakes an aggressive approach to reducing the wildfire threat to Wallace;
May 17, 2007	Shoshone News Press coverage of Public Scoping Meeting;
August 19, 2007	Spokesman Review article about project;
August 20, 2007	Shoshone News Press article about project entering the conceptual groundwork phase;
December 4, 2007	Wallace South Hill Project presented to BLM Coeur d'Alene District Resource Advisory Council to request options and alternatives to proposed action;
February 8, 2008	Letter to interested parties requesting comments to proposed action.

During the scoping process the following major issues where identified;

Watershed: Possible flooding and landslide concerns in the Printer Creek drainage if trees are cut. Overland flow of water during the spring affecting houses located on the south hill. Improve water quality when possible. INFISH buffers and additional conservation measures should be incorporated into the final decision. Analysis should disclose how many landslides occurred in the project area. Alternatives should be considered that would restore water quality in municipal watershed. Provide information regarding current status of 303 (d) impaired waters located within and downstream of project area. Provide information that indicates whether there are any EPA approved sediment or metals total maximum daily loads for water bodies within and/or downstream of the project area. Estimate sediment tons per year by alternative, and if models are used list their limitations.

Scenic Quality: Improve scenic quality by scalloping existing straight cutting lines. Use prescriptions and yarding techniques with lightest impact and most natural appearance.

Prescribed Burning: Emphasize prescribed burning over commercial logging. Remove fuels around large diameter trees before burning. Smoke inversions to town and Interstate 90 are not acceptable.

Safety: The helicopter landings should be located in the appropriate places and be the appropriate size for a medium size helicopter. Access roads should be safe for fire fighters and their equipment. So that firefighters don't get lost, place road signs for the upper and lower helispots along the controlled access road.

II. PROPOSED ACTION AND ALTERNATIVES

A. Description of Proposed Action (see map in Appendix I)

In response to requests by community leaders to reduce the potential wildfire threat to Wallace, Idaho, and to implement recommendations in the Shoshone County Wildland Urban Interface Fire Mitigation Plan prepared in 2002, the BLM is proposing the Wallace South Hill Fuels and Vegetation Project. The project is located due south of Wallace, and is about 45 miles east of Coeur d'Alene. This project would decrease existing hazardous fuels through a combination of vegetation treatments and fuel reduction actions on BLM and U.S. Forest Service (USFS) lands during the next several years to reduce the potential wildfire threat to Wallace, Idaho. Several complementary actions can improve the ability of communities to resist fire hazards to lives and property, including enhanced firefighting resources, improved access routes and rural address systems, heightened public awareness, reduction of structure flammability (Cohen 2000), and reduction of forest susceptibility to crownfire (Fulé et al. 2001). Fuel reduction and vegetative treatments would remove dead and dying trees from lodgepole pine forests, thin live trees in mixed conifer stands, and restore old brushfields. The greatest concern in the wildland/urban interface is crownfire, both "passive" crownfire (tree torching) and "active" crownfire (fire spreading through the canopy). Crownfires spread rapidly (Rothermel 1991), resist control by hand crews and often mechanical or aerial equipment (Pyne and others 1996), and threaten structures with intense heat and firebrand showers (Cohen 2000). In a typical stand of lodgepole pine with a forest litter or shrub understory, a 28 mile per hour (mph) or more wind on a 45 percent slope could push surface flames into the tree crowns (See Appendix III.1 and III.2 for BEHAVEPLUS fire runs). Following the proposed treatment even a 50 mph wind would not be capable of pushing a surface fire into the tree crowns (See Appendix III.3). Repeated understory

thinning to reduce understory recovery is essential to prevent the re-establishment of an understory, which would act as a ladder fuel to create crown fires. Thinning of dense stands has been shown to significantly increase tree vigor and resistance to pests, particularly bark beetles (Mitchell et al. 1983, Waring and Pitman 1985, Kolb et al. 1998). Fuels treatments include the creation of a shaded fuel break, biomass utilization, piling and burning, slashing, and prescribed burning. The project could treat approximately 590 acres of vegetation within the 1,275 acre project area. When the project is completed the existing road system would be improved for fire fighter access. There could be a slight decrease in road density on the project area as a result of decommissioning existing roads no longer needed.

The project improves the existing road so that fire fighters could have a safer route during fire suppression activities. Segments of the road would be realigned on USFS land, and on BLM administered land, a four-wheel drive road with steep grades could be decommissioned and a new road constructed with grades suitable for fire and logging trucks.

The Proposed Action involves treating about 300 acres of brush fields and 280 acres of forested land, and includes:

- Realign ½ mile of existing road which has sharp curves;
- Reconstruct <¼ mile of an old mining road;
- Construct 1½ miles of new permanent road;
- Decommission 1½ miles of existing road;
- Construct <¼ mile of temporary road;
- Construct a two mile long, 60 acre shaded fuel break;
- Thin and limb understory trees along Moon Pass road;
- Construct two heli-spots;
- Install one gate at the beginning of the reconstructed old mining road;
- Harvest operations on 250 acres that could produce 3.2 MMBF of timber;
- Decrease hazardous fuels on 430 acres;
- Conduct prescribed burning on 300 acres of shrublands;
- Reforest 53 acres of clear cuts with lodgepole pine, Engelmann spruce and subalpine fir;
- Plant cottonwood poles and western redcedar seedlings along Placer Creek;
- Place large woody debris into Placer Creek;
- Implement hazardous fuels monitoring of treatment units 1, 2, 4 and 5;
- Implement effectiveness monitoring of the shaded fuelbreak.
- Perform maintenance of hazardous fuels within the shaded fuelbreak and treatment units 1, 2 & 4 during the next ten years,

Transportation - The transportation objectives are:

- Improve the existing road system accessing the ridge between the East Fork Coeur d'Alene River and Placer Creek so that a fire truck and water tender could safely use the road;
- No net increase in road densities on the project area;
- Close roads when possible;
- Utilize existing roads where possible;
- No road construction in riparian areas.

Roads have many adverse ecological effects (Furniss et al. 1991; Noss & Cooperrider 1994; Rieman & Clayton 1997; Jones et al. 2000; Trombulak & Frissell 2000) but are paradoxical in

terms of fire management. They open access so that human-caused ignitions increase but also decrease response time to wildfires, act as holding lines, and make prescribed fire easier to apply (Agee 2002). The proposed road improvements would allow fire fighters to employ a water sprinkler system along the road to support the shaded fuel break.

The current road density on the project area is 1.5 miles of road per square mile of land, and there are 2.5 miles of all terrain vehicle (ATV) trails. Two independent road systems are needed to access the proposed treatment areas because of the steep mountainous terrain. Historically, existing roads on the project area have not had any failures. Upon completion of the project the proposed road density would be 1.4 miles of road per square mile of land, and no change in the ATV trail miles (see map in Appendix I). As part of ICBEMP, Quigley et al. (1996) categorized road densities as very low (0.02 – 0.1 mi/mi²), low (0.1 – 0.7 mi/ mi²), moderate (0.7 – 1.7 mi/ mi²), high (1.7 – 4.7mi/mi²), and extremely high (4.7 + mi/ mi²).

Road Segment (ownership)	**Proposed Permanent (feet)**	**Re-construction (feet)**	**Temporary Construction (feet)**	**De-commissioned (feet)**
A (BLM)	945	0	0	0
B (BLM)	424	0	0	0
C (BLM)	782	0	0	0
D (BLM)	1,914	0	0	0
E (USFS)	249	0	0	0
F (BLM)	2,822	0	0	0
G (BLM)	0	980	0	0
H (USFS)	0	1,351	0	0
I (USFS)	0	1,500	0	0
J (BLM)	0	0	750	0
K (BLM)	0	0	0	2,253
L (BLM)	0	0	0	2,179
M (USFS)	0	0	0	212
N (BLM)	0	0	0	217
O (BLM)	0	0	0	2,760
P (BLM)	0	0	0	208
Q (BLM)	0	0	0	800
Total	**7,136**	**980**	**750**	**8,629**

<u>Existing</u> – Spot rocking along existing roads would be done when it is needed to control erosion or adjust road grade. Normal road maintenance would be performed by a grader to provide proper drainage and reduce ruts from forming.

<u>Reconstruction</u> - Reconstructed roads would have a 14 foot out-sloped native running surface and rolling water dips placed where needed. Road grades would be less than 10 percent, and turning radiuses would be 60 feet. The average clearing width for the road would be 50 feet, and there are no riparian areas that would be crossed. Road segment G would utilize an old mining exploration to access road segment B. Brush and small trees would be removed so that fill and cut slope reshaping could occur. A ditch may be needed where out-sloping isn't feasible. Cut and fill slopes on segment G would be seeded with the District seed mix. Road segment H and I would straighten tight curves along an old mining road so it could be used for fire and logging

trucks. The road surface would be out-slopped to provide drainage. Since the road is located on top of the ridge, there shouldn't be any cut or fill slopes.

Proposed Permanent- New permanent road construction would involve clearing of trees and brush. The physical attributes of running surface width, road grade, turning radius and revegetation would be the same as for reconstructed roads. Erosion control devices such as water dips could be installed and maintained to ensure proper drainage. Turnouts could be constructed to allow for the passage of fire and log trucks. Roads would be slightly out sloped where possible to effectively remove water from rain runoff. Culverts are not needed because no perennial or intermittent streams are crossed.

Road segment A would provide access for the lower portion of the shaded fuel break and a helispot to be used for fire suppression. The helispot could also function as a landing site for helicopter yarding of thinned trees. Road segment B would extend the proposed road to a ridge where a turnaround would be constructed for fire trucks. The turnaround and road could also function as a skidding landing. Road segment C would conserve the existing Red Oak Gulch / Hord Gulch ATV loop trail. The road would also access road segments J and K that would be used during harvest operations. Road segments D, E and F would be constructed so a fire or log truck could safely use the road. Currently, road grades of 20 and 30% exist.

Temporary - Road segment J would be constructed at the timber sale purchasers request to function as a landing for skidding thinned trees. The alternative to constructing the road is to helicopter yard the lower part of Unit 9, or to have longer skidding distances to road segment K. Following the completion of skidding operations the road would be obliterated by pulling the fill slope back into the cut slope. The road would be re-vegetated with a combination of alder and the District seed mix.

Decommissioned - On road segments H & I, the old road not meeting alignment requirements would be ripped and seeded or planted to native species such as beargrass, huckleberry or alder. Road segment K would be ripped to a depth of 12 inches, except for first 100 feet of road which would be obliterated by pulling the fill slope back within the cut slope. Following obliteration the road segment would be seeded with alder. Road segments L, M, N, O, P and Q would be ripped to a depth of 12 inches and seeded with a combination of alder and the District seed mix. Treatment and monitoring of noxious weeds (see noxious weed section, page 13).

Gate - A metal gate located at the beginning of road segment G would be locked when there aren't any fire suppression actions or vegetation treatments taking place.

Helispot - Two helispots would be constructed for fire suppression actions and for yarding thinned trees. The helispot located adjacent units 2 & 3 could be used for decking helicopter yarded trees from units 3 and 6. This landing located on an existing road could be also used to quickly respond to fires located in the lower portion of Printer Creek. The helispot located within unit 7 could be used for decking trees from unit 8, and possibly from unit 9. The helispot would also provide access to the lower portion of the shaded fuelbreak.

Fuel Reduction Treatment - Fuel treatments are intended to help limit wildland fire sizes and severity by directly mitigating fire behavior and indirectly by facilitating suppression. Prescribed burning and mechanical thinning can lower fire spread rates and intensities within the treated area (van Wagtendonk 1996, Helms 1979), at least until fuels and vegetation re-

accumulate. Fireline construction can be faster and more effective (fewer escapes) when heavy concentrations of brush and logs are removed, and spotting from torching trees is limited (Finney 2001). Treating all fuels across an entire landscape is practically impossible (Finney 2001). Brown's transects, which measure the amount of fuel loading within a plot, indicate that the Project Area has approximately 25.8 tons of down fuel per acre within the forested sections. This amount of down fuel is above the normal amount found within other stands of similar makeup. The fuel reduction treatment objective is to decrease 50% of the fuel loading within a treated forest stand. This would decrease the fuel load below the average fuel load for this type of stand, but this would meet the objective (or purpose and need) of the treatment. Fuel reduction within the shrub type will consist of prescribed burning every 15 – 30 years after the initial treatment with the objective of reducing tree encroachment and maintaining historic fuel loading within the shrub type. The initial treatment within the shrub type will be conducted within 5 years after project initiation. Parts of the shrublands area do not have continuous fuels and will be difficult to burn. The prescribed fire objective of the shrublands is to reduce fuels on approximately 40-60% of the shrub area, thus creating fuel breaks along the lower portions of the slopes.

Unit No.	**Acres**	**Fuel Type**	**Proposed Fuel Reduction Treatment**
Shaded Fuel break	60	Ladder fuels, light and medium ground fuels	Trees would be limbed to a height of 8 feet. Conifers less than 6 inches in diameter would be cut, piled and burned. During the next ten years all ground fuels except the large logs would be machine piled and burned.
1,2,4 & 5	70	Conifer blow down, dying lodgepole pine & brush	During the next ten years all blowdown and small conifers less than 6 inches in diameter would be cut, piled and burned. All ground fuels except the large logs would be hand piled and burned.
7	3	Dead & dying lodgepole pine	All trees would be cut. Trees would be mechanically removed by tractor, dead trees could be used for biomass or prescription burned. Conifer in-growth and brush would be cut and burned during the next ten years to maintain the site as a fire suppression helibase.
11, 13, 15, 16 & 19	51	Dead & dying lodgepole pine	The majority of the trees would be cut. About eight snags and eight large trees per acre would be retained when possible. Trees would be mechanically removed by tractor or skyline, dead trees could be used for biomass or prescription burned. Clumps of subalpine fir and Engelmann spruce trees would be planted among the naturally regenerating lodgepole pine trees.
20, 21, 22, 23, 24 & 25	307	Old brush & young conifer in-growth	Approximately 30 to 50% of the small diameter (<8" DBH) ponderosa pine, grand fir, Douglas-fir would be cut to improve fine fuels for future prescribed burns. Large diameter conifer would be protected by removing nearby fuels before burning. The objective of the prescribed burning would be to eliminate the conifer encroachment, small diameter conifer and to invigorate the current brushfields. The prescribed burn would cover approximately 30-60% of the brushfields.
Total	**491**		

Shaded Fuel Break - A fuelbreak is a "strategically located wide block, or strip, on which a cover of dense, heavy, or flammable vegetation has been permanently changed to one of lower fuel volume or reduced flammability" (Green 1977). The primary reasons for fuelbreaks are to change the behavior of a fire entering the fuel-altered zone and to reinforce defensible locations and facilitate suppression action by indirect firefighting tactics including backfiring (Green 1977, Omi 1996). Fuelbreaks may also be used as anchor points for indirect attack on wildland fires, as well as for prescribed fires (Agee et al. 2006). The shaded fuel break would vary in width (100 – 400 ft), depending upon the fuel type and the defensible space needed to contain a wildfire. Within the shrub type, a minimum fuelbreak width of 134 feet is recommended (See Appendix 4), whereas the forested stands would need a minimum of 300 feet fuel break (See Appendix 5). This is based upon a BEHAVEPLUS model that predicts the minimum safe distance for a firefighter along this fuel type during typical firefighting conditions. The fuel break would be constructed after the vegetation treatments are completed. Chipping would be done using an excavator mounted with a rotary chipping head. Slashing would be done using chainsaws, sandviks, axes, hydraulically mounted cutting heads, etc. followed by hand piling or piling with an excavator equipped with a rake attachment. The primary method for fuels treatment would be mechanical as described above; however, broadcast burning or underburning would be considered to treat fuels when it can be done safely and with a minimal loss to residual trees. In addition to the initial fuel break treatment, maintenance would be done during the next ten years to treat any accumulations of hazardous fuel. Treatments with relatively high residual density might more rapidly grow back into a hazardous condition. Maintenance burning and/or further thinning can be used to regulate growth and keep the stands relatively crownfire-resistant (maintain understory density at less than 20%). The failure to carry out these management activities would eventually eliminate the original treatment effects on fire behavior (Fulé et al. 2001).

Ground Fuels Reduction - Units 1, 2, 4 and 5 would be treated to reduce the hazardous fuels of wind thrown trees and ladder fuels. All conifers less than 8 inches in diameter would be cut. All ground fuels except the large logs would be hand piled and burned. In addition to the initial fuel reduction treatment, maintenance would be done during the next ten years to treat any hazardous fuel accumulations. The primary method for fuels treatment would be mechanical as described above; however, underburning and individual pile burning would be considered to treat fuels when it can be done safely and with a minimal loss to residual trees.

Slash and Prescribed Fire - Brush field treatments, units 20 - 25, would be accomplished during the next ten years to coordinate with USFS prescription burning, and wildlife forage needs. About 30 to 50 percent of the young conifers and old brush would be cut to provide fuel for the prescribed burn. Efforts would be made to protect mature trees from the detrimental effects of prescribed burning. Old fire-resistant trees seem to be especially susceptible to imminent mortality after burning, even in low-intensity fires, because the long duration of heat generated by the smoldering accumulation of debris and duff is situated directly against the root collar and over the root system (Sackett and Hause 1998, Kaufmann and Covington 2001, Arno and Fiedler 2005).

Vegetation Treatment - The vegetation treatment objectives are:

- Reduce the risk of crownfire;
- Develop wind firmness in the forest by selectively removing intermediate and suppressed trees adjacent to dominate trees. Co-dominate trees could also be

removed that are growing too close to dominant western white pine or western larch trees;
• Improve the potential snowshoe hare and Canadian lynx habitat;
• Maintain the travel and security areas for elk and deer.

Thinning of codominate trees will contribute to restoration of more open stand conditions in some areas and increase the growth of forbs and shrubs, which retain moisture until later in the season, reducing fire behavior (Agee et al. 2002). Applying fuel reduction treatments simultaneously to multiple fuels strata is the most effective approach to reducing fire severity. Fire hazard treatments intended to decrease tree mortality should reduce surface fire intensity, as well as crown fire potential, in order to minimize mortality from crown scorch (Raymond 2005).

Wildlife snags greater than 8 inches diameter breast height (DBH) would be retained, except for snags that must be felled to meet OSHA safety regulations or to facilitate burning operations. All trees containing nests and snags with apparent cavity nesters would be retained. The number of retention and recruitment snags would meet or exceed snag management guidelines in the MFP of 8.1 snags per acre and 8.1 future snags per acre.

Logging would be done with ground based equipment (crawler tractors, skidders, tree shears, etc.), skyline logging and helicopter as indicated in the Proposed Vegetation Treatment table.

Unit No.	**Acres**	**Forest & Habitat Type**	**Proposed Vegetation Treatment**
3	2	Wet/Warm Western Hemlock	Seed Tree - About 5 to 10 western larch and western white pine trees per acre would be retained. Non-merchantable material would be mechanically piled and burned. Western larch and disease resistant western white pine trees would be planted. Cut trees would be helicopter yarded to a helispot landing.
6 & 8	41	Wet/Warm Western Hemlock	Medium Thin - Within Unit 6 and in the south half of Unit 8 all trees smaller than 11 inches in diameter would be thinned. On the north half of Unit 8, all lodgepole pine trees smaller than 13 inches in diameter would be thinned. Cut trees would be helicopter yarded to a helispot landing.
9	27	Wet/Warm & Wet/Cold Western Hemlock & Subalpine Fir	Medium Thin – On the north half of Unit 9 all lodgepole pine trees would be thinned, and on the south half of Unit 9 all lodgepole pine trees smaller than 12 inches in diameter would be thinned. Reforestation with western larch and disease resistant western white pine seedlings would be planted in openings created by dying lodgepole pine trees. Thinned trees would be tractor skidded to landings located along the road.
10	9	Wet/Warm Grand Fir	Medium Thin – All trees less than 10 inches in diameter, and all lodgepole pine less than15 inches in diameter would be thinned. Thinned trees would be skyline yarded to landings located along the road.
12	30	Wet/Warm	Medium Thin – All trees less than 16 inches in

		Grand Fir	diameter would be thinned. Thinned trees would be skyline yarded to a landing located on the road.
14	15	Wet/Warm Grand Fir	Medium Thin – All trees less than 12 inches in diameter and all lodgepole pine trees would be thinned. Thinned trees would be skyline yarded to a landing located on the road.
17 & 18	16	Cold Mountain Hemlock	Medium Thin – Within Unit 17, all trees smaller than 9 inches in diameter would be thinned. Within Unit 18, all trees smaller than 10 inches in diameter would be thinned. Thinned trees would be tractor skidded to landings located along the road.
Total	**140**		

Skid trails would be designated and directional falling is required to reduce soil compaction and minimize the damage to residual trees. Skid trails would be at a 12 foot width, and spaced about 100 feet apart except where they converge. Skid trail spacing would be reduced to approximately 70 feet when operations are conducted on two feet of snow or on frozen ground. All logging skid trails would be rehabilitated to reduce the opportunities to become future roads

Seedtree - The objective of Unit 3's treatment is to mimic the cutting on private land to reduce the impacts of an existing straight line visual feature on the viewshed. A scalloped edge would diminish the impact of the straight cutting line. All lodgepole pine trees would be removed and western white pine and western larch trees would be retained.

