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Coeur d'Alene River Ranger District

Prichard-Murray Resource Area Environmental Assessment

Under Authority of the Healthy Forests Restoration Act

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Part 1. Introduction

Fuel reduction and stand improvement activities have been proposed on National Forest System lands in a 25,000-acre area of the Coeur d'Alene River Ranger District, identified for the purposes of this analysis as the **Prichard-Murray Resource Area** (Figure 1). The resource area is located north of Interstate 90, near the communities of Prichard and Murray, Idaho (Figure 2).

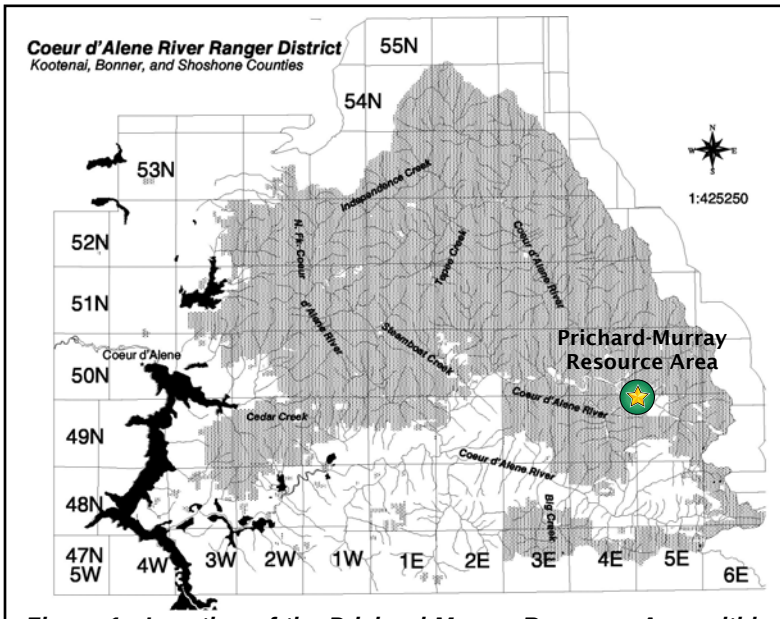


Figure 1. Location of the Prichard-Murray Resource Area within the Coeur d'Alene River Ranger District.

Legal Description

The Prichard-Murray Resource Area includes all or portions of the following sections (Boise Meridian):

T49N, R4E, sections 1, 2;
T49N, R5E, sections 4-9;
T50N, R4E, sections 2, 3, 10-36;
T50N, R5E, sections 19-21, 28-34; and
T50N, R3E, sections 12-14, 23-25

The proximity of the resource area to communities results in a higher incidence of human-caused fires than in remote areas. The Murray-Prichard Volunteer Fire Department provides rural fire protection, while wildfire protection is provided by the Forest Service.

An estimated 74 percent of lands (approximately 18,500 acres) within the project boundary are managed by the Coeur d'Alene River Ranger District of the Idaho Panhandle National Forests (IPNF). The Bureau of Land Management (BLM) manages 6 percent of lands (approximately 1,600 acres) within the boundary, and the remaining 20 percent (approximately 5,000 acres) are privately-owned lands.

Forest Highway 9 is a paved route that connects the communities in the area, following the North Fork Coeur d'Alene River, up the Prichard Creek drainage through Murray, and ascending to the state line at Thompson Pass. Highway 9 would be the primary route for fire suppression crews and equipment, as well as for evacuation of these communities.

There are no developed campgrounds, picnic areas or other structural recreation developments in the area or in the near vicinity. The only recreation trail in the resource area is Trail 151, which begins on National Forest land at Kings Pass and ends on private land at Sunset Peak. The 8-mile trail follows old roads and is maintained for ATV use. Bicycle, motorcycle and foot travel also occur.

The Prichard-Murray Resource Area also includes portions of three roadless areas, including 477 acres of the Lost Creek Roadless Area, 4,854 acres of the Trouble Creek Roadless Area and 267 acres of the Maple Peak Roadless Area (Figure 2). Further discussion of these roadless areas is provided in Section 4.G (Environmental Impacts to Other Resources – Recreation) and the Specialist's Report on Recreation.

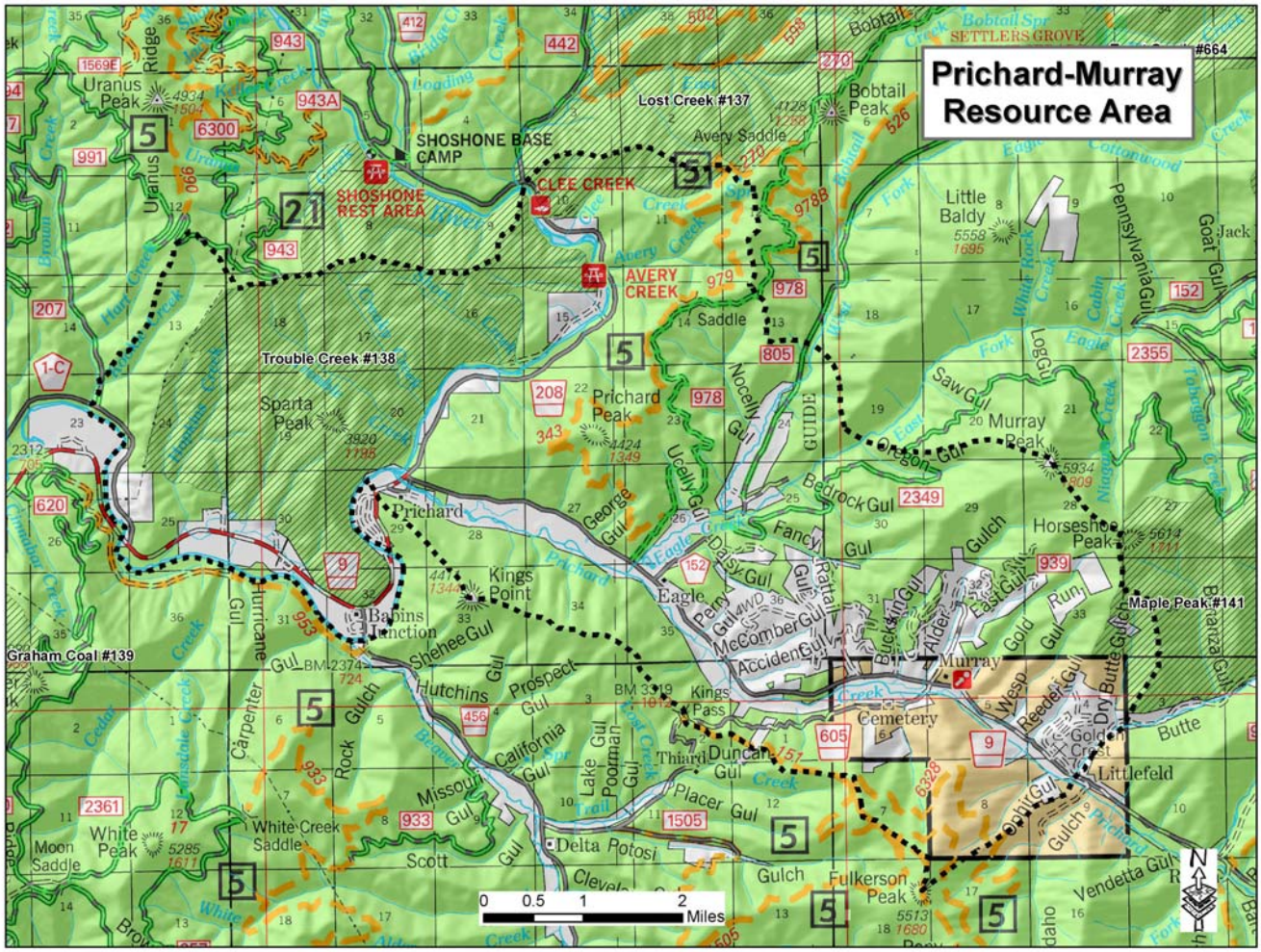


Figure 2. Vicinity Map of the Prichard-Murray Fuel Reduction Project Area. *(National Forest System lands are represented by green shading; BLM lands are represented by tan shading; and private ownership is represented by white shading. Areas designated for roadless management are represented by hatching.)*

Part 2. Need for the Proposal

Prichard and Murray are among several communities in Shoshone County that were identified as being at high risk from wildfire in a 2001 USDA Forest Service/USDI BLM report, "Urban Wildland Interface Communities Within the Vicinity of Federal Lands That Are at High Risk From Wildfire," (Federal Register pages 43384, 43403, and 43404; Project File Doc. CR-027). The intent of the list is to help federal land agencies, working with State, Tribal, and local partners, accurately assess the level of wildfire risk and the types and extent of treatments required to mitigate the risk.

This specific project was initiated by the Coeur d'Alene River Ranger District in response to the Shoshone County Fire Mitigation Group's "Wildland Urban Interface Fire Mitigation Plan" (also known as the Community Wildfire Protection Plan, or CWPP; Project File Doc. CR-020). The Community Wildfire Protection Plan recognizes the threat that wildfires pose to the county, and recommends management that would decrease this risk. One of their goals is to reduce the rate of fire spread and acres of land burned by forest fires through the implementation of targeted fuel mitigation treatments where the landscape has the potential to sustain fires that threaten communities in the rural urban interface. Based on the lay of the land, wind patterns, and historical events, a large wind-driven fire (even one much smaller than the 1910 fire) could seriously threaten these communities, as well as many other homes and businesses throughout the area.

Figure 3. A home directly adjacent to National Forest, with dense vegetation within feet of the home.

Figure 4. Another example of hazardous fuel loading in the wildland-urban interface near Murray. Downed trees in the foreground are 8 to 10 inches in diameter.

Shoshone County's Community Wildfire Protection Plan identifies the area surrounding the Prichard and Murray communities as a priority for treatment (Shoshone County Community Wildfire Protection Plan, Project File Document CR-020, pages 73-75, 85-86) based largely on the following reasons:

- *Approximately 65 buildings around the community of Murray, 164 buildings near Prichard, and an Avista powerline are at high-risk to wildfire loss in the event of a wildfire in the region.*

- *Forest health issues have created a significant component of dead and dying trees that will increase the fire intensity in the event of a fire ignition.*

- *For fuel reduction activities in specific communities and neighborhoods to have a substantial impact, aggressive, active forest management activities are needed in the forests that surround these communities.*

These findings are supported by the field reconnaissance and information gathering done by Prichard-Murray Project Team members who specialize in fire and fuels management and in silviculture (for more information, please refer to the Specialist's Reports on Fire/Fuels Management and Forest Vegetation, Project File Documents SR-01 and SR-02).

As currently unmanaged stands age and exhibit less resiliency to insects, disease and fire, the opportunities to achieve desired structural characteristics and species composition would be increasingly limited. Activities are needed to interrupt the pattern of vegetation, which would reduce the potential for high-intensity fires, reduce fire risks, and improve forest composition and structure (Brackebusch, 1973, PF Doc. FF-8). No single management prescription will achieve multi-resource objectives across all stands within a landscape. Silvicultural systems using density and species management, along with the carefully planned use of prescribed fire, are key to managing western forests. Based on current and desired conditions, proposed activities have been identified that would:

- ***Fuel/Fire Behavior Conditions:*** *Reduce dense fuel conditions so potential fire behavior would be less intense and severe.*

- ***Species Composition:*** *Increase the proportion of resilient species composition (western larch, ponderosa pine and white pine) so stands are healthier with less fire risk.*

- ***Structural Stages and Patch Sizes:*** *Create a mosaic of healthy stands that vary in age, tree diameter, and canopy (structural stages) and patch sizes.*

Each of these topics is discussed in the following sections and described further in the Specialist's Reports on Fire/Fuels and Forest Vegetation (Project File Documents SR-01 and SR-02). Effectiveness of each alternative in addressing these concerns is provided in Section 3.D.

2.A. Fuel/Fire Behavior Conditions

The Fire/Fuels effects analysis for the Prichard-Murray Resource Area proposal was based partly on **Fire Regime Condition Class** (FRCC) and potential fire behavior and effects. Fire Regime Condition Class is a classification of the departure from the natural regime of vegetation characteristics, fuels composition, fire frequency, severity and pattern, and other associated disturbances (PF Doc. SR-01, p. FF-6).

Desired fuel/fire behavior conditions: The amount of forest fuels in the Prichard-Murray Resource Area would be reduced so that potential fire intensity and severity would be less than currently exists. Conditions in the Prichard-Murray Resource Area would trend toward a low risk of losing key ecosystem components such as native species, large trees, and soil resources (Fire Regime Condition Class 1) and away from the moderate to high risk of losing key ecosystem components (Fire Regime Condition Classes 2 and 3).

Current fuel/fire behavior conditions: As displayed in Table 1, 31% of the area is identified as being at low risk of losing key ecosystem components; none of the stands are identified as being at moderate risk (Fire Regime Condition Class 2) and the remaining 69 percent of stands are at high risk (Fire Regime Condition Class 3).

Table 1. Stand Level Fire Regime Condition Classes and the existing percent of National Forest System lands in the Prichard-Murray Resource Area in each class. *(See Specialist's Report on Fire/Fuels, Project File Document SR-1; pages FF-6 and FF-8).*

Fire Regime Condition Class	% of NFS lands in the Resource Area
Fire Regime Condition Class 1 – LOW RISK of loss of key ecosystem components.	**31**
Fire Regime Condition Class 2 – MODERATE RISK of loss of key ecosystem components.	**0**
Fire Regime Condition Class 3 – HIGH RISK of loss of key ecosystem components.	**69**

Actions needed to achieve the desired fuel/fire behavior conditions: A combination of tree removal and fuels reduction treatments are needed to reduce forest fuels. Thinning is needed to reduce ladder fuels, making it harder for a fire to climb into the crowns of trees. Reducing horizontal fuel continuity (brush, low vegetation, and the woody fuel layer) would disrupt the progress of surface fires, limit buildup of fire intensity, and reduce the probability of a spot fire ignition. Thinning would also reduce crown fuels and the crown fire potential of the stand. Prescribed burning is needed in brush fields to reduce fuels and to facilitate their use as fuel breaks. Construction of fuelbreaks near homes is needed to reduce the risk of loss in the event of a wildfire. The net effect of these activities would be to trend lands in the Prichard-Murray Resource Area toward a low risk of key ecosystem components.

2.B. Species Composition

Desired species composition: As displayed in the table below, western larch, ponderosa pine, and white pine would account for at least 35% of species composition across the landscape of the Prichard-Murray Resource Area to provide a level of resilience to the ecosystem, helping to develop sustainable forest conditions. Long-lived seral tree species are better adapted and more resilient in the mixed and low severity fire regimes and other disturbances of northern Idaho. These desired conditions are consistent with Forest Plan Goal #24, Objective L-timber, and Objective T-forest protection (Forest Plan, pages II-2, II-8 and II-10; PF Doc. CR-002).

Existing species composition: Long-lived seral species (white pine, western larch and ponderosa pine) have declined as a result of the introduction of white pine blister rust, timber harvesting, and the role of fire. Combined, these species represent only 4 percent of the forest cover types in the Prichard-Murray Resource Area. The current forest cover types consist of much more Douglas-fir, grand fir, western hemlock, and cedar than they likely did historically, accounting for approximately 88 percent of the Prichard-Murray Resource Area forest cover types. Douglas-fir and grand fir are the most susceptible species to root diseases in the Prichard-Murray Resource Area (Specialist's Report on Forest Vegetation, p. VEG-8). As a result of this trend, there is risk of increased fire severity and a lower level of resilience in the ecosystem.

Table 2. Desired and existing species composition (by forest cover type) in the Prichard-Murray Resource Area (does not include nonforest).

Forest Cover Type	Existing (%) species composition on NFS lands in the Resource Area	Desired (%) species composition on NFS lands in the Resource Area
white pine, larch and ponderosa pine	4	35-45%
lodgepole pine	2	5-15%
Douglas-fir, grand fir, western hemlock and cedar	88	15-30%
subalpine fir and mountain hemlock	1	<5%

Actions needed to achieve desired species composition: Stands need to be tended or regenerated to increase the amount of long-lived, fire-resilient western larch and ponderosa pine, and fire-dependent white pine, decreasing the amount of Douglas-fir and grand fir that are more susceptible to insects and diseases. Thinning and prescribed burning are needed in stands of western larch that are approaching the 70 to 100-year age class to maintain the larch over the long term, resulting in healthier stands with increased fire resilience. Regeneration activities are needed in stands with high tree losses to insects and disease.

2.C. Structural Stages and Patch Sizes

Desired structural stages and patch sizes: As displayed in Table 3, approximately 10 to 30% of stands in the Prichard-Murray Resource Area would be in the young stages, 20 to 40% in the middle-aged stages, and 40 to 55% in the mature and old stages. A mosaic of successional stages would disrupt the spread of wildfire or insects and disease. As displayed in Table 4, patch sizes would range from hundreds to thousands of acres, with a minimum of 200 to 700-acre patches with connectivity where possible. These desired conditions are consistent with Forest Plan Goal #16 and Forest Protection Objective T (Forest Plan, pages II-2 and II-10; PF Doc. CR-002).

Existing structural stages and patch sizes: Large fires and insect and disease mortality have dramatically shaped the structural stages found in the Prichard-Murray Resource Area today (Specialist's Report on Forest Vegetation, p. VEG-15). As displayed in Table 3, the Prichard-Murray Resource Area has 53 percent of small to medium-sized timber in comparison to the desired condition (between 20 and 40 percent). Landscapes in the area are generally in the middle-aged stage, largely as a result of the 1889, 1910 and 1919 fires (refer to Figure FF-4 in the Specialist's Report on Fire/Fuels, which is a map depicting fire history in the resource area). The fires are also largely responsible for the patch sizes found in the area. Currently, the average patch size (see Table 4) in the young stage is 36 acres, which is small because the landscape has a number of natural nonforest shrub-dominated features that tend to decrease the overall patch size of this stage. The average patch size in the small-medium structural stage is within the desired range (257 acres), and the average patch size in the mature/large stage is close but somewhat below the desired range (173 acres).

Table 3. Desired and existing (%) structural stages on National Forest System lands in the Prichard-Murray Resource Area.

Structural Stage	Desired (%)	Existing (%)
Shrub/seedling/sapling Stand age is less than 35 years old. May include non-tree cover such as shrubs and sod. Average tree diameter is less than 5 inches at breast height. Some stands may have a considerable number of overstory trees (canopy); others may have no large tree component.	10-30	7
Small/medium timber Stand age is generally 36 to 100 years old. Average tree diameter is greater than 5 inches at breast height. Most stands are quite dense, with high stocking levels and closed canopies.	20-40	53
Mature/large timber Stand age is over 100 years old. Average tree diameter is greater than 9 inches at breast height. Stands unaffected by insect mortality, root disease and other pathogens, fires, or harvest activity will be dense and have fairly closed canopies for the site. Stands affected by these disturbances may have canopies ranging from open to dense. A subset of the mature, large timber structural stage is allocated old growth.	40-55	38

Table 4. Desired and existing average patch sizes on National Forest System lands in the Prichard-Murray Resource Area.

	Desired Average	Existing Average
Average patch size in young timber in the resource area	200 to 700 acres	36 acres
Average patch size in small/medium timber in the resource area	200 to 700 acres	257 acres
Average patch size in the resource area overall	200 to 700 acres	137 acres

Actions needed to achieve desired structural stages and patch sizes: A combination of harvest and prescribed burning activities are needed to trend toward the desired mosaic of forest structural stages and patch sizes. Activities are needed that would increase the resilience of middle-aged stands to ensure stands of potential mature and old, long-lived seral species are maintained.

Part 3. Alternatives

Three alternatives were considered in detail – the No Action (Alternative 1), Proposed Action (Alternative 2), and Modified Action (Alternative 3). The necessary actions were identified through a comparison of existing and desired conditions and based on the Specialist's Reports for Fire/Fuels (PF Doc. SR-01) and Forest Vegetation (PF Doc. SR-02). Design and size of treatment areas under the action alternatives focused on fire, fuels, vegetative, wildlife and visual concerns for resource management objectives and constraints. Fire resource concerns included landscape arrangement of fuels over the short and long-term in the wildland urban interface and areas immediately adjacent. Maintaining the brush fields and regenerating some stands in the resource area would create a mosaic of vegetation (PF Doc. SR-01, p. FF-21; and Brackebusch, 1973, PF Doc. FF-8). This mosaic would create fuel interruptions that reduce the rate of fire spread.

3.A. Description of Alternatives

Alternative 1 is the No-Action Alternative analyzed for this project, representing the effects of not implementing the proposed activities. While no new actions would be taken, changes would occur and are disclosed related to the effects of past, ongoing and reasonably foreseeable activities (described in Appendix B and the Specialists' Reports).

Both **Alternatives 2 and 3** include a combination of treatments to reduce fuels and improve stand conditions (each is described in greater detail later in this section):

- *Prescribed burning without timber harvest*
- *Fuelbreak construction near homes and private land*
- *Timber harvest (including shelterwood harvest, commercial thinning, and a combination of commercial thinning and regeneration harvest), followed by underburning, grapple piling, hand piling or chunking)*

Chunking is a treatment similar to chipping, where slash is broken into chunks the size of a football or smaller, and left on the ground. This reduces fuel bed depth and slows combustion rates.

Alternative 2, was developed to address the treatment needs identified by the Shoshone County Fire Mitigation Working Group and by the Forest Service. This is the Proposed Action that was presented to the public during scoping. The proposed activities were identified through a comparison of existing and desired conditions and based on the Specialist's Reports for Fire/Fuels (PF Doc. SR-01) and Forest Vegetation (PF Doc. SR-02). The alternative represents the expected future condition based on effects of proposed fuels reduction and stand improvement activities as well as past, ongoing and reasonably foreseeable activities (described in Appendix B and the Specialists' Reports). The treatments proposed under Alternative 2 in the Prichard-Murray Fuel Reduction Project Area have been accepted by the Shoshone County Fire Mitigation Working Group and the Board of County Commissioners as an amendment to the Community Wildfire Protection Plan (PF Doc. FF-33).

Under Alternative 2, some proposed harvest and prescribed burning treatments along main roads and near communities are located within stands of allocated old growth (Table 8). Early in the process, two environmental organizations in the region (Kootenai Environmental Alliance and The Ecology Center) expressed concern about the effects of proposed management activities in stands allocated for old-growth management (PF Doc. PI-22 and PI-22). If activities substantially change characteristics of the stands, they may no longer meet the criteria for old-growth allocation. Management in old growth requires an acute awareness of anticipated effects, which can best be compared through formulation of alternatives that either actively manage old growth or exclude it from treatment; there are risks and benefits associated with both approaches. In order to compare the benefits of fuel reduction treatments in the wildland urban interface to the potential reduction in allocated old growth stands, **Alternative 3** was designed with no proposed harvest or prescribed burning activities within allocated old growth, regardless of the unit's location or proximity to communities.

3.B. Comparison of Activities Under the Alternatives

The following tables compare activities proposed in the Prichard-Murray Resource Area under each alternative. Specific unit information for each alternative is provided on the back of the enclosed maps.

Table 5. Summary comparison of proposed activities on National Forest System lands in the Prichard-Murray Resource Area.

Activity	Alternative 1	Alternative 2	Alternative 3
Prescribed Burning (no harvest)	0	(27 units) 1,725 acres	(25 units) 1,410 acres
Fuelbreak Construction	0	(6 units) 22 acres	(6 units) 22 acres
Shelterwood Harvest *(all helicopter yarding)*	0	(8 units) 95 acres	(7 units) 47 acres
Commercial Thinning Harvest	0	(13 units) 339 acres	(11 units) 256 acres
Cable yarding		*60 acres (17%)*	*45 acres (18%)*
Helicopter yarding		*253 acres (75%)*	*185 acres (72%)*
Tractor yarding		*26 acres (8%)*	*26 acres (10%)*
Combination Commercial Thinning and Regeneration Harvest	0	(5 units) 242 acres	(5 units) 242 acres
Cable yarding		*215 acres (89%)*	*215 acres (89%)*
Helicopter yarding		*0 acres (0%)*	*0 acres (0%)*
Tractor yarding		*27 acres (11%)*	*27 acres (11%)*
Total commercial harvest	0	(26 units) 676 Acres	(23 units) 545 acres
Total all treatments	0	(59 units) 2,423 acres	(54 units) 1,977 acres
Fuel Treatment in Harvest Units	**Alternative 1**	**Alternative 2**	**Alternative 3**
Hand pile	0	3 acres	3 acres
Grapple pile	0	75 acres	75 acres
Grapple pile with underburning	0	66 acres	66 acres
Grapple pile with chunking	0	15 acres	15 acres
Underburning	0	517 acres	386 acres
Total fuel treatment in harvest units	0	676 acres	545 acres
Roads	**Alternative 1**	**Alternative 2**	**Alternative 3**
Temporary road construction	0	0.2 mile	0.2 mile
Road reconstruction	0	0.6 mile	0.6 mile
Road reconditioning	0	0.3 mile	0.0 mile
Timber Volume	**Alternative 1**	**Alternative 2**	**Alternative 3**
Hundred cubic feet (ccf)	0	14,056	11,550
Thousand board feet (mbf)	0	7,028	5,775

3.C. Detailed Description of Proposed Activities

3.C.1. Description of Treatment Methods under the Action Alternatives

Prescribed Burning without Harvest

Prescribing burning without any associated timber harvest is proposed under both action alternatives (1,725 acres in 27 units under Alternative 2; and 1,410 acres in 25 units under Alternative 3). The objective of this treatment is to reduce fuels and adjust fuel continuity at stand and broad landscape scales as well as rejuvenate the shrub species desirable for wildlife. The location of the proposed treatment focused on areas that are shrub/grass and/or have scattered or low canopy cover. These treatments would primarily reduce surface and ladder fuels. Fire would consume the surface fuels. Ladder fuels would be reduced when crowns are scorched and lower branches are killed. Conifer mortality would reduce crown fuels, but would be limited because of the lack of conifers in most of the burn areas. In some cases prescribed burning could enlarge existing shrub/grass openings by killing some smaller conifer encroachment that has developed. Less than 5% mortality of overstory trees would be anticipated as a result of prescribed burning.

