# 3 - AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Chapter 3 sets the framework for understanding the baseline environment – the existing environmental resources of the area that may be affected by the alternatives if implemented. In addition to the resource descriptions, the general setting of the area is described and a table of critical elements is presented. This chapter also describes the potential changes to the environmental resources due to implementation of the alternatives and presents the scientific and analytical basis for the comparison of alternatives shown in Table 1, Chapter 2. The consequences to the affected resources from the No Action alternative are described first, followed by the consequences from the Proposed Action alternative and the Shaded Fuelbreak alternative.

Cumulative effects are presented in this chapter for each resource. Cumulative effects are the impact on the environment that results from the incremental impact for the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions (40 CFR § 1508.7).

## 3.1 General Setting

Garden Mountain is located northwest of the small communities of Garden Valley and Crouch along the Middle Fork of the Payette River (Figure 1). Topography is mountainous and consists of steep slopes and ridges with deeply incised perennial and intermittent drainages. Slopes in the treatment areas range between 30 and 75 percent with the majority exceeding 50 percent. Soils are generally residual and are formed from granite rocks. The dominant timber species found on Garden Mountain are subalpine fir, Douglas-fir, grand fir and ponderosa pine.

Climate in the area is taken from the Lowman Station, southeast of the project area. Average precipitation in the area is approximately 25 inches. Most of it falls as snow from November through February, although high precipitation also occurs in March and April. Average daily maximum temperatures range from 32.6° F in December to 87.9° F during July (Abramovich *et al*. 1998). Warm Springs Creek occurs north of the project area and flows northeast to join with the Middle Fork of the Payette River. The Warm Springs Road travels through the project area. There have been four wildland fires larger than 2,000 acres and numerous small fires (generally less than one acre) in the Middle Fork Payette River Subbasin since the mid-1980s.

The U.S. Forest Service, IDL, Boise Cascade Corporation, and private individuals own land near the project area and various activities are taking place on these lands. The West Central Highlands Resource Conservation & Development Council, in conjunction with Castle Mountain Subdivision, has requested and will receive a grant for removing, modifying, or breaking up fuel loads on 250 acres of the subdivision in order to lessen damage from catastrophic fires. The BLM study to assess wildfire risk in the Garden Valley-Crouch area found that the Castle Mountain Subdivision was a high-risk fuel area within the assessment

area (USDI BLM 2001a). The executive summary of the study recommended that the buildup of flammable fuels should be reduced in the area and that hazardous fuels should be cleaned up around residences. In 2002 and 2003, 11 units in the subdivision received fuels reduction activities. Equipment or techniques to be used for further reductions may include: mechanical and hand tree-felling, mechanical slash and brush mulching, hand brushing, mechanical and hand piling of slash, and burning of piled slash. The prescriptions will be carried out between 2004 and 2006 at 430 home sites.

Some adjoining IDL lands have undergone recent harvesting and prescribed burning: 1) 160 acres in T9N, R4E, Section 9 were selectively harvested in 2002 and jackpot burned in 2003, 2) 100 acres in T9N, R4E, Section 4 were harvested in the 1970s, and 3) 160 acres in T9N, R4E, Section 31 were selectively harvested and jackpot burned in 2003. No other activities are currently planned for State lands in the area.

Boise Cascade has sold two parcels in the area (T10N, R4E, Sections 32 and 34 (218 acres) and T10N, R4E, Sections 27 and 28 (307 acres). The first parcel in Sections 32 and 34 is slated for development into another subdivision. In addition, they are selling a parcel for logging this fall in T10N, R4E, Section 14 (231 acres), which is within ten miles of the project area.

The FRFO has proposed a road reconstruction project as a separate action along seven miles of the Warm Springs Road. The Warm Springs Road has experienced severe degradation and erosion and would need major reconstruction before it could be used to implement an action alternative. In 2003, the FRFO replaced culverts and cleared numerous landslides off the northern portion of the road.

## 3.2 Critical Elements of the Human Environment

Consideration of critical elements is required as specified in statute, regulation, executive order, or policy and must be considered in all EAs (Table 2). Critical elements identified by an "X" in the "Not Present" or "Applicable or Present, No Impact" columns are not affected and will receive no further consideration in this EA. Elements that are present and are likely to be affected by the alternatives are discussed further in this chapter.