Medium Thin - For reducing fire risk, the priorities are to reduce surface and ladder fuels and raise the bottom of the live canopy (Agee et al. 2000, van Wagtendonk 1996). Thinning is most apt to be appropriate where understory trees are sufficiently large or dense that attempts to kill them with fire would run a high risk of also killing overstory trees (Christensen 1988, Stephenson 1999, Fulé et al. 1997, Moore et al. 1999, Arno et al. 1997). Using prescribed fire alone can be desirable in that it provides the full range of ecological effects of fire. However, fire is an imprecise tool and a chainsaw or harvester can provide much more control over which trees are actually killed (Thomas and Agee 1986, Swezy and Agee 1990, and Pollett 1999, Fiedler 1996). A diameter limit cut would be used for designating trees to be removed. Because of the widespread mountain pine beetle activity, one to three acres openings would be created in the thinned stands and a mottled vegetative mosaic would result. Openings would be reforested with disease resistant western white pine and western larch seedlings.

Reforestation

Following completion of timber and fuels treatment, the entire project area would be surveyed to determine the need for planting of seral tree species. Natural reforestation of treated areas with western larch, grand fir and Douglas-fir is expected in some areas following mechanical or broadcast burning. In the relatively moist, cool sites where lodgepole pine was harvested, dense natural regeneration by this species is also expected. Openings in the forest canopy where natural regeneration is expected to be limited, western larch and rust-resistant western white pine seedlings would be planted 12 feet apart. Within the clearcuts patches of subalpine fir and Englemann spruce seedlings would be planted to serve as “stepping stones” for wildlife travel.

Noxious Weeds

Before construction or logging equipment is moved into the project area, BLM would treat pre-existing weed population with herbicides before logging activity to reduce sources of seed and/or plant parts and minimize risk of spreading existing infestations.

Preventing any new weeds species from entering the project area is the highest priority for protecting the area from weed invasion. Pre-harvest measures would include removing all mud, dirt, and plant parts from all off-road vehicles and off-road equipment before entering BLM lands. Cleaning must occur off BLM lands. (Cleaning requirements do not apply to vehicles that would stay on the established roadway and use the constructed landing.)

Reduce opportunities for weed invasion in disturbed sites by seeding all disturbed soil (except the travel way on surfaced roads) in a manner that optimizes plant establishment for that specific site. Use a certified weed-free seed mix that includes fast-growing, early season species to provide quick, dense revegetation.

Post harvest activities would employ an integrated weed control strategy of: monitoring and treatment of weed infestations on ATV trails, roads, landings, skid trails, cable corridors and treatment areas. Weed treatments will use biological controls, mechanical removal, and/or herbicides after considering the effectiveness of all potential methods and combination of methods.

B. Description of the Alternatives Analyzed in Detail

No Action Alternative (Alternative 2)

Under this alternative, no forest or fuel management activity would occur and the area would continue to be susceptible to stand replacement wildfire. Reduction of stand densities would not occur and forest fuels would continue to accumulate. Fire suppression would continue and shade tolerant species including Douglas-fir, grand fir, western redcedar, and western hemlock would eventually dominate the forest. Western larch and western white pine would remain on the site as scattered individuals. Increased stocking densities of shade tolerant tree species would allow for an increase of fuel loads and ladder fuels and would also result in stand conditions more susceptible to biotic pests like bark beetles. As a result the potential for a stand replacement wildfire would be increased. Stands dominated by Douglas-fir, western hemlock, and western redcedar easily support crown fires because the trees do not self-prune well and retain large branches low in the canopy (Graham and others 1999). The potential for attack by mountain pine beetle in the lodgepole pine stands would increase.

In the event of a fire, the potential for loss of timber on adjacent USFS lands and on adjacent private lands would be increased. No artificial reforestation activities would occur. No permanent closure of existing spur roads would occur.

Noxious Weeds

No management activities would result in current population of weeds continuing to expand along ATV trails. Assuming little to no disturbance, expansion of weed populations into forested areas is unlikely due to low light levels reaching the forest floor. Although, lack of treatment would result in increased fuel loading and with it increased risk of stand replacing fire. Fire with

the loss of competing vegetation and subsequent potential for soil erosion leaves a burned area primed for noxious weed invasion. Spotted knapweed is known to resprout quickly following a fire and spotted knapweed seed is known to be viable in the soil for up to 10 years. The increased fuel loading and untreated spotted knapweed population combine to create a potential for weed infestation of burned areas following a fire event.

C. Alternatives Considered but not Analyzed in Detail

Printer Creek Timber Harvest – Commercially thin all lodgepole pine and all other trees less than eight inches in diameter in the drainage excluding the riparian areas. This treatment would provide a natural appearance of small openings where young quaking aspen trees could be planted, and over time would look like the landscape south of Kellogg, Idaho. A mixed hardwood/conifer forest is more resilient to fire, and ground fires are easier to control. Changing the forest complexion to a mixed hardwood/conifer forest is consistent with reducing wildfires in the long term, but because of the extent of recent timber harvest on private ground and continued lodgepole pine mortality within the drainage, this alternative isn't feasible until Printer Creek recovers hydro logically.

Construct ATV Trail in Unit 24 – Extend the existing ATV trail in Unit 24 to the Red Oak Gulch ATV trail. This trail is not required for fire prevention or suppression actions. This alternative was not analyzed in detail since it did not meet the purpose and need for action.

Treat Hazardous Fuels and Construct a Shaded Fuelbreak – This alternative proposed a "light touch" on the landscape were concentrations of dead and dying lodgepole pine would be harvested and a shaded fuel break would be constructed. This alternative was not analyzed because it did not meet the County Commissioners request for an aggressive approach to fuel hazard reduction.

III. CONFORMANCE WITH APPLICABLE LAND USE PLAN

The Proposed Action and alternatives comply with the Coeur d'Alene Resource Management Plan (RMP, 2007). The project area is covered under policies guiding forest management activities on lands classified for forestry and woodland products. Silvicultural treatments and forest management activities permissible under these classifications include, but are not limited to:

- Pre-commercial and commercial thinning
- Removal of individual, dead or dying trees
- Regeneration methods including single tree and group selection methods
- Slash Disposal
- Site Preparation (mechanical and broadcast burning) and reforestation planting

Relationship to Statutes, Regulations, or Plans

This project would be implemented under the authority of the Federal Land Policy and Management Act of 1976.

All forestry practices would meet or exceed those set forth under the Idaho Forest Practices Act, Title 38, Chapter 13, Idaho Code. All forestry practices would meet or exceed Best Management Practices (BMP's) for protecting water quality.

In accordance with the Endangered Species Act of 1973 as amended, regulations in 50 CFR 402, and BLM policy in Manual 6840, BLM will complete necessary consultation and coordination with U.S. Fish and Wildlife Service for the protection of federally listed threatened and endangered species and critical habitat. The Proposed Action would also incorporate the interim directions of the Inland Native Fish Strategy (INFISH).

All forest health activities would be designed to meet the following resource standards and management objectives:

- Protection of Threatened and Endangered Species
- Protection of Cultural and Historic Resources
- District Water Quality and Fisheries Objectives
- District Visual Resource Management Guidelines
- District Snag Management Guidelines within the constraints of current OSHA Safety Regulations

IV. AFFECTED ENVIRONMENT

A. Air Quality

Air quality in the project area is good. Wind and weather patterns are generally from a westerly flow (SW to NW) with mountains and valleys providing local topographic influence to wind pattern.

B. Cultural Resources

A cultural resource inventory was conducted in the project area for all alternatives. No significant cultural resources were located.

C. Economic and Social Values

BLM, USFS and private lands in the area have provided a source of economic benefit to the local community ranging from benefits of owing private lands adjacent to public lands for recreational and commercial opportunities.

Public land, adjacent to private property, is sometimes viewed as being an asset because public lands cannot br commercially developed; providing landowners with a landscape that is unobstructed by other residential or commercial sites. Landowners place a high value on the visual benefits derived from open space and native vegetation and, based on conservations with some adjacent landowners are willing to accept a change to the landscape which would increase protection of their investments should a wildland fire occur.

D. Fisheries, Including Special Status Fish Species

The proposed project is located within the Rock Creek, Placer Creek, Printer Creek, Weyer Gulch, and Watson Gulch watersheds, all tributaries to the South Fork Coeur d'Alene River. Red Oak Gulch and Hord Gulch are both tributaries of Placer Creek that are included in the project area. Water quality problems include high levels of heavy metals (lead, cadmium and zinc) in the South Fork Coeur d'Alene River and many of its tributaries. Prior to 1968 the South Fork Coeur d'Alene River contained such high concentrations of heavy metals that it prevented any life from existing in much of the river (Mink et al. 1971). As heavy metal concentrations dropped the first insects started appearing throughout the South Fork in the early 1970's (Rabe and Flaherty 1974) and in the early 1990's Idaho Fish and Game started receiving reports that fish were surviving in the lower river. The South Fork Coeur d'Alene River is water quality impaired (303d listed) for metals and sediment. None of the streams within the proposed project area are water quality impaired.

Approximately one mile of Placer Creek runs through BLM land in the proposed project area. Though this section of stream generally has a good riparian area and adequate shading of the stream channel, it is lacking in cottonwoods and western redcedar. Fish habitat inventory conducted in 2003 by the Forest Service in the Placer Creek watershed indicated that channel stability was good, pool-to-riffle ratio was lower than desired, and large woody debris overall was smaller than desired in both length and diameter (USDA Forest Service 2006).

The South Fork Coeur d'Alene River and many of its tributaries contain westslope cutthroat trout, *Oncorhynchus clarki lewisi*, a BLM sensitive species. In the summer of 2006, the BLM and Idaho Department of Fish and Game conducted a snorkel survey of the South Fork Coeur d'Alene River from the town of Wallace downstream to the mouth. In addition to westslope cutthroat trout, rainbow trout, *O. mykiss*, brook trout, *Salvelinus fontinalis*, and mountain whitefish, *Prosopium williamsoni*, were observed. In 2003, the Forest Service conducted fish surveys in Placer Creek and tributaries, including Hord and Red Oak gulches, and observed westslope cutthroat trout, rainbow trout, westslope trout-rainbow trout hybrids, brook trout and sculpin. Brook trout are an introduced species, and the rainbow trout are likely to be introduced also, given that they have been stocked in the past. Other native species known to inhabit the South Fork Coeur d'Alene River include shorthead sculpin, *Cottus confuses*, and torrent sculpin, *C. rhotheus*. Additional native and nonnative species are found lower down in the Coeur d'Alene River and Lake Coeur d'Alene.

Westslope cutthroat trout spawn mainly in small tributaries from March through July, when water temperatures warm to about 50°F. Westslope cutthroat trout stocks in the Coeur d'Alene Basin exist at a fraction of historic levels due to habitat degradation from activities such as mining, logging, development, and highway construction. Fishing pressure and introduction of non-native fish species has also contributed to reducing cutthroat numbers (USDI Fish and Wildlife Service 1999; DuPont and Horner 2003). Due to low numbers, the current fishing regulations for westslope cutthroat trout are catch-and-release in the entire Spokane River drainage, which includes the Spokane River above Post Falls Dam, Coeur d'Alene Lake and all tributary streams (Idaho Fish and Game website).

Bull trout, *S. confluentus*, are found in parts of the Coeur d'Alene River and Lake Coeur d'Alene, but are no longer known to inhabit the South Fork Coeur d'Alene River or any of its tributaries. No bull trout were detected during the 2006 snorkel survey of the South Fork Coeur d'Alene River. The Forest Service surveyed Placer Creek and a number of its tributaries in 2003

and did not detect bull trout. The South Fork Coeur d'Alene River is not included in designated critical habitat for bull trout.

E. Forest Vegetation/Vegetation Communities

Distribution of forest vegetation within the action area is mainly related to slope aspect and elevation, with ponderosa pine and Douglas fir occupying warmer areas, and on the relatively cooler sites, a combination of conifers such as ponderosa pine, Douglas fir, grand fir, western white pine, western larch, subalpine fir, and lodgepole pine is present. Western red cedar and western hemlock occur where sufficient moisture and shade are present. Shrub fields on southeast- to west-facing BLM land along Placer Creek have been maintained through prescribed burning. Forest vegetation would be characterized as a mosaic of mostly mid-stages of ecological succession, with the shrub fields representing earlier stages of succession.

Threatened and Endangered Plant Species

No water howellia (threatened) or Spalding's catchfly (threatened) individuals, populations or potential habitat occur in the action area.

No candidate plant species occur in the action area.

Sensitive Plant Species

The presence of these species and their habitat is not yet fully documented because site-specific inventory was started during summer 2007 and has not been finished this spring due to a persistent winter snowpack.

Constance's bittercress is a perennial, herbaceous member of the mustard family. Its global distribution is restricted to north-central and northern Idaho. This species primarily reproduces vegetatively since it does not tend to flower under dense tree canopy, where it is most often found. When exposed to increased sunlight, plants bloom from about May to June, but most developing fruits are aborted by mid-July. Constance's bittercress is generally found in lower elevation moist forests, especially in western redcedar and western hemlock-dominated riparian areas. In the Wallace South action area, however, it has been found in the brush fields on the east side of Placer Creek. Spotted knapweed also has been documented growing along the ATV trail in units 23 and 24.

Potential habitat for Cascade reedgrass, clustered lady's-slipper, deerfern, leafless bug-on-a-stick moss, and certain moonwort species is also present.

F. Fuels/Fire Management

Fire History

Fire has played a prominent role in forests of the area and the town of Wallace, ID. The historic 1910 fire burned half of the town of Wallace, ID and the fire consumed over 3 million acres of forested lands in Idaho and Montana in a two day period. Forest types in the area have a history of fire ranging from frequent low severity fires to large and infrequent stand replacing fires.

This fire history indicates that fire has changed or altered forest vegetation by thinning and removing trees and reducing biomass; keeping the forest more open. The recent effectiveness of fire suppression, lack of vegetation management combined with the continuing expansion and encroachment of residences into the wildland fuel environment have created an unnatural and unacceptable fuel mosaic in need of treatment.

Fuels

Based on fuels and forest inventory data collected during the summer of 2002, the current condition of the Wallace project area can best be described by Fire Behavior Fuel Models TU5 and SH4. The TU5 is a timber/shrub/small tree understory, this fuel model contains heavy shrub/small tree understory and create moderate flame length and spreads.
SH4 is a low load, high climate timber shrub. The primary carrier of fire in this fuel type is woody shrubs or shrub litter. Fire spread rates can be high and flame lengths moderate.

Post treatment the TU5, should move to a TL1, which is a light compact understory of forest litter. Spread rates are low and flame lengths are very low.

Treatment Using Fire

Post-harvest broadcast burning of vegetation would benefit shade-intolerant plant species, which may have less competition for sunlight, water, and nutrients due to removal of adjacent vegetation. Other shade-tolerant plant species may be negatively impacted, such as by sun scalding, due to the resulting warmer, drier growing conditions. Plant response to treatment with fire depends on many factors, including soil and duff moisture, plant vigor, phenological state at time of burning, and fire severity. Response also depends on stand history. As organic material accumulates between fire events, seedlings and new rhizomes of some species become established in the organic horizons, where they are more vulnerable to fire than plants established in mineral soil (especially if heavy fuels have accumulated and increased potential fire severity exists).

DF trees develop fire-resistant bark as they mature, so only seedling, sapling and small-pole size trees may be vulnerable to low-intensity surface fire. In comparison, other tree species such as WRC and GF do not possess characteristics that protect them as well from fire, and are therefore, less resistant to its effects.

Low-intensity fire may not be lethal to most of the shrub species and several of the herbaceous species that occur in the action area. It is recognized that some plant species or propagules may die as a result of fire treatments, but it is anticipated that site populations adapted to fire would survive, and some species' growth actually would be enhanced. Although aerial portions of fire-tolerant shrubs or herbs may be killed, the plants would survive by resprouting from roots, stems, rhizomes, or stored seed. Fire may also remove competing vegetation, allowing regeneration by decreasing competition for light, water, and nutrients.

Where fuels are piled and burned, the concentrated intensity of fire would probably kill most plants directly under the piles, and kill or injure plants immediately adjacent to the piles. Over time, burn pile sites would likely be reseeded or recolonized from adjoining, surviving native vegetation, but additional replanting or seeding may be necessary at these sites to inhibit post-burn weed invasion

Common native plant species that may be less tolerant of burning may not be as well-represented in the post-burn plant community, resulting in a change in the composition of site habitats over time. The structure and composition of habitats in the analysis area would change as ecological succession proceeds.

G. Invasive, Non-native

Invasive weeds threaten our public lands by outcompeting native vegetation and adversely affecting wildland plant and animal communities, damaging watersheds, and increasing soil erosion. Plant communities in the proposed action area have been affected by prior disturbances such as fire, adjacent timber harvest, road building, and firewood cutting. Several weed species have invaded the proposed project area. The brush fields on the western portion of the project area have ATV trails with populations of spotted knapweed (*Centaurea maculosa*) and meadow hawkweed (*Hieracium pratense*). Roads in the eastern portion of the project area have populations of meadow hawkweed and orange hawkweed (*Hieracium auranticum*), as well as bull thistle (*Cirsium vulgare*). Spotted knapweed heavily infests the ATV trails described and has extended into the surrounding native vegetation. The hawkweed and thistle populations are currently at low levels and are limited to trail and roadside areas, but can be a significant seed source.

H. Recreation Use, Existing and Potential

The project area has no developed recreation sites. Two designated off highway vehicle (OHV) routes traverse the area, and are open to all motorized travel with the exception of full-size vehicles year-round. Cross country over-snow vehicle use is allowed off designated routes. The main recreational uses are hunting, OHV use, and other dispersed non-motorized activities by primarily local users. In general, use levels can be characterized as low.

Portions of the designated route along the ridgeline will be decommissioned and reconstructed as part of the proposed action.

An undesignated dead-end ATV trail traverses portions of treatment units 23 and 24.

I. Soils

Soil information was obtained primarily from the 2002 USDA/ NRCS publication, Soil Survey of St. Joe Area, Parts of Benewah and Shoshone Counties, Idaho. There are no known landslides within the project area, based on field reconnaissance and interpretation of aerial photography.

The most common soil type is the Honeyjones-Ahrs association, which is classified as gravelly to extremely cobbly silt loams. Rock content increases with depth. The profile is deep, well-drained and derived from metasedimentary bedrock, primarily siltite and argillite. Permeability is moderate. Average annual precipitation is 30-42 inches.

The proposed new road construction is located on Latour gravelly silt loam, found on 15-35 percent slopes and ridges. Permeability is moderate, the soil is well-drained, and erosion hazard is classified as slight.

J. Visual Resources

The area is classified as a Class III Visual Resource Management (VRM) area. The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape (Manual H-8410-1 - Visual Resource Inventory).

The area has seen significant historical disturbance from mining and timber harvest activities. The 1910 fire was extremely intense and consumed nearly all vegetation within the project area at that time. Largely successful fire suppression has since allowed a much different forest type much different to develop within the area and this has changed the visual characteristics of the area since that time.

K. Water Quality, Surface and Ground Water

The following section substantially incorporates by reference portions of the Specialist's Report on Aquatic Resources in the Placer Resource Area, prepared by the Forest Service in 2006.

Their analysis included descriptions of the entire Placer Creek watershed, as well as subwatersheds contained within the Placer Creek drainage. The BLM Wallace South Hill project area falls entirely within the Lower and Middle Placer Creek subwatersheds. A summary of cumulative effects will also be discussed for the entire 6th Hydrologic Unit Code (HUC) of Placer Creek.

Table AQ-1. Summary of existing conditions for each subwatershed in the Placer Resource Area.

Subwatershed Name	Acres	% BLM lands	Ave. Precip. (inches/ year)	Ave. Road Density (mi/mi2)	303d water quality limited?
Placer Creek *(entire watershed)*	**9,984**	**67**	**36**	**2.12**	**None**
Lower Placer Creek	3,712	40	32	1.42	**None**
Middle Placer Creek	4,352	78	45	1.93	**None**
Upper Placer Creek	1,920	0	45	3.88	**None**

Summary of Conditions in the Entire Placer Creek (6th Code) Watershed

Stream Flow Regime: WATSED model results estimate that average peak month flows in the whole Placer Creek watershed are currently modified to approximately 2% above baseline conditions. This level of modification is not measurable in the field. Activities on the National Forest in 1990 such as timber harvest and prescribed burning opened up canopy by from between zero and 54 ECA's. Simulated peak flow did not go up from these events but conditions continued to recover as modeled by WATSED. Stream flow conditions and hydrologic recovery are still responding to many types of activities, such as timber harvest and stream canalization on other ownership in the lower reaches.