Figure 5. "Before" and "after" photographs of a 45-acre forest opening where prescribed burning has occurred. *Prescribed burning generally occurs in the spring when risk of fire escape is minimal. Surface and ladder fuels are reduced, shrubs are top-killed, and some tree mortality is expected (as shown in the "after" photo).*

White areas in the "after" photo are ash; note that many trees were scorched by the fire. Burning would maintain openings in the forest and disrupt the continuity of fuels across the landscape.

Fuelbreak Construction

Both action alternatives propose the same amount and location of fuelbreak construction (a total of 22 acres in 6 units). The objective of fuelbreak construction is to reduce surface and ladder fuels immediately adjacent to homes, private property, and access routes. These treatments would involve thinning of small trees and brush, pruning of lower branches, and piling and burning or chipping of surface fuels and residual slash. Fuelbreaks would be constructed primarily within the Home Ignition Zone, or within approximately 150-300 feet of homes or access routes. Although slash is usually left over winter to allow nutrient recycling, slash in these treatment areas may not be left over winter due to the hazard the fuels would pose to adjacent homes. Snags that pose a safety hazard would be removed. Fuelbreaks would create defensible space, allowing the home to be defended by firefighters in the event of a wildfire, and increasing the chances that the home would survive an approaching wildfire.

Figure 6. Examples of fuelbreak construction near a home. *Fuelbreaks are completed through noncommercial thinning and pruning, followed by piling and burning or chipping of the residual slash and surface fuels. The result is reduced surface and ladder fuels which will help protect the home in the event of a wildfire.*

Shelterwood Harvest

Shelterwood (also called regeneration) harvests are proposed under both action alternatives (95 acres in 8 units under Alternative 2; and 47 acres in 7 units under Alternative 3). These treatments are designed to establish and maintain a dominant stand component of the long lived early seral species of western larch, white pine and/or ponderosa pine. The location of shelterwood units focus on stands with serious insect and disease conditions and risk. Many of these sites are experiencing ongoing mortality due to root diseases.

Figure 7. A shelterwood harvest several years after harvest, site preparation, and planting have been completed. .

Douglas-fir is a prominent species in the stands targeted for shelterwood harvesting. Douglas-fir is highly susceptible to root diseases. Root diseases are currently the most prominent landscape-altering process in the Coeur d'Alene River Basin (Specialist's Report on Forest Vegetation, p. VEG-8). Leave trees would remain to serve as a seed source and as structure, in the short and long term, and in some cases to maintain visual quality. The shelterwood units would have up to 25 trees per acre on sites in groups (1/2 to 5 acres in size) and single trees at irregular spacing. The largest and healthiest western larch, white pine, and ponderosa pine would be left, consistent with large tree retention requirements of the HFRA (PL 104-148, Section 102[f]; PF Doc. CR-024)..

Harvest of some large-diameter trees may occur, however the effort under either action alternative is to leave the largest, most resilient trees to remain over the long term. Leave groups would be identified on the landscape (and later prescribed burned) to ensure that at least 80% of the trees/areas do not have high mortality during prescribe burning treatments. Variability would be substantial within treatment areas because the amount of tree retention would be based on what is currently available on the site.

Sites would be prescribed burned (the preferred treatment), grapple piled or hand piled to reduce fuels and shrub competition sufficient to establish desired regeneration. Sites would then be planted with site adapted long-lived seral species such as white pine, western larch and/or ponderosa pine.

After harvest is complete, a fire/fuels specialist and silviculturist would assess fuel conditions in the unit and determine whether the prescribed fuels treatment could be implemented safely and effectively as planned without further fuels treatment, or if additional fuel treatment methods (such as slash piling, leave tree protection, or slashing) are needed to meet the objectives of the silvicultural prescription before prescribed burning occurs. Prescribed burning would only occur when soil moistures are above 25 percent.

A site-adapted species/seed source would be utilized in all regeneration areas. Site preparation, fuel treatment, and tree planting would occur within five years of harvest in areas treated with regeneration harvest. Site preparation and/or fuel treatment may include a combination of slashing, pruning, prescribed burning or grapple piling, depending on post-harvest conditions that meet site preparation, hazard reduction, and overall treatment objectives.

For more information, refer to the Specialists's Reports on Fire/Fuels (PF Doc. SR-01) and Forest Vegetation (PF Doc. SR-02).

Commercial Thinning

Commercial thinning is proposed under both action alternatives (339 acres in 13 units under Alternative 2; and 256 acres in 11 units under Alternative 3). The objective of commercial thinning is to reduce the shading and crowding of the western larch and ponderosa pine crowns, providing the growing space needed by these resilient species over the long term. Commercial thinning would also reduce the canopy bulk density of stands, reducing the crown fire hazard. This intermediate tending activity would focus on leaving the most resilient species/trees and improve the likelihood of their continued growth. It would improve the likelihood of stands becoming large, old and have resiliency to disturbances such as fire, insect, disease, etc. Commercial thinning harvests focus on areas and stands with the healthiest and highest representation of larch and ponderosa pine.

Commercial thinning would meet the definition of commercial thinning from below (in the lower crown classes), with 45-75% of the existing canopy remaining after treatment. Harvest would focus on thinning or daylighting around the existing western larch and ponderosa pine. Variability would be substantial within treatment areas because the amount of tree retention would be based on available components.

Following harvest, at least 85-100 trees per acre over 7 inches diameter at breast height would remain overall. Harvest of some large grand fir and Douglas-fir may occur **if** they are competing with the more resilient western larch and ponderosa pine. In addition, depending on resiliency and arrangement, some Douglas-fir, grand fir, western redcedar and western hemlock would be retained. Retention of trees and/or species other than western larch would be based on short- and long-term objectives of 'leave trees' and their resiliency to planned treatments and natural disturbances. Harvesting would be followed by fuel reduction activities such as prescribed burning, grapple piling, chunking, or a combination of these treatments.

Figure 8. A stand that has been commercially thinned to promote western larch. *Leave trees that were marked with blue paint can be seen in the foreground.*

Combination Thinning and Regeneration Harvest

Under both Alternatives 2 and 3, a combination of thinning and regeneration harvest is proposed on 242 acres (5 units) where resilience can be improved through tending activities and where there are serious insect and disease conditions and risk. In these units, no more than half of the unit would be regeneration harvested. Commercial thinning would only occur in those areas of the unit where resiliency and the retained canopy can be reasonably maintained over both the short and long term.

Roads and Landings

Both Alternatives 2 and 3 would require 0.2 miles of temporary road construction to access proposed Unit 8 (displayed on the enclosed alternative maps). Under either action alternative, approximately 0.6 miles of road would be reconstructed to improve the existing road so Unit 5 could be accessed safely by vehicles and heavy equipment. Alternative 2 would also require 0.3 miles of road reconditioning to access Unit 11. Reconditioning involves general maintenance activities such as clearing brush and other vegetation from the road right-of way, blading the surface of the road with a grader to restore the road to its proper condition, and/or cleaning drainage ditches and culverts. This reconditioning would not be needed under Alternative 3, since the alternative does not include Unit 11 for proposed treatment.

Under either action alternative, 8 helicopter landings would be needed. Helicopter landings require a flat, open landing site. In the Prichard-Murray Resource Area, sites were chosen with the objective of minimizing disturbance while staying in close proximity to harvest units. Four of the landings already exist and have been used before, so little or no work is required. On the remaining four, varying levels of work are required to level out the landings. In addition, flight paths in and out of the landing sites may need to be cleared of standing trees to allow safe access and egress by the helicopter. All soil disturbance will be seeded with an appropriate seed mix. All eight landings would comply with all applicable safety regulations.

3.C.2. Implementation Features

Action alternatives were designed to accomplish project objectives related to fuels and forest vegetation without significantly impacting other resources in the Prichard-Murray Resource Area. The following are specific guidelines that would be followed during implementation of either action alternative.

Features Designed to Protect Threatened, Endangered & Sensitive Plants

For more information, refer to the Specialists's Report on TES Plants (PF Doc. SR-03).

Known Sensitive plant occurrences in the Prichard-Murray Resource Area would be buffered from harvest and other project-related activities by a minimum of 100 feet (there are no known occurrences of Threatened/Endangered plants in the Prichard-Murray Resource Area).

Prescribed fire **ignition** would not occur within riparian habitats, although fire would be allowed to burn **into** riparian areas. Higher fuel moistures in riparian habitats during prescribed burning conditions would likely limit the spread of any prescribed fire. To limit ground disturbance, fire line would be minimized in riparian areas. Fire line construction would be limited to those occasions when fire line is needed to contain the burn. However, fuelbreaks would be used in riparian areas such that the total amount of fire line may be minimized while still allowing safe and efficient implementation of prescribed burning.Should rare plants be located during implementation, one or more of the following protective measures would be implemented: 1) drop the proposed unit from activity; 2) modify the proposed unit or activity, 3) implement a 100-foot slope distance buffer, and/or 4) implement Timber Sale Contract provisions for Protection of Endangered Species, and Settlement for Environmental Cancellation.

Features Designed to Reduce the Spread of Noxious Weeds

For more information, refer to the Specialists's Report on Noxious Weeds (PF Doc. SR-04).

Noxious weed prevention strategies on the Coeur d'Alene River Ranger District are conducted based on the Noxious Weeds Final Environmental Impact Statement and Record of Decision (USDA Forest Service, 2000; PF Doc. NW-2). Measures to protect Threatened, Endangered and Sensitive plant population viability and habitat capability during noxious weed treatment would be implemented following guidelines provided in that document. All roads used for implementation of harvest activities would be treated for noxious weeds, both prior to and after project completion. To help reduce the spread of noxious weeds and prevent the introduction of new invader species, a contract clause related to equipment washing would be used in all construction and timber sale contracts.

Features Designed to Protect Aquatic Resources

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. Forest Service Handbook 2509.22 (Soil and Water Conservation Handbook) outlines BMPs that meet the intent of the water quality protection elements of the Idaho Forest Practices Act.

For more information, refer to the Specialists's Report on Aquatic Resources (PF Doc. SR-05).

Inland Native Fish Strategy (INFS*)* – In development of the proposed action, standards and guidelines of the INFS (USDA Forest Service, 1995, pages A-6 through A-15; PF Doc. CR-003) were used specifically to protect water and aquatic biota within the Resource Area with application of streamside buffers. If Threatened or Endangered fish species are located during project implementation, protective measures would be implemented in compliance with the Inland Native Fish Strategy, including implementation of Timber Sale Contract provisions for Protection of Endangered Species, and Settlement for Environmental Cancellation.

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 from timber harvest or road construction with an appropriate buffer for the species as prescribed by the District Botanist and Wildlife Biologist.

Features Designed to Protect Soils

For more information, refer to the Specialists's Report on Soils (PF Doc. SR-06).

To reduce the impacts to soils and soil productivity, the alternatives utilize Soil and Conservation Practices as described in the Soil and Water Conservation Practices (SWCP) Handbook (FSH 2509.22). This handbook outlines Best Management Practices (BMPs) that protect the soil resources at a higher level than do existing Idaho Forest Practices rules and regulations, thereby incorporating all Idaho state standards.

Fine organic matter and large woody debris would be retained on the ground for sustained nutrient recycling in harvest units, consistent with Graham et al (1994; PF Doc. SOIL-21). In addition, only log-length yarding would be allowed in harvest units to further improve nutrient recycling (no whole-tree yarding). On units designated for tractor harvest, planned skid trails would be established at approximately 100-foot spacing to reduce overall soil compaction and displacement; skid trails would converge at the landings. Scheduling harvest activities to occur when the soil profile is dry helps to reduce the effects from compaction (Poff, 1996, p. 482; PF Doc. SOIL-47). Prescribed 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.

In those areas where machine or hand piling of slash is proposed, the foliage and branches would be allowed to over winter on the site, allowing potassium to leach out from the slash material. Management of large coarse woody debris and other organic matter (limbs and tops) would follow the research guidelines in Graham et al (1994; PF Doc. SOIL-21). Yarding would not remove tops from site. Tops and branch slash would remain on site over winter before further treatment. Since this is a fuels reduction project, determination of fire risk where slash is left untreated for prolonged periods of time would be made by the District fire management officer. Where risk is considered high, especially near structures, flexibility would be given to treat slash prior to it being left for 6 months.

Features Designed to Protect Wildlife Habitat

For more information, refer to the Specialists's Report on Wildlife (PF Doc. SR-07).

Snags would be retained to meet the Northern Region Snag Management Protocol (PF Doc. VEG-20 and VEG-21). Long-lived, seral conifer species (western white pine, ponderosa pine and western larch) of all sizes would be favored to retain on the site unless removal is unavoidable due to safety reasons or special circumstances.

All roads closed to the public that are opened, constructed or reconstructed for the project would be closed with a gate or barrier during project activities. All of these roads would be effectively closed following project activities. At the end of project activities, all closure devices would be replaced in as good as or better condition than currently exists. Temporary roads would be recontoured following harvest activities.

Incidental trees charred during prescribed burning operations would be retained on site, providing black-backed woodpecker habitat. Prescribed burning would be implemented in a manner that would avoid disturbance of

roosting bats by preventing fire within 400 meters of the entrance to a cave or mine when bats are present, unless a site-specific assessment indicates a more appropriate distance to avoid effects of heat and smoke on bats (PF Doc. WL-58). Areas upslope of cave or mine openings would be protected to prevent erosion and disturbance (a map of mine locations is in the project file; see PF Doc. WL-26).

If any Threatened or Endangered wildlife species are observed in the resource area during implementation, the district wildlife biologist would determine any project modifications necessary under the timber sale contract provisions to protect the species and its habitat based on applicable laws, regulations and management recommendations for the species. If any Threatened, Endangered or Sensitive species is found to be nesting in an area scheduled for prescribed fire or silvicultural manipulation, activities would be delayed in the area as recommended by the wildlife biologist.

3.C.3. Mitigation Measures

Analysis of proposed activities indicate potential effects that are well within applicable regulatory thresholds (for example, those identified by the Forest Plan, Community Wildfire Protection Plan, Endangered Species Act, Clean Water Act, etc.) for all resources except aquatics; therefore, mitigation measures were identified as necessary only to reduce effects to aquatic resources.

Aquatic Resources: The 3,700-acre Brown Creek subwatershed is located primarily outside of the Prichard-Murray Resource Area project boundary. Only Rookie Creek, a tributary to Brown Creek, lies within the portion of the resource area where timber harvest and prescribed burning are proposed. Rookie Creek is a one-square mile subwatershed, which is too small to be modeled and have reliable predictions for water yield and peak flows (AQ-Appendix D). Approximately 21% of the watershed would be treated, resulting in 10% percent equivalent clearcut acres (see Rookie Projects File AQ-159). No increase in sediment would be expected in lower Rookie Creek as a result of harvest units, because the units are located far from stream courses and no harvest would occur within riparian habitat conservation areas identified by the Inland Native Fish Strategy. There is a slight potential that in-stream sediment from channel erosion in the lowest reach of Rookie Creek could occur due to areas of mass wasting upstream of the monitoring site and the potential for increased water yield. Inventories identified several failing culverts and mass-wasting sites along the lower portion of Road 990 in Brown Creek (Specialist's Report on Aquatic Resources, p. AQ-16), which could result in increased water yield and delivery of instream sediment (Specialist's Report on Aquatic Resources, p. AQ-31). Under either action alternative, mitigation activities would restore approximately 2 miles of this road and stabilize four channel/road crossings. This action is expected to reduce sediment in Brown Creek at its confluence with the North Fork of the Coeur d'Alene River and mitigate any potential increase from the harvest activities in Rookie Creek.

3.C.4. Implementation and Effects Monitoring

Monitoring will be consistent with requirements of the HFRA (PL 108-148, Section 102[g]); PF Doc. CR-024). The Forest Plan documents a system to monitor and evaluate Forest activities related to timber, visual resources, recreation, cultural resources, wildlife, water/fish, Threatened and Endangered species, minerals, lands and environmental quality (Forest Plan, Chapter IV, pages IV-10 through IV-12; PF Doc. CR-002). For example, sale administrators and other contracting representatives would monitor all timber sales to ensure that activities are conducted in accordance with contract specifications (that activities occur where and when they should to protect resources such as soils and wildlife, that yarding is accomplished as planned and specified in the contract to protect soils, that seedlings are planted at the appropriate spacing, etc.). Reforestation success in regeneration areas would be monitored until the District silviculturist certifies that they meet stocking requirements.

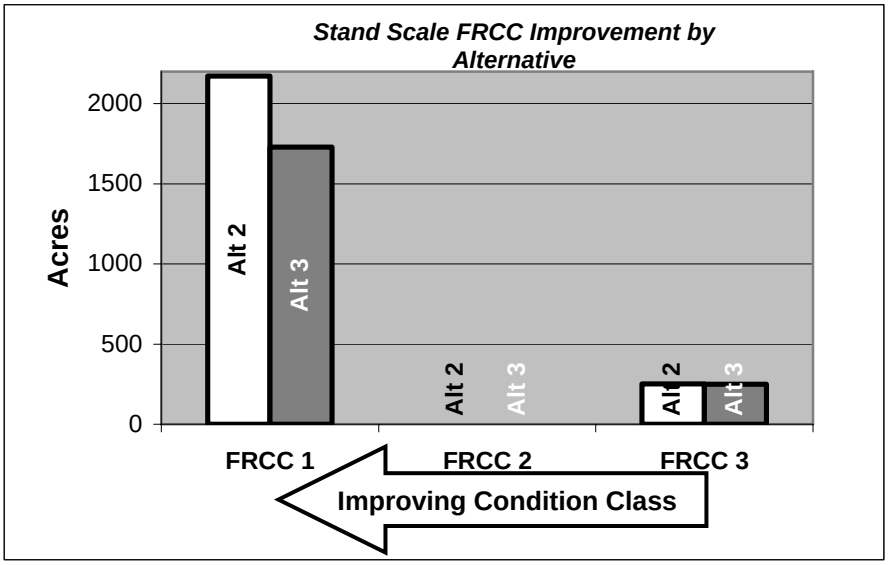
In addition, BMPs would be incorporated into many different phases of the project. The district hydrologist and engineering representative would review the location of all proposed temporary roads and all road maintenance to assure compliance with BMPs, and would monitor all temporary and reconstructed roads to ensure that they were built or restored to specifications. A sale administrator would visit each active cutting unit at a frequency necessary to assure compliance with the BMPs and the timber sale contract. Minor contract changes or contract modifications would be agreed upon and enacted, when necessary, to meet objectives and standards on the ground. Monitoring of BMPs has determined that recent projects on the IPNF have been implemented as designed and have achieved the desired objectives (IPNF Monitoring Reports for 2004 [pp. 37-44, 60; PF Doc. CR-026], 2003 [pp. 41-46, 76-77; PF Doc. CR-022], 2001 [pp.27-40; PF Doc. CR-017], and 2000 [pp. 34-41, PF Doc. CR-016]).

3.D. Comparison of Effectiveness of the Alternatives in Meeting the Purpose & Need

Purpose and Need #1 of 3: To reduce dense fuels so that there is less risk to life, property, and natural resources.

Effectiveness of alternatives in meeting this need was measured through the amount of area treated which improved or maintained Fire Regime Condition Class. The figure below shows the resulting Fire Regime Condition Class of the treated areas under the action alternatives. Alternative 1 would not improve or maintain condition class, and so is not shown on the graph; the long-term result of Alternative 1 is likely to be a deterioration of Condition Class. Alternative 2 would result in 2,172 acres in Condition Class 1, which is 444 acres more than would result under Alternative 3. Under either action alternative, approximately 250 acres of treatment area would remain in Condition Class 3. While treatment on these 250 acres would reduce fuels considerably, there would not be enough change in stand structure or composition to meet the threshold for change in Fire Regime Condition Class. There are no stands in Fire Regime Condition Class 2 under any alternative.

Figure 9. Resulting Fire Regime Condition Class of lands treated in the Prichard-Murray Resource Area, by alternative.



Fire Regime Condition Class	Existing % of NFS lands in the Resource Area	% of NFS lands in the Resource Area under Alt. 1	% of NFS lands in the Resource Area under Alt. 2	% of NFS lands in the Resource Area under Alt. 3
Fire Regime Condition Class 1 – LOW RISK of loss of key ecosystem components.	**31**	**31**	**44**	**42**
Fire Regime Condition Class 2 – MODERATE RISK of loss of key ecosystem components.	**0**	**0**	**0**	**0**
Fire Regime Condition Class 3 – HIGH RISK of loss of key ecosystem components.	**69**	**69**	**56**	**58**

Under Alternative 1 (No Action), there would be no activities to reduce the buildup of canopy and surface fuels, and the risk of losing key ecosystem components would escalate to moderate and high risk (Fire Regime Condition Classes 2 and 3). The No-Action Alternative would not reduce fuels in key locations in the wildland-urban interface of the Prichard-Murray Resource Area. No actions would be taken to protect the Avista power line, to reduce fuels along main roads, to interrupt fuel concentrations near communities, to create defensible space near homes, or to reduce the likelihood of large fire spread. Fire behavior would maintain its trend away from historic condition, creating an increasing challenge to fire suppression forces (PF Fire/Fuels Specialist's Report, pages FF-14, FF-15). Fires would continue to be more intense and therefore more dangerous to firefighters. Fire exclusion would heighten fire hazards to homes as people continue to develop and settle lands along the wildland-urban interface. The loss of homes and human life can escalate as the surrounding forest grows and there is a build-up of canopy and surface fuels. The No-Action Alternative would not address or respond – to any degree - to the purpose and need to reduce dense fuels.

Alternative 2 would make substantial progress toward reducing fuels, therefore reducing the intensity of a potential wildfire within the wildland-urban interface. Reducing fuels on over 2,400 acres within the Resource area would lessen the risk to life, property and natural resources, especially since the treatments are specifically targeted to be near the values-at-risk in the wildland-urban interface, such as homes, the Avista powerline, and main roads. In addition, because of the uncertainty involved in prediction where a fire will start and which way it will spread, the more acres that are treated to reduce fuels across a landscape, the better the alternative will be at reducing the likelihood of an uncontrolled wildfire. The treatments under Alternative 2 would trend stands away from the potential fire behavior that could threaten human life and property in the resource area. Prescribed burning would reduce fuel loading and fuel continuity, disrupting the growth of surface fires, limiting the build-up of intensity, and reducing spot-fire ignition probability. The fuelbreak treatments are generally within the home ignition zone (150 to 300 feet adjacent to a home) and are designed to reduce the risk of home ignition in the case of an uncontrolled wildfire. Fuel breaks would reduce surface and ladder fuels, which would in turn modify potential fire behavior so that the fire can be more easily suppressed or the homes can be more easily defended.

Over the long-term, harvest activities would result in an increase in western larch and white pine; and trend structural stages toward increased resiliency. Although timber harvesting would cause a short-term (one to three-year) increase in surface fuels due to the branches and other woody debris left after harvest, fuel reduction activities would occur within three to five years, reducing surface fuels to less than the level before harvest. Most treated areas would result in a Fire Regime Condition Class 1, which means the stand would have low risk of losing key ecosystem components (Fire Regime Condition Class 1) due to improved vegetative composition and structure, reduced fuel loads and losses to fire (PF Doc. SR-01, pp FF-21).

Alternative 3 would also make progress toward reducing fuels, reducing the intensity of a potential wildfire within the wildland-urban interface. Reducing fuels on over 1,900 acres within the Resource area would lessen the risk to life, property and natural resources, especially since the treatments are specifically targeted to be near the values-at-risk in the wildland-urban interface.

The treatments under Alternative 3 would trend stands away from the potential fire behavior that could threaten human life and property in the resource area. Since Alternative 3 does not propose treatments in old growth stands, it leaves out some key fuel reduction treatments along main roads and near communities, and therefore does not provide as much benefit as Alternative 2 for interrupting fuel concentrations near communities, and reducing the likelihood of large fire spread. Prescribed burning would reduce fuel loading and fuel continuity, disrupting the growth of surface fires, limiting the build-up of intensity, and reducing spot-fire ignition probability. The fuelbreak treatments are generally within the home ignition zone (150 to 300 feet adjacent to a home) and are designed to reduce the risk of home ignition in the case of an uncontrolled wildfire. Fuel breaks would reduce surface and ladder fuels, which would in turn modify potential fire behavior so that the fire can be more easily suppressed or the homes can be more easily defended.