The following will not be affected and therefore are not addressed in this EA: energy requirements, conservation potential, Areas of Critical Environmental Concern; environmental justice, prime or unique farmlands, floodplains, Native American religious concerns, hazardous wastes, wetlands, Wild and Scenic Rivers, and Wilderness Areas. A Class I cultural resource inventory was completed and no known cultural sites were identified in the treatment areas. A Class III intensive survey of the treatment areas would be conducted prior to project implementation. A Biological Assessment is being completed in conjunction with this EA to examine the potential for effects to threatened and endangered species. Botanical clearances would be completed before any work occurs in the project area to identify potential impacts to special status plants in the treatment areas.

**Table 2. Critical Elements of the Human Environment**

| Critical Elements | N/A or Not Present | Applicable or Present, No Impact | Discussed In EA |
|---|---|---|---|
| Air Quality | | | X |
| Areas of Critical Environmental Concern (ACEC) | X | | |
| Cultural Resources | | | X |
| Environmental Justice (EO 12989) | X | | |
| Farm Lands (prime or unique) | X | | |
| Floodplains | X | | |
| Invasive, Non-native Species | | | X |
| Migratory Birds | | | X |
| Native American Religious Concerns | X | | |
| Threatened or Endangered Species | | | X |
| Wastes, Hazardous Substances or Solid Wastes | X | | |
| Water Quality – Surface & Ground | | | X |
| Wetlands/Riparian Zones | | | X |
| Wild & Scenic Rivers (Eligible) | X | | |
| Wilderness | X | | |

## 3.3 Soils

The USDA Soil Conservation Service (SCS) conducted a soil survey of the Middle Fork of the Payette River area (USDA SCS 1976). The SCS survey did not include Garden Mountain, however the information is specific to the same watershed and can be generalized to the project area.

The project area is primarily coarse textured, DG soils derived from the Idaho Batholith. Slopes are generally steep - on average 35 to 75 percent and landslide-prone. DG soils located in mountainous topography are moderately deep to very deep, well-drained, and have weak development in the subsurface horizons including a very shallow organic layer (USDI BLM 1987). The soils formed in the lower elevation stands that are dominated by ponderosa pine generally have a better developed duff layer than the high elevation stands that are dominated by the fir species because the pine produces more organic litter.

The BLM uses a soil and landtype erosion hazard classification system developed by the NRCS that is based on run-off potential, susceptibility to erosion (wind or water), and percent slope. High erosion potential is associated with greater than 30 percent slopes that are subject to water erosion, mass wasting, and other processes. The DG soils and the steep slopes in the project area are susceptible to water erosion and are classified as "high to very high soil erosion hazard" (USDI BLM 1987).

Vegetation alterations due to timber management, road building, livestock grazing, fire, and other actions can further increase the rate of noxious weed and invasive species proliferation and erosion hazard potential unless ground-cover in the form of organic debris or vegetation is retained or re-established. Currently there is an expanding population of rush skeletonweed (*Chondrilla juncea*), an Idaho State listed noxious weed in the project area. Noxious weeds and invasive species out-compete native vegetation and provide less soil cover than native species.

### 3.3.1 No Action Alternative

There would be no direct impacts to the soils or the rate of noxious weed and invasive species proliferation as the result of the No Action alternative. The No Action alternative would have potential indirect impacts to soils due to an increased risk of large-scale, catastrophic fire. In the absence of any fuels reduction, the current stand densities would increase, along with the possibility of a catastrophic wildland fire. A large-scale, catastrophic fire would: 1) increase erosion, 2) reduce site-productivity, 3) facilitate the proliferation of noxious weeds and invasive species, 4) decrease infiltration, 5) increase water yield, and 6) impact downstream water quality and fisheries habitat through sediment transport.

Because wildland fires would be larger and burn hotter under the No Action alternative, the erosion potential would be higher and re-establishment of vegetation would take longer than with the Proposed Action treatments. This would result in a potential increase in soil erosion, loss of site productivity, and noxious weed and invasive species proliferation.

### 3.3.2 Proposed Action Alternative

Under the Proposed Action alternative, logging activities and post-harvest actions including prescribed burning and slash treatment would directly affect soils in the project area. Implementation of the project specific design criteria (Appendix A) would effectively minimize effects to soils.

The Proposed Action alternative would harvest approximately 1,317 total acres (Table 1). Approximately 157 acres would be harvested using ground-based tractor methods (Figure 3). Approximately 364 acres would be harvested using a running skyline cable system, and 337 acres would be treated with helicopter logging. The shaded fuelbreak (459 acres) would be treated with a combination of mechanical and hand methods – including 108 acres of mechanical treatment on slopes less than or equal to 35 percent and 351 acres of hand treatment on slopes greater than 35 percent. Details of the Proposed Action prescriptions are included in Chapter 2: *Proposed Action and Alternatives* and Appendix A.