B. Characterization of the Affected Watershed and Subwatersheds

Designated Beneficial Uses in the Placer Resource Area

The status of Beneficial Uses comes from Idaho Department of Health and Welfare, 1992 (PF Doc. AQ-17). Beneficial uses in Placer Creek include:

- *salmonid spawning and rearing habitat*
- *cold water biota*
- *primary contact recreation*
- *secondary contact recreation*
- *drinking water*

Public Water Supply

Placer Creek watershed is a primary drinking water supply for the City of Wallace. Best Management Practices and INFS guidelines (PF Doc. AQ-9) would apply any management activities within the watershed to protect water quality and beneficial uses. Lands will be managed for multiple-uses within the water quality standards for public water supplies (1987 Forest Plan, p. II-9; PF Doc. AQ-24). The source of information that provides the BLM and other land management agencies with guidance and protection measures within Placer Creek, public water supply are found in the East Shoshone County Water District-Wallace Source Waters Assessment Report (Idaho DEQ 2000).

Impaired Waters (303d listed)

Placer Creek

There are no streams within the Placer Creek watershed that are water quality impaired (303d listed) for any pollutant. All streams in the Placer watershed flow through private land or BLM-managed land in their lower reaches, and then flow into South Fork Coeur d'Alene River.

South Fork CdA River

The South Fork Coeur d'Alene River is identified as water quality limited (303d listed) for both metals and sediment.

Printer Creek is a small tributary to the South Fork with a watershed area of 164 acres within the proposed project area. The lower end of Printer Creek enters a drop inlet, adjacent to several residences, and is then conveyed under the city of Wallace in a concrete pipe. The inlet to the pipe is an old, concrete drop basin with a metal grate covering the top to prevent plugging by sediment or debris. Concerns have been raised by numerous citizens regarding potential for plugging or overtopping the pipe due to recent harvest activities on private forest land within the Printer Creek watershed.

Subwatersheds

The USFS Geographic Assessment lists the entire Placer Creek watershed as "Properly Functioning," which is a high priority to maintain and protect aquatic resources. Field review and data analysis was used to further scale down the conditions call from the Geographic Assessment to the subwatershed scale, and Lower Placer Subwatershed was determined to be "Functioning at Risk." The lowest reach of Placer Creek is highly altered and probably would rate as "Not Properly Functioning;" it would not meet beneficial uses. This is a result of flood control infrastructures such as a dam and concrete lined channels constructed through the town of Wallace. Lower Placer Subwatershed, was found to be "Functioning at Risk" based on field reviews and data on channel conditions.

Summary of Conditions in the Entire Placer Creek (6th Code) Watershed

Stream Flow Regime: WATSED model results estimate that average peak month flows in the whole Placer Creek watershed are currently modified to approximately 2% above baseline conditions. This level of modification is not measurable in the field. Activities on the National Forest in 1990 such as timber harvest and prescribed burning opened up canopy by from between zero and 54 ECA's. Simulated peak flow did not go up from these events but conditions continued to recover as modeled by WATSED. Stream flow conditions and hydrologic recovery are still responding to many types of activities, such as timber harvest and stream canalization on other ownership in the lower reaches.

L. Wildlife

Threatened, Endangered, and Sensitive Wildlife

The following table displays an assortment of Federally Listed and BLM-Idaho sensitive species and their preferred habitats that are likely to inhabit the Wallace South Hill project area.

32 Special status wildlife species that are likely to inhabit the Wallace South project area.			
Species Status	**Preferred Habitat**	**Number Species**	**Representative Species**
FederallyEndangered	Conifer Forest	0	Gray Wolf
Federally Threatened	Conifer Forest	0	None
Sensitive and Watch	Wet Cold Conifer	4	Blue Grouse
	Wet Warm Conifer	13	Northern Goshawk
	Dry Conifer	5	Flammulated Owl
	Old Conifer	1	Fisher
	Riparian	8	Coeur d'Alene Salamander
State Listed	Wet Warm Conifer	1	Northern Flying Squirrel

The Fish and Wildlife Service prepared a species list (1-9-08-SP-068) dated 9 April 2008. No wildlife species on this list are likely to occur either in or near the proposed action area. However, a recent federal court decision (07/18/08) restored endangered species protection for gray wolves in the northern Rocky Mountains, which are likely to inhabit proposed action area. Wolves that reside south of Interstate 90, where the proposed action is located, are actually designated as nonessential experimental (50 CFR 17.84 (i)).

Selected sensitive species are discussed in this document because they were identified during the scoping process. Three wolverines were previously reported within three miles of the proposed action area, but none within the project boundary. Two northern goshawks were previously reported within six miles of the proposed action area, but none within the project boundary. Five fishers have been previously reported within eight miles of the proposed action area, but none within the project boundary. One black-backed woodpecker was previously reported about 9.6 miles north of the proposed action area. Neither blue grouse, flammulated owls, Coeur d'Alene salamanders, nor northern flying squirrels have been reported either in or near the proposed action area (Idaho CDC 2008).

The Forest Service (2006) stated the Placer Resource Area has no suitable habitat for fisher and goshawk, some habitat for wolverine, less than optimal habitat for black-backed woodpecker, and potential habitat for Coeur d'Alene salamander.

Migratory Birds

The following table displays an assortment of migratory birds and their preferred habitats that are likely to inhabit the Wallace South Hill project area.

85 migratory birds that are likely to inhabit the Wallace South project area.			
Species Status	**Preferred Habitat**	**Number Species**	**Representative Species**
Migratory Birds	Brush	3	Spotted Towhee
	Wet Cold Conifer	8	Gray Jay
	Wet Warm Conifer	36	Pileated Woodpecker
	Dry Conifer	3	White-breasted Nuthatch
	Riparian	35	Black-capped Chickadee

Measured habitat parameters provide a surrogate for evaluating the effects to animals when population numbers are not available. The Forest Vegetation Simulator (FVS), which grows trees over time, provided selected habitat parameters for this analysis (Wykoff et.al. 1982, Forest Service 2005). For migratory birds, the number of trees, their height and diameter, percentage of canopy closure, crown area, crown volume, and foliage biomass can be analyzed to evaluate bird habitat relationships (Moeur 1985 and 1986). Changed values of **trees per acre** would affect the available habitat for migratory birds. Changed values of **canopy closure** would affect the composition of migratory bird species (i.e. preference for either closed or open canopy) within the project area. Changed values of c**rown volume** may predict richness of bird species, possibly because of available nesting opportunity and food. Changed values of **crown area** would affect nesting opportunities for migratory birds. Also, changed values of **foliage biomass** would affect feeding opportunities (i.e. conversion to insect biomass) for migratory birds.

Live trees eventually die, and dead trees eventually fall to become logs. The FVS also predicts snags per acre by diameter size class and year after treatment. Soft snags are assumed to be hazard trees that will be fallen and will not be counted in this assessment. Bigger trees, dead or alive, and logs are normally more valuable to the animals that live in or near them (Bull et.al. 1997). The benefit for migratory birds and other animals is leaving sufficient amounts of habitat structure after the proposed treatment is completed.

General Wildlife

The following table displays an assortment of other wildlife and their preferred habitats that are likely to inhabit the Wallace South Hill project area.

53 other wildlife that are likely to inhabit the Wallace South project area.			
Species Status	**Preferred Habitat**	**Number Species**	**Representative Species**
Other Wildlife	All Conifer Forests	22	Elk
	Wet Cold Conifer	2	Snowshoe Hare
	Wet Warm Conifer	8	Red Squirrel

	Dry Conifer	5	Golden-mantle Gr. Squirrel
	Riparian	16	Mink

Measured habitat parameters provide a surrogate for evaluating the effects to animals when population numbers are not available. Elk, for example, need habitat composed of about 40% cover and 60% forage of proper size and arrangement in the Blue Mountains of Oregon and Washington (Thomas 1979). The distribution of cover areas should be mostly on northerly and easterly aspects to provide relief from the summer sun, and forage areas should be mostly on southerly and westerly aspects to take advantage of the winter sun. Sufficient hiding cover offers shelter from predators including people at a distance of 200 feet.

Because vegetation treatments are expected to increase forage areas and decrease cover areas for deer, elk, and moose, this assessment will focus on the Multispecies, Multistory Elk Hiding Cover output of the FVS (Wykoff et.al. 1982, Forest Service 2005). The input data comes from the BLM's (2001) Forest Vegetation Information System (FORVIS), and the anticipated results are the average percent of an elk hidden at 200 feet from three replications of ten observation points (Smith and Long 1987, Van Dyck 2005). Hiding cover is provided mostly by vegetation less than ten feet tall, but transitions into thermal cover when the trees grow to 40 feet high and provide more than 70% canopy cover. However, FVS does not allow the separation of canopy values for shorter trees from taller trees. Therefore, canopy values presented in this analysis is for all trees. The benefit for these animals is finding the proper balance of both cover and forage areas to support their local populations.

V. ENVIRONMENTAL EFFECTS

A. Air Quality

Alternative 1, (Proposed Action)

Mechanical fuel treatments, temporary and permanent road construction, road realignment, road decommissioning, road maintenance along with gravel and log hauling activities would increase the amount of dust in the area depending on the time of year, soil moisture, and the amount and kind of vehicle traffic. Treatments using a combination of mechanical and prescribed fire are the primary activities that may affect air quality within and around the project area. The mechanical treatment of vegetation would be accomplished using a variety of machines to modify the vegetative biomass in the project area as presented in the description of alternatives in Chapter II. The primary effect to air quality from these activities would be the generation of dust.

In the immediate local proximity of the activity, dust may have a short term affect to visibility and safety issues related to traffic on project area roads. Production of dust is temporary and occurs only while activities are ongoing within the project area. It is unlikely that operational dust would have any offsite impacts. There would be no long term reduction of air quality once activities cease.

Cumulative effects of dust from project related activities and activities on adjacent private or federal land would be insignificant for the same reasons. Dust impacts are easily mitigated by dust abatement measures described in the Proposed Action; typically by applying water, using a water tender truck equipped with a spreader bar, to wet roads and work areas to keep down dust levels.

Following procedures and permissions of the Airshed Group and prescriptive parameters in the site specific burn plan required by BLM Policy, managers pick the time and conditions to burn that are best suited to achieving resource objectives and minimize effects to air quality from smoke and particulates. Depending upon transport winds within the airshed on approved burn days, smoke from prescribed burning or slash pile burning operations should not affect local residents or residents of downwind communities and airsheds. Burning activities would be stopped if on-site conditions are not providing the loft, mixing dispersion and transport to mitigate production of smoke and particulates as forecasted. Burning would cease until conditions allow for good smoke dispersion to maintain acceptable air quality.

Alternative 2, (No Action Alternative)

Under Alternative 2, there would be no increase in the generation of dust from BLM public land. Fugitive dust levels would remain at their current background level generated by users of the public and private land in the project area, and by any management activity occurring on those adjacent lands.

With the continued efficiency of fire suppression forces, the generation of smoke and particulates from wildfire would remain at current levels. Down woody fuel loads would continue to increase as natural fuel accumulates. With the role of natural fire eliminated by effective fire suppression, forests grow denser with increased stocking, shifts in species composition and fuel profile. Where fire historically thinned the forest and favored fire dependent and fire tolerant species, fire suppression has shifted species from fire tolerant to fire intolerant species and forest density (number of trees/acre) have increased. Increases in ground and ladder fuel as well as closure of the forest canopy are making fire control efforts less effective and increase the probability of a small fire escaping initial attack suppression efforts to become a large wildland fire. Wildfire would occur when ignitions occur and weather and fuel conditions combine to favor sustaining combustion and spread. Under these conditions greater consumption of fuel and organic material from the site occur which may have detrimental effects to long term site productivity. Burning in these conditions would generate greater amounts of smoke and particulate matter than treating the fuels under the Proposed Action.

Should a wildland fire occur, air quality could be negatively impacted possibly for several weeks. Emissions from wildland fires have been shown to contain many pollutants and toxic compounds that would adversely affect the air quality within the local communities. While the same materials and compounds exist in smoke from prescribed fires, the amount is greatly reduced due to the shorter duration, lower volume of material burned, and the controlled conditions under which prescribed fire and wildfire occur.

Cumulative Effects for All Alternatives

Daily proposed projects are carefully considered by the Montana/Idaho Airshed Group and limitations/restrictions are put into place based on atmospheric conditions and amount of proposed burning by other airshed group members. Airshed group members are not allowed to burn if conditions are present that may cause smoke impact to any local community. Therefore, no cumulative effects are expected.

B. <u>Cultural Resources</u>

No significant cultural resources were located during the survey and all alternatives will have no impact on known cultural resources.

C. Economic and Social Values

The economic discussion below shows the estimated "real" dollars that could be derived from the project areas. It does not cover the number of times that a dollar is cycled through the community before it leaves the community. Keep in mind that each dollar winds up being a benefit to several people and/or businesses as it is used to cover wages, supplies, operating expenses, living expenses, etc.

The Wallace South Hill project would contribute to the local economy by providing jobs needed to accomplish the work described in the Proposed Action and by providing forest products to local sawmills and other manufacturers ranging from Shoshone County south to Benewah County and west to Kootenai County (depending on who purchases the various forest products derived from the project area). The various forest products that could result from implementing the Proposed Action range from sawlogs, studs from hew wood, hog fuel for cogeneration plants, pulp, chips for strand board, posts, poles and firewood.

Due to the volatility of the wood product market, an accurate estimate of the type of forest products, quantity of forest products and the value of these products cannot be made. However, sawlogs and hew wood quantities can be estimated as these are the most common forest products to arrive at an estimated forest product value. This estimated value would reflect the potential minimum value of forest products which could be removed from the project area based on the criteria in the proposed action.

Using April 2008 average delivered log prices for saw logs and hew wood, it is estimated that the value of saw logs and hew wood removed from the sale area would be approximately $1,000,000. Delivered Log Price is the amount a mill pays for loggers and/or land owners for wood delivered to the mill. Most often the basis for payment is either MBF or tons. No estimate is being made for this EA to the quantity of other forest products that would be removed from the project area. Any other forest products removed from the project area, such as biomass, would provide additional economic support to the local community.

It is difficult to arrive at a total value for all forest products and the how much more economic value is poured into the local economy from these manufacturers. For purposes of this discussion, it was assumed that two-thirds of the final product value covers the cost of getting it to the manufacturer (in this case delivered log price). Based on the above discussion, forest products could add another $100,000 to the local economy.

Alternative 2, (No Action Alternative)

The situation as described in the Affected Environment would remain the same until such time as a crown fire, high intensity fire, insect infestation, or disease begins affecting the forest overstory. Over time, the scenic and recreational values placed on public lands by adjacent private land owners may change and could affect their property values. Depending on the degree or severity of the change to the area, the recovery period could range from a few years to decades.

No economic benefits would be made available to the local community in the immediate future. As noted in the Proposed Action, the area is outside of its historic species mix and composition and as a result would be far less resilient to the effects of wildfire, insects and disease. If no management actions are taken in this area, a wildland fire event can be expected which could require actions to protect adjacent private lands and/or public lands. At that time, economic benefits may be realized to local community, most likely in the form of jobs. It is anticipated that much of the material that would have been removed under the Proposed Action, would not be available to local manufactures because they would be consumed by fire, insects, and/or disease. If no forest materials are delivered to the various manufacturing mills, there would be no need for additional jobs.

Cumulative Effects

It is difficult to quantify monetary benefits from the private, State and FS managed lands in the cumulative effect area due to volatility of delivered log prices. The proposed project is expected to bolster the economy of the area by providing additional raw material to manufacturers, creating or increasing jobs. Increased supply of raw material could help hold down prices for finished products.

D. Fisheries, Including Special Status Fish Species

Proposed Action

The analysis area for fisheries and aquatic habitat is the Placer Creek and Printer Creek watersheds. The project area in relation to Weyer and Watson Gulches is only located in the very upper end of these watersheds on ridge tops (except for the access road), therefore is highly unlikely to have any impact on aquatic habitat in these watersheds. Fisheries discussions include the South Fork Coeur d'Alene River for context; however impacts would not be expected outside the Placer and Printer Creek watersheds.

The primary impacts from timber and fuels management activities and associated roads on fish habitat come from an increase in sediment and temperature in streams, and a decrease in the amount of large downed wood in the stream channel and adjacent riparian floodplain (Chamberlain et al. 1991; Everest et al. 1985). Elevated water temperature can cause physiological stress in fish, reducing overall health and survival. Excess sediment in streams reduces spawning and pool habitat, and may decrease food supply by altering the aquatic macroinvertebrate composition (Chamberlain et al. 1991; Everest et al.1985).

Increase in stream temperature is likely to occur if trees that provide shade to the stream channel are removed. Roads can cause an increase in sediment input to streams (Furniss et al. 1991), as can soil disturbance caused by yarding and skidding of logs (Chamberlain et al. 1991). Sediment input to streams can also be caused by removal of trees adjacent to the stream channel, as this can cause bank instability and removes the ability of the riparian area to stop the sediment before it enters the stream (Chamberlain et al. 1991; Everest et al. 1985). Large wood is often recruited to the stream channel from the adjacent riparian and upslope areas, thus removing adjacent trees would reduce future inputs of large wood (Murphy and Koski 1989; May and Gresswell 2003).

Wildfire, prescribed fire and other types of fuels treatments can also impact fish and aquatic habitat. Fires can increase erosion and sediment input to streams, alters water chemistry, and cause increases in water temperature (Benda et al. 2003; Rieman et al. 2003; Wondzell and King 2003). Effects can even be beneficial, such as increase in large wood input to the stream channel (Bisson et al. 2003), and even a pulsed sediment input to a stream may help increase aquatic habitat complexity (Benda et al. 2003). The extent of impacts from fires can vary greatly depending on fire patchiness and intensity, the preexisting conditions of the watershed and riparian communities, potential for recolonization of fish and other aquatic fauna, and the nature of fire suppression and post fire management (Rieman et al. 2003; Dunham et al. 2003; Gresswell 1999). Mechanical fuels treatments would have similar impact to those caused by timber harvest activities.

The amount of new road construction equals the amount of road decommissioning, amounting to no net gain of roads. The new construction, decommissioning and reconstruction is all located on ridge tops well away from any riparian areas and streams, therefore no impact to fish or aquatic habitat is anticipated. The access road to the project area goes through the Watson Gulch and Rock Creek watersheds; this is an existing road in good condition and use of it is unlikely to have any impact on fish or aquatic habitat.

Riparian Conservation Areas (RCAs) are lands that are likely to affect the condition and/or function of aquatic habitat, and are usually adjacent to streams, ponds, lakes and wetlands. In RCAs, riparian-dependent resources receive primary emphasis, and management activities are subject to specific guidelines. The RCAs within the project area are defined as follows, in accordance with the Coeur d'Alene Native Fish Strategy in the CDA RMP: Red Oak Gulch, Hord Gulch and Printer Creek would have a RCA of at least 150 feet on either side of and including the stream channel, and Placer Creek would have a RCA of 300 feet on either side of and including the stream channel. Placer Creek is the only stream that contains fish within the proposed project area. Red Oak and Hord gulches are both fish bearing streams, however the area inhabited by fish is downstream of the proposed project area. Printer Creek is not known to contain fish.

No activities would take place within the Red Oak Gulch, Hord Gulch and Printer Creek RCAs. Within the Placer Creek RCA, some work would occur, including handwork to reduce ground fuels, planting of cottonwood and western redcedar, and placement of large wood pieces within the stream channel and floodplain. The fuel reduction work within the RCA would not occur within 20 feet of the stream channel; vegetation may be removed closer to the stream channel to clear areas for planting cottonwood and western redcedar. Little to no reduction in shading of the stream would occur along Placer Creek, and no reduction in shading would occur along any other streams within the project area; thus no impact on stream temperature is anticipated. Adequate riparian tree species for future recruitment to the stream channels would remain in the RCAs. Additional trees would be planted along Placer Creek for future recruitment of wood to the stream and large wood would be added to Placer Creek to augment the current deficit of large wood.

The potential for sediment to reach any streams from all activities other than placement of large wood within Placer Creek would be negligible due to very limited activities occurring with the RCAs. The placement of wood in the Placer Creek stream channel is expected to cause some sediment to enter the stream channel and create some amount of turbidity within the water column. This effect would be short-term and the long-term benefits of restoring large wood to

the stream channel would outweigh any short-term impacts. Large wood creates pools, increases the size of pools, helps sort substrate to increase spawning gravel for trout, and provides cover for fish and other aquatic species. Sediment input to the stream channel and turbidity would be minimized by implementing the wood placement during low stream flow. Instream work would not occur during the period of westslope cutthroat trout spawning in the spring and early summer.