Over the long-term, harvest activities would increase western larch and white pine; and trend structural stages toward increased resiliency. Although timber harvesting would cause a short-term (one to three-year) increase in surface fuels due to the branches and other woody debris left after harvest, fuel reduction activities would occur within three to five years, reducing surface fuels to less than the level before harvest. As under Alternative 2, most treated areas would result in a Fire Regime Condition Class 1, which means the stand would have low risk of losing key ecosystem components (Fire Regime Condition Class 1) due to improved vegetative composition and structure, reduced fuel loads and losses to fire (PF Doc. SR-01, pp FF-21).

Purpose and Need #2 of 3: To increase the proportion of resilient species so stands are healthier with less fire risk.

Effectiveness of the alternatives in meeting this need was measured through changes in forest cover types (from Douglas-fir, grand fir, or western hemlock to western larch, white pine and ponderosa pine).

Alternative 1 (No Action) would not respond to this need, because no activities would occur to increase the proportion of fire-resilient species such as white pine and western larch and ponderosa pine. As a result, species composition would continue to trend toward the less resilient Douglas-fir, grand fir, and western hemlock (Specialist's Report on Forest Vegetation, page VEG-14).

Under Alternative 2, species composition would be improved, trending toward the desired condition (see Table 6). The desired conditions reflect a healthy, sustainable and resilient ecosystem. Long-lived seral tree species (white pine, western larch and ponderosa pine) are better adapted and more resilient than other species in mixed and low-severity fire regimes and other natural disturbances of northern Idaho. Maintenance and conversion to long-lived early seral species are more likely to provide a long-term improvement in stand and landscape structures and arrangement.

Alternative 3 would improve species composition, trending toward the desired condition, but to a lesser degree than Alternative 2, because fewer acres would be treated (see Table 6).

Under either action alternative, the prescribed burning and fuelbreak treatments would not change forest cover types (Forest Vegetation Specialist's Report, p. VEG-14). Overall, long-lived early seral species composition would increase by three percent under Alternative 2 and two percent under Alternative 3 (Forest Vegetation Specialist's Report, p. VEG-9).

Table 6. Comparison of desired, existing and predicted (%) species composition (by forest cover type) on National Forest System lands in the Prichard-Murray Resource Area (does not include nonforest).

Forest Cover Type	Desired (%)	Existing (%)	Alt. 1 (%)	Alt. 2 (%)	Alt. 3 (%)
white pine, larch and ponderosa pine	35-45	4	4	7	6
lodgepole pine	5-15	2	2	2	2
Douglas-fir, grand fir, western hemlock, and cedar	15-30	88	88	85	86
subalpine fir and mountain hemlock	<5	1	1	1	1

Purpose and Need #3 of 3: To create a mosaic of healthy stands that vary in stand structure (age, diameter and canopy) and patch sizes.

Effectiveness of the alternatives in meeting this need was measured through changes in stand structure (to a more balanced composition of seedling/sapling, small/medium timber, and mature/large timber) and in patch sizes (from smaller to larger patch sizes).

Alternative 1 (the No-Action Alternative) would not respond to this need any further than the ongoing and reasonably foreseeable activities, because no new activities are proposed that would create a mosaic of healthy stands. The No-Action Alternative represents a continuation of the trend away from desired conditions. As stands mature, openings caused by root disease and other pathogens and insects would be common. Over time, landscapes would have increasing areas of multiple stories and multiple ages, with low and broken canopies. Such landscapes may be more susceptible to disturbances such as fire, insects, diseases and wind damage. Canopy cover would decline from the current modeled level of 60 percent overall to a level of 40% over the next 100 years (Specialist's Report on Forest Vegetation, p. VEG-19). Many of these areas are unlikely to provide the same mature structures as the areas of large white pine or western larch that were once a component of the Prichard-Murray Resource Area. Over the long term, patch boundaries would become less distinct as stands become more multi-storied and the landscape becomes more homogenous. Over time, the potential for large-scale disturbances (such as fire) would increase (Specialist's Report on Forest Vegetation, p. VEG-20).

Alternatives 2 and 3 would both demonstrate a slight trend toward desired healthy, sustainable structures within the Prichard-Murray Resource Area (refer to the tables below). Prescribed burning would reduce current fuel loading on all treated sites. Neither alternative would substantially change patch size or arrangement, although both would create vegetative interruptions that would reduce the potential for fire spread. Cumulatively, the mosaic of vegetation resulting from proposed and reasonably foreseeable activities would create breaks in vegetative structure that would reduce the potential for high intensity fires.

Treatment would occur in nine units (a total of 438 acres) of allocated old growth under **Alternative 2**. The unit proposed for regeneration harvest would be dropped from old-growth allocation because the structural stage would change to seedling/sapling, and would no longer meet the definition for old growth. The units proposed for stocking control (thinning) and prescribed burning would continue to be managed as allocated old growth, because the characteristics that meet old growth definitions would be maintained (Forest Vegetation Specialist's Report, p. VEG-27 and VEG-28).

Under **Alternative 3,** there would be no treatment activities in allocated old growth. The nine units proposed for treatment under Alternative 2 would not be treated under Alternative 3, so there would be no loss of old-growth characteristics in these stands over the short term. Over the long term, there would be an increased risk of uncontrolled wildfire, which would have the potential to cause a total loss of old-growth characteristics in areas of stand-replacement fire.

Table 7. Proposed treatment areas within allocated old growth on National Forest System lands in the Prichard-Murray Resource Area, under Alternative 2.

OGMU #	Treatment Unit #	Proposed Treatment	Total Treatment Unit Acres	Acres of Allocated Old Growth in Unit	% old growth in OGMU remaining after treatment
112	16	Shelterwood and prescribed burn	48	48	12.7
	49	Prescribed burn	85	34	
	50	Prescribed burn	105	105	
116	10	Stocking control (thin) and prescribed burn	161	52	10.7
	11	Stocking control (thin) and prescribed burn	13	13	
	12	Stocking control (thin) and prescribed burn	16	13	
	14	Stocking control (thin) and prescribed burn	13	2	
123	38	Prescribed burn	127	104	8.1
	41	Prescribed burn	67	67	
	9 units		**635 acres**	**438 acres**	

Table 8. Desired, existing and predicted structural stages (%) on National Forest System lands in the Prichard-Murray Resource Area (2 percent of the resource area is non-forest).

Structural Stage	Desired (%)	Existing (%)	Alt. 1 (%)	Alt. 2 (%)	Alt. 3 (%)
Seedling/sapling	10-30	7	7	8	8
Small/medium timber	20-40	53	53	52	52
Mature/large timber	40-55	38	38	38	38

Table 9. Comparison of desired, existing and predicted patch sizes on National Forest System lands in the Prichard-Murray Resource Area.

	Desired range in size (acres)	Existing size (acres)	Alt. 1 (acres)	Alt. 2 (acres)	Alt. 3 (acres)
Average patch size in young timber	200 to 700	36	36	36	36
Average patch size in small/ medium timber	200 to 700	257	257	248	246
Average patch size in mature/ large timber	200 to 700	173	173	171	172
Average patch size overall in the resource area	200 to 700	137	137	133	133

PART 4. ENVIRONMENTAL IMPACTS TO OTHER RESOURCES

4.A. Introduction

This section provides a summary of environmental impacts that would occur under each alternative as described in the Specialist's Reports prepared for this project (provided with this Environmental Assessment, and available online at **http://www.fs.fed.us/ipnf/eco/manage/nepa)**. The environmental analysis considered direct, indirect and cumulative effects of proposed activities. Direct effects are caused by the action and occur at the same time and place. Indirect effects occur later in time as a result of the action, but are still reasonably foreseeable. Cumulative effects result from the incremental impact of an action when added to other past, ongoing and reasonably foreseeable actions, regardless of what agency or person undertakes the action. Activities proposed under the action alternatives are described in Part 3 of this document. Past, ongoing and reasonably foreseeable activities and their effects are described in Appendix B and in the Specialist Reports as appropriate. The discussions below provide the necessary information to determine whether or not to prepare an Environmental Impact Statement. Based on this analysis, a draft Finding of No Significant Impact has been prepared. The context of this proposal is limited to the locale of the Prichard-Murray Resource Area. Design features included in this proposal (described in Part 3, Section C of this EA, and in the Specialists' Reports, PF Doc. SR-01 through SR-10) would minimize and/or avoid adverse effects to such an extent that the impacts are almost undetectable and immeasurable even at the local level, and are therefore not cumulatively significant.

4.B. Impacts to TES Plants

Indicators of Impacts: Analysis was conducted using sensitive plant surveys, current distribution and condition of sensitive plant populations in habitats similar to those found in the proposed treatment sites. The types of proposed treatments were used to determine the likely extent of effects to existing populations and habitat from the proposed activity based on current knowledge and professional judgment (PF Doc. SR-03, p. TES-2).

Under Alternative 1 (No Action), there would be no direct effects to any Threatened, Endangered, or Sensitive species; or any Forest Species of Concern (FSOC) because none of the proposed activities would occur (TES Plants Specialist's Report, p. TES-10). Forest Plan standards and legal mandates would be met. However, indirect effects to Threatened, Sensitive, and FSOC plant habitat and populations are likely for certain guilds and species (there are no Endangered plants identified for the Idaho Panhandle National Forests) due to the gradual increase in fuel loads through time with continuing fire suppression. The greater the fuel loading, the greater the risk of a high intensity burn and stand replacing fire, with possible loss of rare plants and habitat. The increase in ignition risk and a resulting fire would also have an array of effects for sensitive plant species, ranging from beneficial to intolerant, depending on factors like the intensity of the fire, and the species ability to survive the event and compete in early successional habitat. In stands with declining canopy cover due to mortality from insects and diseases, the likely effects to certain sensitive plant guilds and species present could range from a beneficial response, due to factors like increased levels of light and available moisture, a neutral response, species persist but there is no evident change in population levels, to an intolerant response because of factors like loss of shade and decrease in relative humidity (TES Plants Specialist's Report, p. TES-10).

A low-severity fire (moderately burned, moderate duration, moderate ground char) that only consumes some of the surface fuels may kill laterally-growing rhizomes or roots near the surface, or stem buds that are not well protected. It has little effect on buried plant parts and can stimulate significant amounts of post-fire sprouting. In contrast, a high severity fire (heavily burned, long duration, deep ground char) removes the duff layer and most of the woody debris, particularly rotten material. It can eliminate species with regenerative structures in the duff layer, or at the duff-mineral soil interface, and may lethally heat some plant parts in the upper soil layers, particularly where concentrations of heavy fuels or thick duff layers are consumed (TES Plants Specialist's Report, p. TES-11).

Under Alternatives 2 and 3, potential rare plant habitat in the dry forest guild would be most affected over the short term by proposed prescribed burning activities, while proposed timber harvest would affect primarily moist forest habitat (Specialist's Report on TES Plants, p. TES-9). Proposed activities may impact sensitive plant individuals or habitat in the dry and moist forest guilds, but implementation features (including plant surveys and other protective measures described in Section 3.C.2) would prevent a trend toward federal listing or a loss of species or viability (Specialist's Report on TES Plants, p. TES-15). Activities would have no impact on other rare plant guilds. Over the long term, proposed activities would trend watershed and vegetative conditions toward the desired future condition (Specialist's Report on TES Plants, p. TES-15).

Table 10. Acres of potentially suitable rare plant habitat in the Prichard-Murray Resource Area before

and after proposed activities (with acreage difference in parenthesis).

Rare Plant Guild	Existing/Alt. 1	Alt. 2	Alt. 3
DRY FOREST (habitat for clustered lady's slipper, bank monkey flower)	2,860	893 (-1,967)	1,678 (-1,182)
MOIST FOREST (habitat for deerfern, Constance's bitter-cress, moonworts, Idaho barren strawberry)	3,902	3,625 (-277)	3,791 (-111)
WET FOREST (habitat for ball-bearing lichen, Devil's matchstick lichen)	13	13 (no change)	13 (no change)
GRASSLAND (habitat for Spalding's catchfly)	5,543	5,543 (no change)	5,543 (no change)

4.C. Impacts to Noxious Weeds

Indicators of Impacts: Analysis of effects to noxious weeds was conducted using results of noxious weed surveys and the documented distribution of weed species in habitats similar to those found in the proposed treatment sites. The types of proposed treatments were used in determining the risk of weed spread (low, moderate or high) and introduction of new weed invaders from the proposed activity based on current knowledge and professional judgment (Specialist's Report on Noxious Weeds, p. NW-4).

Under Alternative 1 (No Action), the lack of fuels treatment would, over time, further increase the risk of high severity conditions in the event of a wildfire because there are no activities proposed to reduce fuels or increase the amount of long-lived, fire-resistant western larch and fire-dependent white pine. This is a concern to management of noxious weeds because high severity burned areas have more exposed mineral soil, which would be susceptible to weed invasion. Areas where mortality results in substantial canopy loss would be at greater risk of weed spread, particularly in dry habitats that are already in an open to semi-open condition and dominated by grass-forb understories. Stands with higher rates of fuels accumulation would be at increased risk of a severe wildfire, exposure of mineral soils, and increased risk of weed spread (Specialist's Report on Noxious Weeds, pp. NW-4, NW-5).

Direct and indirect effects under the No-Action Alternative would include a natural reduction in forest canopy cover due to forest insect and disease induced mortality. Canopy loss would make conditions in the dry Douglas-fir and ponderosa pine/western larch cover types more suitable to certain common weed species such as St. Johns wort, thistles, toadflax, and spotted knapweed (Specialist's Report on Noxious Weeds, pp. NW-4). Where these species are already established in affected areas, they would likely increase. However, these effects would be limited because of the lack of ground disturbance occurring with this natural event. The direct effect of the loss of canopy and resulting indirect effect of increased light and a warmer, drier micro-environment would be most pronounced on dry, Douglas-fir, western larch habitat types. There would be little direct, indirect, or cumulative effect to moist forest and riparian habitats. In habitats with a developed shrub layer, the shrub cover would increase, limiting the risk of weed encroachment. Douglas-fir cover types with grass/forb understories would be affected to a greater degree by invading weeds. Indirectly, the lack of fuels treatment under the No-Action Alternative would, over time, increase the risk of high severity fire in the event of a wildfire. Areas where continued tree mortality results in substantial canopy loss would be at greater risk of weed spread, particularly in dry habitats which are already open to semi-open and dominated by grass-forb understories. Stands with higher rates of fuels accumulation would be at increased risk of a severe wildfire, exposure of mineral soils and increased risk of weed spread.

Under **Alternatives 2 and 3,** most of the harvesting would occur in grand fir/Douglas-fir cover types. These alternatives would increase the risk of weed invasion on harvested acres, newly constructed roads, and in burned areas, particularly on the drier cover types. Under either action alternative, activities would reduce (but not eliminate) the risk of weed spread by applying specific design features, including roadside pre-treatment, grass seeding and equipment washing (described in Section 3, Part C, and in the Specialist's Report on Noxious Weeds). The Forest Service does not have control over activities occurring on private lands; weed introduction and spread is likely occurring. Post-activity monitoring for weeds and weed treatment would occur as funds are available. Cumulative effects with this alternative would be low to moderate. Weed infestations are already present in the Resource Area on federal and private lands, and county road right-of-ways. The District is working on an ongoing basis with the State of Idaho, county officials, and members of the public to control noxious weeds within the Inland Empire Cooperative Weed Management Area, which includes the Prichard-Murray Resource Area (Specialist's Report on Noxious Weeds, p. NW-6).

4.D. Impacts to Aquatics

Indicators of Impacts: The main concerns related to aquatic resources are effects to water quality, 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 (Aquatic Resources Specialist's Report, pages AQ-23 through AQ-25).

Under Alternative 1 (No Action), no activities would be implemented, therefore there would be no direct effects (Aquatic Resources Specialist's Report, p. AQ-25). Nor would ongoing and reasonably foreseeable activities have any measurable cumulative effects (Aquatic Resources Specialist's Report, pp. AQ-35, AQ-37). The only potential change to peak flow and water yield under the No-Action Alternative would be if a large-scale, high-intensity wildfire were to occur within the area. Under such a scenario, measurable changes to peak flows and water yields would occur, with the degree of change dependent on how far the fire spread.

Under Alternatives 2 and 3, treatment activities would have little to no risk of measurable effects to the magnitude, intensity and duration of peak flows and sediment yields (see the following table). The risk of stream channel changes would be low to none (Aquatic Resources Specialist's Report, pp. AQ-26 through AQ-31). Salmonid redds, aquatic life, and associated habitat would not be affected by the anticipated changes in conditions (Aquatic Resources Specialist's Report, p. AQ-27). 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 Prichard-Murray Resource Area or downstream in the North Fork Coeur d'Alene River (Aquatic Resources Specialist's Report, pp. AQ-35 through AQ-38).

Table 11. Comparison of Changes to Peak Flow and Water Yield in the Resource Area, by alternative.

Indicator	Alternative 1* (% increase over existing)	Alternative 2 (% increase over existing)	Alternative 3 (% increase over existing)
WATER YIELD Effects of commercial harvest and resulting canopy openings on the % increase in water yield.	Prichard Creek 0% Upper Prichard Creek 0% Eagle Creek 0% Brown Creek 0% Hopkins Creek 0% Range = 0 to 0% Mean = 0.0%	Prichard Creek 0% Upper Prichard Creek 0% Eagle Creek 0% Brown Creek 1% Hopkins Creek 0% Range = 0 to 1% Mean = 0.2%	Prichard Creek 0% Upper Prichard Creek 0% Eagle Creek 0% Brown Creek 1% Hopkins Creek 0% Range = 0 to 1% Mean = 0.2%
PEAK FLOW Effects of commercial harvest and resulting canopy openings on the % increases in peak flows.	Prichard Creek 0% Upper Prichard Creek 0% Eagle Creek 0% Brown Creek 0% Hopkins Creek 0% Range = 0 to 0% Mean = 0.0%	Prichard Creek 0% Upper Prichard Creek 0% Eagle Creek 1% Brown Creek 1% Hopkins Creek 0% Range = 0 to 1% Mean = 0.2%	Prichard Creek 0% Upper Prichard Creek 0% Eagle Creek 0% Brown Creek 1% Hopkins Creek 0% Range = 0 to 1% Mean = 0.2%
SEDIMENT YIELD Effects of commercial harvest and road activity on % increase in sediment yield.	Prichard Creek 1% Upper Prichard Creek 2% Eagle Creek -1% Brown Creek 0% Hopkins Creek 0% Range = -1 to 2% Mean = 0.4%	Prichard Creek 3% Upper Prichard Creek 3% Eagle Creek -1% Brown Creek 1% Hopkins Creek 2% Range = -1 to 3% Mean = 1.6%	Prichard Creek 2% Upper Prichard Creek 3% Eagle Creek -1% Brown Creek 1% Hopkins Creek 2% Range = -1 to 3% Mean = 1.4%

** Includes reasonably foreseeable activities on National Forest System lands (under the Jo Cat timber sale) and activities on private land within the Prichard-Murray Resource Area boundary. Refer to Appendix B for a list of these activities.*

4.E. Impacts to Soils

Indicators of Impacts: The IPNF Soil NEPA Analysis Process (Niehoff 2002; PF Doc. SOIL-34) was used to determine whether proposed activities would detrimentally impact or have cumulative effects on soils (Specialist's Report on Soils, pp. SOIL-10 through SOIL-12). Direct effects include compaction, severe burning, or displacement on the soil surface, which is the most productive layer and also the easiest to disturb (Specialist's Report on Soils, p. SOIL-10). 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 increased erosion and runoff, and/or reduced productivity. Acres of detrimental disturbance were calculated by multiplying the areas of activity disturbance by the disturbance coefficient derived from monitoring reports (PF Doc. SR-06, p. SOIL-10). Indirect effects to soils include the loss of site productivity due to the removal of large woody debris and potassium.

Under Alternative 1 (No Action), there would be no direct impacts to soils because no new road construction, logging or fuel treatment activities would occur (Specialist's Report on Soils, page SOIL-12). 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 (Specialist's Report on Soils, page SOIL-12).

Under Alternatives 2 and 3, soil-disturbing activities would not exceed Forest Plan standards due to design features (Specialist's Report on Soils, pp. SOIL-14, SOIL-15). To consider the worst-case scenario, the analysis assumed that all proposed harvest treatments would occur during non-winter conditions, when the disturbance potential would be the greatest. There would be a total of approximately 39 acres of disturbance under the Alternative 2, and 33 acres of disturbance under Alternative 3. Fuels reduction and stand improvement activities would reduce the effects that a wildfire would have on soils, because there would be a reduction in currently elevated surface fuel loading on treated sites that otherwise would have the potential to cause higher levels of severely burned soils (Specialist's Report on Soils, p. SOIL-20). Cumulatively soil-disturbing activities would not exceed 15 percent detrimental conditions, and would maintain at least 85 percent of each activity area in a condition of acceptable productivity potential (Specialist's Report on Soils, p. SOIL-21).

4.F. Impacts to Wildlife

Indicators of Impacts: Wildlife species listed under the Endangered Species Act, Sensitive species, and Management Indicator species known to occur on the Idaho Panhandle National Forests were screened for their relevancy to the Coeur d'Alene River Basin and the Prichard-Murray Resource Area by reviewing sighting records, planning documents, habitat suitability index (HSI) models and other sources such as historic records and scientific literature. Relevancy is determined based on whether there is evidence of species or habitat present within the analysis area, and whether any such species or habitat could potentially be affected by the proposed activities. Some habitat and species may occur in the Coeur d'Alene River Basin yet not be applicable to the Prichard-Murray Resource Area or surrounding areas. Some wildlife species or their habitat are present in the analysis area but would not be measurably affected, either because they would not be impacted by proposed activities, the impacts would not be sufficient to influence their use or occurrence, or the species' needs can be adequately addressed through design of the project. No further discussion or analysis is necessary for those species and/or suitable habitat that are not found in the project area or for those which would not be measurably affected.

A number of species were not addressed in this EA because the species is not likely to occur or habitat does not exist in the analysis area, therefore the species would not be affected by the proposed activities. Species <u>not</u> addressed in this EA include:

- Grizzly bears
- Woodland caribou
- Wolverine
- Peregrine falcons
- Common loons
- Northern bog lemmings
- Black swifts

The analysis revealed that there would be no significant impact to any of the species considered, and there would be no loss of viability to populations or species under any alternative. The long-term benefits to wildlife species would outweigh the short-term disturbance to species during implementation of project activities. The

discussions below identify the species' status and their probability of occurrence in the Prichard-Murray Resource Area, and provide a synopsis of effects to each wildlife species potentially affected. For each Threatened and Endangered species (gray wolf, Canada lynx, and bald eagle), the Forest Service is completing the necessary coordination in accordance with the Section 7 Counterpart Regulations (PF Doc. WL-67) that complement the general consultation regulations at 50 CFR 402 by providing an alternative process for completing section 7 consultations for Federal agency projects that support the National Fire Plan.

Table 12. Synopsis of Impacts to Endangered/Threatened Wildlife in the Prichard-Murray Resource Area.

Alt.	Impacts
GRAY WOLF – Endangered Species	***(moderate probability of occurrence)***
Alt. 1	No short-term effects because no new activities would occur; over the long term brush fields could be reduced, resulting in lower prey populations.
Alt. 2, 3	Activities would not jeopardize individuals or populations. Viability would be maintained since the goal to have 30 breeding pairs well established.
CANADA LYNX – Threatened Species	***(low probability of occurrence)***
Alt. 1	No short-term effects because no new activities would occur. After 50 to 100 years, denning habitat and prey could increase. In the event of a stand-replacing fire, large patches of pre-forage habitat could be created, followed by high-quality forage habitat for 25 to 35 years following the fire.
Alt. 2, 3	No short-term effects because none of the proposed treatment units are in lynx habitat or any lynx analysis unit. Habitat changes over time would be the same as under the No-Action Alternative. Either alternative may affect but would not adversely affect the lynx or its survival.
BALD EAGLE – Threatened Species	***(high probability of occurrence)***
Alt. 1	No short-term effects because no new activities would occur. Natural changes over time would not adversely affect bald eagle habitat.
Alt. 2, 3	No effect on bald eagle or its habitat because no activities are proposed that would affect roost trees, potential nest trees, or foraging habitat in the resource area.

Table 13. Synopsis of Impacts to Sensitive Wildlife in the Prichard-Murray Resource Area.