Helicopter logging would cause the least amount of soil disturbance. Logs would be completely lifted off the forest floor and delivered to a designated landing site (Figure 3). As a result there would be no skid trails or ground-based vehicles to cause soil damage and impacts would be localized at the landing. Impacts at landings would include loss of vegetation and organic soil, compaction, loss of infiltration, and probable noxious weed introduction and/or proliferation. Helicopter logging would improve site regeneration potential because there would be little soil disturbance.

The ground-based mechanical methods using rubber-tired or crawler tractors, jammers, or highlead systems would have the highest amount of impact to the soil. Froelich *et al*. (1980) indicates that crawler tractor skidding results in more soil compaction and displacement than rubber-tired tractor skidding. With any ground-based skidding method, impacts such as soil compaction and the displacement of existing organic horizons would result from repeated passes of machinery as logs are skidded or yarded from the harvest area to landings. Soil compaction alters the natural flow of surface water and rainfall by reducing soil infiltration and aeration. In the short-term, this can result in increased overland flow, reduced root growth, increased water yield, and reduced plant vigor. Over the long-term, as vegetation matures and organic litter accumulates, compacted upper soil horizons can eventually loosen and move towards pre-harvest conditions. Some disturbance can also aid in the regeneration potential for ponderosa pine.

The skyline cable system would result in less impact to soils compared to the ground-based harvest methods. The primary concern with cable systems are the skid trails that are created as logs are dragged from the forest to the yarding site along skyline corridors. This would be mitigated through the full-suspension of logs.

Log landings and skid trails would be reclaimed through tilling or scarifying the soil and soil augmentation with material such as weed-free straw or manure and/or fertilizer, as practicable. Fertilizer would be uniformly incorporated into the soil areas prior to seeding. Fertilizer would not be applied within RHCAs. The soil surfaces would be left with a rough, corrugated surface to help anchor seed. If the slopes are tracked, the tracks would be perpendicular to the slope contour. Disturbed areas and reclaimed landings and skid trails would be seeded with a mixture of BLM approved native grasses, forbs, and/or shrubs suitable for the site.

There are two primary species combinations in the MUs – ponderosa pine/Douglas-fir and grand fir/subalpine fir. Each of these combinations would have specific canopy closure and soil organic matter cover targets that would minimize direct impact to the exposed forest floor after harvest. The ponderosa pine/Douglas-fir areas (MUs 7, 10, 12) would have a deeper natural duff layer and the target canopy closure would be 50 to 70 percent with average residual tree size of 18 inch DBH with approximately 50 percent organic debris retained on slopes less than or equal to 35 percent. MUs 1 through 6 and 8 and 9 are dominated by grand fir, Douglas-fir, and subalpine fir, have less organic duff, and are on steeper slopes (greater than 35 percent). These stands would have a target canopy closure of 60 to 80 percent with average residual tree size of 16 inch DBH and greater than 50 percent

organic debris retention would be required as part of the design criteria to provide adequate protection to the forest floor and upper soil.
Following any timber harvest, considerable amounts of slash are generated. In the Proposed Action, the logging slash would be applied to the soil surface in the MUs, on log landings and skid trails (Appendix A). Slash would be either: 1) lopped and scattered, 2) burned using a low-intensity jackpot method, or 3) piled and burned. On slopes less than or equal to 35 percent slash would be tractor piled. On slopes greater than 35 percent the slash would be hand piled. Lopping and scattering the slash would reduce fuelbed depth, protect soil, and help re-establish vegetation on landings and skid trails by providing seedling protection. The specific design criteria for lop and scatter are listed in Appendix A. Lopping and scattering would also retain coarse woody debris cover to protect the soil from rainfall impact, harvest equipment making passes through the stand, reduce surface temperatures creating a favorable environment for seedling regeneration, and provide soil organic matter through decomposition.

Slash pile and prescribed jackpot burning would reduce fuel loads throughout the stands but could have localized impacts to the soil if it burns too hot. Conducting burns during spring or late fall would minimize the potential for hot burns and for slash pile fires to spread to adjacent areas and ignite wildfires.

The Proposed Action also has the potential to increase the rate of noxious weed and invasive species proliferation due to vehicle traffic, off-road and skid trail vehicle traffic, soil disturbance, and other sources of weed introduction and distribution. The project specific design criteria and BMPs to contain and prevent the introduction and/or spread of noxious weeds and invasive species, including pre- and post-project herbicide treatments, would help to minimize this impact. Herbicide treatments would not be applied within RHCAs.