Timber harvest and mechanical treatment of fuels would occur only outside RCAs. If prescribed fire is used to treat fuels, the areas targeted for treatment would be outside of RCA. It is possible that fire may burn inside the RCA; however the relatively low intensity of a prescribed burn would limit the potential for negative impacts. Timber harvest and fuels treatments could result in sediment input to stream channels within the Placer Creek and Printer Creek watersheds. Incorporation of the RCAs adjacent to and including the streams into the project design ensures that sediment movement to the streams and impacts to fish, including westslope cutthroat trout, and aquatic habitat is negligible.

Cumulative Effects Alternative 1

Ongoing activities in the analysis area include timber harvest; recreational pursuits; road maintenance; and WUI fuels management efforts.

Reasonably foreseeable future actions include timber harvest; recreational pursuits; road maintenance; and WUI fuels management efforts.

Cumulative effects on fish and aquatic habitat will be analyzed at the scale of the Placer Creek and Printer Creek watersheds. Past activities within these watersheds have mainly been timber harvest on private, state, Forest Service, and BLM lands. Other past actions include mining, road building, tree planting, and recreation including OHV use. Impacts from the earliest activities were likely to have had the most impact because streams and fish habitat were often not taken into consideration. Even if fisheries habitat was considered, the impacts of roads, vegetation removal and other aspects of timber harvest were not fully understood. In the 1970s, guidelines on forest practices began to be used, including streamside buffers, and these guidelines have continued to evolve to the present (Chamberlin et al 1991). Current timber management activities are implemented in a manner that minimizes impacts to fish and aquatic habitats, though rules vary among land ownerships with some being more protective than others. In general, the oldest of the past activities probably would have had the greatest impact on fish and aquatic habitat, but the streams have also had a relatively long time to recover from these early impacts.

Ongoing and future actions in the analysis area include timber harvest, recreation including OHV use, road maintenance, and fuels management efforts. Future timber harvest and fuels management activities include the current BLM proposal and activities on Forest Service, private and State land. Fish and aquatic habitat within the Placer Creek watershed are generally in good condition on both BLM and Forest Service lands with riparian areas providing shading, large wood input and sediment filtration. The proposed BLM project has RCAs incorporated into the project design and will maintain the riparian area and ensure sediment movement into streams and impacts to fish or aquatic habitat are negligible. In addition, the restoration work on Placer Creek will have long term benefits to the watershed. The recent past, ongoing and future Forest Service projects incorporate riparian buffers similar to the BLM RCAs and will likely also

include aquatic habitat restoration components. If Alternative 1 is implemented, no long-term impacts are anticipated that would alter the viability of fish species or quality of aquatic habitat at the scale of the Placer and Printer Creek watershed.

Alternative 2 (No Action Alternative)

No timber harvest or fuels treatments would occur, and no riparian planting or addition of large wood to Placer Creek would occur, therefore aquatic habitat conditions would remain in their current condition. Under this alternative there is a greater possibility of a large stand replacing fire occurring, which could have harmful effects to the Placer Creek and the South Fork Coeur d'Alene watersheds and affect both fish and aquatic habitat (impacts of fire are discussed above under Alternative 1). If extreme impacts occurred to the watershed either due to immediate direct effects of the fire (such as temperatures reaching lethal levels for fish), or indirect effects (erosion and high levels of sediment moving into the stream), it is possible that the fish population in Placer Creek, including westslope cutthroat trout, would be reduced.

Cumulative Effects for Alternative 2:

Cumulative effects on fish and aquatic habitat will be analyzed at the scale of the Placer Creek and Printer Creek watersheds. Past activities within these watersheds have mainly been timber harvest on private, state, Forest Service, and BLM lands. Other past actions include mining, road building, tree planting, and recreation including OHV use. Impacts from the earliest activities were likely to have had the most impact because streams and fish habitat were often not taken into consideration. Even if fisheries habitat was considered, the impacts of roads, vegetation removal and other aspects of timber harvest were not fully understood. In the 1970s, guidelines on forest practices began to be used, including streamside buffers, and these guidelines have continued to evolve to the present (Chamberlin et al 1991). Current timber management activities are implemented in a manner that minimizes impacts to fish and aquatic habitats, though rules vary among land ownerships with some being more protective than others. In general, the oldest of the past activities probably would have had the greatest impact on fish and aquatic habitat, but the streams have also had a relatively long time to recover from these early impacts.

No action would occur on BLM land, and the recent past and ongoing Forest Service projects incorporate RCAs similar to those on BLM land, which will maintain the riparian areas and ensure sediment movement into streams and impacts to fish or aquatic habitat are negligible. If the action alternative not implemented, potential adverse impacts would be avoided; however no long-term impacts that would alter the viability of fish species or quality of aquatic habitat at the Placer Creek and Printer Creek watersheds were anticipated. The beneficial effects of planting riparian trees species along and adding large wood to a mile of Placer Creek also would not occur. The possibility of a large stand replacing fire occurring is slightly increased under this alternative, which could affect both fish and aquatic habitat within the Placer Creek and Printer Creek watersheds, with the possibility of at least some of the fish being eliminated. The fish species found within Placer Creek, including westslope cutthroat trout, are also found in the South Fork Coeur d'Alene River and its other tributaries. Westslope cutthroat trout are found throughout much of northern and central Idaho and western Montana. Reduction or elimination of the Placer Creek native fish populations would not impact these species throughout their range.

E. Forest Vegetation/Vegetation Communities

Alternative 1, Proposed Action

Direct and Indirect Effects.

Transportation

Continued use and maintenance of the existing roads would deter vegetation from re-colonizing and closing-off those corridors. Plants growing within the areas proposed for reconstruction, permanent road, temporary road and heli-spot construction would be destroyed. Use and maintenance would discourage vegetation from re-establishing in these areas, although a swath of lower-growing, shade-intolerant vegetation may eventually establish adjacent to the road running surfaces and on the perimeter of the heli-spots. Weedy species may be introduced into these disturbed areas by passenger vehicles, wildlife, or OHV traffic. Seeding the cut-and-fill slopes on Segment G would enhance vegetation recovery and discourage weed invasion.

Decommissioning existing road segments, as well as the temporary road associated with the project, would allow vegetation to begin re-colonizing those road corridors. Using seed mixes and plantings to augment re-establishment of desirable vegetation would potentially reduce weed invasion and competition for sunlight, water, nutrients, and pollinators.

Fuel Reduction Treatment

Fuels reduction treatments vary from the mechanical removal of excessive down wood and thinning to prescribed fire. Thinning treatments are further described within the Vegetation Treatment section.

Prescribed fire treatments can take place in either the spring or fall with the goal of reducing fuels, protecting the soil for excessive heat, reduce conifer encroachment, increasing the ability of firefighters to protect the fuel break and providing wildlife forage. The brush fields (Units 20, 21, 22, 23, 24) will be prescribed burned in a mosaic pattern with approximately 30-60% of the unit receiving treatment. The method of firing could include drip torches or helitorch. Ground fuels moistures should exceed 25% to not negatively affect the soil.

The goal for burning the slash piles would be to reduce 80-90% of the slash pile, do not affect the soil, do not allow the spread of noxious weeds, do not allow smoke to negatively affect the town of Wallace or Interstate 90. Pile burning can be conducted in either the spring or the fall.

Vegetation Treatment

Harvest Operations The amount of change in forest composition and structure of project treatment units would be related to species' retention priorities, diameter cut limits, and reforestation objectives. Removal of smaller diameter tree in-growth and intermediate and suppressed trees growing into the crowns of healthy dominant and/or co-dominant trees, as well as clearcut harvest of trees affected by insects and disease, would visibly change the current forest structure, as well as reduce competition with retention trees for water, sunlight, and nutrients. Reducing the average number of trees per acre would open the forest canopy, with

openings initially dominated by shade-intolerant shrub and herbaceous species, until re-planting or natural regeneration of trees occurs. Retention and management of larger diameter trees would further develop the large tree structural component. Retaining larger woody debris on the forest floor would be important for tree seedling establishment, soil carbon cycling, nutrient and water storage, and wildlife activity.

On the acres designated for helicopter harvest, vegetation in the immediate vicinity of trees marked for cutting would be injured or killed by tree-falling and slinging activity. However, these acres would be subject to less ground disturbance overall than would occur in the cable and tractor logging areas. Vegetation would be most impacted in the landing areas where trees are stockpiled by the helicopter. On the acres designated for cable logging, vegetation would be injured or killed where the cable tower system is set up, along the cable corridors themselves, where individual trees are cut, and where trees are stockpiled for loading onto logging trucks. Logging with ground-based equipment would cause the most ground disturbance and injury to plant communities in the action area, when compared with helicopter or cable logging. However, measures such as restricting skid trails to certain spacing intervals and widths could concentrate the most intense impacts into certain areas, helping reduce more widespread disturbance to vegetation due to skidding activities. Impacts to vegetation also could be reduced if tractor operations occurred on two feet or more of snow, while operating over frozen ground probably would not reduce damage to the above ground portions of plants. Disturbance to vegetation in tractor landing areas would be similar to that which would occur with helicopter or cable logging methods.

Reforestation Planting western larch, western white pine, lodgepole pine, Engelmann spruce, and subalpine fir would aid re-establishment of diverse, resilient, and/or resistant forest vegetation in the action area. However, managing for seral tree species would require subsequent actions to discourage re-growth of tree species (such as grand fir and Douglas fir) that may dominate sites to which they are adapted where natural disturbance regimes have been altered. Planting cottonwood and western redcedar would enhance species diversity, structural development, and recovery of the riparian community along Placer Creek.

Threatened and Endangered Plant Species

The proposed action would not affect water howellia or Spalding's catchfly individuals, populations, or potential habitat.

Sensitive Plant Species

Constance's bittercress' response to certain disturbances was discussed in the U.S. Forest Service's Placer Resource Area Environmental Assessment—Specialist's Report on TES (Threatened, Endangered, Sensitive) Plants (2006),

> "***Constance's bittercress*** *(*Cardamine constancei*) reacts favorably to openings in the forest canopy as long as the ground is not severely scarified by equipment…. It does not tend to flower under shaded conditions, but may be able to maintain itself indefinitely by vegetative growth as long as competitive pressures are not too great…. Populations along the St. Joe and Selway rivers which were affected by crown fire have been observed to multiply vegetatively in response to increased sunlight, but successful flowering and seed set was low due to hot, dry conditions later in the summer. Indications are that survival of this species after canopy removal may be dependent on the availability of moist microsites.*"

Transportation

No Sensitive plant species have been found along any of the road corridors inventoried so far. Inventory efforts would be completed prior to any ground-disturbing activities. If necessary, additional species-specific and site-specific protective measures would be developed and implemented, decreasing the potential for project-related impacts.

Fuel Reduction Treatment

Proposed brush slashing or ground fuels reduction in units 22, 23 and 24 could injure or kill Constance's bittercress individuals if plant locations closely overlap with fuels targeted for treatment. Fall burning would occur after Constance's bittercress has gone dormant for the year, with above-ground plant parts dried up and deteriorated; however, fall fire intensities could be greater causing more severe fire effects. If weeds such as spotted knapweed expand or invade following these disturbances, Constance's bittercress would have more competition for water, sunlight, or nutrients.

Inventory efforts would be completed prior to any ground-disturbing activities. If necessary, additional species-specific and site-specific protective measures would be developed and implemented, decreasing the potential for project-related impacts.

Vegetation Treatment

No Sensitive plant species have been found in any of the treatment units inventoried so far. Inventory efforts would be completed prior to any ground-disturbing activities. If necessary, additional species-specific and site-specific protective measures would be developed and implemented decreasing the potential for project-related impacts.

Cumulative Effects

Information regarding cumulative effects to vegetation found in Appendix B of the U.S. Forest Service's Placer Resource Area Environmental Assessment (2006) is incorporated by reference into this section.

The analysis area includes the Placer Creek drainage (15.68 square miles or 10,035 acres); and three "face drainages": Printer Creek drainage (0.25 square miles or 160 acres); Weyer Gulch drainage (1.15 square miles or 736 acres); and Watson Gulch drainage (1.52 square miles or 973 acres) (USGS 2008). Total analysis area acreage is 11, 904 acres. For purposes of discussion, these drainages will be referred to as Placer Creek (10,035 acres) and Face Drainages (1869 acres).

Several types of natural or human-caused disturbance in the analysis area have created the present mosaic of vegetation in various stages of succession. Past events which have shaped upland vegetation include wildfire activity (especially the Fire of 1910) and prescribed burning; fire suppression; Wildland Urban Interface (WUI) fuels management efforts; insect and disease outbreaks; timber harvest; tree planting; mining; roadbuilding and use; and OHV trail use. The current condition of the Placer Creek riparian zone is due to combined effects of fire activity

(especially the Fire of 1910); road encroachment; stream re-alignment; city water source development; flooding; erosion; and restoration projects.

Ongoing activities in the analysis area include timber harvest; recreational pursuits; road maintenance; and WUI fuels management efforts.

Reasonably foreseeable future actions include timber harvest; recreational pursuits; road maintenance; and WUI fuels management efforts.

Past, ongoing, and future vegetation-disturbing activities in the analysis area would continue to promote a mosaic of plant communities in various stages of ecological succession. Ecological succession would proceed where vegetation is left undisturbed. Plant communities that revert to earlier succession stages due to disturbance such as logging, wildland fire, insect infestation, or disease would begin the process of maturing all over again.

Ongoing and proposed timber harvest activities would open up sites favorable to weed invasion due to ground disturbance and reduction of tree canopy cover. Where left untreated, weeds would continue to threaten native plant communities.

Therefore, due to past, ongoing, and future activities, vegetation composition and structure would be altered on approximately 586 of 11,904 acres (5%) in the cumulative effects analysis area if the proposed action is selected. (525 of 10,035 acres in the Placer Creek analysis unit and 61 of 1,869 acres in the Face Drainages analysis unit)

Recommended Mitigation

1) Coordinate with the Coeur d'Alene Field Office Botanist during all phases of the Wallace South project that could potentially impact BLM Sensitive plant species.

2) When slashing Units 23 and 24 avoid piling slashed materials directly on or near Constance's bittercress plants to minimize impacts to individuals.

3) Ground fuels work along Placer Creek Road would be designed to minimize direct effects to Constance's bittercress individuals. This may involve flagging areas to avoid or being on-site when work is being done to ensure workers know where sensitive areas are located.

4) Weed control efforts in the vicinity of the Constance's bittercress population will be designed so that treatment(s) involving herbicides do not inadvertently affect non-target plant populations.

5) Monitoring of both the Constance's bittercress and adjacent weed populations in the project area would occur both during and after the project.

Residual Effects

Direct project impacts to Constance's bittercress and indirect impacts associated with weeds would be minimized.

Alternative 2, No Action

Forest Vegetation/Vegetation Communities.

Direct and Indirect Effects.

Plant succession would continue toward the potential natural community where possible, in the absence of disturbance. Over time, sites in the area capable of supporting more dense forest vegetation would be dominated by shade-tolerant species, until a future disturbance such as logging, wildland fire, insect infestation, or disease creates openings in the forest. Weeds would still remain in and adjacent to the action area. Undesirable numbers of Douglas fir, grand fir, and lodgepole pine vulnerable to insect and disease outbreaks would continue to compete with western larch and western white pine. Impacts to common, native plant communities due to a wildfire may be more severe due to the amount of fuel accumulated in unthinned areas, and possibly spread beyond the boundaries of the proposed action. A wildfire has the potential to be stand-replacing but may also create a mosaic of burned and unburned vegetation, depending upon variation in fire behavior.

This alternative would cause less disturbance to native plant communities in the action area, compared to the proposed action, which may allow them to compete better with the weeds that are currently grown in the action area. However, given the fire suppression history of forests in northern Idaho, a wildfire burning in unthinned forests may open more sites to weed invasion than the proposed action.

Threatened and Endangered Species. Same as Alternative 1.

Sensitive Species. As more trees invade the shrub field habitat, more canopy could develop, which would moderate the current warm, dry conditions. Constance's bittercress could possibly expand into surrounding habitat as more favorable moisture conditions developed. Its reproductive activity could also shift more toward a vegetative rather than a flowering mode. However, as fuel loads increase, wildfire intensities have the potential to increase, resulting in the possibilities that the canopy would be re-opened in the future and more severe fire effects to plants could occur. Weed invasion associated with wildfire activity could threaten Constance's bittercress.

Cumulative Effects. Under Alternative 2, zero acres of BLM lands would be disturbed by known, future activities. Therefore, due to past, ongoing, and future activities, vegetation composition and structure would not be altered on 1,275 acres (100%) in the cumulative effects analysis area, if Alternative 2 is selected (0 of 10,035 acres in the Placer Creek analysis unit and 0 of 1,869 acres in the Face Drainages analysis unit). However, vegetation composition and structure in the analysis area could be altered by one or more (unplanned) future wildland fires, with the number of acres burned dependent upon many different variables. Where left untreated, weeds would continue to threaten native plant communities.

G. Invasive, Non-native

Road building, road obliteration, landing construction and skid trails would disturb existing vegetation and soils. Weed seeds and plant parts may be transported along these disturbed areas by vehicles during construction, maintenance activities, and logging operations. Sources of

weeds may be from onsite weed populations and/or offsite weed populations, potentially introducing weeds species new to the site.

Logging activities including tractor yarding, slash reduction, and burning would increase the risk of weed expansion into forest areas. These activities would remove existing vegetation, disturb soils, increase light to the forest floor, and provide transport of weed seeds and plant parts. Weeds are often better adapted to colonizing newly disturbed areas than native species.

H. Recreation

Proposed Action

Temporary disruption of travel on designated motorized routes will occur during the road construction and prescribed burning phases of the project. The public will be restricted from using the project area during active burn phases, leading to temporary disruption of common recreational activities. However, the high-profile nature of the project and the relatively low overall use within the project area would make this an acceptable and minimal impact upon the recreating public.

Snowmobile use within the project area can be expected to increase and become more dispersed due to thinning and harvest operations. Unauthorized cross-country OHV travel may increase as a result of forest vegetation treatments as trees and fuels are reduced and thinned.

In the long-term, the roadway improvements will make vehicular travel safer. Road improvements could, however, encourage illegal use by full-size vehicles after construction.

No Action

Reconstruction of the designated motorized route along the ridge would not occur. This would minimize access via full-size vehicles on a route desigated only for motorbikes and ATVs. Any safety improvements to the road would not be realized.

Temporary access restrictions would not occur due to road work and prescribed burning.

I. Soils

Direct and indirect effects

Direct effects include compaction, severe burning, or displacement on the soil surface, which is the most productive layer and also the easiest to disturb (PF Doc. SR-06, p. SOIL-9). Compaction, displacement and severe burning can affect the soil's physical, chemical and biological properties, which can indirectly affect the growth and health of trees and other plants. Compaction reduces soil permeability and infiltration, which can cause soil erosion. Displacement reduces plant growth where topsoil and organic matter are removed. Severely burned soils can become water repellant, leading to increase erosion and runoff, and/or reduced productivity.

Indirect effects to soils include the loss of site productivity due to the removal of large woody debris and potassium.

Under the No-Action Alternative, there would be no direct impacts to soils because no new road construction, logging or fuel treatment activities would occur. Throughout the landscape, tree mortality from insects, diseases and weather events would continue, increasing organic matter. In moist habitat sites the increase in organic matter is beneficial to overall soil productivity. In dry habitat types, increases of organic matter mean an increase in fuel loading, which may result in a high severity fire. In the event of a severe wildfire, there would be a greater loss of the soil's organic matter, nutrient availability, water infiltration, all of which affect the soil's productivity.

Minor disturbances would occur on skyline and helicopter yarded harvest units and where hand line is constructed around specified units. Activity areas that propose tractor yarding, new roads or road reconstruction, and new helicopter landings would have the highest probability of detrimental effects to the soil resource. Skyline and helicopter logging systems that are proposed in conjunction with spring underburning and no new road construction would have much lower detrimental effects, usually one to three percent (Niehoff 2002; PF Doc. SOIL-34). See Tables SOIL-3 and SOIL-4.

Effects of Road Construction: Under the Proposed Action, the construction of 1.5 miles of new road would produce an irreversible effect to site productivity through compaction and displacement. This would be offset by the decommissioning of old roads, as they would be ripped and seeded or planted to native species such as alder. Once sale activity ends, the temporary roads would be obliterated, which would begin to reduce compaction of the soil and return a portion of the topsoil to the surface, which helps restore soil productivity and decreases hydrologic effects from road surface runoff.

Effects of Road Maintenance/ stream restoration: No additional soil impacts would occur from proposed road maintenance activities such as blading, drainage improvements, and surfacing on existing dedicated roads. Where large woody debris is installed to increase stability and fish habitat, there will be short durations of increased sediment yields while in-stream work is accomplished.