Alt.	Impacts
FLAMMULATED OWL	***(high probability of occurrence)***
Alt. 1	No short-term effects because no new activities would occur. Over time, there would be a decline in habitat as natural processes and fire suppression contribute to conditions favoring dense understories in ponderosa pine and Douglas-fir stands.
Alt. 2	Proposed activities would occur on 522 acres of suitable habitat. While suitable habitat would be affected, long-term viability of the species would be maintained for the next 100 years due to snag retention that would provide nesting habitat.
Alt. 3	Proposed activities would occur on 247 acres of suitable habitat. While suitable habitat would be affected, long-term viability of the species would be maintained for the next 100 years due to snag retention that would provide nesting habitat.
BLACK-BACKED WOODPECKER	***(low probability of occurrence)***
Alt. 1	No short-term effects because no new activities would occur. Over time, natural mortality due to insects would result in snag recruitment. Potential stand-replacing fires would increase forage habitat for about 5 years, after which the forage value would be greatly reduced.
Alt. 2, 3	Proposed treatments would reduce tree density and understory in about 3% of the resource area, affecting individuals. Viability will be maintained for the next 100 years because habitat is well-distributed and abundant across the Forest Service's Northern Region.
FISHER	***(low probability of occurrence)***
Alt. 1	No short-term effects because no new activities would occur. Over time, there would be a trend toward the late-successional forest that is preferred by fishers, and mortality of trees would increase snags and downed wood, improving habitat. Potential stand-replacing fires would set back the trend.
Alt. 2, 3	Proposed fuelbreaks would affect 4 acres of capable fisher habitat, displacing individuals over the short term. Over time, viability would be maintained because there are movement corridors available both inside and outside the analysis area; guidelines would ensure that snag habitat is provided; and allocated old growth would be maintained at 10% or greater across the IPNF.
COEUR D'ALENE SALAMANDER	***(moderate probability of occurrence)***
Alt. 1	No short-term effects because no new activities would occur. Over time, stand-replacing fires could reduce habitat by increasing peak flows.
Alt. 2, 3	Since most treatment sites occur on dry hillsides unlikely to support salamanders, the proposed activities are not expected to affect the salamanders or their habitat. Buffers around potential habitat would ensure viability of the species.
TOWNSENDS BIG-EARED BAT & FRINGED MYOTIS	***(moderate probability of occurrence)***
Alt. 1	No short-term effects because no new activities would occur. In the event of a wildfire, smoke would be produced at levels that could be fatal for bats that occupy mines.
Alt. 2, 3	Individuals or habitat may be impacted in activity areas over the short term, but no known populations would be affected. Guidelines would be applied to protect bat habitat, ensuring viability of the species.
BOREAL TOAD	***(low probability of occurrence)***
Alt. 1	The No-Action alternative would not affect boreal toads or their habitat.
Alt. 2, 3	Although prescribed burning would greatly reduce the number of logs providing foraging and cover sites for toads, it would also burn tree roots, leaving empty burrows that could be used by toads over the winter. The proposed treatments would have no effect on toad breeding habitat, because no ponds have been found on national forest lands in the resource area.
HARLEQUIN DUCK	***(high probability of occurrence)***
Alt. 1	The No-Action alternative would not affect harlequin ducks or their habitat.
Alt. 2, 3	Activities would not affect harlequin ducks or their habitat because neither alternative would introduce sediment to the North Fork Coeur d'Alene River (most treatments would not occur in or near harlequin duck habitat).
PYGMY NUTHATCH	***(high probability of occurrence)***
Alt. 1	No short-term effects because no new activities would occur. Over time,
Alt. 2, 3	Activities could impact individual nuthatches or their habitat, but would not cause a loss of viability to the population or species. Thinning and prescribed burning would reduce the forest canopy in pygmy nuthatch habitat stands by up to one-third. However, the number of large-diameter snags would be maintained or increased, so there would be no impact to suitable nesting habitat.

Table 14. Synopsis of Impacts to Management Indicator Wildlife Species in the Prichard-Murray Resource Area.

Alt.	Impacts
PILEATED WOODPECKER – Old-growth	***(high probability of occurrence)***
Alt. 1	No short-term effects because no new activities would occur. Over time, there would be a trend toward the late-successional forest that is preferred by pileated woodpeckers, and mortality of trees would increase snags and downed wood, improving habitat. Potential stand-replacing fires would set back the trend.
Alt. 2, 3	Over the short term, individuals or habitat could be affected by disturbance in activity areas, but all woodpecker snag habitat would be retained. Over the next 100 years, viability would be assured because the recommended level of snags would be retained.
PINE MARTEN – Old-growth	***(low probability of occurrence)***
Alt. 1	No short-term effects because no new activities would occur. Over time, there would be a trend toward the late-successional forest that is preferred by pine marten, and mortality of trees would increase snags and downed wood, improving habitat. Potential stand-replacing fires would set back the trend.
Alt. 2, 3	Over the short term, individuals or habitat could be affected by disturbance in activity areas. Marten denning and foraging habitat would be provided in the treated areas after approximately 90 years. Over the next 100 years, viability would be maintained because the recommended level of snags would be retained, there are movement corridors available for dispersal of the species, and allocated old growth would be maintained at 10% or greater across the IPNF.
NORTHERN GOSHAWK – Old-growth	***(high probability of occurrence)***
Alt. 1	No short-term effects because no new activities would occur. Over time, there would be a trend toward the late-successional forest and would continue to provide habitat for one or more nesting pairs of goshawks, but would still fall well below the recommended level of one pair per 10,000 acres.
Alt. 2, 3	No short term effects because none of the proposed treatment units are within suitable goshawk habitat. Over time, treatment would trend trees toward a larger diameter and result in the necessary large structure component that is currently lacking in the resource area. Treatment of patches larger than 40 acres would provide large patches of interior habitat for nesting in about 150 years. Viability for the species would be maintained over the next 100 years because habitat is well-distributed and abundant across the Forest Service's Northern Region.
ROCKY MOUNTAIN ELK – Big-game	***(high probability of occurrence)***
Alt. 1	No short-term effects because no new activities would occur. Over time, there would be a loss of forage habitat as immature stands trend toward mature forest structure and the vigor of brush fields declines. As currently mature stands decline, there would be a reduction in thermal cover. There would be no activities to improve browse habitat. In the event of a stand-replacing fire, cover habitat could be converted to forage habitat.
Alt. 2, 3	There would be no change in elk habitat potential because of the limited amount of proposed road construction. Over the long term, a activities would result in an increase in forage. Treatment of patches larger than 40 acres would result in large security patches in about 50 years.

Table 15. Synopsis of Impacts to Nongame & Land Birds in the Prichard-Murray Resource Area.

Alt.	Impacts
Alt. 1	No short-term effects because no new activities would occur. Over time, current trends would continue with below-historic levels of white pine and western larch and the wildlife species associated with them. Some mature stands would trend toward old forest; however, many stands would never achieve old growth characteristics due to insects, disease, and fire.
Alt. 2, 3	Over the short term, brush field burning would decrease cover and shelter for nongame species for 5 to 10 years. Prescribed burning could increase snags over both the short- and long-term. Restoration of fire as an ecological process would result in a trend toward historical conditions and provide additional biodiversity with maintenance of brush fields on south-facing slopes. Over the long term, restoration of white pine, ponderosa pine, and western larch could benefit nongame and land bird species.

4.G. Impacts to Recreation

Indicators of Impacts: There are no developed campgrounds, picnic areas, or other structural recreation developments in or near the Prichard-Murray Resource Area. The only recreation trail in the area is Kings Pass Trail 151. Portions of the resource area are within the boundaries of three inventoried roadless areas (IRAs), including 477 acres (4 percent) of the Lost Creek IRA, 4,854 acres (82 percent) of the Trouble Creek IRA, and 267 acres (3 percent) of the Maple Peak IRA. The three inventoried roadless areas have been classified in the Forest Plan as having common scenic characteristics, natural appearing and visually appealing, but lacking any special features or distinctive attributes that would set them apart from similar landscapes in the Coeur d'Alene Mountain Range.

Under **Alternative 1 (No Action)**, there would be no effect to the natural integrity, apparent naturalness, and distinctive features of the inventoried roadless areas. However, continued fuel buildup along the boundaries of the roadless areas may result in impacts should a large fire occur. In addition, the continued risk of severe wildfire poses a long-term risk to the quality of recreation opportunities in the area, since burned trees and possible erosion caused by vegetation burnout could damage Trail 151, the surrounding scenery, and sense of visitor enjoyment (Specialist's Report on Recreation, page REC-2).

Under **Alternatives 2 and 3**, implementation of proposed activities would result in temporary impacts to recreation (smoke, dust and noise). Over the long term, the intensity of potential wildfires would be reduced following treatment. Under either action alternative, there are no activities proposed in the Maple Peak IRA, therefore there would be no effects on the natural processes and attributes of the area. Prescribed burning and fuel break development are proposed in the Lost Creek and Trouble Creek IRAs under both alternatives. In the Lost Creek IRA, approximately 180 acres are proposed for prescribed fire, with creation and maintenance of a 4-acre fuelbreak (in Unit 20). In the Trouble Creek IRA, approximately 725 acres are proposed for prescribed fire, with a total of 16 acres in fuelbreaks.

Prescribed burning would have practically no effect on the natural processes and attributes of the roadless areas, since burning mimics natural processes. Prescribed burning reduces fuel concentrations while leaving the primary tree composition intact.

The fuelbreaks would follow property boundaries. Some trees (with no commercial value) would be removed, limbs would be pruned and brush thinned to a distance of no more than 200 feet along the national forest-private land boundary (therefore intruding no more than 200 feet into the roadless areas). No roads would be constructed and mechanized equipment would not be used in development of the fuel break. The effects of the fuelbreak would be minor and would not compromise the attributes of the roadless area.

4.H. Impacts to Scenery

Under **Alternative 1 (No Action)**, there would be no immediate effects to scenery in the vicinity of the Prichard-Murray Resource Area, because no activities are proposed. Old harvest units would continue to recover tree growth, slowly muting unnaturally-appearing visual effects. However, over the long term, increased vulnerability to severe wildfire could bring detrimental changes to the scenic conditions, such as blackened landscape and loss of vegetation (Specialist's Report on Scenic Resources; p. SCE-2).

Under **Alternatives 2 and 3**, effects of harvest and prescribed burn units would be slight. Effects to scenic resources would be short term; as seasons change, vigorous growth of grasses and new brush would be supported in the treatment areas (Specialist's Report on Scenic Resources, pages SCE-2, SCE-3).

4.I. Consistency with Laws, Regulations and Policies

IPNF Forest Plan Management Area Allocations: Under the IPNF Forest Plan, 54 percent of National Forest System lands in the Prichard-Murray Resource Area are managed for timber production and for the long-term growth and production of commercially valuable wood products; 41 percent are managed for big-game winter range as well as to produce wood products; 1 percent are managed for other than timber production or are non-forest; 4 percent are along streams and managed for riparian-dependent resources (fish, water quality, vegetation and wildlife communities) while producing other resource outputs at levels compatible with objectives for dependent resources; and less than 1 percent of the lands are managed for developed recreation opportunities in a roaded natural and rural recreation setting (USDA 1987, PF Doc. CR-001).

Standards, goals and objectives Related to Fire/Fuels: Under Alternative 1 (No Action), the landscape would further deteriorate into Fire Regime Condition Classes 2 and 3, and there would be no activities to reduce the buildup of canopy and surface fuels. This trend would eventually reach a point where conditions are inconsistent with the goals, objectives and standards established in the Forest Plan and the Community Wildfire Protection Plan (Fire/Fuels Specialist's Report, page FF-21).

Forest Service Regulations Regarding Over 40-acre Openings: The size of harvest openings created by even-aged silvicultural methods is normally limited to 40 acres or less (FSM 2471.1; PF Doc. VEG-27). The project team has asked the Regional Forester to approve exceptions in the Prichard-Murray Resource Area. Under the Proposed Action, one unit would exceed the 40-acre opening size: Unit 16 is proposed as a 48-acre shelterwood harvest unit (Specialist's Report on Forest Vegetation, p. VEG-26). Under the Modified Action Alternative, this unit would be dropped due to its location within allocated old growth. Exceeding the 40-acre size would be necessary because treating small or isolated stands without assessing the broader landscape would likely be ineffective in reducing wildfire extent and severity (PF Doc. VEG-R13, page 29). The public was notified through the project scoping letter and legal notice that some openings would be larger than 40 acres.

Clean Water Act: All alternatives would be consistent with the requirements of the Clean Water Act (33 USC 1251). Sediment and metals, the pollutants of concern, would not increase in the water quality limited North Fork Coeur d'Alene River segment from Yellowdog Creek to its mouth. Risks to beneficial uses in all streams of the Prichard-Murray Resource Area would not be changed by this project. In compliance with the current TMDL for the North Fork of the Coeur d'Alene River, there would be no net increase in sediment or metals into the North Fork of the Coeur d'Alene River or streams of the project area through the proposed management activities.

Clean Air Act: The Idaho Panhandle National Forests is a member of the Montana/Idaho Airshed Group, which is composed of members who conduct a "major" amount of prescribed burning and the regulatory and health agencies that regulate this burning. The intent of the Airshed Group is to minimize or prevent smoke impacts while using fire to accomplish land management objectives and/or fuel hazard reduction (PF Doc. FF-42). The monitoring unit of the Montana/Idaho Airshed Group coordinates burning and smoke emissions to minimize smoke accumulation and provides smoke dispersion forecasts and air quality monitoring support for burners in the Airshed Group. Daily during the burning season, burners post proposed burns before 11:00 am; the monitoring unit considers proposed burns together with expected ventilation or smoke dispersion conditions and existing air quality to determine burn recommendations for the following day (with concurrence from the Idaho Department of Environmental Quality). These procedures limit smoke accumulations to legal, acceptable limits. The District strictly complies with these procedures, and has had no air quality violations.

The No Action Alternative would be consistent with the Clean Air Act because it would not cause any direct impacts to air quality; wildfire smoke is not regulated by the Clean Air Act.

Although prescribed burning creates smoke that contains particulate matter, activities proposed under either action alternative would substantially reduce the particulate matter emissions of potential wildfires (Fire/Fuels Specialist's Report, p. FF-16).

National Historic Preservation Act: Surveys to locate heritage resources within the Prichard-Murray Resource Area have been completed (PF Doc. HR-01). All known heritage resource sites would be protected under either alternative, as directed by the Cultural Resources Management Practices (Forest Plan, Appendix FF; PF Doc. HR-01). Any future discovery of heritage resource sites would be inventoried and protected in accordance with the National Historic Preservation Act if found to be of cultural significance.

PART 5. ADMINISTRATIVE REVIEW PROCESS

The activities proposed in the Prichard-Murray Resource Area are appropriate and meet the definition of "authorized" under the Healthy Forests Restoration Act as defined in the 2004 Healthy Forests Initiative and Healthy Forests Restoration Act Interim Field Guide (pp. 9-14, 27-29; PF Doc. CR-021). Passed in December 2003, the Healthy Forest Restoration Act (HFRA) is intended to reduce delays and remove statutory barriers for projects that reduce hazardous fuel and improve forest health and vigor on lands managed by the Forest Service and Bureau of Land Management. These lands are at risk of wildland fire; have experienced wind throw, blow down or ice-storm damage; are currently experiencing disease or insect epidemics; or are at imminent risk of such epidemics because of conditions on adjacent land (HFI/HFRA Interim Field Guide, p. 7; PF Doc. CR-023. Other provisions of the HFRA are designed to address forest and rangeland health on private lands.

The Forest Service has prepared this Environmental Assessment (EA) to determine whether or not implementing the proposed activities would result in significant effects warranting preparation of an Environmental Impact Statement. Based on the results of this analysis, a Draft Finding of No Significant Impact is provided with this document for public review and comment. This environmental assessment is being provided to other agencies, adjacent landowners, and any person or organization that has indicated an interest in the proposal (please refer to Appendix C for a list of agencies and persons consulted).

The HFRA provides a pre-decisional administrative review process (referred to as the "objection" process) pursuant to 36 CFR 218, subpart A. It is not subject to notice, comment and appeal provisions pursuant to 36 CFR 215 (see 36 CFR 218.3). Legal notice has been published in the newspaper of record (*Coeur d'Alene Press*, Coeur d'Alene, Idaho) announcing availability of the document and describing the objection process. Objections will be accepted only from those who have previously submitted written comments specific to the proposed project during scoping or other opportunity for public comment (36 CFR 218.6). The publication date of the legal notice is the exclusive means for calculating the time to file an objection (36 CFR 218.9(a)). Those wishing to object should not rely upon dates or timeframe information provided by any other source. At a minimum, an objection must include the following (36 CFR 218.7(d)):

1. *The objector's name and address, with a telephone number if available;*
2. *A signature or other verification of authorship upon request (a scanned signature for Email may be filed with the objection);*
3. *When multiple names are listed on the objection, identification of the lead objector (verification of the identity of the lead objector will be provided upon request);*
4. *The name of the proposed authorized hazardous fuel reduction project, the name and title of the Responsible Official, and the name(s) of the National Forest(s) and/or Ranger District(s) on which the proposed authorized hazardous fuel reduction project will be implemented; and*
5. *Provide sufficient narrative description of those aspects of the project that are objected to, to identify specific issues related to the proposed project and to suggest remedies that resolve the objection (36 CFR 218.7(b)).*

Incorporation of documents by reference will not be allowed in the objection (36 CFR 218.7(c)).

The Forest Service is the lead agency for this project. The Responsible Official for this proposal is Forest Supervisor Ranotta K. McNair. An objection, including any attachments, must be filed in writing (regular mail, fax, Email, hand-delivery, express delivery, or messenger service) with the Reviewing Officer within 30 days of the date of publication of the legal notice (36 CFR 218.9(a)). The Reviewing Officer for this project is Thomas L. Tidwell, Northern Regional Forester. Objections may be submitted to him by mail at: USDA Forest Service, Northern Region, P.O. Box 7669, Missoula, MT 59807; by fax at (406) 329-3411; or by E-mail at **appeals-northern-regional-office@fs.fed.us**. The acceptable formats for submitting an electronic objection are: MS Word, Word Perfect, or RTF. Please type "Prichard-Murray Resource Area Objection" in the e-mail subject line. Hand-delivered objections will be accepted at the Regional Forester's Office, 200 E. Broadway, Missoula, MT, between the hours of 8 a.m. and 4:30 p.m. Monday through Friday. All objections will be open to public inspection during the objection process (36 CFR 218.7(a)).

APPENDIX A
HEALTHY FORESTS RESTORATION ACT AUTHORIZATION

Background

About 190 million acres of Federal forest and rangeland in the lower forty-eight states face high risk of large-scale insect or disease epidemics and catastrophic fire due to deteriorating ecosystem health and drought (The Healthy Forest Initiative and Healthy Forest Restoration Act Interim Field Guide, p. 2, USDA Forest Service, February 2004; PF Doc. CR-023). While the increased risk of catastrophic wildland fire is often blamed on long-term drought or expansion of the wildland urban interface in the Western United States, the underlying cause is the buildup of forest fuel and changes in vegetation composition over the last century. Passed in December 2003, the Healthy Forest Restoration Act (HFRA) is intended to reduce delays and remove statutory barriers for projects that reduce hazardous fuel and improve forest health and vigor on lands managed by the USDA Forest Service and the USDI Bureau of Land Management. These lands are at risk of wildland fire; have experienced wind throw, blow down, or ice-storm damage; are currently experiencing disease or insect epidemics; or are at imminent risk of such epidemics because of conditions on adjacent land (HFI/HFRA Interim Field Guide, p.7; PF Doc. CR-023). Other provisions of the HFRA are designed to address forest and rangeland health on private lands.

Collaborative Requirements

Section 104(e) of the HFRA requires agencies to provide notice of the project and conduct a public meeting when preparing authorized hazardous fuel-reduction projects. Section 104(f) encourages meaningful public participation during preparation of such projects. Collaboration with communities and the public is also the cornerstone of *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-Year Comprehensive Strategy Implementation Plan* (May 2002).

A collaborative process was used in developing the Prichard-Murray Resource Area proposal and involved the Bureau of Land Management, State of Idaho (Department of Lands), Shoshone County Fire Chiefs, and Shoshone County Commissioners (collectively referred to as the Shoshone County Fire Mitigation Working Group), Idaho Department of Environmental Quality, and interested individuals and organizations.

Collaboration efforts have also provided opportunities for other members of the public to participate in the project. On September 14, 2004, the Shoshone County Fire Mitigation Group held a public meeting to discuss fuels reduction in Shoshone County, including the Prichard-Murray Resource Area. Approximately a dozen area residents attended the meeting. A second public meeting was held on August 23, 2005, to provide information and answer questions regarding proposed activities in the Prichard-Murray Resource Area. Please refer to Appendix C for additional information regarding collaboration, public involvement, and a list of agencies and persons consulted.

Analysis Requirements

The Council on Environmental Quality provided new guidance for the preparation of environmental assessments for fuel reduction and fire-adapted ecosystem restoration projects. They recommended that the EA address four elements (HFI/HFRA Interim Field Guide, p. 9; CR-023). This EA includes all four identified elements: The need for the proposed activities (Part 2); description of alternatives (Part 3); description of the environmental impacts (Part 4); and a list of the agencies and persons consulted (Appendix C). CEQ's HFRA guidance is provided on their internet website:

ceq.eh.doe.gov/nepa/regs/guidance_for_environmental_assessments.pdf

The activities proposed in the Prichard-Murray Resource Area are appropriate and meet the definition of "authorized" under the Healthy Forests Restoration Act as defined in the 2004 Healthy Forests Initiative and Healthy Forests Restoration Act Interim Field Guide (pp. 9-14, 27-29; PF Doc. CR-021) and as discussed in this Appendix.

Agencies must provide notice of the project and conduct a public meeting when preparing authorized hazardsous fuel-reduction projects. Section 104(f) encourages meaningful public participation, including collaboration.

The Prichard-Murray Resource Area project involves several interagency cooperators, including participants from the Bureau of Land Management, State of Idaho, Shoshone County Fire Chiefs, and Shoshone County Commissioners (collectively referred to as the Shoshone County Interagency Fire Planners), as well as the Idaho Department of Environmental Quality. Collaborative efforts have also involved interested individuals and organizations, including two public meetings. Further discussion of the collaborate efforts is provided in Appendix C of this environmental assessment.

Authorized hazardous-fuel treatment projects under the HFRA cannot take place in wilderness or wilderness study areas, or in areas where removal of vegetation is prohibited by an act of Congress or Presidential proclamation, including prohibitions in the area's implementation plan.

There are no lands in or adjacent to the Prichard-Murray Resource Area designated as wilderness or wilderness study areas. Proposed activities are not in any area where removal of vegetation is prohibited.

Proposed HFRA actions must be consistent with the applicable resource management plans and must be on lands managed by the USDA Forest Service or DOI BLM.

An estimated 74 percent of lands within the project area boundary are National Forest System lands managed by the Coeur d'Alene River Ranger District of the Idaho Panhandle National Forests (IPNF). The Bureau of Land Management (BLM) manages approximately 6 percent of lands within the boundary, and the remaining 20 percent are privately owned lands (p. EA-2). All of the proposed activities are located on National Forest System lands.

For areas inside the wildland urban interface and <u>within 1-1/2 miles</u> of the boundary of an at-risk community, the Forest Service is not required to analyze any alternative to the proposed action, unless the at-risk community has adopted a Community Wildfire Protection Plan and the proposed action does not implement the recommendations in the plan regarding the general location and basic method of treatments. For areas inside the wildland urban interface but <u>farther than 1-1/2 miles</u> from the boundary of an at-risk community, the Forest Service is not required to analyze more than the proposed agency action and one additional action alternative. For authorized HFRA projects <u>in all other areas</u>, analyses must describe a no-action alternative, the proposed action, and an additional action alternative, <u>if</u> one is proposed during scoping or the collaborative process. Agencies are not expected to develop a full no-action alternative, but should evaluate the effects of failing to implement the project.

The Prichard-Murray Resource Area is almost entirely within the Wildland Urban Interface Area as defined by the Shoshone County Fire Mitigation Plan. The Shoshone County Fire Mitigation Working Group has agreed that the treatments proposed in the Prichard-Murray Resource Area are an acceptable version of the Wildland Urban Interface Fire Mitigation Plan recommendations, and has amended their plan to accept the proposed treatments, which they recognized as both cost-effective and feasible (PF Doc. FF-33).

<u>Wildland Urban Interface</u>

The line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels…

(USDI and USDA 2002, PF Doc. REF-2)

An area within or adjacent to an at-risk community that is identified in recommendations to the Secretary in a community wildfire protection plan…

(Healthy Forests Restoration Act, Public Law 108-148, Sec. 101[16]; PF Doc. CR-024)

Three alternatives have been analyzed: Alternative 1 is the No-Action Alternative (to demonstrate the effects of failing to implement the project), Alternative 2 is the Proposed Action Alternative (the agency's proposed alternative), and Alternative 3 was developed in response to public concerns, to demonstrate the benefits vs. risks of treatment in allocated old-growth stands.

APPENDIX B
PAST, ONGOING AND REASONABLY FORESEEABLE ACTIVITIES

Introduction

In *Lands Council v. Powell*, the U.S. Court of Appeals for the 9th Circuit held that, under the circumstances presented in the case, proper cumulative impact analysis required some cataloging of past projects and their effect on the current project area. Furthermore, such cataloging should provide sufficient detail to allow for analysis of the differences between prior projects and proposed projects, which could provide the information necessary to consider alternatives that might have less impact on the environment. Within the EA we have provided information of relevant past, present and reasonably foreseeable projects/activities that have occurred, are occurring, or are proposed to occur within each of the resource cumulative effects areas examined in this analysis (EA Appendix B). A discussion of the effects of these past, ongoing, and reasonably foreseeable activities has been provided to promote an informed assessment of environmental considerations and aide in assessing whether one form or another of harvest would assist in meeting the project's purpose and need for action with minimal environmental harm.

The Council on Environmental Quality (CEQ), whose responsibility it is to coordinate federal environmental efforts and work closely with agencies and other White House offices in the development of environmental policies and initiatives, provided guidance to federal agencies on the consideration of past actions in cumulative effects analysis (CEQ Memorandum to the Heads of Federal Agencies regarding Guidance on the Consideration of Past Actions in Cumulative Effects Analysis, June 24, 2005; PF Doc. CR-026). CEQ stated that "the environmental analysis required under NEPA is forward looking, in that it focuses on the potential impacts of the proposed action that an agency is considering. Thus, review of past actions is required to the extent that the review informs agency decision makers regarding the proposed action," (CEQ memo, p. 1) They further state, "Generally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historic details of individual past actions" (CEQ memo p. 2). Cumulative impact is defined in CEQ's NEPA regulations as the "impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions…" (40 CFR 1508.7). CEQ has interpreted this regulation as referring only to the cumulative impact of the direct and indirect effects of the proposed action and its alternatives when added to the aggregate effects of past, present, and reasonably foreseeable future actions (CEQ memo p. 2).