### 3.3.3 Shaded Fuelbreak Alternative

Only the 459-acre shaded fuelbreak along Warm Springs Road would be implemented in this alternative (Figure 7). The objective of this alternative is to minimize stand density and fuel loading and provide a defensible space for firefighters to suppress wildland fire in the highest risk part of the project area. Specific details of this alternative are discussed in Chapter 2: *Proposed Action and Alternatives* and Appendix A.

Direct impacts to the soil would be similar to those introduced in the Proposed Action but only 459 acres would be impacted (Table 1). The primary difference between Alternative 3 and the Proposed Action is the number of acres that would be tractor/mechanical treated (108 versus 265 acres, respectively) because the primary soil impacts would be derived from ground-based harvest methods (e.g., soil compaction, rutting from skid trails, and noxious weed/invasive species proliferation). This alternative would limit the noxious weed and invasive species invasions to areas along the Warm Springs Road that are already infested. Pre- and post-project herbicide treatments could more easily be applied because of road access and fewer treatment acres than the Proposed Action, and would probably be more effective in containing weeds (459 versus 1,317 acres). Herbicide treatments would not be applied within RHCAs.

### 3.3.4 Cumulative Effects

Other recent actions or reasonably foreseeable actions include State and private land timber harvest for commercial and fuel mitigation purposes, subdivision development, and prescribed burning (Table 3). The slopes and soil types in the adjacent private and State lands have similar properties as the project area but may be less erodible due to more moderate slopes (USDI 1987; USDA SCS 1976).

**Table 3. Recent, Past and Reasonably Foreseeable Cumulative Actions in the Watershed**

| Ownership | Legal Description | Acres | Treatment | Implementation Year |
|---|---|---|---|---|
| BLM | T9N, R4E, Sections 5, 6, 8, 16, and 17 | 17 (20 feet wide x 7miles) | Warm Springs Road Reconstruction | 2005 |
| BLM | T9N, R4E, Sections 5 and 6 | Unknown | Warm Springs Road Culvert Replacement and Landslide Stabilization | 2003 |
| Idaho Department of Lands | T9N, R4E, Section 9 | 160 | Commercial Harvest and Prescribed Burned | 2002-2003 |
| Idaho Department of Lands | T9N, R4E, Section 31 | 160 | Commercial Harvest/Prescribed Burned | 2002-2003 |
| Boise-Cascade Corporation | T10N, R4E, Sections 32 and 34 | 218 | Commercial Harvest and/or Subdivision Development | Unknown |
| Boise-Cascade Corporation | T10N, R4E, Sections 27 and 28 | 307 | Commercial Harvest and/or Subdivision Development | Unknown |
| Boise-Cascade Corporation | T10N, R4E, Section 14 | 231 | Commercial Harvest | 2004 |
| Castle Mountain Subdivision | T10N, R4E, Section 33 | 250 | Fuels Mitigation | 2004-2006 |
| **Total Acres** | | **~1,343** | | |

Although there are no new roads associated with any of the alternatives, the existing Warm Springs Road has experienced severe degradation and erosion. In 2003, the FRFO cleared numerous landslides off the northern portion of the road and replaced culverts (Table 3). The FRFO has proposed a major road reconstruction project as a separate action along seven miles of the Warm Springs Road (Table 3). The northern 3.5 miles of the road needs to be widened, pullouts built, and drainage re-established. The southern 3.5 miles needs the entire road surface reconstructed, drainage structures constructed, and approximately 600 feet needs to be slightly re-routed where the road has been obliterated.

Road building on this soil and landtype is potentially a major source of sediment and noxious weeds and invasive species that could impact site productivity, water yield, water quality and aquatic habitat. A study of logging roads in the Idaho Batholith region (including the project area) reported roads led to accelerated sediment production that was 770 times greater than similar undisturbed areas (Megahan and Kidd 1972). This high amount of sediment yield can be attributed to the low clay content and high percolation rates of these soils, which result in low water holding capacity, making the re-establishment of vegetation difficult due