Effects of Harvest Treatments: To consider the worst-case scenario, the analysis assumes that all proposed harvest treatments would occur during non-winter conditions when the disturbance potential would be the greatest. If some harvest units were logged during the winter months the effects from compaction and soil displacement could be reduced (Krag 1991, p. 64; PF Doc. SOIL-29). Proposed management activities would increase detrimental soil disturbances (specifically related to soil compaction and displacement), especially where roads and log landings are proposed. There would be no increase in detrimental impacts from the proposed brush field burn units . The highest harvest equipment-related disturbance would occur on the units that are proposed for tractor yarding and associated slash reduction . Designating skid trails and use of a slash mat can reduce soil impacts from equipment.
There would be minor disturbances as a result of skyline and helicopter yarding in proposed harvest units.
The effects from proposed helicopter log-landing sites have been calculated into the overall effects related to the proposed harvest treatments. Helicopter landings average one acre in size; disturbance to these sites from compaction, displacement and pile burning are considered irreversible effects. All of the proposed helicopter landings would become dedicated lands for future use at the end of project's activities.

Effects of Prescribed Burning and Slash Disposal: Before ignition can take place, the soil moisture is to be 25 percent or greater, which would reduce the potential for soil resource damage. There could be detrimental effects to the soil as a result of severe burning if, after curing, the logging slash should ignite with soil moistures below 25 percent and before the proposed fuel treatments are implementeddry-site ecosystems using prescribed underburns. No direct effects would occur from new road construction or logging activities. The only effect is from prescribed fuel treatments in the drier brushfields with scattered timber to reduce hazardous fuel loadings that have built up over the past 70+ years.

Before the areas are burned, soil moisture must be greater than 25 percent. This would maintain the integrity of the soil surface organic layer and its capacity to infiltrate water, and also reduce the potential of severe burning to the soil resources (Niehoff 1985; PF Doc. SOIL-33). If these management concerns are addressed, there would be little to no effect on the soil resource concerning the proposed fuel treatments.

Cumulative Effects

Cumulative effects include the combination of direct and indirect effects from past, present and reasonably foreseeable activities. Since direct and indirect effects on soils are measured within the activity areas, the cumulative effects analysis area for the soil resource consists of those activity areas proposed for soil disturbing activities within the Placer Resource Area. Reasonably foreseeable actions, such as road construction/reconstruction and timber harvesting, would continue to affect the soil.

4.B. Effects to Soil under the No-Action Alternative

No direct effects to the soil resource would occur under the No Action Alternative since there would be no road construction, logging or fuel treatment activities. There would be no compaction or displacement beyond what currently exists. Throughout the silvicultural landscape, tree mortality from pathogens and weather events would continue as in the past, which have a direct influence on the area's recycling of organic matter and changes in fuel loading. In moist habitat sites the increase in organic matter is a benefiting function to overall soil productivity. In dry habitat types, increases of organic matter may result in a negative response. Soil damage risks could increase as fuel loading levels rise and are followed by a high severity fire. The effects of such a fire would result in a greater loss to the soil’s organic matter, nutrient availability, and could reduce water infiltration, which affects soil productivity. In addition the effects of such a fire followed by heavy storms could greatly increase surface erosion and sediment deliveries.

Under the No-Action Alternative, no new management-induced detrimental impacts would occur in the resource area. Stands currently at high risk for mortality would not be treated, which may increase the risk of stand loss due to wildfire, severe burning, and loss of soil nutrients. Moreover, the introduction of weeds and unwanted flora following a fire could lead to higher competition between less desirable and native vegetation. In the absence of such a hot fire, nutrients would be retained on site. However, stand conversion back to more site-appropriate tree species would be delayed in comparison to the Proposed Action.

Mitigation

Features Designed to Protect Soils
On units designated for tractor harvest, planned skid trails should be established at approximately 150-foot spacing to reduce overall soil compaction and displacement. Scheduling harvest activities to occur when the soil profile is dry helps to reduce the effects from compaction . Prescribed broadcast burning and underburning would be of low intensity and would occur when the soil's surface horizon has at least 25% moisture content in order to protect the site's surface organic component.

B. Residual Effects (After Mitigation is included)

Effects to Soil Under Both the No-Action and Proposed Action Alternatives
Given the decades of fire suppression in the Project Area, the chance of a lethal wildfire occurring could be high if an ignition starts in an untreated area during extreme, dry weather conditions. As stated in the Specialist's Report on Fire and Fuels (PF Doc. SR-01), the proposed vegetation and fuels treatment in the Project Area would not necessarily prevent lethal wildfires from occurring, but would increase the ability to suppress such a fire should the ignition occur in the treated areas. Vegetation and fuels treatments would reduce the chance that a wildfire could have as severe an effect on the soils in treated areas as it could in untreated areas because there would be a reduction in the tons per acre of fuels on those treated sites.

The occurrence of a high intensity wildfire would have a high potential for impacts to soils and soil productivity in severely burned areas, especially since the risk of soil erosion increases proportionally with fire intensity (Megahan 1990, p. 146; PF Doc. SOIL-31). Ashes that have burned white or a reddish color indicate that much of the organic carbon was oxidized and is no longer available to the soil. Other effects would include the loss of organics, loss of nutrients and a reduction of water infiltration (Wells et. al. 1979, p. 26; PF Doc. SOIL-44). When the soil moisture content is low, burns can create high surface temperatures that can result in a complete loss of almost all of the woody debris and usually the entire organic layer, exposing mineral soil. Nutrients stored in the organic layer (such as potassium and nitrogen) can also be lost or reduced through volatilization and as fly ash (DeBano 1991, pp. 152-153; PF Doc. SOIL-22; Amaranthus et. al. 1989, p. 48; PF Doc. SOIL-18).

If hydrophobic soils result from severe, high temperature fire, moderate surface erosion would occur but the potential for mass failures would be low to moderate because of the overall landtype characteristics in the project area. The areas of primary risk after a severe burn are toe slopes adjacent to streams, stream banks and possible debris flows. Following a severe fire, rehabilitation efforts to mitigate the fire's effects on erosion and sediment delivery would be performed as funding became available. If completed in a timely manner, rehabilitation work could negate most of the erosion concerns.

Cumulatively, the ongoing and reasonably foreseeable activities would have a net benefit to soils by reducing the potential for accelerated erosion due to wildfire impacts.

J. Visual Resources

Proposed Action

Consultation with the USFS Landscape Architect and use of a GIS visual simulation led to mitigation measures being built into the project to prevent significant effects upon visual

resources. In historical terms, a return to a more fire-resistant pre-fire suppression vegetation regime would reduce the chances of catastrophic fire events (and accordant visual disruption) in the long term. Changes to the visual nature of the area are therefore acceptable within the Class III VRM designation of the project area.

Replanting within the project area using appropriate tree species could return the area to a more sustainable and stable species composition over the long-term.

No Action

No change from current situation. The potential for intense wildfire would remain a threat within the area, which could dramatically alter the visual character of the area if this did occur.

K. Water Quality

Direct and Indirect effects

The main concerns related to water quality and aquatic resources are effects to drinking water, stream channels, and fish habitat. Environmental consequences to these resources were measured through changes in the magnitude, intensity or duration of water yield, peak flows, and sediment yield.

Cumulative Effects

The entire 6th code Hydrologic Watershed (all of Placer Creek), is the appropriate scale to analyze and summarize cumulative effects from this proposed project. This scale is also consistent with the analysis in the Geographic Assessment.

For this analysis, the resource area was subdivided into manageable units referred to as "subwatersheds" (Figure AQ-1).

Each of the subwatersheds in the Placer Resource Area was analyzed as its own cumulative effects area using WATSED to look at cumulative effects at a smaller scale (see Aquatics Appendix D for model limitations).

The entire South Fork Coeur d'Alene River including Placer Creek was not selected as the appropriate cumulative effects area for these reasons;

1. *The Placer Resource Area occupies only 12% of the South Fork Coeur d'Alene Basin from the confluence with Placer Creek, upstream to the headwaters.*

2. *The past and current mining activities in the South Fork Coeur d'Alene River are unrelated to the potential impacts from fuels related activities. Hard rock mining in the South Fork has left behind metal contaminants that leach into surface water and placer mining has altered aquatic habitat.*

3. *The drinking water supply that Placer Creek provides for the City of Wallace is a high priority for protection from potential effects of the proposed activity. Disturbances in the South Coeur d'Alene River do not influence the quality of water in Placer Creek.*

Aerial photographs were used to estimate location and types of vegetative management on non-federally managed lands and Bureau of Land Management (BLM) records were used on BLM-managed land so that all land management activities could be accounted for in each of the cumulative effects analysis areas.

Water quality in the South Fork Coeur d'Alene River at the confluence with Placer Creek is qualitatively addressed based on changes in contribution of pollutants.

The aquatic ecosystems of the Placer Resource Area were identified as falling into one of three condition classes, as defined in the Geographic Assessment (USDA Forest Service, 1998, pages 59-61; PF Doc. AQ-12):

•*<u>Properly functioning</u>: Within the scope of this assessment, a properly functioning watershed system is one that is exhibiting dynamic equilibrium characteristics and whose streams are operating and responding appropriately under their current environment. These systems can absorb and respond to disturbances that they have evolved under their historic range. Typically, parts of these systems, or the system as a whole, can move toward a more stable condition over time following a disturbance (or a series of disturbances) within a certain time period. As a system, these watersheds will not benefit from large-scale watershed restoration actions (although local, site-specific improvements may be productive).*

- *<u>Functioning at risk</u>: A watershed system that is functioning-at-risk is one that is essentially still properly functioning. However, it may be exhibiting trends or it may contain known risks that are likely to compromise that status and the ability to fully support beneficial uses in the future. This status may be assigned where the apparent watershed status is uncertain because the complexity of the system and disturbances. These systems are the first priority for large-scale watershed system restoration and improvement programs. Such programs will often produce effective and timely responses in the near future.*

- *<u>Not properly functioning</u>: Watershed systems that are not properly functioning often exhibit rapid adverse trends and may not fully support beneficial uses. These systems may appear to be responding to their own last adjustment, rather than toward stabilizing the last disturbance. They are "out-of-balance" with their environment and may not be in dynamic equilibrium, in periods of at least several decades. These systems are in need of large-scale restoration. These watersheds are usually second priority due to limited availability of resources, uncertain technology, and the long time period expected for positive responses.*

Stream information was collected in main Placer Creek and some of its tributaries during the 2003 field season (Project File Doc. AQ-43). Representative segments within the lower reaches and those that are most sensitive to watershed disturbance were selected for collecting information to determine stream channel types, cross sectional profiles, longitudinal profiles, woody debris composition, bank erosion, and stream temperature. A modified version of the R1/R4 fish and fish habitat inventory (Overton et al. 1997; PF Doc. AQ-16) was conducted along these same index reaches. These sites are mapped, documented, and marked on the ground so

that repeat measurements can be accomplished to track changes in stream conditions (Aquatics Appendix C, and PF Doc. AQ-43).

Stream Channel Morphology: Only portions of Road 456 near the lower reaches of Placer Creek are known to encroach on the stream channel and the floodplain of Placer Creek. These encroaching segments were able to withstand flooding in 1996 and 1997 without catastrophic negative impact to channel stability and stream health. The stream channels are mostly steep sided, high gradient channels in their upper reaches, with lesser gradients in the lower reaches. Some channel down-cutting and bank erosion is occurring on private lands in the lower stream reaches. This is probably a result of stream sections that have channelized and straightened in small isolated locations. Several road crossings on private lands pose an unknown risk to roads in the drainage area.

Water Quality: Fine sediment sources have been identified throughout the watershed and they are primarily associated with the road/stream crossings. Encroaching roads are present and do cause channel restriction and channel adjustments but only at isolated segments and mostly in the lower reaches of Placer Creek. Several culverts are undersized and the initial installation of some culverts has been inadequate causing erosion and scour at the outlets. Past management activities such as harvest, prescribed fire, and mining have had some minor impacts to the watershed but the fast re-growth of vegetation has caused background levels to be what they are. Recovery trends of stream flow regimes and sediment yield are neither positive nor negative but remain constant.

Sediment Yield: All the major streams in the Placer Resource Area have experienced some increased sediment yield from past timber harvest and/or prescribed fire activities except for Experimental Draw. Observations in the field concerning existing bedload movement and high deposition in downstream reaches support the conclusion that sediment yields are elevated but constant as a result of past activities. The following graphs display past changes to sediment yield and existing conditions based on WATSED modeling. Timing and type of timber harvest on other ownership in the Placer Resource Area were estimated using 2004, 1996, 1983-84 and 1973-74 aerial photographs and personal observations by Forest Service personnel (PF Doc. AQ-87). The degree of regeneration and amount of ground cover in the harvested units were estimated from observable evidence in aerial photographs.

Sediment yield in the whole Placer Creek watershed is displayed in percent change over natural conditions. The timber data base shows some harvest in the early 1980s with the model predicting recovery in approximately 1987. Roads do remain in place and the predicted sediment yield is persistent over time from the existing condition. Sediment yield has fluctuated over the last 20 years, increasing with each timber harvest or fire related activity. Prescribed burning was modeled in WATSED, based on records that show activity in 1998 over 205 acres. WATSED modeling shows upward sediment trends with each activity, followed by downward trends as the ground disturbance recovers. The existing roads are the primary sediment producer within the Placer Resource Area. It generally takes about seven years after disturbance caused from tractor-based yarding systems for the vegetation to re-establish and for the disturbance area to stop producing sediment erosion and transport. Harvest activity has occurred on private and BLM lands within the Placer Resource Area in the early 1980's, early and late 1990's, and in 2004, along with prescribed burning on BLM-managed land.

% increase over existing under the No-Action Alternative	% increase over existing under the Proposed Action Alternative	Difference in % Increase Between the No-Action and Proposed Action Alternatives

WATER YIELD Effects of commercial harvest and resulting canopy openings on % increase in water yield.	Lower Placer 0% West Fork Placer 0% Middle Placer 0% Experimental Draw 0% Upper Placer 0% **Entire Placer 0%** Range = 0 to 0% Mean = 0% Lower Placer 2%	West Fork Placer 3% Middle Placer 1% Experimental Draw 0% Upper Placer 3% **Entire Placer 2%** Range = 0 to 3% Mean = 1.8% Lower Placer 2%	West Fork Placer 3% Middle Placer 1% Experimental Draw 0% Upper Placer 3% **Entire Placer 2%** Range = 0 to 3% Mean = 1.8%
PEAK FLOW Effects of commercial harvest and resulting canopy openings on % increases in peak flows. Lower Placer 0%	West Fork Placer 0% Middle Placer 0% Experimental Draw 0% Upper Placer 0% **Entire Placer 0%** Range = 0 to 0% Mean = 0% Lower Placer 3%	West Fork Placer 4% Middle Placer 2% Experimental Draw 0% Upper Placer 4% **Entire Placer 3%** Range = 0 to 4% Mean = 2.7% Lower Placer 3%	West Fork Placer 4% Middle Placer 2% Experimental Draw 0% Upper Placer 4% **Entire Placer 3%** Range = 0 to 4% Mean = 2.7%
SEDIMENT YIELD Effects of commercial harvest and road activity on % increase in sediment yield. Lower Placer 4%	West Fork Placer 6% Middle Placer 0% Experimental Draw 0% Upper Placer 0% **Entire Placer 2%** Range = 0 to 6% Mean = 1.7% Lower Placer 4%	West Fork Placer 6% Middle Placer 2% Experimental Draw 0% Upper Placer 4% **Entire Placer 6%** Range = 0 to 6% Mean = 3.7% Lower Placer 0%	West Fork Placer 0% Middle Placer 2% Experimental 0% Upper Placer 4% **Entire Placer 4%** Range = 0 to 4% Mean = 1.7%

Under the No-Action Alternative, there would be no aquatic restoration activities such as removing or upgrading at-risk road crossings, or armoring/repairing culverts that chronically produce sediment, so the net associated risk of sediment delivery would remain at the current level. Drainage crossings currently at risk would likely fail in the event of a large stand-replacing fire followed by a high intensity rain or rain-on-snow event. The risk of wide-spread, high severity fire would be greater when compared to the proposed action because a fire of this type could damage soils, increase surface run-off, and increase sediment into Placer Creek and its tributaries. This would have a detrimental effect on water quality (impacting beneficial uses), altering stream channel morphology, impacting fish habitat, and disrupting efficiency of the water system that supplies drinking water to the city of Wallace.

Existing Sediment Yield in the Entire (6th Code) Placer Creek Watershed.

Sediment Yield, % change over natural

Indicator

Mitigation:

Features Designed to Protect Water Quality and Soils

Best Management Practices (BMPs) – All activities would be designed to protect water quality and aquatic resources through the use of BMPs, which are the primary mechanism to enable the achievement of water quality standards.

Sediment Reduction Activities – On roads, spot graveling (with approximately 6 inches of gravel) would be required at all stream crossings, rolling dips, and in any wet areas. This measure is highly (92%) effective in reducing the amount of sediment delivered to streams (Foltz and Truebe 1995; PF Doc. AQ-8).

Protection Of Wetlands, Seeps, Bogs, Wallows and Springs – All known or discovered wetlands, seeps, bogs, elk wallows and springs less than one acre in size would be protected with a 100-foot "no activity" buffer.

In addition, BMPs would be incorporated into many different phases of the project. The district hydrologist would review the design of all proposed temporary roads and all road maintenance to assure compliance with BMPs. The engineering representative and the district hydrologist would monitor all temporary and reconstructed roads to ensure that they were built or restored to specifications.

Water Quality Monitoring: The BLM has completed pre-project, high-flow monitoring of turbidity within the project area in May 2008. In addition, hydrocarbon levels were analyzed before and after prescribed fire activities on BLM-administered lands within the Placer Creek watershed. Idaho Department of Environmental Quality has conducted similar analysis (East Shoshone County Water District Source Water Assessment Report, November 9, 2000; PF Doc. AQ-55) and will continue to monitor water quality. The East Shoshone County Water District performs daily water quality monitoring with independent lab analysis to assure water quality standards are met.

Construction of new temporary spur roads would disturb slope hydrology and soils which can intercept and disrupt subsurface drainage patterns. Tractor and cable yarding can also have an effect on slope drainage and site productivity due to soil compaction and displacement of soils. Well-designed road drainage BMPs (rolling dips, filter windrows), the use of designated skid trails, and the post-project removal of the temporary roads would effectively minimize these adverse effects. The tractor units are all located high on the slope near the ridge line.

Overall, sediment delivery from tractor yarding disturbance would be minimal due to the relatively long slope distances to water across most of the tractor ground. Sediment delivery efficiency is generally much higher in the draws where flow is concentrated but much of this can be effectively controlled with adequate no harvest buffers along the channel (Megahan, 2004, p207).

A small change in the volume and timing of runoff may result from the removal of timber. Numerous studies have documented that both differential snow accumulation and rates of melt during rain-on-snow events contribute greater runoff from openings than from forested sites (Coffin and Harr, 1992).

Proposed Action, (Alternative 1)

Alternative 1 would have a short-term increase in sediment yield, with most impacts occurring in year one, primarily from the new roads. Sediment yield drops rapidly by year two, particularly when the road has been decommissioned. By year five, most of the sediment yield is back to pre-existing levels.

Megahan (1980) reported the average soil disturbances for various logging systems in the Pacific Northwest and British Columbia: 21 percent from tractor logging, 13 percent from ground cable logging, 8 percent from skyline logging, and 4 percent for helicopter logging. There would be additional disturbance and soil compaction from the machine piling of slash, though this would be minimized by use of a small, tracked excavator and minimal passes over any given area.

The cable yarding portions of Management Unit # 15 and 19 in the Proposed Action are situated on generally straight to convex slopes which are less likely to concentrate groundwater. These units contain no drainage dissections to efficiently transport sediment to tributaries of Placer Creek. Line skid corridors would have the potential to erode towards the buffers along the Placer Creek tributaries. With adequate buffer distance between live water and the down slope end of the cable corridors sediment delivery to live water would be minimal.

B. Residual Effects (After Mitigation is included)

Under the Proposed Action, treatment activities would have little to no risk of measurable effects to the magnitude, intensity and duration of peak flows and sediment yields. The risk of stream channel changes would be low to none (PF Doc. SR-05, page AQ-28). The proposed road reconstruction would occur on a ridge-top road far from streams; therefore the activity would create sediment during reconstruction but, due to its' location, routing of sediment to any stream course would be unlikely and a very low risk.

Cumulatively, the ongoing and reasonably foreseeable activities would not have any effect on sediment yield, water yield, peak flows, stream channel morphology, or fisheries populations or habitat; therefore this project would not impair beneficial uses within the Placer Creek watershed or downstream in the South Fork Coeur d'Alene River.

The WATSED Model/ description and limitations

Anticipated sediment and water yield runoff modification for the Placer Creek watershed was estimated from the methods documented in the R1/R4 Sediment Guides (USDA 1981; PF Doc. AQ-14), (Appendix D, WATSED Model Limitations), and the WATBAL Technical User Guide (Patten 1989; PF Doc. AQ-15). The version calibrated for the IPNFs, known as WATSED, is an analysis tool that spatially and temporally organizes typical watershed response relationships as a result of forest practices. The estimated responses are combined with other sources of information and analyses to help determine the findings of probable effects.