With respect to past actions, during the scoping process and subsequent preparation of the EA, the Forest Service determined what information regarding past actions was useful and relevant to the analysis of cumulative effects. While CEQ found that cataloging past actions and specific information about the direct and indirect effects of a past project's design and implementation could in some contexts be useful to predict the cumulative effects of the proposal, the regulations do not require the Forest Service to catalog or exhaustively list and analyze all individual past actions (CEQ memo p. 3).

The EA has provided a description of known past activities and their effects; however due to the marked difference between past and current land management practices and policies, this analysis did not further aide in assessing whether one form or another of the proposed activities would assist in meeting the project's purpose and need for action with minimal environmental harm. The evolution that has occurred in land management practices (specifically related to roads and timber harvest) is the result of science and our ongoing monitoring actions.

On the IPNFs, early to mid-20th century **road construction activities** focused construction mainly through river valleys, riparian areas, floodplains, and adjacent hillsides. The roads efficiently provided access but decreased the land's effectiveness as wildlife habitat and constricted stream channels, providing a new avenue for erosion and discharge of sediment into streams. Roads on national forest lands often were simply an expansion of existing trails and paths that provided access so that they would accommodate newer equipment and current land uses. In some situations, roads were developed on abandoned railroad beds. In both cases, the location and design were predetermined from the previous use and era. As time progressed, roads were "designed" and located to achieve their primary purpose, which was to provide access and haul product at a minimal cost. In the decades following World War II (1950s –'70s), the road network was rapidly expanded to support the domestic need for lumber in housing construction.

Over the last twenty years, both road design and location have evolved as necessary tools to not only provide efficient access; but also to protect the valuable watershed resources they encroached upon. Forest Service Best Management Practices (FSH 2509.22 Soil and Water Conservation Practices Handbook) have been

incorporated into road construction/reconstruction activities on the forest. Road surfacing (gravel, etc.) was incorporated to not only provide better trafficability; but also to prevent and control erosion from the road surface. Road controls are now being incorporated into designs that reduce the erosive flows in ditches by providing frequent cross-drains to relieve ditch flows, avoid water movement down the road by dispersing the drainage quickly by crowning or outsloping the road surface; stabilize ditches by lining; dispersing drainage water that often carries sediment onto stable, forested slopes before ditches discharge into waterways; and allow new and existing stream crossings to safely pass extreme events (such as a 100-year flood event).

Special construction techniques and designs have been utilized (i.e., full- or partial-benching of roads) to avoid unstable side casting of waste materials; windrowing clearing slash to prevent sediment delivery to streams from construction activities themselves as well as from erosion of road fills and treads that are not yet protected with erosion control vegetation. Some roads now are designed to take advantage of the non-uniformities of the slopes they cross by "rolling grades" and grade breaks to prevent the potential for accumulations of water or excessive ditchflows that have destabilized the road bed or cause surface erosion in the past. Designers and planners develop road networks that avoid highly erosive or unstable slopes utilizing the *land system inventory*, hydrologists, soil scientists, and geotechnical engineers.

Road crossings are being located at more stable sites and crossing designs are now considering water quality and fish passage as primary design criteria, rather than criteria that just account for costs and traffic efficiency. Roads are being located well away from streams and their riparian areas wherever practicable; and the number of crossing sites is being minimized. These features are in stark contrast to past road locations that sometimes resulted in chronic sources of sediments, extended exposure of streams to direct sunlight resulting in temperature elevations, loss of riparian wildlife habitats, and nearly permanent reductions of the replacement sources of the structural components of streams and aquatic cover, riparian deadfall.

In the past, when a road's utility ended, the road was simply abandoned. These abandoned roads have been a substantial water quality and slope stability issue as they have deteriorated, especially without any maintenance. Current practice is to restore key abandoned or no longer useful roads to a "hydrologically neutral" condition where its remnants are self-maintaining and are no longer disturbing slope stability or the movement of slope water, either on or below the soil surface or the natural functions and adjustments of streams, wetlands, and other water bodies.

Impacts to forest water and soil resources from logging practices and road activities have also been reduced over the past 20 years with the introduction of Best Management Practices (BMPs) and Inland Native Fish Strategy (INFISH) management direction. Based on research studies, current BMPs and INFISH Riparian Habitat Conservation Areas (RHCAs) can reduce sediment yields compared with historical practices (Lee et al 1997, p. 1346, PF Doc. DN-R71; USDA 1995; PF Doc. CR-003).

In 1972, Section 208 of the Clean Water Act Amendments established the regulatory framework for non-point source pollution control thorough use of BMPs. BMPs are defined in Idaho as a practice or combination of practices determined to be the most effective and practicable means of preventing or reducing the amount of pollution generated by non-point sources (IDAPA 20.02.01). BMP monitoring is annually conducted by the forest to validate the implementation and effectiveness of BMPs associated with land management activities. Monitoring results are used to adapt future management actions where improvements in meeting water quality objectives are indicated. Forest monitoring of BMPs indicates that in most cases they continue to function as expected and are meeting their intent (IPNF 2002, 2003; PF Doc. CR-018 and CR-022).

At the time the IPNF Forest Plan was written (circa 1987), the emphasis was on developing a commodity production strategy while minimizing impacts to watersheds and aquatic resources, including fish. The strategy for watershed management was constructed in the Forest Plan as a "maintenance" objective. In some situations, thresholds, or "minimum impact" standards defined the criteria for maintenance. To ensure that watersheds and aquatic resources were maintained during forest management activities, BMPs were applied. Despite the existing forest plan standards and BMPs, the condition of fish habitat on the forest was declining, primarily due to timber harvest and road building activities (IPNF 1992).

In 1995, the Forest Plan was amended to include INFISH management direction (USDA 1995; PF Doc. CR-003), which gave greater protection to aquatic resources, especially riparian-dependent systems. The management direction provided by the INFISH amendment is designed to protect and maintain the structure and function of riparian and aquatic systems. INFISH contains goals for healthy, functioning watersheds, riparian areas, and associated fish habitats; Riparian Management Objectives (RMOs), and performance-based standards and guidelines for land management activities (i.e., timber, roads, grazing, recreation,

minerals, fire/fuels, lands, riparian area management, watershed restoration, fisheries and wildlife restoration). Instead of allowing some "acceptable" level of effects on riparian and aquatic systems, INFISH aims to protect aquatic resources from detrimental effects. INFISH gives riparian-dependent resources priority over other resources in the Riparian Habitat Conservation Areas (RHCAs), so that while RHCAs are not "lock out" zones, activities that occur in them must either benefit riparian and aquatic resources or at least "not slow the rate of recovery below the near natural rate of recovery if no additional human caused disturbance was placed on the system" (USDA 1995; PF Doc. CR-003). Incorporation of the INFISH management direction into the Forest Plan has led to improvement in the condition of aquatic resources by offering greater protections to the critical riparian areas. In addition, INFISH allows for and encourages watershed restoration, which has occurred over the last several years across the IPNF. For example, over 1,300 miles of roads have been decommissioned on the IPNF from 1991-2003 (IPNF 2003; PF Doc. CR-022).

As described in Section 3.C (Table 2), both Alternative 2 and Alternative 3 include temporary road construction (0.2 mile) and road reconstruction (0.6 mile). The Proposed Action Alternative also includes road reconditioning (0.3 mile). Specific BMPs will be followed during implementation of all project activities, as will standards and guidelines of the Inland Native Fish Strategy (Section 3.C.3 "Features"). Monitoring will occur to ensure BMP effectiveness and compliance with the Inland Native Fish Strategy (Section 3.C.5).

Harvest methods and removal of timber products from the national forest has changed substantially over time. Early harvest methods (1950s, '60, and '70) focused primarily on financial objectives of providing low cost wood products. Harvest placement often occurred in the highest volume, easily accessible stands. Timber harvest often occurred within riparian areas and adjacent to streams. Most of the harvest prescriptions were primarily designed to produce healthy young stands with shorter rotation ages.

Modern timber harvest prescriptions and design emphasize desired conditions of the forest after the harvest. This usually results in the retention of various amounts of trees in a post-harvest stand, addressing objectives that may include wildlife habitat, watershed conditions, hazardous fuels, visual quality, soil productivity, forest health and others. On sites determined suitable for timber production, timber harvest may also produce timber products on a regulated basis while compatible with these other resource objectives and values. Some examples where timber production and resource objectives can be achieved simultaneously are:

- *Reducing tree densities to decrease bark beetle hazard, thereby prolonging the development of the forest and maintaining tree cover;*
- *Managing tree canopies to limit fire spread from the forest floor to the tree crowns;*
- *Developing flammulated owl and bat habitat in ponderosa pine forest through removal of smaller stems while retaining larger trees, thereby providing more room to grow for the remaining trees, and open stand conditions favored by the owl and foraging bats,*
- *Designing harvest patterns across the landscape to facilitate wildlife movement, such as providing corridors and preserving travel routes for ungulates. Also, using harvest prescriptions and landscape patterns as part of a wildfire hazard reduction strategy;*
- *Increasing the amount of native western white pine, western larch and ponderosa pine, which generally are insect and disease resilient and are long-lived, as well as increasing western red cedar in valley bottoms, where it historically was more abundant than today;*
- *Using variable retention harvests to meet visual management objectives.*

Other elements of modern harvest prescriptions that address specific resource objectives include retention of snags for birds and mammals which use tree cavities, retention of down wood for soil nutrition and wildlife habitat, maintaining sediment filtering vegetation near riparian areas, and maintaining vegetation diversity through hardwood retention and protection of rare plants.

Increased environmental awareness has also led to improvements in logging systems that we use to remove trees from the forest. Early harvests emphasized cheap, labor intensive logging methods, such as railroad, horse, short-distance jammer systems, and tractor logging. Logging systems were selected primarily by the least expensive method to transport the trees from the forest to the mill. This sometimes involved harvesting on steep slopes, creating excessive soil disturbance and increasing the risk of erosion. Streams were sometimes used as a method to transport logs from the harvest site, causing impacts to the aquatic system and adjacent riparian habitat. Road systems were sometimes dense (10 miles of road per square mile of land area) to facilitate rapid and inexpensive removals, in some cases compromising water quality.

Today's logging systems recognize and reduce the threat of environment harm in a number of ways. Tractor logging generally occurs on slopes 35 percent or less, and is limited to designated locations, reducing soil impacts. Skyline and other cable yarding systems are used on steeper slopes, greatly reducing the amount of soil disturbance. Increasingly, helicopter logging is used, which extends yarding distances and thereby reduces road densities. In the Prichard-Murray Resource Area, the Proposed Action (Alternative 2) would complete the harvesting with 51 percent helicopter yarding, 41 percent skyline and other cable yarding, and 8 percent tractor yarding (Section 3.C.1, Table 2). Alternative 3 proposes harvest systems in a similar proportion. A suite of best management practices and forest plan standards and guidelines aids in the development of the least impactive design possible. Monitoring during and after the sale is completed provides a valuable feedback loop that quickly identifies and corrects variances should they occur.

In the Prichard-Murray Resource Area, fire-resilient species such as ponderosa pine and western larch will be the highest priority for protection. Activities under either action alternative are consistent with NFMA requirements and Forest Plan standards for vegetation management.

For the above stated reasons, changes in road construction/reconstruction and maintenance practices; implementation of watershed Best Management Practices and management direction under the Inland Native Fish Strategy; and changes in harvest practices and objectives; we believe that an individual analysis of past projects cannot be clearly compared to analysis of the proposed action. However, the incremental effects of the Proposed Action (when added to the effects of the past, present and reasonably foreseeable actions) are displayed, and provide a complete assessment of cumulative effects. Cumulative effects of Alternative 3 would be less than those of Alternative 2, since fewer acres would be treated.

Past Activities in the Prichard-Murray Resource Area

The analysis of existing conditions in Prichard-Murray Resource Area included both natural events and management-related activities. Natural events include disturbances such as floods, fire, insects, and disease. For a detailed discussion of these disturbances, please refer to the Specialist's Reports on Aquatics and on Forest Vegetation.

Past management activities on National Forest System lands in the Prichard Murray Resource Area were queried from the District's Timber Stand Management Record System (TSMRS) database and checked against timber maps, aerial photographs, and ground surveys (PF Doc. FF-23, FF-36, FF-37, VEG-2, VEG-3, VEG-4, VEG-44). The database contains some information about past harvest in the Prichard-Murray Resource Area from as early as 1907 to the present. Information regarding activities from before the mid-1970's was drawn from district timber sale records and historic references, including maps, photographs and newspapers. Road construction history was also researched and documented using many of the same sources (see PF Doc. PR-01 for a map of road construction history).

A discussion of management activities on National Forest System lands in the Prichard-Murray Resource Area is provided below, followed by the effects on key resources (fire/fuels, vegetation, aquatics, soil, and wildlife). Development and vegetation management projects are described in Table B-1; acres are specific to the resource area, and the same stand may have had harvest occur more than once. Some activities span decades, but were grouped into one decade for summary purposes. Unnamed activities are also included in the summary. Refer to the Project File documents for more specific detail.

Mining activities are described in Table B-2. Historic underground mining activities were described using the Site Inspection Report for the Abandoned and Inactive Mines in Idaho, available from the Idaho Geological Survey or from IPNF Supervisor's Office. Other historic mining activities are from various historical sources.

Table B-1. Description of Past Development and Vegetative Management Activities In the Prichard-Murray Resource Area.

Timing	Category	Project Name or Vicinity	Description
Approx. 1883-1900	Early Development	Eagle City and Murray	Gold was discovered in Prichard Creek in 1883, development of trails, wagon roads, Eagle City and Murray followed.
1907-1909	FS Timber Harvest	1907 Coeur d'Alene River 1908 Hopkins Creek 1908 Prichard Creek 1909 South CDA River	978 Acres of salvage and individual tree selection harvesting. Associated construction of logging chutes and trails.
	Railroad Construction	Idaho Northern Railroad	The Idaho Northern Railroad was constructed from Enaville to Murray in 1908.
1910-1919	FS Timber Harvest	1910 Bedrock Gulch 1910 CDA River Salvage 1915 Avery Creek 1915 Rookie Creek 1915 South River Pine 1915 Sparta Stull 1915 Ucelly Gulch 1917 South River Pine 1917 Sparta Pine 1918 Rookie Hopkins 1919 Sparta Peak	1,526 Acres of salvage and individual tree selection harvesting. Associated construction of logging chutes and trails.
1920-1929	FS Timber Harvest	1920 Millsite Gulch 1920 Rookie Stull 1921 McGuire Gulch 1921 No Sally Gulch 1922 Eagle Creek 1922 Rookie Pine 1923 Daisy Gulch 1923 West Eagle 1924 East Eagle	1,024 Acres of salvage and individual tree selection harvesting.
	Development	Railroad Construction - Prichard to Jack Waite	The railroad was built in 1925 in association with the 1924 East Eagle sale.
1930-1939	*No Activities Recorded*		
1940-1949	FS Timber Harvest	1941 Buckskin Gulch 1941 Buckskin Gulch II 1941 George Gulch #1 1941 Upper Buckskin Gulch 1942 S. Avery Creek 1944 S. Avery Creek DeMarco Mining Claim George Creek #2 George Gulch 1947 Scattered George West George Creek 1948 West Buckskin Gulch Tiny Creek	587 Acres of salvage, improvement, shelterwood and individual tree selection harvesting. Approximately 29 miles of road was built to complete the logging activities.
1950-1959	FS Timber Harvest	Miller Creek Avery Saddle Salvage 1952 South Avery Creek 1955 Alder Gulch East Alder Gulch Hopkins Creek West Alder Gulch South Nocelly Creek West Brown Creek East Fork Alder Gulch	1269 Acres of salvage, regeneration, shelterwood, clearcut liberation, and individual tree selection harvesting. Approximately 10 miles of road was built to complete the logging activities.

Table B-1. Description of Past Development and Vegetative Management Activities, continued.

Timing	Category	Project Name/ Vicinity	Description
1950-1959, cont'd	Private Road Construction	Unnamed	Approximately 29 miles of road was built on private land prior to 1958. Records before that date do not exist. Roads were likely built for both mining and timber harvest.
	BLM Road Construction	Unnamed	Approximately 14 miles of road was built on lands managed by the Bureau of Land Management. Records before 1950 do not exist, but roads were likely built for both mining and timber harvest.
1960-1969	FS Timber Harvest	George Gulch Clee Creek Thin Kings Pass Oregon Gulch Upper Clee Creek	963 Acres of regeneration, shelterwood, clearcut and liberation harvesting. Piling, prescribed burning, planting and weeding of harvest units followed in subsequent years. About 27 miles of road was built to complete the logging.
	Development	WWP Noxon-Pinehurst Powerline	37 Acres of permanent land clearing for the powerline. Approximately 6 miles of road was built for powerline construction and access.
1970-1979	FS Timber Harvest	Avery Creek Ucelly Gulch Salvage Ucelly Salvage	353 Acres of clearcut, regeneration, and liberation harvesting. Burning and planting of harvest units followed logging in some areas.
1980-1989	FS Timber Harvest	Big Bird Bobtail Peak Eagle Salvage Idaho Gulch Lower Prichard Murray Saw Oregon Clearance Prichard Eagle Saw Gulch West Fork Eagle	1284 Acres of salvage, liberation, thinning and clearcut harvesting. Harvesting was followed by prescribed burning, planting, precommercial thinning, and pruning in subsequent years. About 19 miles of road was constructed and 8 miles was reconstructed in association with the harvest activities.
	FS Prescribed Burning	Unnamed	105 acres of prescribed burning to improve wildlife habitat.
	Private Timber Harvest	Unnamed	412 acres of thinning, shelterwood, clearcut and special cut harvesting.
1990-1999	FS Timber Harvest	Avery Creek Salvage Big Bird Salvage Kings Ridge Lower Eagle II Salvage Nocelly Prichard Peak Ucelly Salvage	1631 acres of salvage, liberation, thinning and clearcut harvesting. Harvesting was followed by prescribed burning, planting, precommercial thinning, and pruning in subsequent years. About 5 miles of road were constructed and 5 ½ miles were reconstructed in association with harvest activities.
	FS Prescribed Burning	Brown Grizzly Eco Short Creek Eco	331 acres of ecosystem burning for stand modification.
	Private Timber Harvesting	Unnamed	1315 acres of thinning, shelterwood, clearcut, and special cut, group selection, seed tree and salvage harvesting.
2000-2006	FS Timber Harvest	Avery Cabin Decks Buck Trail Decks East Side Beetle Little Ucelly Heli Bug Rookie Hart Salvage Unknown King Bug	279 acres of salvage, shelterwood, group selection, special and improvement harvesting. Prescribed burning and planting has occurred on some of the regeneration harvests, other post-harvest work is still planned.
	FS Prescribed Burning	Prichard Face Eco Burn East Side Beetle Eco Burn	227 acres of ecosystem burning for stand modification.
	BLM Timber Harvest	Tiger Gulch	Total of 36 acres of salvage harvest. 25 acres also had prescribed burning and planting.
	Fire Mitigation Work	Shoshone County WUI Fire Mitigation Program	Defensible space construction for 127 structures, including 61.4 acres non-commercial thinning/pruning, and piling/chipping.
	Private Timber Harvest	Unnamed	386 acres of shelterwood, clearcut, special cut, group selection, and seed tree harvesting.

Table B-2. Description of Past Mining Activities In the Prichard-Murray Resource Area.

Project Name	Description of Activity
	Underground Mining
Mother Lode	First located in 1883, it was most productive 1892-1893. Mine consists of numerous drifts and crosscuts at several levels. A 5-stamp mill was built before 1911, and production continued through the 1930's.
Terrible Edith	Located about 1886, the mine produced lead and zinc ore in varying amounts through the 1950's. The mine consisted of more than 3700 feet of drifts and crosscuts.
Gold Back	Little production is known to exist from the Gold Back mine. Development began in the early 1900's and continued as late as 1984, when some gold ore was mined from the property.
Currency	Original claims were located in 1897. The mine consists of an adit about 400 feet long with an additional 600 feet of drifts and a small waste dump. No recorded production from the site.
Pilot	The workings consist of two open adits and accompanying dumps. Production occurred in 1906, 1908 and 1928. Exploration occurred in 1959, with little activity since that time.
Golden Chest	The Golden Chest claims were located in 1883, and it is the principal gold mine in the Murray district. In 1938 it had over 13,000 feet of drifts and crosscuts. A mill was located on the site at one time. The mine has an extensive history of production which continues today.
Four Square	Located in 1884, the mine consists of underground workings, a mill site and placer claims. The placer claims are considered active.
King	Production ceased prior to 1938. Thought to have produced about $200,000 worth of gold at the time.
Anchor	Actively developed 1928-1929; credited with Summit district's zinc-lead production in 1939; produced 91 tons zinc-lead ore in 1941, 1,107 tons in 1948, and 400 tons in 1949.
Liberty	The Liberty Mining Co. shipped a small quantity of lead ore from the mine in 1954.
Tiger	A small amount of development work was completed on the property, mostly prior to 1930. No known production occurred.
Daisy Volunteer	Minor placer production is credited to the property around 1906 or 1908 and between 1935 and 1940. No known production from the adit.
Buckeye Boy	One of the early locations in the Murray district, worked first in 1885. At one time, the property had a 2-stamp mill equipped with amalgamating plates. By 1928, the mine had 3,390 feet of workings and shafts. No known work after 1934.
Hawkins	No information available on the history of this site. No waste dump and a minimally disturbed area.
Albarta	No information available on the history of this site. Minimally disturbed area.
Badger	All that is known about the history of this mine is that a little placer gold was recovered from the mine in 1939. The site consists of a dry, caved adit and small waste dump (disturbed area is less than 0.1 acre).
Chester Consolidated	About $30,000 of production was derived from this mine in the early days of the mining district. In 1925, some gold was recovered from surface material.
Mountain Lion Group	Site was located in 1884. Consisted of 3 tunnels, associated workings and a 3 stamp mill. Gold ore was treated by amalgamation in 1923, 1926, 1934, 1935, and 1939. Placer gold was produced in 1940, about 72 tons of gold ore was produced in 1941. In the late 1950's, gold was recovered by hydraulicking and sluice boxes, along with a 5 stamp mill with amalgamation plates. Small quantities of gold ore were shipped from the mine in 1964 and 1965.
Unnamed Prospects	Several unnamed prospects have been documented in the resource area. Disturbance associated with these prospects is minimal.
	Placer and Hydraulic Mining
Prichard Creek Dredging	From 1917 to 1926 a 7-mile stretch of Prichard Creek was dredged for gold with a large dredging machine operated by the Yukon Gold Company. It is estimated that the dredge worked 11,000,000 cubic yards of material during this time.
Placer Mining	Intense placer mining began in 1884 in Prichard Creek, Eagle Creek and tributaries. Placer mining had begun to decline in 1886 as the best ground had already been worked. Recreational placer mining continues today on private land within the resource area.
Hydraulic Mining	Flumes and ditches were constructed prior to 1886 to carry water from farther up in Prichard Creek to areas such as Fancy Gulch, Dream Gulch and Buckskin Gulch. The water was used to wash the hillside gravels away and recover the gold.
Fancy Gulch Placer Exploration	Two placer exploration operations from 2004-2006 in Fancy Gulch disturbing less than ¼ acre each.
	Other Mining Activity
Mine Waste Repository	The Prichard/Beaver combined waste repository encompasses approximately 2 acres and serves as a central location for impoundment of mine waste from certain abandoned mine reclamation projects in the watersheds. The first cell at the site was constructed in 2002 with the Paragon mine project; the second cell was constructed in 2005 with the Monarch mine project.

Effects of Past Activities on Area Resources

The level of effects of each type of activity varied due to location and implementation standards that were in place at the time. The following describes the effects the activities had on key resources (fire/fuels, vegetation, aquatics, soils, and wildlife).

Effects of Fire Suppression

A wildfire in 1919 represents the last major natural fire event that took place in the Prichard-Murray Resource Area. Forest Service and Idaho Department of Lands records show that 64 fires have been detected and suppressed in the Prichard-Murray Resource Area over the past 85 years (Specialist's Report on Fire/Fuels, pp. FF-10, FF-19). The majority of these were kept very small, accounting for a total of just 111 acres burned. The only exception is the Gold Chest Fire of 2003, which burned 82 acres. Approximately 60 percent of the reported fires were caused by lightning, with the remaining 40 percent human caused. The proximity of the resource area to communities results in a higher incidence of human-caused fires than occurs in more remote areas.

Effects on fire/fuels: Fire suppression has caused an increase in the amount and continuity of both living and dead material that fuels fires. Fire Regime Condition Classes, which classify the level of departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances reflect the changes brought about by fire suppression, among other activities (Specialist's Report on Fire/Fuels, p. FF-7). Approximately 54 percent of the Prichard-Murray Resource Area is in Fire Regime Condition Class 2 (a moderate departure, with moderate risk of key ecosystem components); the remaining 46 percent of the area is in Class 3 (a high departure, with a high risk of loss of key ecosystem components). Fire suppression has likely contributed to a change in species composition away from early seral species, which are generally more fire resistant and/or resilient to fire disturbances. This change in species composition could influence the intensity and severity of future fires.