to a lack of available soil moisture (USDA SCS 1976). Another reason that the construction and maintenance of roads can be difficult is the small, uniform, rounded particle size of these granitic soils, which reduces the ability for the soil to aggregate and form a stable road prism on cut and fillslopes.
Watershed condition can be discussed in terms of disturbance indicators (e.g., road density, percent timber harvest, percent equivalent clearcut area), estimates of sediment yield (percent over natural), and narratively for other timber harvest impacts (Gerhardt *et al*. 1991). Disturbance indicators are used to assess watershed condition based on their effects on runoff or erosional processes. For example, roads affect runoff processes through creation of impervious surfaces and disruption of subsurface flow paths. Roads also expose soil and change slope conditions, and increase drainage densities, which nearly always results in increased surface erosion such as gullies, and can result in accelerated rates of mass erosion, relative to natural conditions. Timber harvest effects are generally not as severe on a per unit area basis as roads, but generally result in increased runoff and erosion (Gerhardt *et al*. 1991). The magnitude of the other timber harvest effects (other than roads) is similar to fire, although substantial differences exist between timber harvest and fire effects (Gerhardt *et al*. 1991).

All of the projects in Table 3 have occurred or are scheduled to occur between 2004 and 2006. The Proposed Action is scheduled to begin in 2004 and be completed in 2009 although it may take up to ten years to complete. The shaded fuelbreak would require on-going maintenance to remain functional. Maintenance of the shaded fuelbreak could include all of the same elements included in the initial treatment. Maintenance treatments would be based on site evaluations occurring every three years. As long as soil disturbances such as skid trails are ongoing on a site, the site cannot begin hydrologic recovery. The varying levels of new temporary road construction, new road construction, and road reconstruction associated with the projects in Table 3 are unknown but would cumulatively influence sediment yield in the project watershed and there is a risk of additional landslide generation due to road reconstruction.

The greatest short-term increase in sediment yield would be in the first two years following project implement until vegetation is re-established and soil is stabilized. Project impacts decrease over time as vegetation becomes re-established and soils stabilize, generally within ten years after project implementation.