WATSED estimates a series of anticipated annual values over a period of years. The model predicts an estimate of most likely mean annual sediment loads (reported as tons per square mile per year, or as routed tons per year), and the expected sediment load modifications over time. The estimate of additional loading is expressed as a percent of the "natural" (i.e., historic mean load prior to significant development activities) sediment load, which is based on the history of disturbances and average climate patterns in the watershed. In this analysis, the existing condition represents the year 2006, which is prior to any anticipated disturbances related to the proposed activities.

The estimates of sediment and peak flow reflect how watersheds with similar conditions and landtypes have responded over time to a similar history of disturbance. WATSED is neither

intended nor designed to model event-based processes and functions, or specific in-channel responses. It does, however, incorporate the results of those processes in the calibration of its driving coefficients. WATSED does not evaluate increases in sediment and peak flows specifically resulting from "rain-on-snow" events or other stochastic events, nor does it attempt to estimate in-channel and stream-bank erosion. The IPNFs frequently validate the WATSED coefficients and estimates using long-term water quality monitoring networks on the IPNFs (USDA 1998b, 1999, and 2000; PF Doc. AQ-5 through AQ-7).

The forest management activities used to calibrate the model include standard BMPs and Soil and Water Conservation Practices; therefore, standard BMPs and Soil and Water Conservation Practices are necessary requirements for maintaining an effective confidence level in the model's use. Non-standard BMPs, management or natural disturbances not related to forest practices, and site-specific non-standard BMPs must be integrated into the final analysis to fully determine watershed response.

WATSED was designed to address a complex array of landtypes and disturbances within the context of a watershed, and organize the evaluation according to rule sets established by the author and cooperators. In the case of WATSED, the rule sets reflect watershed processes and functions based on research, data, and analyses collected locally and regionally. Forest Plan monitoring reports (USDA 1998b, 1999, and 2000; PF Doc. AQ-5 through AQ-7) describe how the calibration and validation of WATSED has been an annual process on the forest and where changes have been made. The model, however, also includes simplifying assumptions, and does not include all possible controlling factors. Therefore, the use of models only provides one set of information to the technical user, who, along with knowledge of the model and its limitations, other models, data, analysis, experience and judgment must integrate all those sources to make the appropriate findings and conclusions.

L. Wildlife

Threatened and Endangered Species

Direct and Indirect Effects. The proposed action would not affect any Threatened or Endangered Species because none are likely to occur in or near the proposed action area. Although gray wolves may follow deer, elk, and moose in and around the proposed action area, the BLM is unaware of any den and rendezvous sites within known pack territories. If any of these sites are discovered in the future, then the BLM will implement RMP Action 1.1.8. Consequently, the proposed action is not likely to jeopardize the continued existence of gray wolves, which agrees with a similar conclusion for the BLM's RMP (BLM 2006 and FWS 2006). Therefore, the BLM will not confer with the U.S. Fish and Wildlife Service (50 CFR 402.10).

The proposed action should not affect fisher, northern goshawk, wolverine, or black-backed woodpecker because their habitat does not occur or is minimal within the proposed action area.

Although blue grouse, flammulated owl, northern flying squirrel, and Coeur d'Alene salamander have not been reported in or near the proposed action area does not mean they do not occur there. The proposed action should not affect salamanders because the riparian areas along Placer Creek and other streams would be left intact. Just like fisher and goshawk, suitable habitats for flammulated owl and northern flying squirrel are not available within the proposed action area.

Habitat for blue grouse is available, but the lack of logs (see other wildlife below) may affect their populations.

The potential for a stand replacement wildfire would be increased with the **No Action Alternative** (page 13 of this document). A wildfire would create habitat for many animals (Smith 2000). Meanwhile, local populations of these animals would not be effected by activities associated with the removal fuel and vegetation from the forest.

Cumulative Effects. The proposed action should not contribute to the need to for sensitive and state-listed species to become listed (BLM Manual 6840). Likewise, the Forest Service (2006) determined their proposed action may impact individuals or habitat, but would not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species for fisher, northern goshawk, wolverine, black-backed woodpecker, Coeur d'Alene salamander.

Residual Effects (after mitigation is included). Additional dead surface fuels (aka logs) equal to or greater than 12 inches diameter (or largest available) per acre should be left on the ground to satisfy 10.1 logs per acre for wet-cold conifer forests (RMP Action FW-2.4.3). If accomplished, then the effects to blue grouse would be reduced.

Migratory Birds

Direct and Indirect Effects. The proposed action would remove an average of 73% of trees, which provide both nesting and feeding opportunities for migratory birds, on 264 acres of fuels reduction and vegetation treatment units. The number of trees would not return to 100% on fuel reduction units during the next 50 years, but young trees would achieve 100% ten years later on the vegetation treatment units. This reduction of trees would open the canopy by an average of 55% on these units. Fifty years would pass, however, before the average canopy cover for all units would return to 100% of pre-treatment values. Meanwhile, bird species which prefer closed tree canopy such as Swainson's Thrush would be replaced by bird species which prefer open tree canopy such as Chipping Sparrow (Rosenberg and Raphael 1984). The populations of migratory birds which nest in the forest canopy are expected to initially decrease on 264 acres as the crown volume, crown area, and biomass are anticipated to decrease 50-60%. However, these animals may return to these areas 30-40 years later as the forest canopy returns to 100% of pre-treatment values.

As living trees die, they provide additional nesting opportunities for migratory birds which excavate and nest inside cavities in the boles. Not all snags are created equal, however, because trees smaller than 12 inches DBH are less valuable than trees larger than 12 inches DBH. The average number of snags equal to or greater than 12 inches for all treatment units would decrease from 7.5 to 5.6 per acre during the first 40 years following treatment. This apparent trend is less than the 8.1 per acre for wet-cold conifer forests (page 11 of this document) identified by RMP Actions FW-2.2.1 and FW-2.2.4. Therefore, the population of migratory birds which nest in tree cavities would consequently decrease on 264 acres of treatment units.

The potential for a stand replacement wildfire would be increased with the **No Action Alternative** (page 13 of this document). A wildfire would create habitat for migratory birds which nest in tree cavities (Hejl et. al. 1995, Brown and Bright 1997, Smith 2000). Meanwhile,

local populations of birds would not be effected by activities associated with the removal fuel and vegetation from the forest.

Cumulative Effects. No single silvicultural treatment will satisfy all the needs of all migratory birds that inhabit the forest. Hejl et.al. (1995) summarized studies where 26 species were generally less abundant in treated areas than unlogged areas and 15 species were generally more abundant in treated areas than unlogged areas. As the forest canopy changes, the less abundant species in treated areas would either experience a population decline or be eliminated from the treatment units until favorable habitat returns (Whitcomb et.al. 1981). Consequently, populations of 11 migratory bird species (N=26-15) would be negatively affected by the proposed action and other anticipated actions for about one-third of the cumulative effects area defined for other wildlife. This means fewer birds to eat the bugs that eat the trees. The cumulative effects of all actions should not adversely impact migratory birds (RMP Action FW-2.2.6) because the total habitat conversion is 12% more than the current condition.

Residual Effects (after mitigation is included). Additional trees equal to or greater than 12 inches DBH should be left standing to satisfy 8.1 snags per acre for wet-cold conifer forests. If accomplished, then the effects to migratory birds that nest in tree cavities would be reduced.

Other Wildlife

Direct and Indirect Effects. As standing dead trees fall to the ground, the resultant logs would provide abundant food and cover for populations of many small wildlife (Bull et.al. 1997). As the case with snags, logs which are smaller than 12 inches diameter are less valuable than logs larger than 12 inches diameter. Because of an increasing number of larger snags falling during the first 40 years after treatment, the average number of larger logs for all units would increase from about one to 2.7 tons per acre. If a log is eight feet long, then these values meet or exceed the RMP's requirement of 10.1 logs per acre for wet cold conifer forest. Consequently, many populations of grouse and other small wildlife would benefit from the proposed action.

All treatment units would initially loose elk hiding cover, but it would return to pretreatment values about ten years later. All treatment units would reduce thermal cover for elk by about one-half and return to pre-treatment values 50 years later. This reduced cover for elk is a reflection of reduced canopy cover for migratory birds.

Slashing and burning 307 acres of existing brush fields would improve existing forage for deer and elk during winter. The following list of EAs should adequately address the potential effects from this portion of the current proposed action.

Environmental Assessments for previous brush slashing and prescribed fires within the Placer Creek drainage.			
NEPA Document	**Action Name**	**Action Type**	**Legal Location**
EA ID060-80-13	Placer Creek	Brush Slashing	T47N R04E Sec. 03
EA ID060-81-03	Placer Creek HMP	Activity Plan	T48N R04E Sec. 34
EA ID060-90-20	Placer Creek Burn	Prescribed Burn	T48N R04E Sec. 34
EA ID060-91-11	Red Oak Hord Gulch	Prescribed Burn	T47N R04E Sec. 02
EA ID060-97-10	Placer Creek II	Prescribed Burn	T47N R04E Sec. 03
EA ID080-01-04	Cranky Gulch	Prescribed Burn	T47N R04E Sec. 03

Road densities provide a surrogate for evaluating animal security. The Idaho Fish and Game has learned that (1) elk in roaded habitats are more than twice as likely to be killed by a hunter than those in unroaded areas; (2) selective road closures help reduce the number of bull elk taken and allowed longer hunting seasons; (3) the number of hunters in an area is often directly related to the number of roads; and (4) with more roads (i.e. easy access) and more hunters in an area, more elk are taken, resulting in lower bull:calf ratios and fewer mature bulls. The proposed action would slightly improve animal security by reducing 1,493 feet of permanent road and installing one gate.

Control of noxious weeds promotes more native vegetation as food for wildlife.

The potential for a stand replacement wildfire would be increased with the **No Action Alternative** (page 13 of this document). A wildfire would create forage for animals such as deer, elk, moose, bear, and small mammals (Smith 2000). Stand replacement fires can also create habitat for animals which den and nest in tree cavities (Hejl et. al. 1995, Brown and Bright 1997). Meanwhile, local populations of wildlife would not be effected by activities associated with the removal fuel and vegetation from the forest.

Cumulative Effects. The cumulative effects area for deer, elk, and moose is bounded by Interstate 90 to the north, Rock Creek to the east, and Placer Creek to the south and west (Appendix), which encompasses 5,185 acres of forested land. Approximately 1,088 acres presently provides mostly forage, while the remaining 4,137 acres provides mostly cover. This represents a ratio of 21% forage to 79% cover. The existing and anticipated amounts of forage areas will change these values to 1,722 acres of forage, which represents 33% forage to 67% cover. Considering the standard measurement is 60% forage and 40% cover for elk, the proposed action is moving in a positive direction for these animals.

Residual Effects (after mitigation is included). Additional dead surface fuels (aka logs) equal to or greater than 12 inches diameter (or largest available) per acre should be left on the ground to satisfy 10.1 logs per acre for wet-cold conifer forests. If accomplished, then the effects to small animals would be reduced.

VI. TRIBES, INDIVIDUALS, ORGANIZATIONS OR AGENCIES CONSULTED

Ronald Garitone: Mayor of Wallace
Vince Vergobbi, Sherry Krulitz, Jon Cantamessa & Vince Rinaldi: Past and Present Shoshone County Commissioners'
Coeur d'Alene Tribe of Idaho
Idaho Department of Fish & Game
US Forest Service – Fernan and Silver Valley Offices
US Fish and Wildlife Service
Idaho Conservation League
Kootenai Environmental Alliance
The Ecology Center
The Lands Council
Idaho State Historic Preservation Office
Idaho Native Plant Society

VII. LIST OF PREPARERS

Larry Kaiser, Forester: Project Coordinator, Air Quality, Economics	Date
Matthew Werle, Archaeologist: Cultural Resources	Date
Cindy Weston, Fisheries Biologist: T&E Fish Species	Date
LeAnn Abell, Botanist: Plants, T&E Plant Species, Vegetation	Date
Kurt Pindel, Fire Ecoclogist: Fuels	Date
Doug Evans, Biological Technician: Invasive, non-native vegetation	Date
Brian White, Recreation Planner: Recreation and VRM	Date
Mike Stevenson, Hydrologist: Water & Soil Resources	Date
Scott Robinson, Wildlife Biologist: T&E Animal Species	Date
Stephanie Snook, P&E Coordinator: EA Review	Date