Effects on vegetation: Stands have become overcrowded and overstocked with shade tolerant species. Root diseases, insect infestations and other diseases are at unnaturally high levels in many stands. Douglas-fir now dominates the drier sites where western larch, white pine and ponderosa pine used to dominate. Root diseases now play a more major role in the successional development of the area due to less long-lived seral species and more shade tolerant species.

Effects on aquatics: There have been minimal effects due to actual fire suppression activities. The Gold Chest Fire caused some soil disturbance and potential for added sediment to the stream course; due to the limited fire size the effects would not be measurable. However, fire suppression has caused a trend toward more shade-tolerant species that are more susceptible to insects and disease. Since changes in water yield are associated with vegetative conditions, the existing trend may eventually have an effect on water yield.

Effects on soils: Successful fire suppression eliminates the chance of detrimental effects to soil productivity that could result during a serious wildfire (Specialist's report on Soils, p. SOIL-19). On small fires, disturbance is usually limed to hand tools; most hand fire-line construction has only minor (insignificant) impacts to the soil resource. During fire suppression, closed roads may be reopened for fire suppression access and incorporated as fire line. As part of the post-fire work, the areas of disturbance are rehabilitated and the roads returned to their previous condition.

Effects on wildlife: Fire suppression has led to a decrease in available habitat for wildlife species that rely on more open forest habitats, such as flammulated owl (open canopy and understory) and northern goshawk (open understory), and species such which use snags such as the black-backed woodpecker, pileated woodpecker and flammulated owl. Lack of fire has also prevented the development of stands with high numbers of wood-boring beetles and abundant snags which black-backed woodpeckers depend on.

Effects on Recreation, Scenery and roadless attributes: Wildfire suppression has little effect on the resources. If past suppression has effected change in the vegetative component it goes unnoticed by visitors.

Effects of Timber Harvest on National Forest System Lands

Substantial timber harvest occurred in the resource area following the 1889, 1910 and 1919 fires. The salvage harvest took place in areas that could be reached with the technology available at the time, which would include riparian areas and areas adjacent to streams. Harvest activities have occurred on approximately a

third of the acres in the resource area; only about 16% of the area was regeneration harvested. While some of the areas have had multiple harvest entries, it is not possible to track in the current database if the same acres were harvested or had other non-harvest activities during re-entry, because stands are often larger than the recorded activity acres. It is reasonable to have multiple harvest entries on some areas because certain silvicultural systems require multiple entries (Specialist's Report on Forest Vegetation, p. VEG-10).

Effects on fire/fuels: The salvage reduced the available large fuels in a portion of the area; any reburn would have been less severe in the areas harvested. It is likely that some of the salvaged timber would still be contributing to the large fuel load if it had not been removed. Other effects of the various timber harvests in the area over the years are dependent on the characteristics of each harvest activity. Early harvests that left slash lying on the ground would have created a fire hazard for a period of time until the slash decomposed. However, for harvests occurring prior to approximately 10-20 years ago, any residual slash would be decomposed by now and would not show any measurable effect on potential fire behavior. Harvests since that time in the resource area have treated fuels and have been relatively small in scale. Harvest of fire-resistant species such as western larch and ponderosa pine could have an effect on the severity of fires, since they are more likely to survive a fire than other species. Due to the long life-span of these species, even early harvests of ponderosa pine and western larch could affect fire severity today.

Effects on vegetation: Since the large fires killed most or all of the timber in the harvest areas, early salvage harvest likely had little effect on vegetative development (Specialist's Report on Forest Vegetation, p. VEG-10).

Effects on aquatics: Water yields were increased due to timber harvest within the analysis area. This harvest may have opened the canopy enough to increase peak flows, as well as lead to increased sediment delivery to the stream channels. The effects to stream channels, fish habitat and water temperatures were dependent on watershed size and the area treated within the watershed. Historically salvage logging and regeneration harvest occurred in riparian zones, where these activities occurred there most likely was a reduction in the recruitment of large wood to the stream channels. This may have effect channel stability and fish habitat. In stands where harvest treatments are causing a conversion of the stand to shade tolerant species that are more susceptible to insects and disease, recruitment of large wood may increase in the short term due to increased mortality in the stands. The most recent harvest activity in the project area has had BMP's, INFISH standards applied and met criteria in relation to increase in water and sediment yields that have protected stream channels, fish habitat and fish populations (Specialist report on Aquatics).

Effects on soils: Past salvage logging in the Prichard-Murray Resource Area primarily targeted overmature, single tree extractions that began in 1920 and continued through the 1950s, using either horse skidding or cable yarding, which resulted in no substantial impacts to soil (PF Doc. SR-06, page SOIL-10). A few areas were mechanically skidded in the 1950s; those skid trails have high compaction levels. The salvaged areas have fully recovered.

Effects on wildlife: Timber harvest has had various effects on wildlife, depending on the location, size, species and amount of trees harvested. Salvage harvest reduced the available large snags and down wood which several sensitive species and management indicator species require.

Effects on recreation, scenery and unroaded values: Past timber harvest has left roads on the landscape that in present times are being found and used by motorized vehicle riders. This has complicated recreation and trail facility management as many of these routes meet no standard of maintenance used by Forest Service recreation managers. The public has also come to regard these old roads as a recreation resource they have the right to use. This has made regulation and attempts to decommission the roads very difficult.

Effects of Timber Harvest on Private Lands

Timing and type of past timber harvest on other ownerships in the Prichard Murray Resource Area were estimated using past aerial photographs and personal observations by Forest Service personnel. The degree of regeneration and amount of ground cover in the harvested units were estimated from observable evidence in aerial photographs. Ground scars seen in the photographs were also used to determine harvest methods on private lands. For example, skid trail scars could be observed in the photographs to help determine if a particular area was tractor logged, and skyline corridors were observed to help determine that a unit might have been skyline logged.

Effects on fire/fuels: Timber harvest on private lands tends to remove trees of highest economic value and typically removes large fire-resistant seral species. Natural regeneration is relied on to fill created openings, which usually favors shade-tolerant Douglas-fir and grand fir over early seral species such as ponderosa pine and western larch, which are more fire resistant. Logging slash can remain untreated on the site, contributing to higher fire intensities should a wildfire occur. Harvest inspections completed by the Idaho Department of Lands within the past 2 years indicate that all harvest slash has been treated in a satisfactory manner according to the Idaho Forest Practices Act (Specialist's Report on Fire/Fuels, p. FF-20).

Effects on Vegetation: There was no effect to vegetation on National Forest System lands as a result of harvest on private lands.

Effects on aquatics: Water yields were increased due to timber harvest within the analysis area. This harvest may have opened the canopy enough to increase peak flows as well as lead to increased sediment to the stream channels. The effects to stream channels, fish habitat and water temperatures were dependent on watershed size and the area treated within the watershed. Historically salvage logging and regeneration harvest occurred in riparian zones, where these activities occurred there most likely was a reduction in the recruitment of large wood to the stream channels. This may have effect channel stability and fish habitat. In stands where harvest treatments are causing a conversion of the stand to shade tolerant species that are more susceptible to insects and disease, recruitment of large wood may increase in the short term due to increased mortality in the stands. On private lands; they must comply with State of Idaho standards for Class I and Class III streams, but this may, reduce woody debris recruitment, and reduce fisheries habitat in proximity of and downstream of the harvested areas.

Effects on soils: Activity on lands other than National Forest System lands do not contribute to effects of soils within National Forest System lands.

Effects on wildlife: Without knowing the locations or the composition or structure of the stands before and after logging, it is impossible to assess the effects to wildlife of past logging on private land.

Effects on recreation, scenery and roadless resources: Activity on private lands generally has had no effect. An exception to the above is when private land timber harvest, particularly road construction, allows a new unmanaged access to National Forest lands.

Effects of Prescribed Burning on National Forest System Lands

Records show that 3,087 acres of prescribed burning has occurred on National Forest System lands in the past in the Prichard-Murray Resource Area (Specialist's Report on Fire/Fuels, p. FF-21). This included burning of piles (hand piling, grapple piling, and dozer piling); underburning; broadcast burning; burning to improve wildlife habitat; and ecosystem burning. Most of the past burning in the Resource Area is associated with timber sale activities.

Effects on fire/fuels: Since most of the prescribed burning on National Forest System lands in the resource area has been associated with timber sale activities, it primary effect has been to reduce activity fuels or slash created with the timber harvest. The historic prescribed burning has also helped to maintain more acres of the resource area in an early seral stage and provided discontinuity to the fuels in the area (Specialist's Report on Fire/Fuels, p. FF-20). Prescribed burning will also promote regeneration of early seral, fire resistant species such as ponderosa pine and western larch, as well as fire-adapted white pine.

Effects on vegetation: Most of the past prescribed burning was associated with timber sale activities, and was accomplished for the purpose of site preparation for planting after harvest activities. In addition to creating plantable sites, burning would have reduced other vegetative competition and given the planted seedlings an advantage. Some past burning was associated with thinning or salvage harvests, and had the effect of reducing activity fuels, killing small trees and shrubs, and also creating a variable amount of mortality in the overstory trees. Ecosystem burning in the area has set back shrubs, set back natural tree regeneration encroaching in brushfields, and killed some overstory trees.

Effects on aquatics: Aquatic resources were affected because the prescribed burning occurred primarily in those areas where machine piling occurred. Historically machine piling caused soil disturbance increasing overland flow and increasing the potential for sediment movement into stream channels. In timber harvest units that were burned in the fall, soil moisture were generally low and burning consumed the duff layer (which could have caused increased erosion). This would increase the potential to increase sediment delivery to streams, affect stream channel conditions and fish habitat. Most of the burning to improve wildlife habitat or

ecosystem burning occurred in the spring while soil moisture content was high, keeping the duff layer from burning completely having little or no effect on stream channel condition or fish habitat.

Effects on soils: Past prescribed burning had little effect to soils in the treatment units. Some disturbance occurred in localized areas that may have been subjected to increased temperatures during the burning. However, based on implementation and monitoring of similar burning in the past, there is minimal risk to soils when soil moisture content is above 25 percent and when brush field burning occurs in the spring when moisture content is high.

Effects on wildlife: On big game winter ranges, prescribed burns stimulated the growth of shrubs which provide browse for elk and mule deer. Reduction of down woody material and understory plants from prescribed burning reduced food and shelter for many sensitive and nongame wildlife species. It has also reduced access for pine martens to their prey under the snow in winter.

Effects on recreation, scenery and roadless resources: Prescribed burns have only a temporary effect on the resources. Often burning creates an improved appearance in the landscape over time.

Effects of Fire Mitigation Work on Private Lands

Fuel reduction efforts have been implemented that focus on private lands, primarily around structures within the resource area. These efforts are part of the Shoshone County Wildland Urban Interface Fire Mitigation Program, designed to help homeowners reduce fuels on their property and increase the chances of the home surviving a wildfire. In the last two years, approximately 61 acres of private land were treated to protect 127 structures within the Prichard-Murray Resource Area. Work includes noncommercial fuel reduction activities such as thinning, pruning, piling and chipping, primarily within the home ignition zone of homes in the resource area (Specialist's Report on Fire/Fuels, p. FF-20).

Effects on fire/fuels: Fire mitigation work will reduce the chances of home ignition should a wildfire occur near the homes that were treated. The fire mitigation work reduces fire behavior in the home ignition zone such that the home can either survive a fire without further protection, or firefighters can safely defend the home in the event of a fire. Fire mitigation work completed in advance of a fire starting drastically reduces the amount of time required to prepare a home for an approaching fire, and significantly improves its chances of survival through a fire. Fuel reduction activities on private lands are consistent with the goals of this project, and will help protect homes and other resources from damage by uncontrolled wildfire (Specialist's Report on Fire/Fuels, p. FF-21).

Effects on vegetation: There is no effect to National Forest System vegetation due to the removal of brush and non-commercial vegetation on private lands.

Effects on aquatics: There are no changes to the canopy due to these activities, which are completed by hand, causing no impacts to aquatic resources.

Effects on soils: Activity on lands other than National Forest System lands do not contribute to effects of soils within National Forest System lands.

Effects on wildlife: Removal of shrubs, trees and down wood from big game winter range on private lands reduced available forage for deer and elk during winter. Removing snags, down wood and understory vegetation also reduced nesting habitat for some nongame bird and mammal species. However, fire mitigation activities occur within 200 feet of structures in and adjacent to communities, and these areas are not considered suitable wildlife habitat due to the close proximity and frequent use by humans.

Effects on recreation, scenery and roadless resources: There is no measurable effect from these activities on the resources.

Effects of Mining

Mineral exploration work in the Prichard-Murray Resource Area began shortly after the gold rush to Murray in 1885. Prichard, Eagle, and East Fork Eagle Creek all have a history of mining. Extensive dredge mining for placer gold occurred in the main Prichard Creek and its tributaries. Soon after the discovery of gold, ore milling sites were established. The East Fork of Eagle Creek was mined extensively in the early 1900s. (Specialist's Report on Aquatic Resources, p. AQ-6).

Effects on fire/fuels: Any fuels generated from harvesting activities associated with past mining have decomposed. Extensive dredge mining in Prichard Creek removed most fuels from the area, creating an effective fuelbreak for a period of time. However, vegetation is growing in many places now, and may act as fuel for a wildfire under certain conditions.

Effects on vegetation: Past mining activities had a minimal effect on timber beyond localized harvest to create supports for mine tunnels. This did not contribute to changes in forest structure or species composition overall.

Changes to riparian vegetation and plant communities in portions of the Resource Area affected by past mining have been considerable. Dredge mining in Prichard Creek, Eagle Creek and East Fork Eagle Creek removed vegetation cover and caused major soil disturbance which has slowed recovery of native plant communities in these areas. Unstable stream channel conditions due to past mining have affected native plant community re-establishment.

Effects on aquatics: Past mining activities altered the flow regime, disrupted natural bedload movement and altered fish habitat condition in much of Prichard Creek, Eagle and the East Fork of Eagle creek. Dredge mining totally altered channel condition causing instability removing large wood and reducing fish habitat quality and quantity within the areas of placer mining. Where placer mining occurred most of the vegetation was removed, altering large wood recruitment to the channel and negatively affecting channel condition and fish habitat conditions (Specialist's Report on Aquatic Resources, pp. AQ-9, AQ-13). Ore milling sites (outside the project area) produced both jig and floatation tailings, which have elevated the levels of heavy metals in both Eagle and Prichard Creeks within the project area (Specialist's Report on Aquatic Resources, pp. AQ-6, AQ-11, AQ-13). These results also impacted fisheries and their habitat (Specialist's Report on Aquatic Resources, p. AQ-22). Mine cleanup work in Upper Prichard creek has reduced loadings of heavy metals to streams within the project area; this will have long term benefits to fish populations in the affected areas.

Effects on soils: Mineral exploration has contributed to localized alterations of soil productivity through displacement, removal, reworking, and erosion from numerous sites within the resource area.

Effects on wildlife: Inactive underground mines have created habitat for several bat species, including two sensitive species, Townsend's big-eared bat and fringed myotis. Extensive placer mining has greatly reduced habitat for nongame and other species in riparian areas; these areas have not recovered decades after the mining ended.

Effects on recreation, scenery and roadless resources: The effects of past mining have been the same as past timber harvest. A number of old access roads have been left on the landscape and are being used in an unmanaged environment by the public. Old mine tunnels and shafts do present a hazard to the public.

Effects of Road Construction

Road construction within the Prichard-Murray Resource Area has been extensive in the Prichard and Browns Creek drainages when compared to other areas within the North Fork Coeur d'Alene River Basin. Access to Montana over Thompson Pass, extensive mining and other forest management activities determined the existing road network. Many of the roads in the resource area were built in the early 1900's for mining purposes. The Forest Service required access to a portion of the watershed for vegetation management and exploratory mining, then built more roads in the 1950s through the 1980s. On average, there are about 4 miles of road per square mile of land (Specialist's Report on Aquatic Resources, p. AQ-6). Roads in the Prichard-Murray Resource Area have been inventoried and their conditions (including culvert conditions) documented (Specialist's Report on Aquatic Resources, p. AQ-10).

Effects on fire/fuels: Roads provide access and quick response for fire suppression activities, allowing efficient fire protection where a sufficient road network exists. Roads also disrupt the spread of fires – many times small fires stop spreading when they reach a road due to the lack of fuels. Larger fires, however are less affected by roads.

Effects on vegetation: There are minimal effects to vegetation with regard to stand species composition or structure due to road building.

Effects on aquatics: Road construction within the Prichard-Murray Resource Area has been extensive in Prichard and Brown Creek drainages, compared to other areas within the North Fork of the Coeur d'Alene River Basin. Access to Montana over Thompson Pass, extensive mining and other forest management

activities and past fire and timber projects has determined the existing road networks. Many of the roads in the analysis area were built in the early 1900s for mining purposes. The Forest Service required access to parts of the watershed for vegetation management and some exploratory mining then built more roads in the 1950s to the 80,s. On average there are approximately 4.1 miles of road per square mile; of these approximately 60% are brushed in and closed. Based on sediment modeling historic sediment yields in lower Prichard exceed 170 percent of natural, Eagle Creek exceeded 230 percent of background and Brown exceeded 160 percent of background. These high levels of sediment yields have negatively affected channel conditions and fish habitat. Undersized culverts in old road systems and routing of sediment from roads near stream crossings are likely sources of chronic and background sediment in this watershed. (See Specialist's Report on Aquatics.)

Effects on soils: All past roads built for either timber harvest or mining have a detrimental effect on soil productivity due to compaction and displacement.

Effects on wildlife: Traffic on roads cause direct mortality of wildlife from vehicle collisions. The very high road density in this area and associated motorized traffic displace wildlife from preferred habitats, and impacts wildlife security areas such as elk calving sites, and nesting habitat for neotropical migrant birds. High open road densities also degrade large areas of wildlife habitats near roads by allowing snags to be removed for firewood; this impacts numerous wildlife species which use snags for feeding, cover and/or reproduction. Roads also fragment wildlife habitat patches. High road densities make big game more vulnerable to hunting mortality.

Effects on recreation, scenery and roadless resources: As described in the timber harvest discussion roads complicate public motorized access issues.

Ongoing and Reasonably Foreseeable Activities in the Resource Area

In addition to past activities, the analysis of cumulative effects includes effects of activities that are currently ongoing or have a reasonable chance of occurring in the resource area (that is, the proposed location, timeframe and scope have tentatively been identified). To ensure a comprehensive look at activities, the Idaho Department of Lands was contacted for copies of the 2003-05 notifications of forest practices by those with private lands within the Prichard-Murray Resource Area, however, no reasonably foreseeable activities other than the Fancy Gulch private harvest were identified within the resource area on private lands.

Table B-2. Ongoing and Reasonably Foreseeable management activities in the Resource Area.

Name		Description
FS Timber Sale-Related Activities	East Side Beetle	31 acres of prescribed burning, 9 acres of planting, 4 acres of ripping and 2 miles of road decommissioning are planned for 2007.
	Little Ucelly Heli Bug	1 acre of handpiling and burning is planned for 2007.
	Rookie Hart	7 acres of planting in the next year, followed by precommercial thinning and pruning in the coming years as the trees grow.
	Unknown King Bug	1 acre of pile burning is planned for 2007.
	George Gulch, Idaho Gulch, Kings Ridge, Lower Prichard, Murray Saw, Nocelly, Oregon Clearance, Prichard Eagle, Prichard Peak, Ucelly Gulch, Upper Clee, West Fork Eagle	3,231 acres of precommercial thinning, release and/or pruning for white pine blister rust are planned in the next 20 years for these past timber sales. 116 acres of replanting is planned in Nocelly and Lower Prichard in the next year.
Coeur d'Alene Placer Right-of-Way Exchange		An exchange of rights-of-way is planned between the Forest Service and the Coeur d'Alene Placer Mining Company on specific roads that pass through both ownerships.
Fancy Gulch Private Access Road Construction and Harvest		About 850 feet of road construction is planned on FS land in Fancy Gulch to allow access to a parcel of private land. Once the road is constructed, landowners are expected build another 500 feet of road and harvest timber on the 15-acre parcel.
Prichard/Beaver Mine Waste Repository		Future use of the site will include similar construction activities with the Bear Gulch project likely contributing additional material to the Monarch cell in 2007. Overall site design will allow for 80 - 100 thousand cubic yards of waste, although as of October 2006 less than 50 thousand cubic yards are impounded at the site.
BLM Murray Project		The Bureau of Land Management manages three parcels near Dream Gulch and Alder Gulch. These parcels total approximately 100 acres in size. Planned treatments would include understory removal of small-diameter trees as well as the salvage harvest of Douglas-fir. The proposed project would utilize helicopter, cable, and tractor yarding systems. Some new temporary road construction may be needed into the parcel west of Dream Gulch. The estimated length of the temporary road would be less than 1,000 feet. The areas would be both mechanically treated and broadcast burned. Reforestation activities would also occur.

Effects of FS Timber Sale-Related activities:

Effects on fire/fuels: A relatively small amount of prescribed burning remains to be completed in the Resource Area. The burning will benefit the fire/fuels resource by reducing fuels, however the effect is minimal because the area remaining to be treated is small. Future pre-commercial thinning is likely to generate slash that could contribute to wildfire spread, if a wildfire were to occur in or near the thinned areas. The likelihood of a fire ignition near the thinned units is small, especially when the units are on closed roads away from high travel routes. Over time, the slash decomposes and the hazard naturally abates.

Effects on vegetation: The planned planting will result in fully stocked stands that meet the requirements for regeneration of harvested areas. Precommercial thinning, release and pruning of white pine are stand tending activities that will promote the long lived, early seral species in the stands such as western larch, white pine and ponderosa pine. In the long term, tending will result in more productive stands that are more resilient to insects, disease and fire. Road management activities will have little effect on vegetation because of the limited scale, but ripping and decommissioning will result in slow revegetation of the site.

Effects on aquatics: Due to the limited acres of harvest and road construction water yields and peak flows would not increase due to these activities within the analysis area. With the very limited road construction and

then road restoration there would be no increase in sediment delivery to the stream channels. There are not negative effects to stream channels, fish habitat and water temperatures within the watershed. These activities have had BMP's, INFISH standards applied and met criteria in relation to increase in water and sediment yields that have protected stream channels, fish habitat and fish populations (Specialist report on Aquatics).

Effects on soils: Timber sale related activities are expected to have some effects on soil productivity. Where prescribed burning or pile burning is proposed, there is a potential for localized severe burning and duff removal that may expose mineral soils to potential erosion. However, based on implementation and monitoring of similar burning in the past, there is minimal risk to soils when soil moisture content is above 25 percent and when brush field burning occurs in the spring when moisture content is high. Precommercial thinning and replanting will have little impacts since no equipment will enter the activity areas. Road decommissioning and ripping would have detrimental effects initially, but rehabilitation efforts would initiate a long-term recovery sequence.

Effects on TES Plants: Past Forest Service Timber Sales have been analyzed for potential effects on TES Plants and Forest Species of Concern (FSOC). Mitigation measures and design criteria have been used to minimize effects to TES Plants and FSOC.

Effects on Noxious Weeds: Beginning in about 1995, Forest Service Timber Sales have been analyzed for potential effects on noxious weeds. Mitigation measures and design criteria have been used to minimize effects to noxious weeds. Projects implemented prior to 1995 have likely contributed negative cumulative effects on noxious weeds.

Effects on Wildlife: Precommercial thinning, release and pruning will reduce the habitat of species which use dense stands or understory vegetations, such as snowshoe hares (an important prey species for fisher, Canada lynx and northern goshawk), and nongame birds which nest in shrubs and low limbs of trees. Removing this structure in some forest stands will reduce the production of moths, the primary prey of Townsend's big-eared bats and flammulated owls, in treated stands. Replanting will improve habitat for wildlife species which use forest understory vegetation for food and/or cover.

Effects on recreation, scenery and roadless resources: It is unlikely that timber sale related activities would have any effect on these resources. Burning and stand treatment have only a temporary effect on scenery.

Effects of Right-of-Way Exchange:

Effects on fire/fuels: The proposed right-of-way exchange will benefit fire suppression response because it will provide for legal access to lands within the protection of the Coeur d'Alene River Ranger District of the Forest Service.

Effects on vegetation: The administrative act of a right-of-way exchange will have no direct effect on vegetation on National Forest System lands.

Effects on aquatics. Right-of-way exchange will provide additional opportunities for the Coeur d'Alene Placer Mining Company to conduct additional management activities on their land. (see Private access road construction and harvest).

Effects on soils: The roads are existing roads, and no ground disturbance would take place with this activity therefore there are no effects to soils.

Effects on TES Plants: Right-of-Way exchange would have no effect on TES Plant and FSOC. The roads are existing roads, and no ground disturbance would take place with this activity, other than required maintenance which is covered by provisions to protect TES Plants and FSOC.

Effects on Noxious Weeds: Right-of-Way exchange would have little to no effect on noxious weeds. The roads are existing roads, and no ground disturbance would take place with this activity, other than required maintenance which is covered by provisions to reduce noxious weed spread and introduction.

Effects on Wildlife: The right-of-way exchange will have no effect on wildlife, unless it results in an increase of traffic on those roads, which could displace elk and other species from habitats near roads.

Effects on recreation, scenery and roadless resources: Right-of-way exchange would have no effect on the resources.