## 3.4 Water

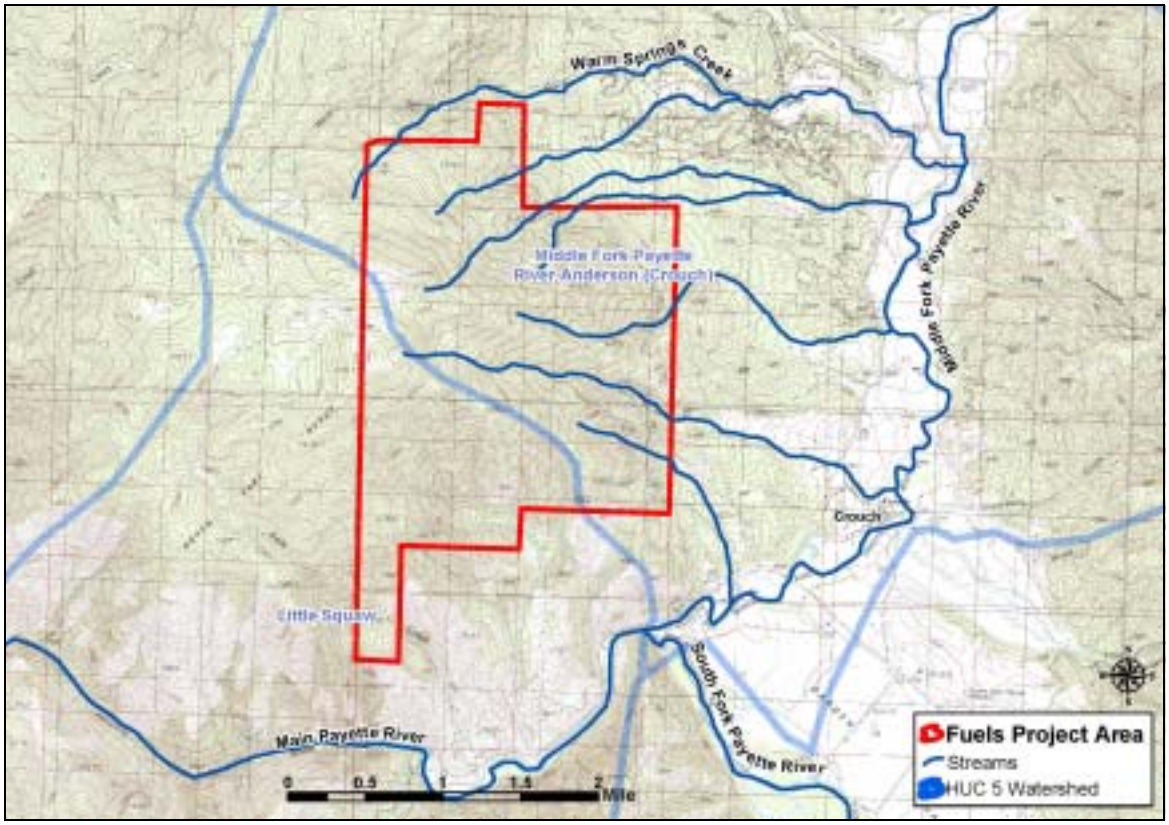
### 3.4.1 Hydrology and Water Yield

The project area is in the Middle Fork Payette River Subbasin located in central Idaho, about 40 miles north of Boise. The Middle Fork Payette River generally flows south, southwest, through the town of Crouch, Idaho. The South Fork Payette joins the Middle Fork downstream of the town of Crouch and the project area to form the mainstem of the Payette River.

The project area boundary includes two U.S. Geological Survey (USGS) 5$^{th}$ field hydrologic unit code (HUC) watersheds: the Middle Fork Payette River-Anderson (aka Crouch Watershed) (1705012101) and Little Squaw (1705012214) (Figure 8). None of the proposed

project activities would take place in the Little Squaw Watershed. Therefore, Little Squaw Watershed is not described or considered in the water quality analyses. All of the activities would take place in the 6th field Middle Fork Payette River-Pyle Creek Subwatershed (170501210101) (aka Pyle Subwatershed) near the mouth of the Middle Fork Payette River (Idaho Department of Water Resources database 2003).

**Figure 7. Watershed Boundaries and Water Bodies**




The Middle Fork Payette River Subbasin is located in the Northern Rocky Mountain physiographic province at the western edge of the Salmon River Mountains. The annual weather cycle consists of cold winters and warm summers where gradual changes of season are marked by rapid changes in weather (IDEQ 2003). During the winter and early spring months, rain-on-snow events occur periodically and can trigger large and/or numerous landslides. A large rain-on-snow event during the winter of 1964 and 1965, and again in 1997, resulted in numerous landslides within much of the Middle Fork Payette River Subbasin, which has greatly influenced the current sediment load within the subbasin (IDEQ 2003).

The valley cross-sections within the Middle Fork Payette Subbasin are usually deep, V-shaped in the mountainous upper elevations and shallow and rounded at mid-elevations. The valley cross-sections become very wide within the lower valley near Crouch where depositional processes dominate.

Eighty-five percent of the stream flow within the Middle Fork is the result of subsurface charging and deep seepage (IDEQ 2003). Springs and seeps in the subbasin vary in size,

source, and location. Constantly flowing springs and intermittent seeps occur in areas of well-fractured bedrock commonly found on north-facing toe slopes. Seeps are common at mouths of secondary drainages where surface waters flow intermittently in spring. Hot springs are usually in the bottoms of major drainages and associated with fault zones.

The potential for water yield increases as a result of project implementation is a factor of the percentage of crown removal, increased drainage network (e.g., roading), vegetative re-growth since the initial disturbance, and stream channel stability (Gerhardt et al. 1991). Equivalent clearcut area (ECA) is often used as a surrogate for increased water yield. The ECA model assumes a pre-existing canopy of 100 percent for a mature, forested area although in reality, canopy closure is naturally variable.

Various thresholds of concern for ECA, ranging from 15 to 30 percent, have been in use since the 1970s. Generally, less than 15 percent ECA in the watershed and each individual subwatershed, and low concentrations of disturbance in landslide-prone, streamside, and first order headwater areas indicate high habitat condition and a low probability of increased water yield. Low habitat condition is generally indicated by ECA greater than 20 percent in a 5$^{th}$ field watershed or greater than 30 percent in one or more 6$^{th}$ field subwatersheds, and/or concentrations of disturbance in landslide-prone, streamside, or first order headwater areas.

The Boise National Forest calculated an ECA of 12 percent for the 6$^{th}$ field Pyle Creek Subwatershed for the revised Forest Plan (USDA Forest Service 2003). The Forest Plan calculations are based on timber management history and fires that occurred prior to 2003. The calculations do not include other factors that affect ECA such as roading and development. Therefore, the pre-project ECA is actually higher than indicated by the Forest Plan analysis. However, the Forest Plan ECA provides an accurate relative comparison of pre- and post-project timber management-based ECA.