VIII. APPENDICES

Appendix I – Proposed Project Area Map

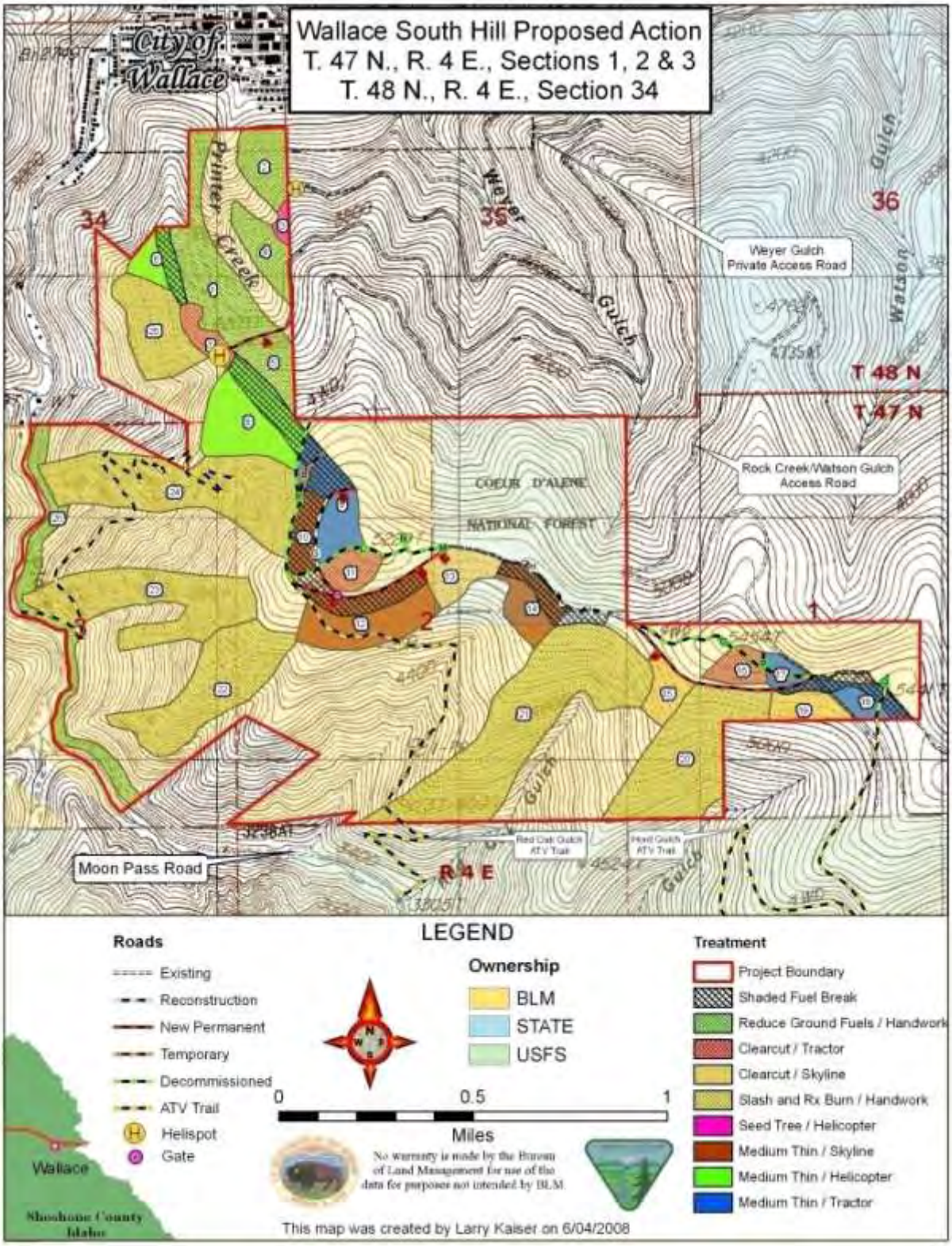
Appendix II – Forestry Maps and Data

Appendix III – Fuels Data for trees < 8 DBH

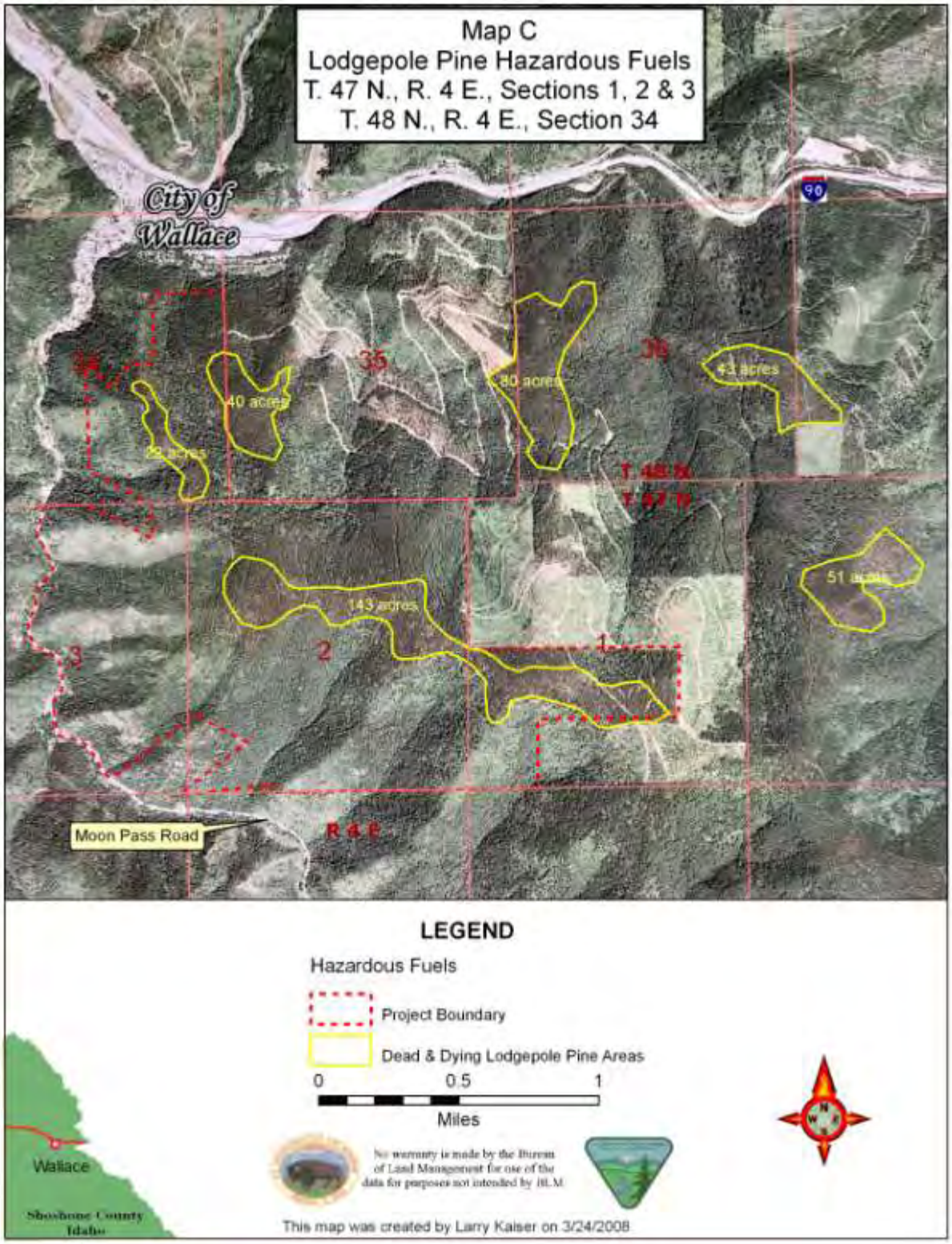
Appendix IV – Wildlife Maps

Appendix V – References

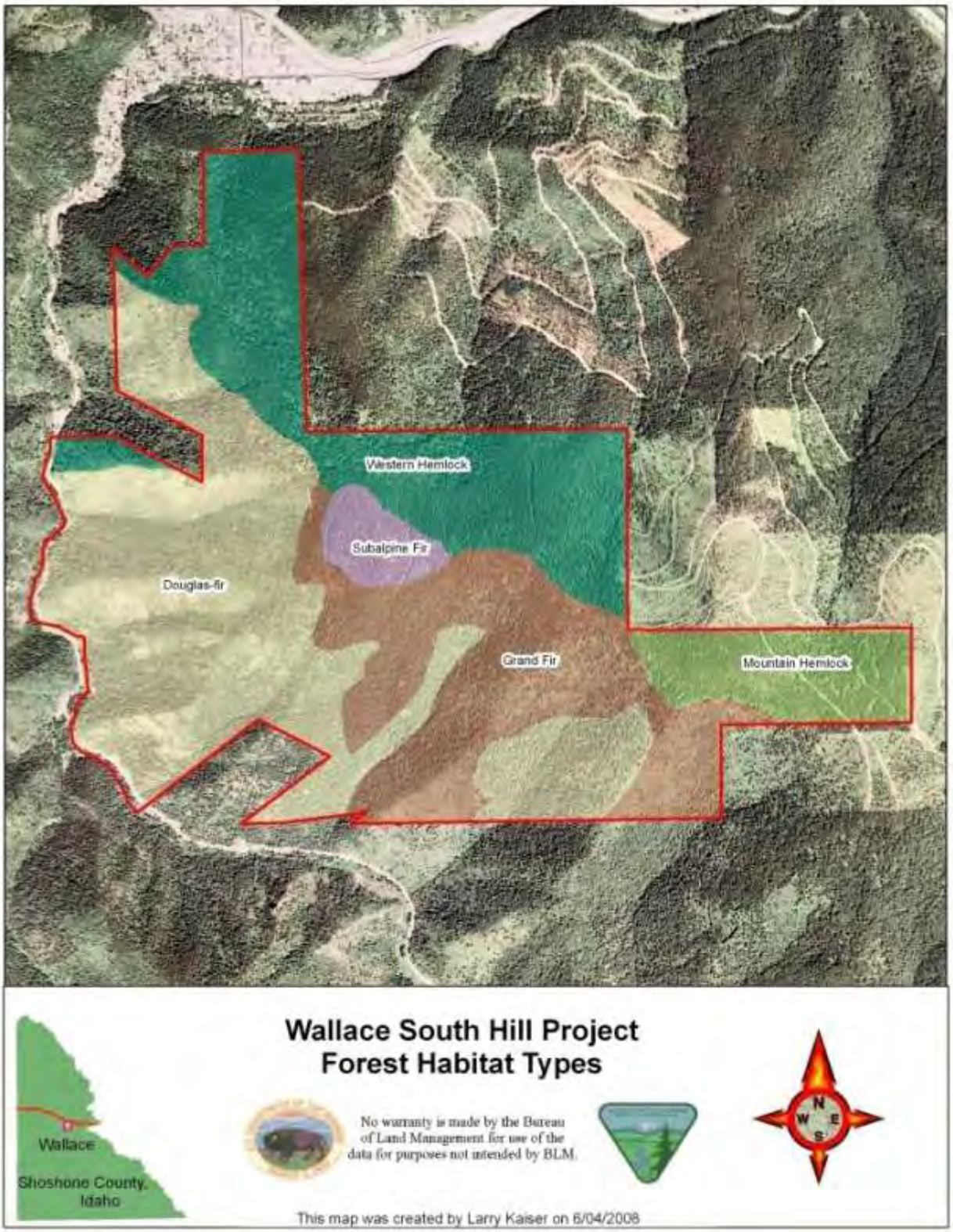
Appendix I


Wallace South Hill Proposed Action
T. 47 N., R. 4 E., Sections 1, 2 & 3
T. 48 N., R. 4 E., Section 34
City of Wallace
Pritter Creek
Weyer Gulch
Watson Gulch
Weyer Gulch Private Access Road
Rock Creek/Watson Gulch Access Road
T 48 N
T 47 N
COEUR D'ALENE NATIONAL FOREST
Moon Pass Road
R 4 E
LEGEND
Roads
Existing
Reconstruction
New Permanent
Temporary
Decommissioned
ATV Trail
Helispot
Gate
Ownership
BLM
STATE
USFS
0
0.5
1
Miles
No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.
Treatment
Project Boundary
Shaded Fuel Break
Reduce Ground Fuels / Handwork
Clearcut / Tractor
Clearcut / Skyline
Slash and Rx Burn / Handwork
Seed Tree / Helicopter
Medium Thin / Skyline
Medium Thin / Helicopter
Medium Thin / Tractor
Wallace
Shoshone County Idaho
This map was created by Larry Kaiser on 6/04/2008

Appendix II.1



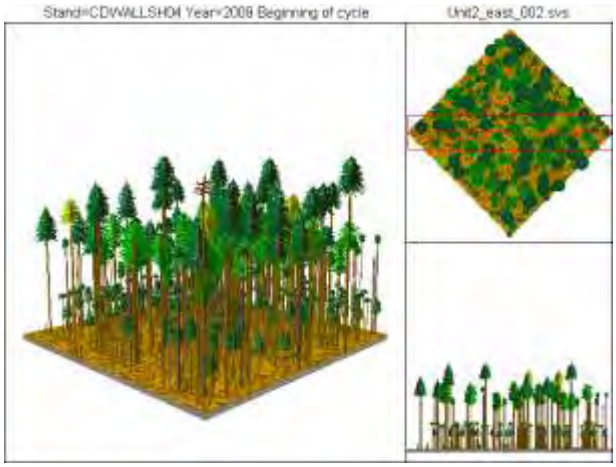
Appendix II.2

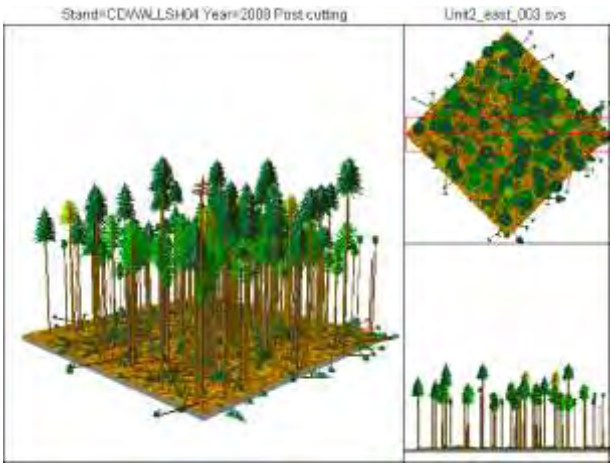


Wallace South Hill Silvicultural Prescription Datasheet

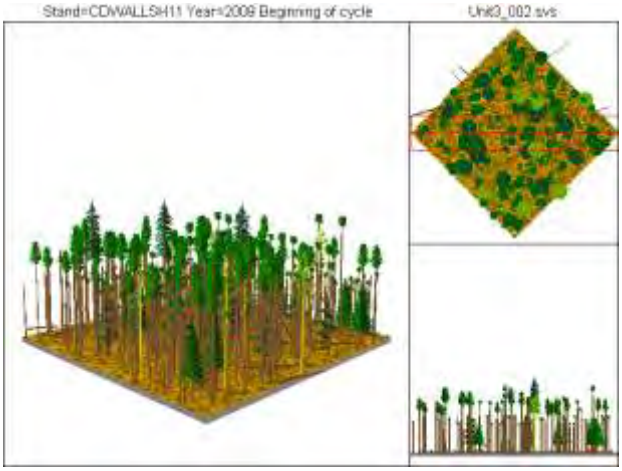
Pre-treatment Stand Characteristics								Post-treatment Stand Characteristics						
2004 & 2005 - 2006 Inventories							Silviculture	Leave Stand Attributes			Harvest Attributes			
Unit #	**Stand #**	**Unit %**	**Species Comp**	**all T/A**	**T/A >8"**	**MBF/ ac**	**Treatment Rx**	T/A >8"	Tree Spacing	MBF /ac.	T/A >8"	MBF /ac.	ac	Gross Vol. (MBF)
1	05	1.0	**LP** GF DF WL	174	123	33	Thin all trees <6"	123	19	33	n/a	n/a	33	0
2	03	0.5	**GF DF** WP	619	171	28	Thin all trees <6"	264	13	32	n/a	n/a	14	0
	04	0.5	**GF** LP DF WP WL	559	193	30		180	16	34				
	Weighted Avg.		***GF DF** WP*	*589*	*182*	*29*		222	*14*	*33*				
3	11	1.0	**LP GF** DF WH WRC	748	251	21	Thin all LP & all trees <14"	38	34	3	213	18	2	36
4	11	1.0	**LP GF** DF WH WRC	748	251	18	Thin all trees <6"	251	13	18	n/a	n/a	0	0
5	09	1.0	**GF LP WP** WL	504	181	25	Thin all trees <6"	181	15	25	n/a	n/a	0	0
6	970	0.5	**GF WRC** DF WH AF LP	721	50	8	Thin all trees <11"	30	38	4	20	2	10	20
7	15	1	**GF** LP DF WP	4,134	606	53	Clearcut with reserve trees	0	n/a	0	606	53	7	371
8	1070	0.5	**LP DF GF AF** ES WL PP	608	178	29	North half - thin all LP <13" South half - thin all trees < 11	43	32	15	112	14	31	434
	23	0.5	**LP** DF GF WP	608	178	11		50	30	12	76	3		93
	Weighted Avg.		***LP DF GF** WL AF*	*608*	*178*	*20*		*46*	*31*	*14*	*94*	*9*		0
9	1070	0.4	**LP GF DF AF** ES WL PP	644	239	29	North half- thin all LP South half- thin all LP<12	66	26	15	161	14	20	280
	2590	0.6	**LP AF** DF WL	509	247	26		46	31	12	194	14		280
	Weighted Avg.		***AF LP WH** WL DF ES*	*577*	*243*	*28*		*56*	*29*	*13*	*178*	*14*		0
10	62	1.0	**LP WL GF** DF	511	142	21	Thin all trees <10" Thin all LP < 15"	56	28	11	201	10	9	90
11	32	1.0	**LP** DF WH AF	2,821	237	24	Clearcut with reserve trees	0	n/a	0	274	24	9	216
12	37	1.0	**DF** WL	221	131	31	Thin all trees <16"	62	27	23	154	9	30	270
13	32	0.7	**LP** DF WH AF	2,821	237	25	Clearcut with reserve trees	0	n/a	0	179	19	12	228
	1330	0.3	***GF DF** LP MH AF*	384	42	*6*								
	Weighted Avg.		***LP DF** GF WL AF*	*2,090*	*179*	*19*								
14	1330	1.0	***GF DF** LP MH AF*	384	42	6	Thin all LP & Thin all trees <12"	41	33	2	2487	18	15	270
15	58	1.0	**GF LP**	335	130	17.4	Clearcut with reserve trees	0	n/a	0	130	15	9	135
16	59	0.6	**LP AF** MH WP DF WL	478	212	19.3	Clearcut with reserve trees	0	n/a	0	212	11	7	77
17	59	1.0	**LP AF** MH WP DF WL	478	212	19.3	Thin all trees <9"	50	30	6	180	6	5	30
18	59	1.0	**LP AF** MH WP DF WL	478	212	19.3	Thin all trees <10"	50	30	6	441	6	11	66
19	59	1.0	**LP AF** MH WP DF WL	478	212	19.3	Clearcut with reserve trees	0	n/a	0	163	11	9	99

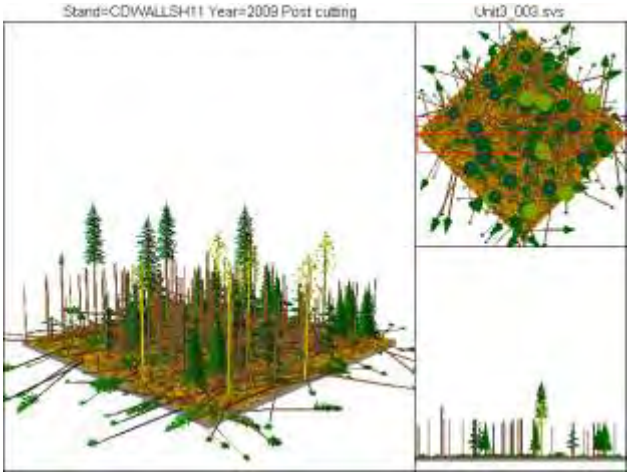
Unit 2 - Pre and Post Hazardous Fuels Reduction Actions



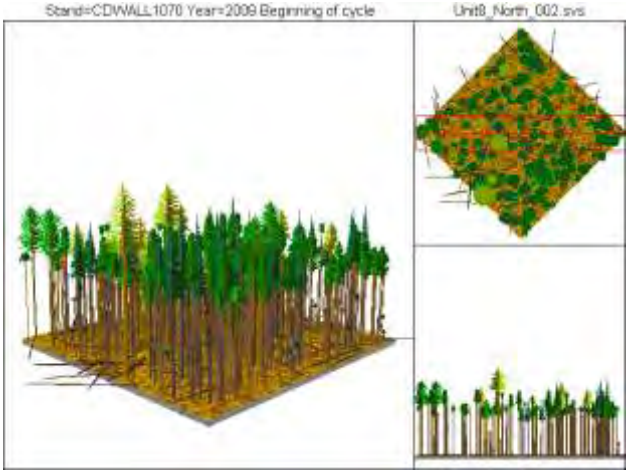


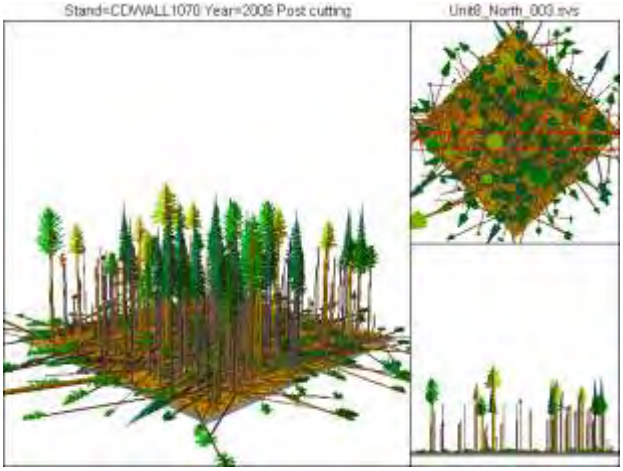
Unit 3 - Pre and Post Harvest





Unit 8 - (North part) Pre and Post Harvest





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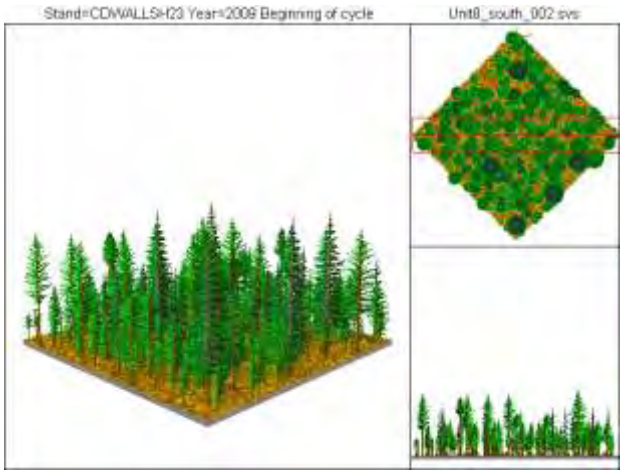
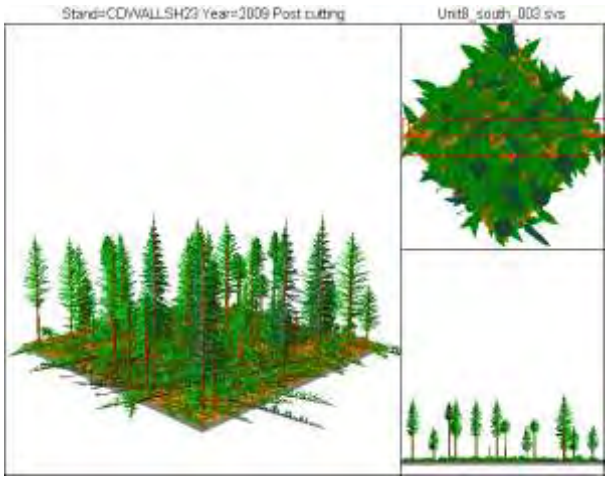
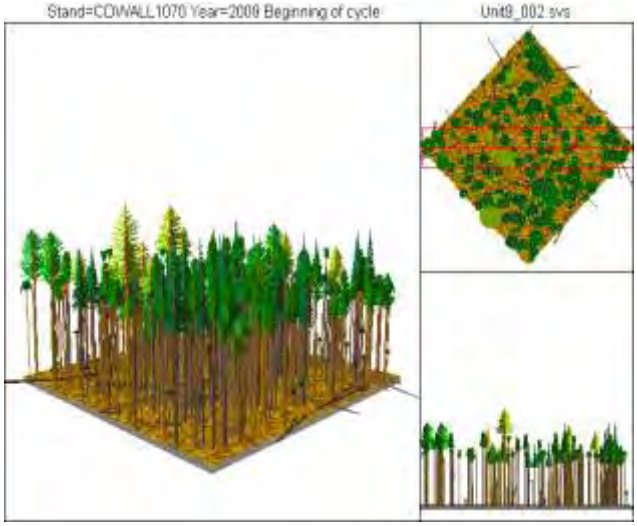
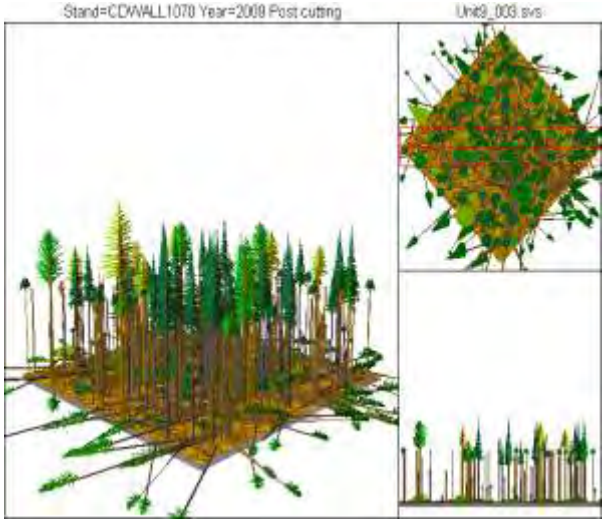




Unit 9 (north part) Pre and Post Harvest





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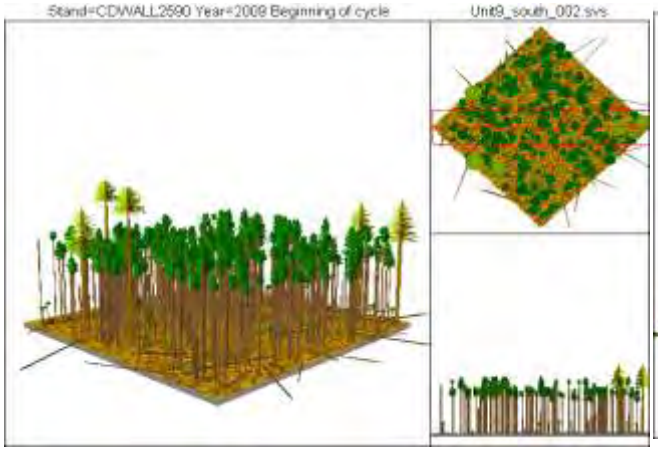
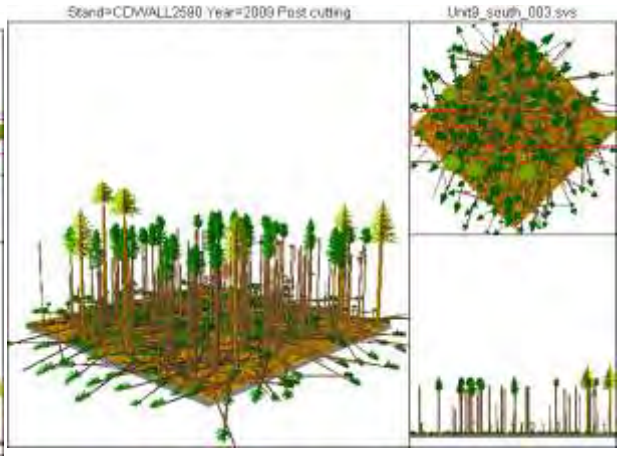
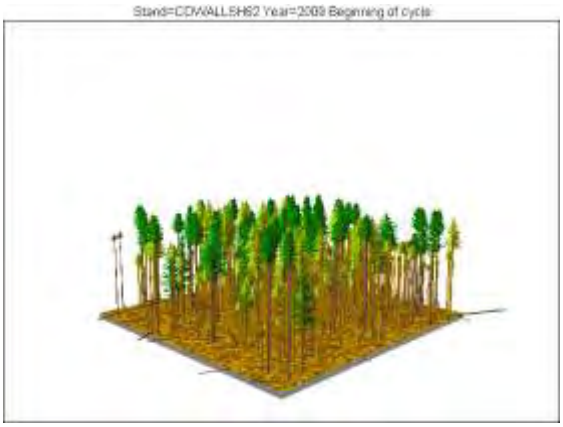
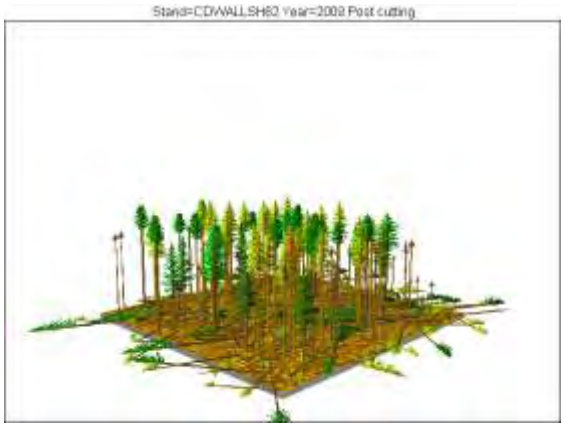