Effects of Private Access Road Construction and Harvest:

Effects on fire/fuels: Activity fuels (or slash) generated by harvest on private land are regulated by the Idaho Department of Lands. Since past harvesting completed by the same party has met the requirements of the Idaho Forest Practices Act for slash reduction and mitigation, it is reasonable to assume that future harvesting will also meet the required regulations.

Effects on vegetation: The private access road construction would have direct effects on vegetation, since road construction requires clearing of all vegetation. The proposed road bisects an allocated old growth stand, so it is possible that large, old trees would be cleared in the road construction process. The planned construction is a short section of road, affecting a very small portion of the stand. Any effects to the stand are not expected to result in a change of its old growth status or substantially change its old growth characteristics. Harvest of the private parcel may result in some wind or storm damage to timber on National Forest System lands due to adjacent clearing, however, this effect would likely be limited to the edges of the stand near the property boundary.

Effects on aquatics: Due to the limited acres of harvest and road construction, water yields and peak flows would not increase due to the activity within the analysis area. The timber harvest and road construction could open the canopy enough to lead to increased sediment to the stream channels. The construction of the stream crossing will increase sediment yields; water temperatures are dependent on watershed size and the area treated within the watershed. Salvage logging and thinning harvest can occur in riparian zones (State of Idaho standards for Class I and Class III streams), where these activities occur there most likely will be a reduction in the recruitment of large wood to the stream channels, which may reduce fisheries habitat in proximity of and downstream of the harvested areas.

Effects on soils: Though most of the activities on non-Forest Service land that detrimentally disturb soils, impair soil productivity, and increase soil water content are site specific, potential contribution to the cumulative condition are possible on Forest Service land due to its proximity to a nearby harvest unit.

Effects on TES Plants: The Fancy Gulch private access road construction would impact approximately .75 acres of moist forest sensitive plant habitat in the Resource Area. This would be a minor effect on the total amount of potentially suitable habitat (see Specialist's Report on TES Plants for more information on habitat).

Effects on Noxious Weeds: New road construction on Forest Service lands would follow standard mitigation measures and practices for reducing weed introduction and spread. According to the Idaho Weed Law (1992), private landowners are required to control listed noxious weed species on their lands.

Effects on Wildlife: The proposed new road construction is in habitat which is suitable for Coeur d'Alene salamanders, an endemic sensitive species. No surveys have been conducted for this species at this site, but it is expected to occur here. Coeur d'Alene salamanders have been documented in Eagle Creek and in Bear Gulch. Road construction in the Fancy Gulch riparian area would likely excavate, move and compact the moist, rocky substrate which is suitable habitat for this species, resulting in a loss of Coeur d'Alene salamander habitat and possibly direct mortality of salamanders.

Effects on recreation, scenery and roadless resources: There would be no measurable effects on the resources from private land timber harvest.

Effects of Mine Waste Repository:

Effects on fire/fuels: The mine waste repository does not have measurable effects on the fire/fuels resource.

Effects on vegetation: Future use of the mine waste repository will have limited effects on vegetation. Effects to vegetation occurred primarily in the development phase of the repository, when young forest vegetation was removed and replaced with grasses. Now the site is dedicated as a repository and future use within the same boundaries will not have measurable effects to vegetation.

Effects on aquatics: There are no changes to the canopy due to this activity; design of the repository has allowed for the storage of mine waste with no movement of heavy metals to stream courses by ground water or surface flows. The repository is located well away from any stream course so there is no delivery of sediment to stream. This activity has had no direct effects on aquatic systems. Indirect effects have allowed for the storage of mine waste that historically caused water quality problems. Moving these wastes to the repository has allowed for the improvement in water quality and aquatic systems.

Effects on soils: Soils at the waste repository would have altered soil productivity through displacement, compaction, removal, and reworking. There could be a potential that uncontaminated soils may be imported from an off-site source to enhance future site productivity.

Effects on TES Plants: The effects of the mine waste repository have been previously analyzed for TES Plants and FSOC. Mitigation measures and design criteria have been used to minimize effects to TES Plants and FSOC.

Effects on Noxious Weeds: The effects of the mine waste repository have been previously analyzed for effects to noxious weeds. Construction projects on Forest Service lands are required to follow standard mitigation measures and practices for reducing weed introduction and spread.

Effects on Wildlife: Removing mine waste and confining it to a repository is beneficial to Coeur d'Alene salamanders, boreal toads and other wildlife species which could be harmed by heavy metals.

Effects on recreation, scenery and roadless resources: There are no measurable effects to the resources from a mine waste repository as proposed in the Prichard-Murray Resource Area.

Effects of BLM Murray Project:

Effects on fire/fuels: The BLM Murray project would have beneficial effects to fire and fuels because it would result in reduced fuel in the wildland-urban interface near Murray. Changes in stand structure and species composition would likely reduce wildfire intensity and severity if a fire were to occur in those areas.

Effects on vegetation: The BLM Murray project would affect stand structure and species composition at the local scale, however due to the limited extent of the activities, it would not have a measurable effect at either the resource area or the Coeur d'Alene Basin scales.

Effects on aquatics: Due to the limited acres of harvest and road construction water yields and peak flows would likely not increase due to these activities within the analysis area. With the very limited road construction there may be a small increase in sediment delivery to stream channels. There would be no measurable negative effects to stream channels, fish habitat and water temperatures within the watershed. These activities will have BMP's, INFISH standards applied and met criteria in relation to increase in water and sediment yields that will protect stream channels, fish habitat and fish populations (Specialist report on Aquatics).

Effects on soils: Activity on lands other than National Forest System lands do not contribute to effects of soils within National Forest System lands.

Effects on TES Plants: The BLM Murray Project would have no effects on Forest Service TES Plants and Forest Species of Concern or their habitat.

Effects on Noxious Weeds: The BLM Murray Project would have no effect on noxious weeds on Forest Service lands. BLM projects analyze potential effects on noxious weeds and follow standard mitigation measures for prevention and treatment.

Effects on Wildlife: It is difficult to assess the effects of proposed treatments on BLM lands without knowing the prescriptions and current conditions of these stands. Generally, precommercial thinning, release and pruning will reduce the habitat of species which use dense stands or understory vegetations, such as snowshoe hares (an important prey species for fisher, Canada lynx and northern goshawk), and nongame birds which nest in shrubs and low limbs of trees. Removing this structure in some forest stands will reduce the production of moths, the primary prey of Townsend's big-eared bats and flammulated owls, in treated stands. Replanting will improve habitat for wildlife species which use forest understory vegetation for food and/or cover.

Effects on recreation, scenery and roadless resources: There are no effects to the resources from timber harvest and treatments on BLM lands.

APPENDIX C
PUBLIC COLLABORATION & COMMENTS

1. INTRODUCTION

Collaboration with communities and the public is also the cornerstone of *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-Year Comprehensive Strategy Implementation Plan* (May 2002). Section 104(e) of the HFRA requires agencies to provide notice of the project and conduct a public meeting when preparing authorized hazardous fuel-reduction projects. Section 104(f) encourages meaningful public participation during preparation of such projects.

A three-tiered collaborative process was used in gathering input and developing the Prichard-Murray Resource Area proposal. First, as a member of the Idaho State Fire Plan Working Group. This group was initially chartered and described in the Idaho Statewide Implementation Strategy for the National Fire Plan, signed by Idaho's Governor and agency executives July 26, 2002. The group helps to facilitate implementation of the National Fire Plan in Idaho by promoting and ensuring collaboration among participants to the fullest extent possible, and working with County governments (including County Wildland Fire Interagency Groups) to ensure that the Counties' interests and needs are taken into account when funding National Fire Plan projects. Currently, the group consists of representatives from the following agencies and organizations:

- *Idaho Department of Lands*
- *Idaho Fire Chiefs Association*
- *State Fire Marshal*
- *Idaho Association of Counties*
- *Bureau of Land Management*
- *US Forest Service*
- *Bureau of Indian Affairs (Regional)*
- *Idaho Department of Commerce*
- *US Fish & Wildlife Service*
- *Governor's Office*
- *Bureau of Disaster Services*
- *Federal Emergency Management Agency*
- *Resource Conservation & Development Coordinators*
- *National Park Service*

Secondly, the proposal was developed through collaboration with the Shoshone County Fire Mitigation Working Group. The goal of the group is to implement "seamless" fire mitigation activities, where treatments are not limited by property boundaries. Instead, through cooperative efforts, hazardous fuel reduction treatments span ownerships based on the most effective treatment area. The Shoshone County Interagency Fire Mitigation Working Group includes the following agencies and organizations:

- *USDA Forest Service*
- *Bureau of Land Management*
- *State of Idaho*
- *Shoshone County Fire Chiefs*
- *Shoshone County Commissioners*
- *Other Interested Parties*

This group convenes monthly to discuss the planning issues associated with hazardous fuels. This collaborative approach has facilitated a pooling of data, research, and support for fuel reduction projects throughout Shoshone County. In addition to other Forest Service employees, Project Fire/Fuels Specialist Sarah Jerome attends the meetings on a regular basis to discuss the Prichard-Murray proposal and other fuels reduction projects on the Coeur d'Alene River Ranger District.

Third, the proposal was developed at the ground level, through community meetings, field trips, etc. with adjacent landowners, local organizations, and other interested parties. These activities are described in greater detail in Part 2 of this Appendix, and in the Public Involvement Project Files.

Through these three levels of cooperation, the Prichard-Murray proposal emphasizes a community-based approach to wildland fire and hazardous fuel reduction issues. Specific collaborative and public involvement activities are identified below (in chronological order).

2. COLLABORATION & PUBLIC INVOLVEMENT ACTIVITIES

2004

September 14 **An open house meeting** was held at the Prichard Fire Hall on September 14, 2004 to provide information and answer questions regarding proposed activities in the Prichard-Murray Resource Area (PF Doc. PI-01). In addition to approximately a dozen residents, attending were representatives from the Idaho Panhandle National Forests, Shoshone County Interagency Fire Planners, and Bureau of Land Management.

October 25 The October-December 2004 issue of the **Forests' Quarterly Schedule of Proposed Actions** (PF Doc. PI-02) provided the first notice to the public that conditions, trends and opportunities in the Prichard-Murray Resource Area would be assessed and that specific proposals would be developed for analysis under the National Environmental Policy Act (NEPA). This project has been identified in each subsequent issue of the Quarterly Schedule to date (PF Doc. PI-03, PI-06, PI-07, PI-24, PI-27, and PI-31 through PI-35).

2005

February 15 Project Team Leader Sarah Jerome made a **presentation** to the Shoshone County Wildland Urban Interface Working Group regarding concerns in the Prichard-Murray Resource Area (PF Doc. PI-04)

February 18 In support of a request for funding, Project Team Leader Sarah Jerome made a **presentation** to the Idaho Panhandle Resource Advisory Committee (RAC) regarding the Prichard-Murray Resource Area concerns and process (PF Doc. PI-04). RAC approved $58,000 funding for the project.

March 18 Project Team Leader Sarah Jerome made a **presentation** to the Shoshone Natural Resource Coalition regarding concerns in the Prichard-Murray Resource Area (PF Doc. PI-04), and stressing the need for collaboration. At the end of the meeting, the group voted to give their support to the Prichard-Murray project.

March 24 Project Team Leader Sarah Jerome made a **presentation** to Gyro's regarding concerns in the Prichard-Murray Resource Area (PF Doc. PI-04).

August 12 A **public scoping letter** (PF Doc. PI-08) was mailed to other agencies, adjacent landowners in the Prichard-Murray Resource Area, those who had indicated an interest in the proposal, and other potentially affected parties. The letter described current land ownership patterns and resource concerns in the resource area, the potential for some proposed units to result in greater than 40-acre openings, and asked the public to share their concerns, describe their use of the area, and provide recommendations for management of the area. It also included an invitation to an open house meeting on August 23, 2005. Flyers were also posted at several locations throughout the Silver Valley announcing the meeting (PF Doc. PI-13).

August 18 A **news release** was sent to media in the Spokane, Coeur d'Alene, and Silver Valley areas regarding the August 23 open house meeting (PF Doc. PI-11).

August 22 On August 22, 2005, **a legal ad** was published in the *Spokesman-Review* newspaper to inform the public of the formal scoping period for the proposed activities in the Prichard-Murray Resource Area, briefly describe authorization for the project under the HFRA, and to invite the public to attend the August 23, 2005 open house meeting (PF Doc. PI-12). The legal ad also included information related to proposed units that could result in openings 40 acres or larger in size.

August 23 An **open house meeting** was held at the Prichard Fire Hall on August 23, 2005 to provide information and answer questions regarding proposed activities in the Prichard-Murray Resource Area (PF Doc. PI-15). Attending were 42 area residents, 7 representatives from the Idaho Panhandle National Forests, 1 representative of Shoshone County Interagency Fire Planners, and 1 representative of USDI Bureau of Land Management.

2006

May 1 In response to their request, District Ecosystems Staff Officer accompanied two representatives from the Idaho Conservation League to the Prichard-Murray Resource Area to review sites where activities were proposed.

3. COMMENT LETTERS RECEIVED ON THE PRICHARD-MURRAY RESOURCE AREA PROPOSAL

During scoping, letters were received from the following organizations and agencies:

Federal, State and County Agencies

Jeff Cook (Idaho Parks and Recreation, September 15, 2005; PF Doc. PI-14)

Adjacent Landowners

Claudia Childress (August 23, 2005; PF Doc. PI-09)

Randall and Netta Babin (August 29, 2005; PF Doc. PI-10)

Ken Babin (September 15, 2005; PF Doc. PI-12)

Organizations

Mike Mihelich (Kootenai Environmental Alliance; September 15, 2005; PF Doc. PI-13)

Jeff Juel (The Ecology Center, September 19, 2005; PF Doc. PI-15)

Jonathan Oppenheimer (Idaho Conservation League, September 19, 2005, PF Doc. PI-16; with clarification through a telephone call on October 4, 2005, PF Doc. PI-18)

Robert A. Boyd (Boyd Natural Resource Consulting, September 22, 2005, PF Doc. PI-17)

Each of these provided comments that helped identify issues and define the analysis of effects and proposed treatments. The project interdisciplinary team considered concerns identified through the scoping process and incorporated ideas presented by the public and other agencies into alternative design, as noted in the issue and alternative discussions in Part 3 of the EA.

There was also contact between the project team leader and adjacent landowners, including a telephone call with Bill Booth (September 12, 2005; PF Doc. PI-11) and a visit with Roy Faler (October 20, 2005; PF Doc. PI-19).

4. PERSONS CONSULTED ON THE PLACER RESOURCE AREA PROPOSAL

During scoping, information was shared through letters, newsletters and/or telephone conversations with the following interested publics:

Elected Officials

Kootenai County Commissioners
Office of Senator Crapo
Shoshone County Commissioners

Federal, State, County and Community Agencies

Coeur d'Alene Tribe	Plummer, Idaho
Idaho Department of Environmental Quality	Coeur d'Alene, Idaho
Idaho Department of Lands	Coeur d'Alene, Idaho
Idaho Department of Parks and Recreation	Boise, Idaho
Idaho Fish & Game	Coeur d'Alene, Idaho
Idaho State Historic Preservation Office	Boise, Idaho
Kootenai County Noxious Weed Control	Coeur d'Alene, Idaho
Lakes Highway District	Hayden, Idaho
Prichard-Murray Fire Department	Wallace, Idaho
Shoshone County Fire Mitigation Working Group	Wallace, Idaho
USDI Bureau of Land Management	Coeur d'Alene, Idaho
USDI Fish & Wildlife Service	Boise, Idaho and Spokane, Washington

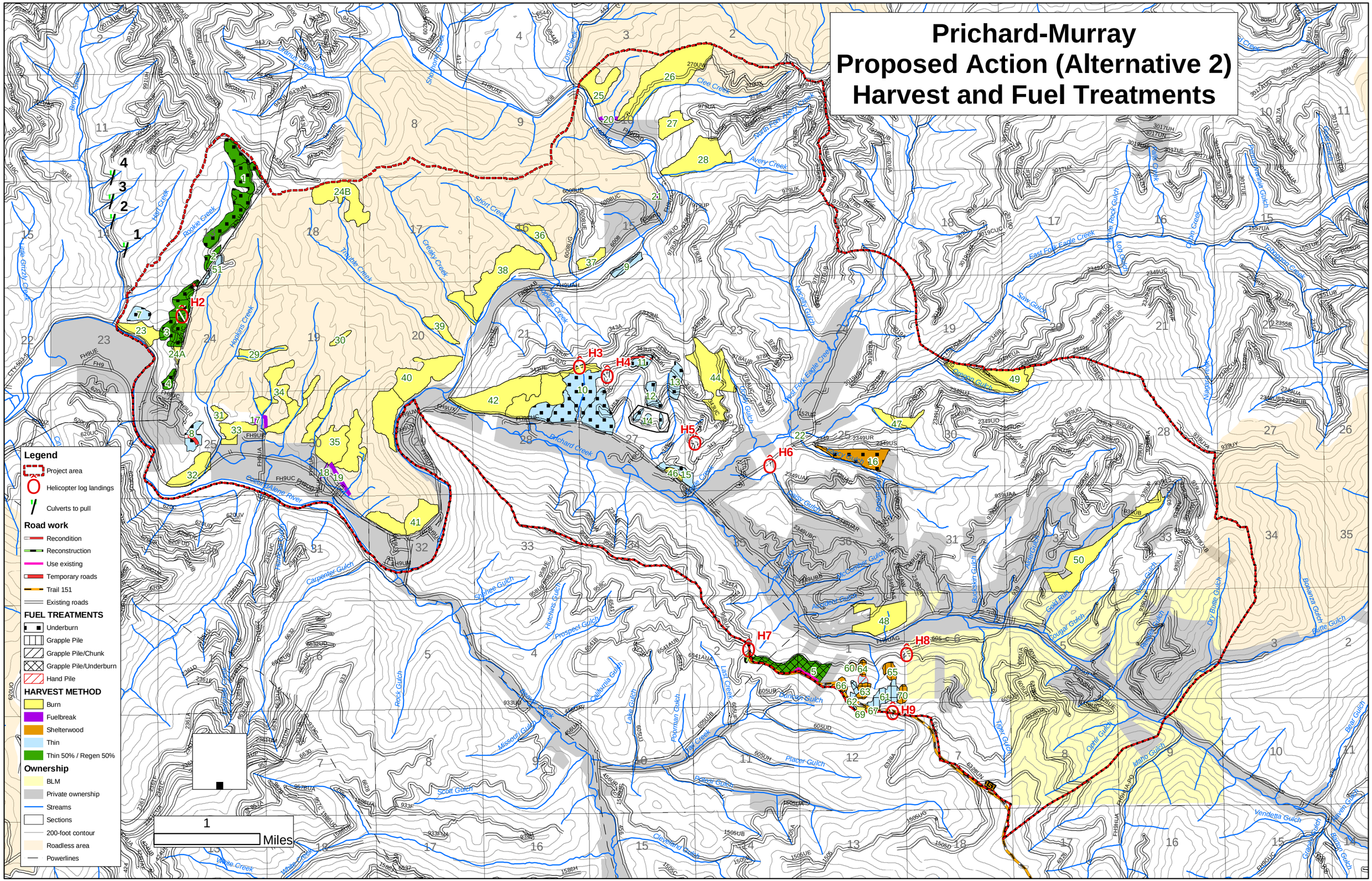
Organizations and Businesses

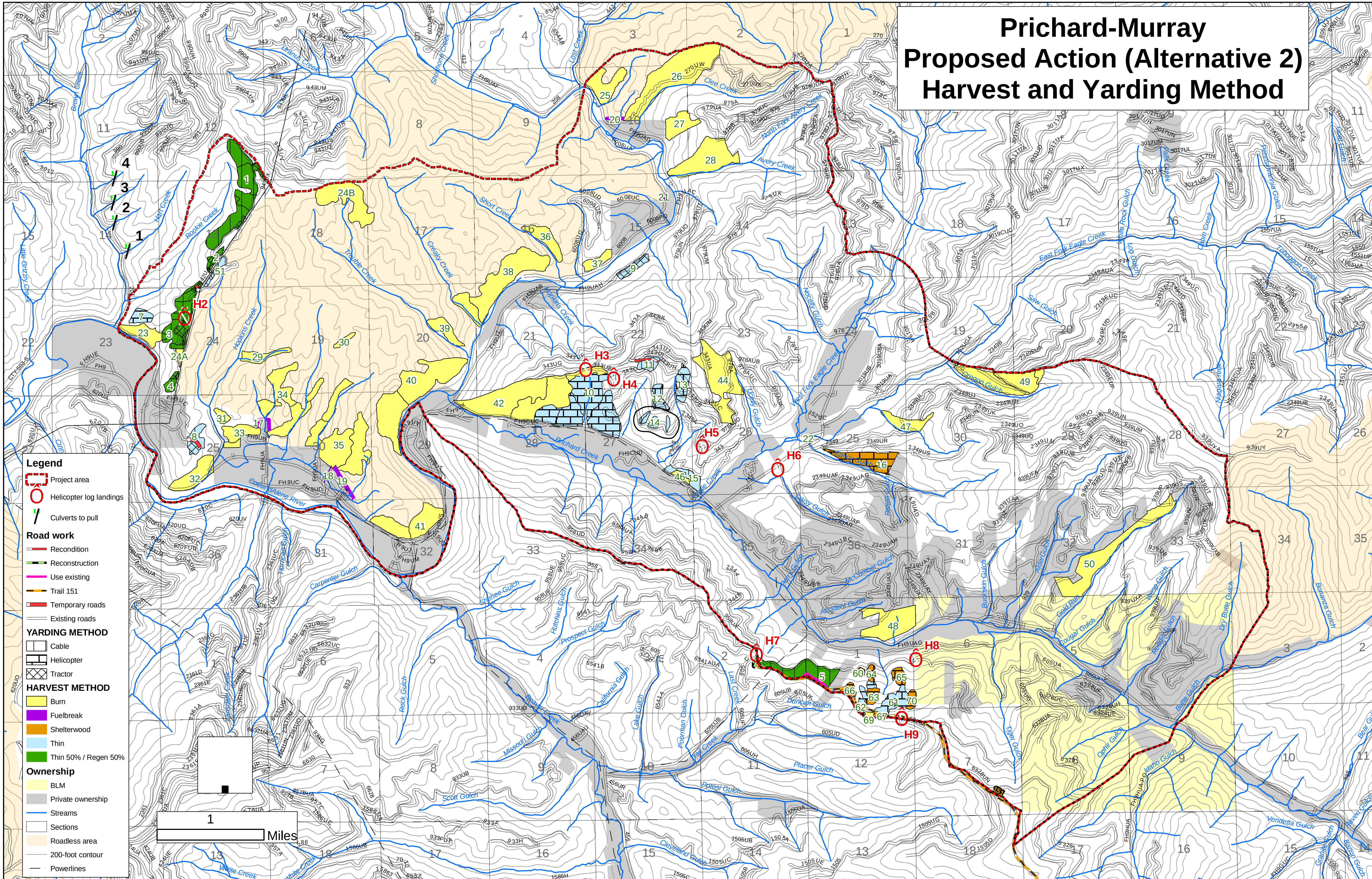
Alliance for the Wild Rockies ..... Missoula, Montana
American Wildlands ..... Bozeman, Montana
Anderson, Laura L. ..... Kellogg, ID
Audubon Society, North Idaho Chapter ..... Bonners Ferry, Idaho
Avista Utilities ..... Spokane, Washington
Backcountry ATV Association ..... Athol, Idaho
Blue Ribbon Coalition ..... Pocatello, Idaho
Bonneville Power Administration ..... Spokane, Washington
Brush Bunch ..... Rockford, Washington
Burns Yaak Lumber Company ..... Spokane, Washington
Clee Creek Ranch, Inc. ..... Wallace, Idaho
Coeur d'Alene Mining Company ..... Wallace, Idaho
Coeur d'Alene Placer Mining Company ..... Wellesley Hills, Massachusetts
Coeur d'Alene Snowmobile Club ..... Hayden, Idaho
Crown Pacific ..... Coeur d'Alene, Idaho
Defenders of Wildlife ..... Washington, DC
Eagle City Mining Company ..... Rathdrum, Idaho
Ecology Center (now WildWest Institute) ..... Missoula, Montana
Elk Unlimited ..... Osburn, Idaho
Idaho Conservation League ..... Boise, Idaho
Idaho State Snowmobile Association ..... Dalton Gardens, Idaho
Intermountain Forest Industries Association ..... Coeur d'Alene, Idaho
Kootenai Environmental Alliance ..... Coeur d'Alene, Idaho
Kootenai County Snow Groomer Board ..... Coeur d'Alene, Idaho
Louisiana Pacific Corp. ..... Hayden Lake, Idaho
North Idaho Flycasters ..... Coeur d'Alene, Idaho
North Idaho Jammers, Inc. ..... Cataldo, Idaho
North Idaho Trail Riders Organization ..... Osburn, Idaho
Northern State Bank ..... Wallace, Idaho
Northwest Access Alliance ..... Athol, Idaho
Northwest Machines ..... Coeur d'Alene, Idaho
Panhandle Trail Riders Association ..... Post Falls, Idaho
Rocky Mountain Elk Foundation ..... Missoula, Montana
Shoshone Natural Resources Coalition ..... Wallace, Idaho
Small Loggers Association ..... Santa, Idaho
Speciality Recreation & Marine ..... Coeur d'Alene, Idaho
Stimson Lumber ..... Coeur d'Alene, Idaho
The Lands Council ..... Spokane, Washington
The Pulaski Project ..... Wallace, Idaho
Trout Unlimited ..... Sandpoint, Idaho
Turnbuckle Bridge Association ..... Wallace, Idaho
Union Pacific Land Res. Corp. ..... Omaha, Nebraska
Verticle Earth ..... Coeur d'Alene, Idaho
Wilburn F. Murrell Trust ..... Post Falls, Idaho
Zabel Living Trust ..... Osburn, Idaho