The existing road/drainage densities in the Pyle Creek Subwatershed are high (3.7 miles of road per square mile of area) and numerous road crossings in the subwatershed route water to stream channels more efficiently and probably result in higher magnitude peakflows than occurred historically before the era of road building, logging, and other development. The greatest effect of roads and increased road-stream connectivity is during intense rainstorms, rain-on-snow, or snowmelt. Road fill failure, landslides or debris slides on roads located on slopes above or close to streams, particularly in the rain-on-snow zone often become flowpaths for water during storms and are prone to gully development. This has been the case with the Warm Springs Road that accesses the project area. Decommissioned roads, even when grown in, are still considered as open roads in ECA models due to soil compaction, subsurface flow interruption, increased drainage density, and other factors.

#### 3.4.2.1 No Action Alternative

Implementation of the No Action alternative would not impact water yield directly because there would be no vegetation removal, road building, understory burning, or other disturbances. The No Action alternative could potentially increase water yield because of the risk of catastrophic, large-scale wildland fire. Wildland fire can increase water yield in a number of ways including the loss of vegetative cover, decreased soil permeability, increased

drainage density (e.g., gullying), and compaction caused by fire suppression techniques and the need for vehicle access.

#### 3.4.2.2 Proposed Action Alternative

The Proposed Action would selectively remove trees, brush, and other understory vegetation from 1,317 acres including 265 tractor yarded/mechanically treated acres, construction of skid trails and landings (Figure 3; Table 1). Skid trails would be reclaimed after project implementation and no new roads would be built. Controlled understory burning could occur throughout the entire 1,317-acre area. Project specific design criteria and BMPs (Appendix A) would maintain greater than or equal to 50 percent organic groundcover and greater than 50 percent canopy cover to intercept precipitation, protect soil, and increase infiltration.

The Proposed Action is scheduled to begin in 2004 and be completed in 2009 although it may take up to ten years to complete. The 459-acre shaded fuelbreak would require on-going maintenance based on site evaluations occurring every three years. The maintenance would include additional hand and mechanical treatments, and broadcast burning. As long as soil disturbances are on-going the site does not fully recover and a linear reduction in ECA would not occur. However, the on-going effects of the actions would be patchy, spread out over time, and would have little or no effect on ECA due to design criteria. The ECAs would diminish within ten years after site disturbance is completed as vegetation becomes re-established, indicating a trend toward hydrologic recovery and a reduction in cumulative effects over time. The largest reductions in ECA would occur within the first two years post-disturbance due to vegetative re-growth and site stabilization.

Any short-term increase in ECA associated with the Proposed Action has to be weighed against the risk of potential catastrophic fire that could result from implementation of the No Action alternative. A large-scale, stand-replacing fire would cause a much greater and potentially significant, long-term increase in ECA.

#### 3.4.2.3 Shaded Fuelbreak Alternative

Alternative 3 would create a 459 acre shaded fuelbreak along the Warm Springs Road only (Figure 7; Table 1). The shaded fuelbreak in this alternative is the same as the shaded fuelbreak in the Proposed Action, and would have the same design criteria, BMPs and on-going maintenance needs. Seventy-eight acres would be tractor yarded (Table 1). Slopes greater than 35 percent would be hand treated (351 acres). Therefore, the potential to impact water yield would be less, and the project implementation time and hydrologic recovery time would be shorter than the Proposed Action. No measurable change in ECA at the 6$^{th}$ field watershed level would be expected.

#### 3.4.2.4 Cumulative Effects

Other recent actions or proposed actions that would increase the ECA in the watershed during the next ten years include major reconstruction of the Warm Springs Road; State and private land commercial timber harvest; State and private land prescribed burning and fuels mitigation; and subdivision development. In addition to the Proposed Action (1,317 acres) approximately 1,343 additional State and private acres would be treated in the ten-year cycle (cumulative total including Proposed Action 2,660 acres) (Table 3). It is highly probable that other unforeseeable Federal, State, and private land management, development, and/or

wildland fires would occur in this timeframe, which could result in a cumulative ECA impact. Increased water yield in combination with the high to highly erosive DG soil in the project area could result in increased erosion and higher peakflows so that more sediment would be transported to stream channels, impacting channel morphology, water quality, and fish habitat downstream of the project area.

### 3.4.1 Water Quality

The Middle Fork Payette River Subbasin including the project area is a fifth order tributary of the Payette River (4th field USGS Hydrologic Unit Code 17050121) in the northern part of Boise County and the southern part of Valley County, Idaho. The Middle Fork Payette River originates approximately 46 miles north-northeast of Crouch, Idaho and flows from 6,860 feet in the headwaters to 3,208 feet at its confluence with the South Fork Payette River downstream of Crouch. The river drains a 292 square-mile basin managed predominately by the USDA Boise National Forest. The Forest Service, IDL, and the Boise Cascade Corporation manage 97 percent of the subbasin, primarily for timber production. The remaining three percent is the town of Crouch and small agricultural/livestock grazing operations and recreational homes in the lower subbasin near the project area.