10 Pre and Post Harvest Unit





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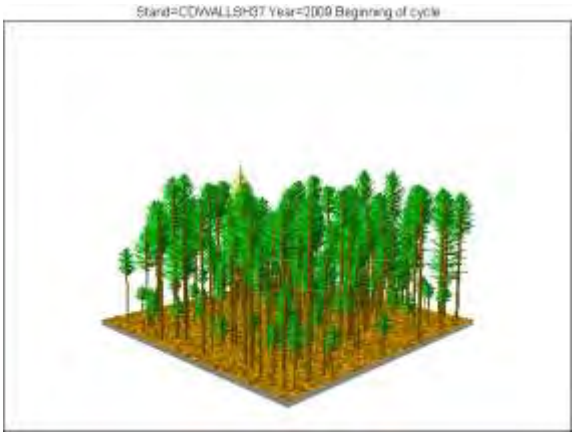
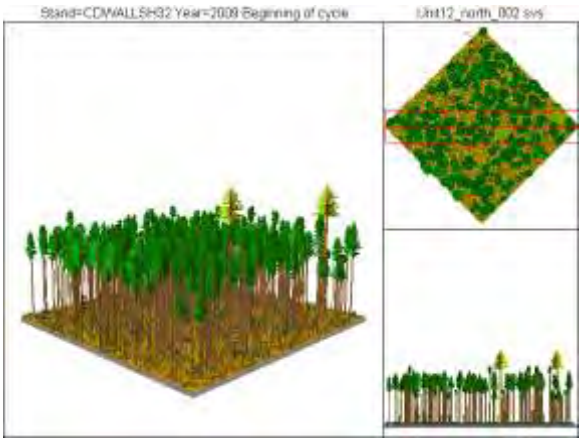
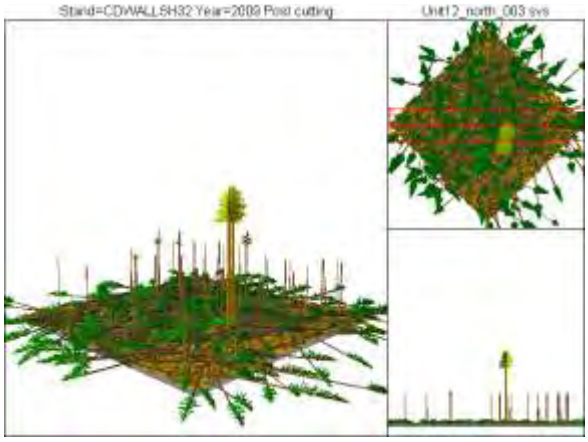


Unit 13 (north part) Pre and Post Harvest





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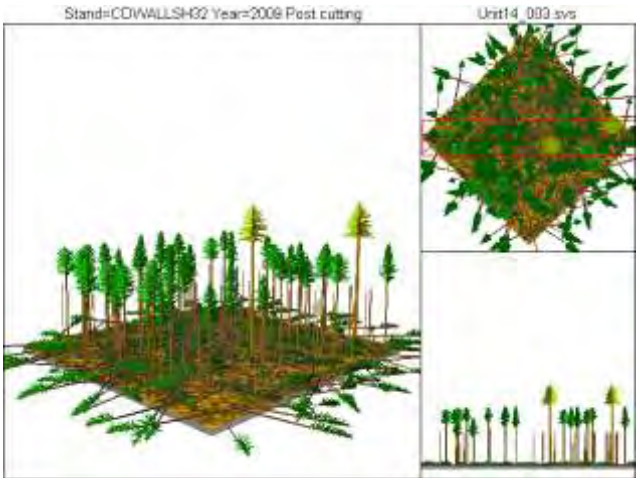
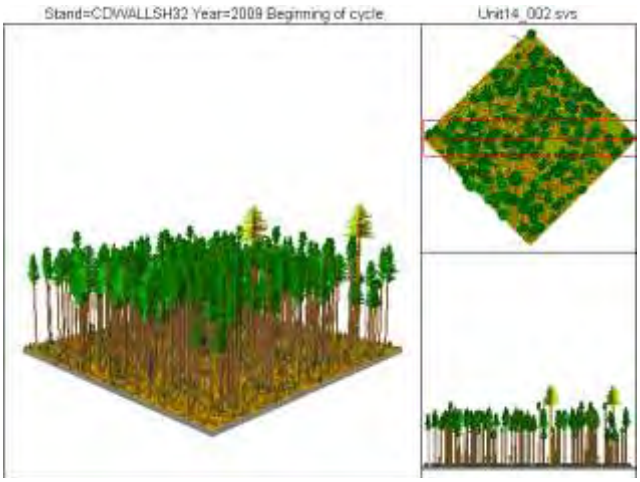
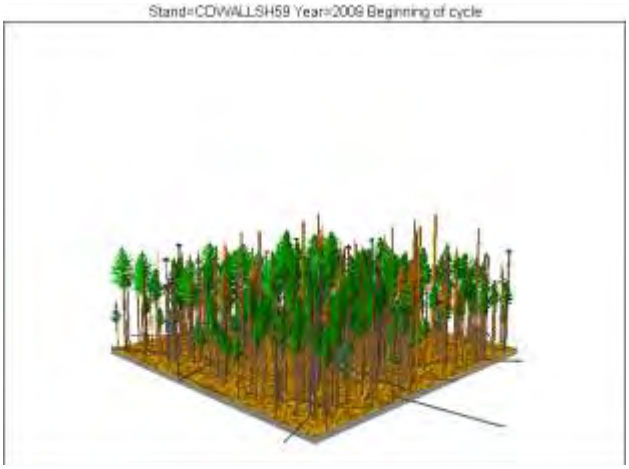
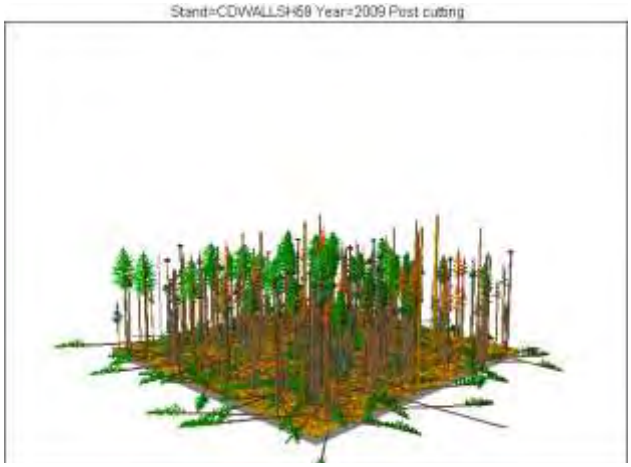




Unit 17 Pre and Post Harvest





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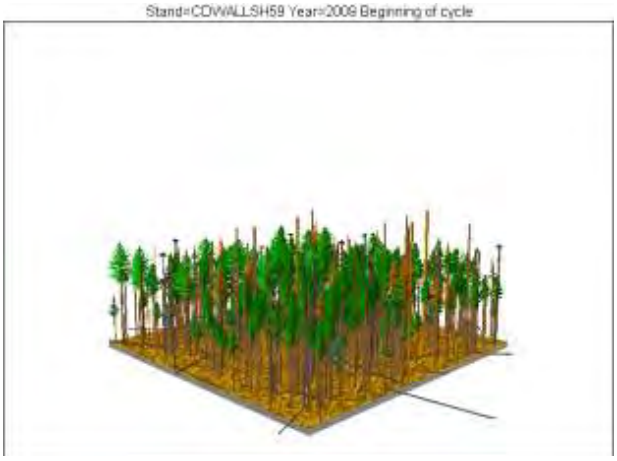
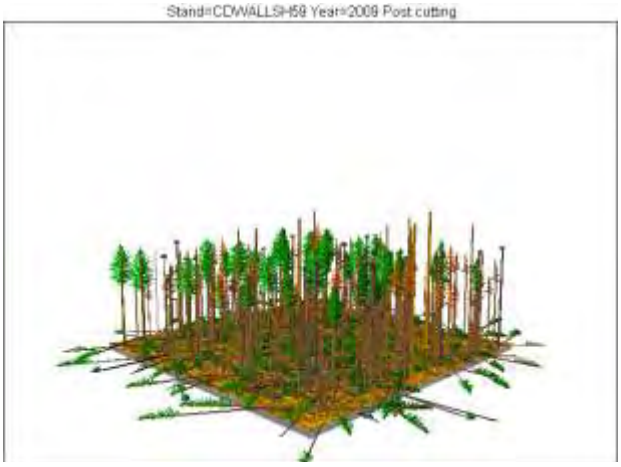
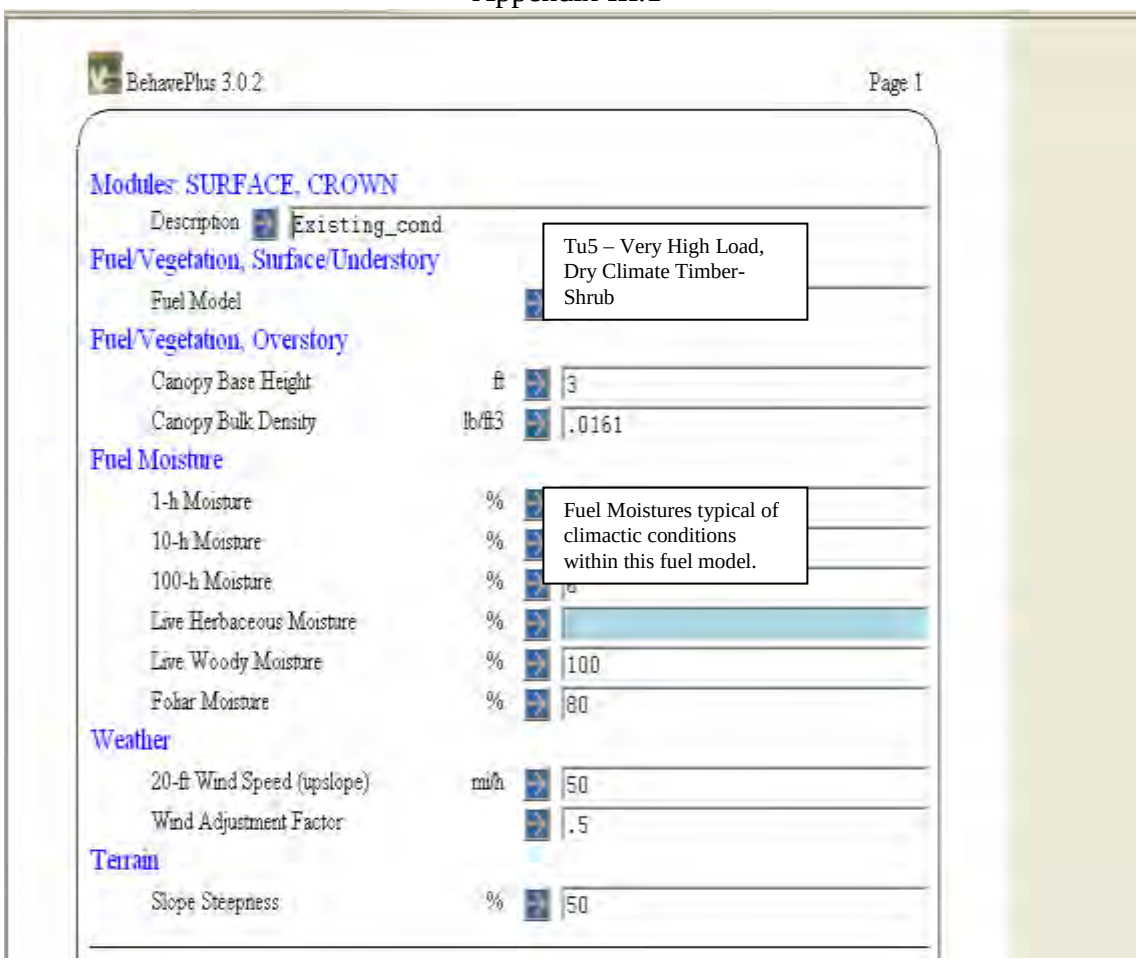




Appendix III.1



The above BEHAVEPLUS models are the parameters used to calculate whether a wildland fire within the project area, within this fuel type, would convert from a surface fire to a crown fire. The results are listed in Appendix 2.

Appendix III.2

BehavePlus 3.0.2 Wed, Apr 02, 2008 at 16:38:46 Page 3

Existing_cond

Surface Rate of Spread (maximum)	62.7	ch/h
Heat per Unit Area	2733	Btu/ft2
Fireline Intensity	3140	Btu/ft/s
Flame Length	18	
Critical Surface Intensity		
Critical Surface Flame Length	2	
Transition to Crown Fire ?	Y	
Crown ROS	210	
Critical Crown ROS	34.7	ch/h
Active Crown ?	Yes	
Fire Type	Crowning	

These results indicates a wildland fire within the current model would convert from a surface fire to a crown fire.

Appendix III.3

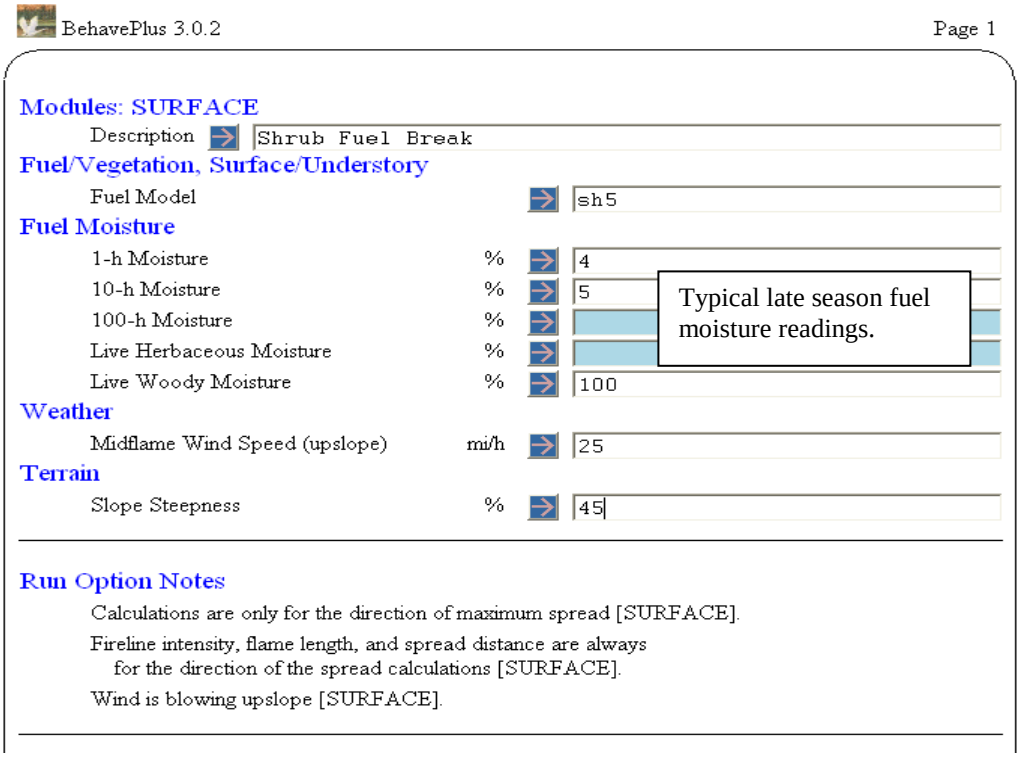
BehavePlus 3.0.2 Wed, Apr 02, 2008 at 16:41:44 Page 3

Post_treatment

Surface Rate of Spread (maximum)	29.8	ch/h
Heat per Unit Area	390	Btu/ft2
Fireline Intensity	213	Btu/ft/s
Flame Length	5.3	ft
Critical Surface Intensity	257	Btu/ft/s
Critical Surface Flame Length	5.8	ft
Transition to Crown Fire ?	No	
Crown ROS	210.5	ch/h
Critical Crown ROS	58.8	ch/h
Active Crown ?	Yes	
Fire Type	Surface	

After the proposed treatment, a surface fire would not convert to a crown fire under the same climactic conditions.

Appendix III.4



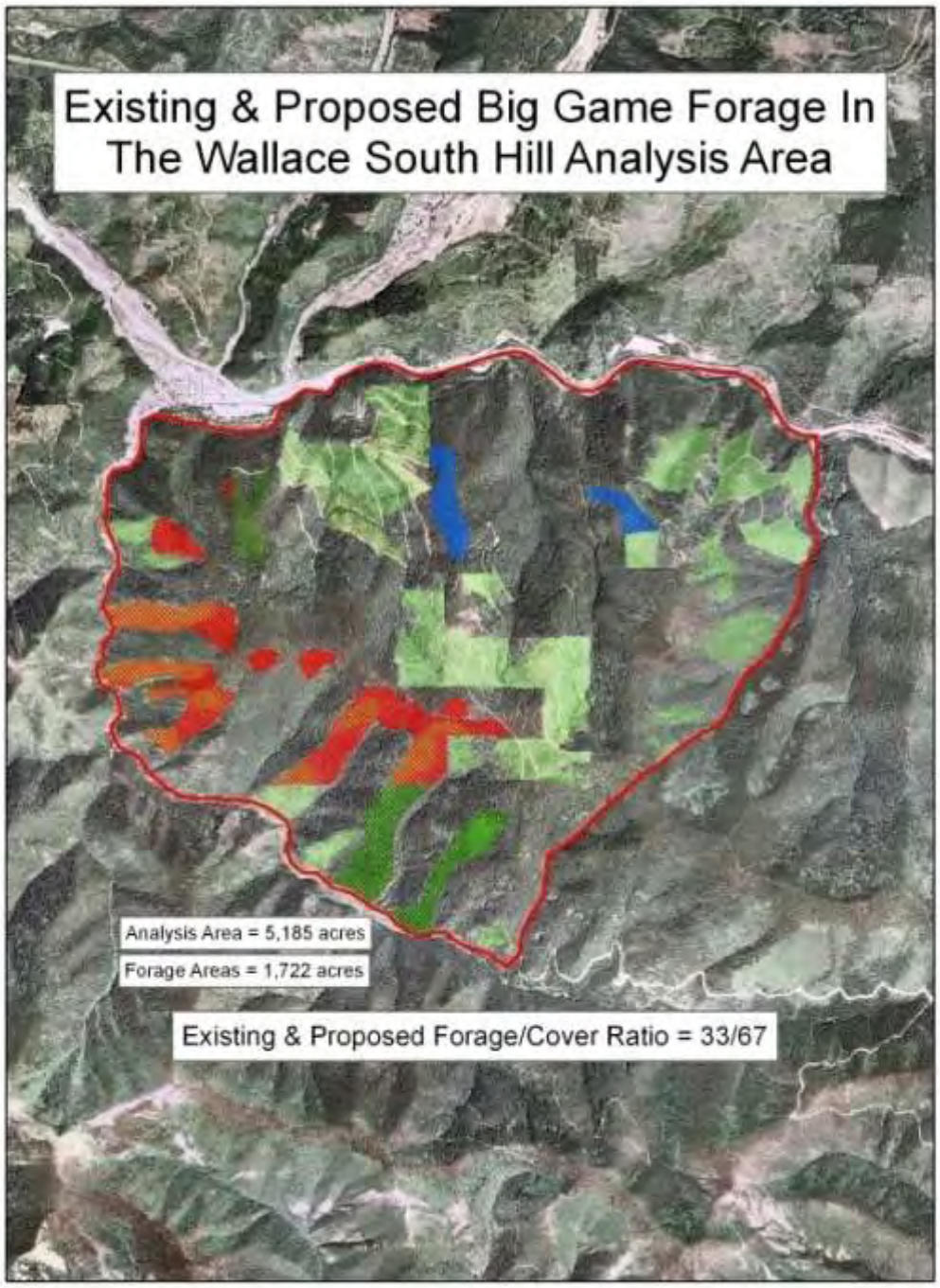
BEHAVE PLUS model inputs to determine the fuel break width necessary to safely protect a firefighter. Sh5 = High Load, Dry climate shrublands.

Appendix III.5

Results of BEHAVEPLUS model, showing safe zone separation distance required for a wildland firefighter in the conditions found on the shrublands near Wallace, ID.

Appendix IV.1

Appendix IV.2


Existing & Proposed Big Game Forage In
The Wallace South Hill Analysis Area
Analysis Area = 5,185 acres
Forage Areas = 1,722 acres
Existing & Proposed Forage/Cover Ratio = 33/67

Introduction and Proposed Action

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