Individuals

Addicks, Dale ..... Athol, ID
Babin, Gregory & Randall ..... Spokane, WA
Babin, Harold & Joanne ..... Spokane, WA
Babin, Kenneth & Sandra..... Sandpoint, ID
Babin, Randall & Netta..... Federal Way, WA
Ballard, Dian .....Wallace, ID
Banks, Diane and Dan Sherman.....Wallace, ID
Baslington, David ..... Tacoma, WA
Baslington, Florence ..... Kingston, ID
Beauchene, Al..... Hayden, ID
Beehner, Duane & Sharon ..... Murray, ID
Belchak, Thomas & CJ..... West Jordan, UT
Bentley, John .....Post Falls, ID
Berger, Donald & Nancy .....Wallace, ID
Boller, John & C. ..... Hayden Lake, ID
Bologna, Michael & Maree ..... Hayden Lake, ID
Bowers, Galen.....Hood River, OR
Boyd, Bob ..... Spokane, WA
Brooks, Jim .....Coeur d'Alene, ID
Cantemessa, Jon .....Wallace, ID
Carney, Alison..... Murray, ID
Childress, Claudia .....Wallace, ID
Clouse, Bonnie.....Wallace, ID
Costello, J.C. .....Wallace, ID
Coyle, Stephen & Sheryl .....Coeur d'Alene, ID
Cracchiolo, Polly & Vince .....Carmichael, CA
Crimmins, Tom..... Hayden Lake, ID
Decker, Michael & Mary .....Wallace, ID
DeMille, Edwin & Tonina ..... Kingston, ID
Dennis, Donn ..... Dalton Gardens, ID
Dole, Bill.....Rathdrum, ID
Ellis, Bob and Arlene..... Dalton Gardens, ID
Ellison, Ralph Jr. .....Wallace, ID
Enders, J & C .....Coeur d'Alene, ID
England, Douglas and Bonnie.....Osburn, ID
Faler, Roy Jr..... Kingston, ID
Fitch, Fran.....Wallace, ID
Frago, Frank & Claudia ..... Pinehurst, ID
Gibbons, Warren & Stephanie.....Wallace, ID
Gillies, Robert..... Kingston, ID
Gimbel, Ken .....Coeur d'Alene, ID
Grebil, Clifford & Leila ..... Murray, ID
Grimmett, Scott .....Greenacres, WA
Hammeren, Eddie & Peggy.....Wallace, ID
Hathaway, Cecil .....Coeur d'Alene, ID
Helfer, Ed .....Wallace, ID
Heyn, Ronald & Linda (Trust).....Wallace, ID
Higgins, Robert M. ..... Spokane, WA
Higgins-Merkeley, Donna..... Spokane, WA
Hill, Richard & Kathy .....Avon, MT
Hojem, Troy ..... Kellogg, ID
Houghtaling, Ruth and David .....Everett, WA
Huber, Mark & Rhonda ..... Kingston, ID
Hull, Jack .....Wallace, ID
Jacklin, Owen..... Spokane, WA
Jamison, Larry.....Coeur d'Alene, ID
Jenkins, Janet .....Clark Fork, ID
Jennings, Kevin & Sandee .....Post Falls, ID
Johnk, Bev .....Wallace, ID
Johnson, Bruce and Marjorie .....Liberty Lake, WA
Johnson, Charles & Mary ..... Post Falls, ID
Johnson, John ..... Post Falls, ID
Kees, Robert.....Spokane, WA
Kerr, Del .....Coeur d'Alene, ID
Kienke, Neal Houser.....Coeur d'Alene, ID
Kirby, Tom ..... Post Falls, ID
Krewson, Fred and Dorothy..... Murray, ID
Larsen, Leonard ..... Post Falls, ID
Lee, Harold & Shirley..... Wallace, ID
LaVoie, D & D.....Coeur d'Alene, ID
Livingston, Tony .....Coeur d'Alene, ID
Loper, Douglas & Roberta ..... Hayden Lake, ID
Lorian, Jesse ..... Rathdrum, ID
Luzzo, Harris Homer..... Richland, WA
McElroy, Joyce ..... Wallace, ID
McLeod, Roderick..... San Francisco, CA
Miessner, Ray..... Murray, ID
Miller, LTC John & Ruth .....Coeur d'Alene, ID
Murphy, Patty ..... Burley, WA
Muse, Keith & Laurie Pottruff.....Lynnwood, WA
Nichols, John ..... Post Falls, ID
Nutting, Joy.....Coeur d'Alene, ID
O'Brien, Jack .....Hayden, ID
Ogren, Linda..... Merritt, NC
Olson, Gus..... Wallace, ID
Orne, Russell & Deb Streibeck..... Rathdrum, ID
Pike, John & Judy.....Coeur d'Alene, ID
Ray, Dennis ..... Kingston, ID
Ray, Madeline..... Wallace, ID
Reel, Edith Morgan.....Klamath Falls, OR
ReHart, Cliff Jr. ..... Arlington, TX
Riddle, Jack & Geneva ..... Wallace, ID
Rogers, Vernon & Janet .....Pomeroy, WA
Rogers, Willis K. (Etux).....Lake Almanor, CA
Rower, Don & Irene ..... Rathdrum, ID
Schmidt, Wesley & Mary .....Veradale, WA
Schreiber, James & Sally .....Coeur d'Alene, ID
Shepherd, James and Mary Louise ..... Wallace, ID
Stambaugh, Mark ..... Post Falls, ID
Standish, Kerry ..... Rathdrum, ID
Steward, Bonnie ..... Wallace, ID
Stout, Ross ..... Kellogg, ID
Sverdsten, Mark .....Cataldo, ID
Swenson, Jan & Karen ..... Worley, ID
Tester, Grant & Terrann ..... Wallace, ID
Tester, John.....Ritzville, WA
Thornton, John & Nancy.....Spokane, WA
Tope, Kenneth & Lorraine ..... Sagle, ID
Vaugn, Ben & Glenda..... Kingston, ID
Walker, Bonnie ..... Murray, ID
Walling, Lila ..... Murray, ID
Weimer, Jerry & Vicky .....Coeur d'Alene, ID
Whisner, Richard & Evelyn ..... Kingston, ID
White, Brian .....Coeur d'Alene, ID
Williams, Duane..... Kingston, ID
Wilson, Ron & Linda (Trust)..... Murray, ID
Yeager, Sabrina & Warren ..... Post Falls, ID
Zanetti, Herbert J. Jr. ..... Wallace, ID

Prichard-Murray
Proposed Action (Alternative 2)
Harvest and Fuel Treatments

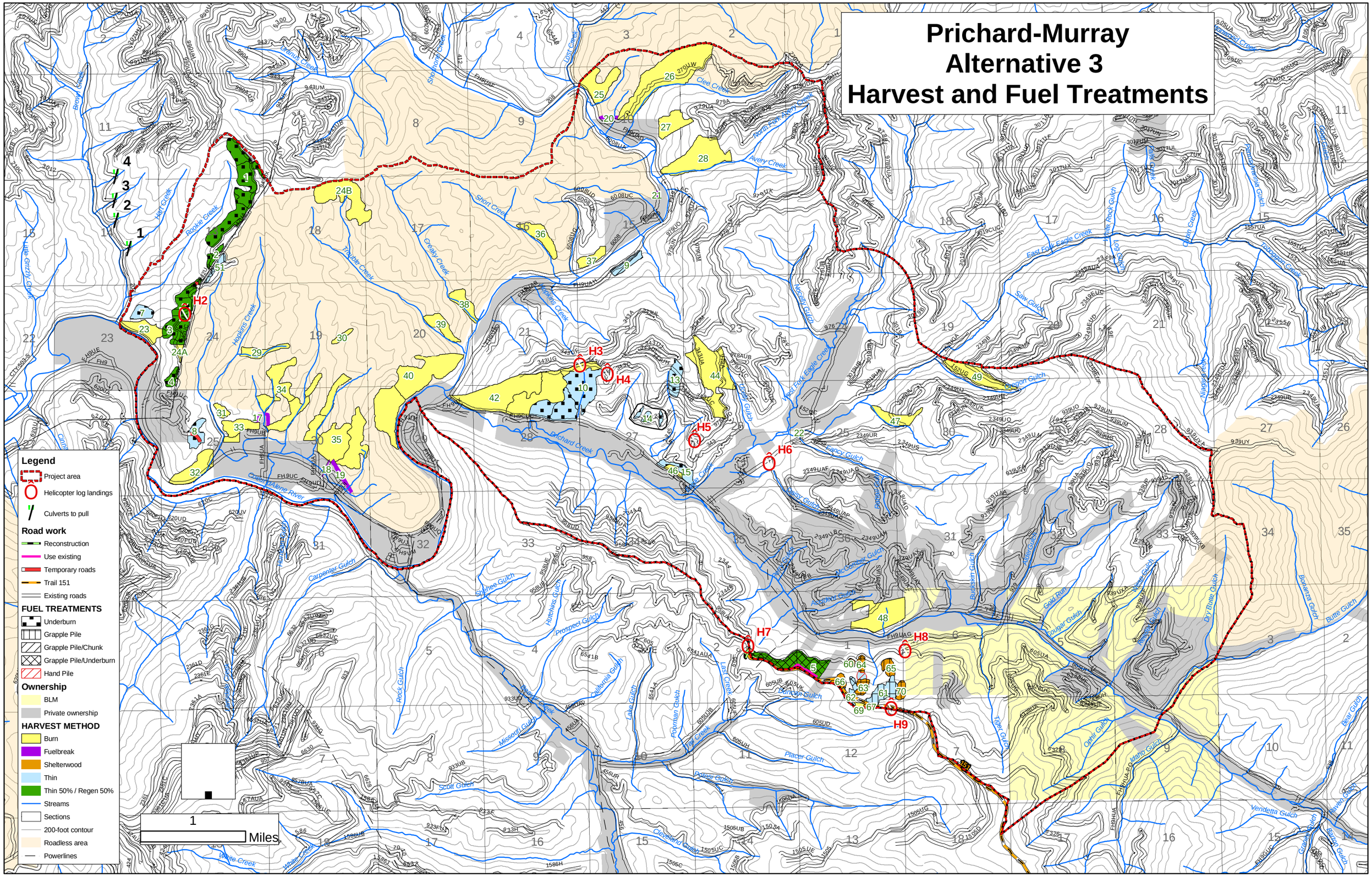


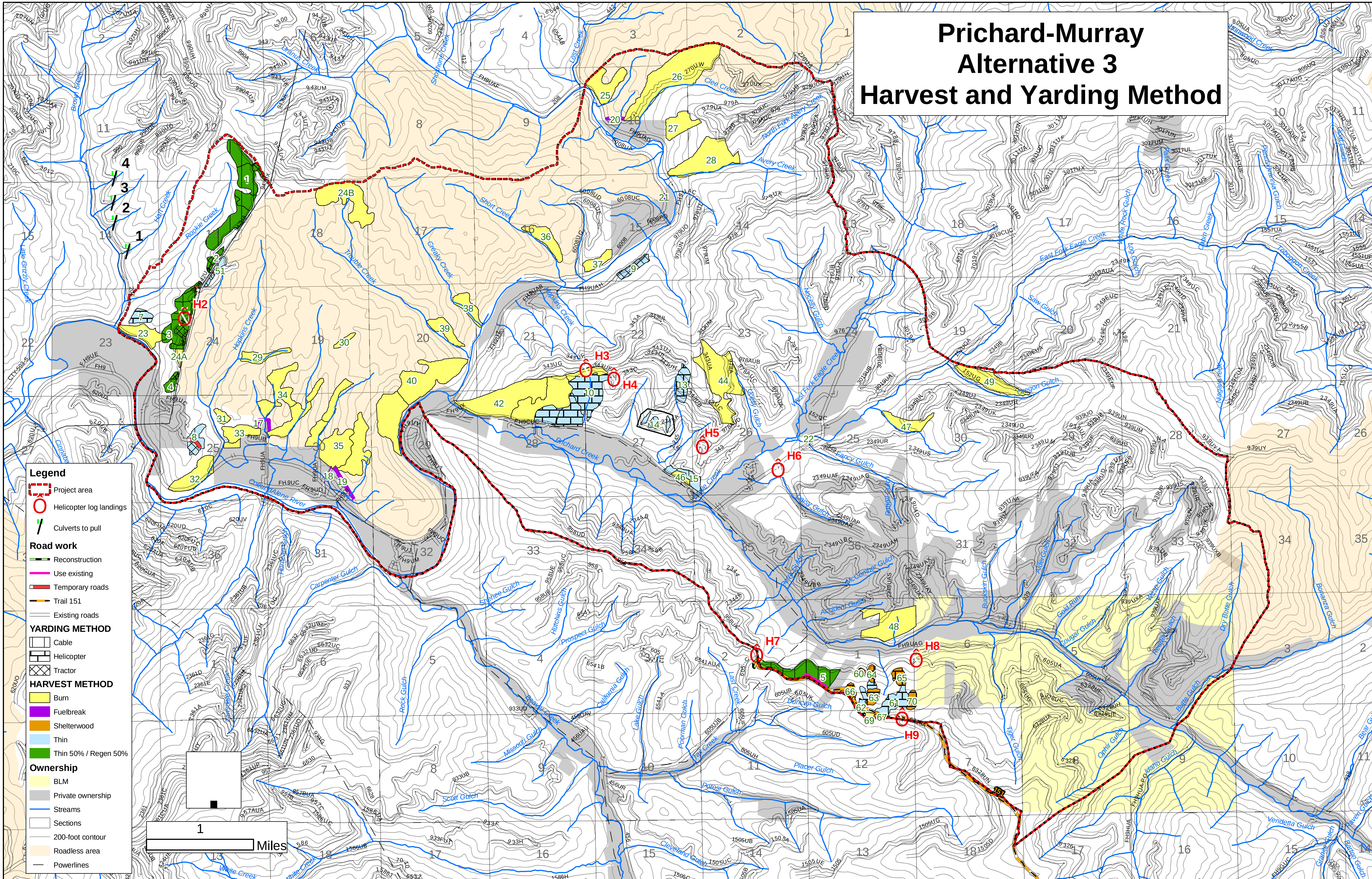

Prichard-Murray
Proposed Action (Alternative 2)
Harvest and Yarding Method
Legend
Project area
Helicopter log landings
Culverts to pull
Road work
Recondition
Reconstruction
Use existing
Trail 151
Temporary roads
Existing roads
YARDING METHOD
Cable
Helicopter
Tractor
HARVEST METHOD
Burn
Fuelbreak
Shelterwood
Thin
Thin 50% / Regen 50%
Ownership
BLM
Private ownership
Streams
Sections
Roadless area
200-foot contour
Powerlines
1
Miles

Treatment activities under Alternative 2 in the Prichard-Murray Resource Area.

Unit	Acres	Description of treatment
1	101	Regeneration harvest on no more than half the unit, with thinning in the remainder of the unit where appropriate based on site conditions/species composition (96 acres cable yarding, 5 acres tractor yarding), followed by underburning
2	9	Regeneration harvest on no more than half the unit, with thinning in the remainder of the unit where appropriate based on site conditions/species composition (all tractor yarding), followed by underburning
3	67	Regeneration harvest on no more than half the unit, with thinning in the remainder of the unit where appropriate based on site conditions/species composition (57 acres cable yarding, 10 acres tractor yarding), followed by underburning on all but 2 acres, where slash would be grapple piled
4	9	Regeneration harvest on no more than half the unit, with thinning in the remainder of the unit where appropriate based on site conditions/species composition (7 acres cable yarding, 2 acres tractor yarding), followed by underburning
5	55	Regeneration harvest on no more than half the unit, with thinning in the remainder of the unit where appropriate based on site conditions/species composition (all cable yarding) , followed by underburning in the regeneration areas and grapple piling in the thinned areas
7	14	Thinning harvest with helicopter yarding, followed by underburning to reduce fuels
8	20	Thinning harvest (12 acres cable yarding, 8 acres tractor yarding), then underburning to reduce fuels
9	15	Thinning harvest with tractor yarding, followed by grapple piling and chunking of slash to disperse fuels
10	161	Thinning harvest with helicopter yarding, followed by underburning to reduce fuels
11	13	Thinning harvest with cable yarding, followed by underburning to reduce fuels
12	16	Thinning harvest with helicopter yarding, followed by underburning to reduce fuels
13	22	Thinning harvest with helicopter yarding, followed by underburning to reduce fuels
14	14	Thinning harvest with cable yarding, followed by underburning to reduce fuels
15	16	Thinning harvest with cable yarding, followed by underburning to reduce fuels
16	48	Shelterwood with helicopter yarding, followed by underburning to reduce fuels
17	6	Construction of a fuelbreak
18	1	Construction of a fuelbreak
19	9	Construction of a fuelbreak
20	4	Construction of a fuelbreak
21	1	Construction of a fuelbreak
22	1	Construction of a fuelbreak
23	29	Prescribed burning to reduce fuels (with no timber harvest)
24	76	Prescribed burning to reduce fuels (with no timber harvest)
25	40	Prescribed burning to reduce fuels (with no timber harvest)
26	141	Prescribed burning to reduce fuels (with no timber harvest)
27	31	Prescribed burning to reduce fuels (with no timber harvest)
28	81	Prescribed burning to reduce fuels (with no timber harvest)
29	20	Prescribed burning to reduce fuels (with no timber harvest)
30	6	Prescribed burning to reduce fuels (with no timber harvest)
31	8	Prescribed burning to reduce fuels (with no timber harvest)
32	41	Prescribed burning to reduce fuels (with no timber harvest)
33	29	Prescribed burning to reduce fuels (with no timber harvest)
34	82	Prescribed burning to reduce fuels (with no timber harvest)
35	142	Prescribed burning to reduce fuels (with no timber harvest)
36	29	Prescribed burning to reduce fuels (with no timber harvest)
37	16	Prescribed burning to reduce fuels (with no timber harvest)
38	127	Prescribed burning to reduce fuels (with no timber harvest)
39	23	Prescribed burning to reduce fuels (with no timber harvest)
40	151	Prescribed burning to reduce fuels (with no timber harvest)
41	67	Prescribed burning to reduce fuels (with no timber harvest)
42	186	Prescribed burning to reduce fuels (with no timber harvest)
44	102	Prescribed burning to reduce fuels (with no timber harvest)
46	6	Prescribed burning to reduce fuels (with no timber harvest)
47	28	Prescribed burning to reduce fuels (with no timber harvest)
48	72	Prescribed burning to reduce fuels (with no timber harvest)
49	85	Prescribed burning to reduce fuels (with no timber harvest)
50	105	Prescribed burning to reduce fuels (with no timber harvest)
51	8	Thinning harvest (3 acres tractor yarding, 5 acres cable yarding), with grapple piling of slash
60	3	Shelterwood harvest with helicopter yarding, followed by grapple piling and planting
61	26	Thinning harvest with helicopter yarding, followed by grapple piling of slash
62	11	Thinning harvest with helicopter yarding followed by a combination of grapple piling and underburning
63	10	Shelterwood harvest with helicopter yarding, followed by grapple piling and planting
64	6	Shelterwood harvest with helicopter yarding, followed by grapple piling of slash
65	10	Shelterwood harvest with helicopter yarding, followed by grapple piling of slash
66	8	Shelterwood harvest with helicopter yarding, followed by underburning to reduce slash
67	1	Shelterwood harvest with helicopter yarding, followed by underburning to reduce slash
68	3	Thinning harvest with helicopter yarding, followed by hand piling of slash
69	2	Prescribed burning to reduce fuels (with no timber harvest)
70	9	Shelterwood harvest with helicopter yarding, followed by grapple piling of slash

Prichard-Murray
Alternative 3
Harvest and Fuel Treatments




Prichard-Murray
Alternative 3
Harvest and Yarding Method
Legend
Project area
Helicopter log landings
Culverts to pull
Road work
Reconstruction
Use existing
Temporary roads
Trail 151
Existing roads
YARDING METHOD
Cable
Helicopter
Tractor
HARVEST METHOD
Burn
Fuelbreak
Shelterwood
Thin
Thin 50% / Regen 50%
Ownership
BLM
Private ownership
Streams
Sections
200-foot contour
Roadless area
Powerlines
1
Miles

Treatment activities under Alternative 3 in the Prichard-Murray Resource Area.

Unit	Acres	Description of treatment
1	101	Regeneration harvest on no more than half the unit, with thinning in the remainder of the unit where appropriate based on site conditions/species composition (96 acres cable yarding, 5 acres tractor yarding), followed by underburning
2	9	Regeneration harvest on no more than half the unit, with thinning in the remainder of the unit where appropriate based on site conditions/species composition (all tractor yarding), followed by underburning
3	67	Regeneration harvest on no more than half the unit, with thinning in the remainder of the unit where appropriate based on site conditions/species composition (57 acres cable yarding, 10 acres tractor yarding), followed by underburning on all but 2 acres, where slash would be grapple piled
4	9	Regeneration harvest on no more than half the unit, with thinning in the remainder of the unit where appropriate based on site conditions/species composition (7 acres cable yarding, 2 acres tractor yarding), followed by underburning
5	55	Regeneration harvest on no more than half the unit, with thinning in the remainder of the unit where appropriate based on site conditions/species composition (all cable yarding) , followed by underburning in the regeneration areas and grapple piling in the thinned areas
7	14	Thinning harvest with helicopter yarding, followed by underburning to reduce fuels
8	20	Thinning harvest (12 acres cable yarding, 8 acres tractor yarding), then underburning to reduce fuels
9	15	Thinning harvest with tractor yarding, followed by grapple piling and chunking of slash to disperse fuels
10	109	Thinning harvest with helicopter yarding, followed by underburning to reduce fuels
13	22	Thinning harvest with helicopter yarding, followed by underburning to reduce fuels
14	12	Thinning harvest with cable yarding, followed by underburning to reduce fuels
15	16	Thinning harvest with cable yarding, followed by underburning to reduce fuels
16	48	Shelterwood with helicopter yarding, followed by underburning to reduce fuels
17	6	Construction of a fuelbreak
18	1	Construction of a fuelbreak
19	9	Construction of a fuelbreak
20	4	Construction of a fuelbreak
21	1	Construction of a fuelbreak
22	1	Construction of a fuelbreak
23	29	Prescribed burning to reduce fuels (with no timber harvest)
24	76	Prescribed burning to reduce fuels (with no timber harvest)
25	40	Prescribed burning to reduce fuels (with no timber harvest)
26	141	Prescribed burning to reduce fuels (with no timber harvest)
27	31	Prescribed burning to reduce fuels (with no timber harvest)
28	81	Prescribed burning to reduce fuels (with no timber harvest)
29	20	Prescribed burning to reduce fuels (with no timber harvest)
30	6	Prescribed burning to reduce fuels (with no timber harvest)
31	8	Prescribed burning to reduce fuels (with no timber harvest)
32	41	Prescribed burning to reduce fuels (with no timber harvest)
33	29	Prescribed burning to reduce fuels (with no timber harvest)
34	82	Prescribed burning to reduce fuels (with no timber harvest)
35	142	Prescribed burning to reduce fuels (with no timber harvest)
36	29	Prescribed burning to reduce fuels (with no timber harvest)
37	16	Prescribed burning to reduce fuels (with no timber harvest)
38	23	Prescribed burning to reduce fuels (with no timber harvest)
39	23	Prescribed burning to reduce fuels (with no timber harvest)
40	151	Prescribed burning to reduce fuels (with no timber harvest)
42	186	Prescribed burning to reduce fuels (with no timber harvest)
44	102	Prescribed burning to reduce fuels (with no timber harvest)
46	6	Prescribed burning to reduce fuels (with no timber harvest)
47	28	Prescribed burning to reduce fuels (with no timber harvest)
48	72	Prescribed burning to reduce fuels (with no timber harvest)
49	46	Prescribed burning to reduce fuels (with no timber harvest)
51	8	Thinning harvest (3 acres tractor yarding, 5 acres cable yarding), with grapple piling of slash
60	3	Shelterwood harvest with helicopter yarding, followed by grapple piling and planting
61	26	Thinning harvest with helicopter yarding, followed by grapple piling of slash
62	11	Thinning harvest with helicopter yarding followed by a combination of grapple piling and underburning
63	10	Shelterwood harvest with helicopter yarding, followed by grapple piling and planting
64	6	Shelterwood harvest with helicopter yarding, followed by grapple piling of slash
65	10	Shelterwood harvest with helicopter yarding, followed by grapple piling of slash
66	8	Shelterwood harvest with helicopter yarding, followed by underburning to reduce slash
67	1	Shelterwood harvest with helicopter yarding, followed by underburning to reduce slash
68	3	Thinning harvest with helicopter yarding, followed by hand piling of slash
69	2	Prescribed burning to reduce fuels (with no timber harvest)
70	9	Shelterwood harvest with helicopter yarding, followed by grapple piling of slash