In 1994, and again in 1996, numerous segments within the Middle Fork Payette River were classified as water quality limited due to sediment under Section 303(d) of the Federal Clean Water Act (CWA) (Table 4). Unlisted segments within the Middle Fork Payette River Subbasin also contribute sediment to the listed segment (IDEQ 1998). Subsequent to the Section 303(d) requirements a Total Maximum Daily Load (TMDL) management plan was developed and approved by the Environmental Protection Agency (EPA). A copy of the final TMDL *Sub-basin Assessment and Total Maximum Daily Load for the Middle Fork Payette River* (IDEQ 1998) can be obtained from the IDEQ Boise Regional Office. An Addendum to the Implementation Plan (IDEQ 2003) indicates that sediment from anthropogenic (i.e. human-caused) sources within the Middle Fork of the Payette River Subbasin will need to be reduced by 76 percent in order for beneficial uses to be obtained (IDEQ 2003).

**Table 4. IDEQ 303(d) Listed Water Bodies Downstream of Project Area**

| Water Body | Segment and Length | 303(d) Pollutant | Approx. River Miles Downstream of Project Area Boundary |
|---|---|---|---|
| Middle Fork Payette | Big Bulldog Creek to SF Payette 13 miles | Sediment | 0.9 to 1.7 |
| South Fork Payette | Wilderness Boundary to Payette 59.5 miles | Sediment | 1.7 to 6.7 |

The Middle Fork Payette River TMDL Implementation Plan is based on the following premises: 1) natural background levels of sedimentation are assumed to be fully supportive of the beneficial uses, 2) the river system has some finite yet unquantified ability to process a sedimentation (i.e., attenuate through export and/or deposition) rate greater than background rates, and 3) beneficial uses are not likely to be met without addressing the hydrologic modification of the Implementation Plan for the Middle Fork Payette River system associated

with loss of sinuosity, entrenchment of the channel, and loss of floodplain connectivity (IDEQ 2003). An increase in the 2-meter pool frequency within these lower reaches has also been identified as the primary interim target that will be used to support the identified beneficial uses.

In order to achieve the goals of the TMDL Implementation Plan, BMPs will need to be implemented within the Middle Fork Payette Subbasin to reduce the Load Allocations from non-point source pollution (IDEQ 2003). Full implementation of this Plan should lead to the reduction of excessive sediment loads from land management activities, riparian vegetation losses, and bank destabilization.

There are 6.5 miles of perennial streams in the project area that could be impacted by the action alternatives (Figure 8). The IDEQ State Water Quality Standards designate the beneficial uses in Middle Fork Payette River Subbasin as: 1) coldwater communities, 2) salmonid spawning, 3) primary contact recreation, 4) domestic water supply, and 5) special resource water (IDAPA 58.01.02). There are no domestic water supplies, special resource waters, or primary contact recreation waters in the headwaters. Whether or not the stream reaches in the project area are fish bearing has not been determined.

Four of the six perennial streams that originate in the Crouch Watershed flow into the Middle Fork Payette River approximately one to two river miles (RM) upstream of the confluence with the South Fork Payette (Figure 8). The other two perennial streams in the Crouch Watershed action area are the headwaters of Warm Springs Creek and a tributary that flows into Warm Springs Creek approximately two RM from the Middle Fork Payette (Figure 8).

The headwater tributary streams in the project action area are Rosgen A and B-type "source" reaches that produce sediment (e.g., landslides along the Warm Springs Road), which is readily transported downstream to lower gradient, depositional reaches (Montgomery and Buffington 1993; Rosgen 1996).

#### 3.4.1.1 No Action Alternative

The No Action alternative would not have any direct impact on water quality because no ground-disturbing activities would take place. The No Action alternative would have potential indirect impacts to water quality because of the risk of a catastrophic, large-scale fire occurring in the area. A catastrophic fire on DG soils would initiate substantial erosion that could impact site productivity, water quality, water yield, and fisheries habitat downstream of the project area.

#### 3.4.1.2 Proposed Action Alternative

The Proposed Action, including skid trail construction, tree cutting and removal, site preparation and stand regeneration treatments, may cause non-point pollution. Sediment, fuel and fluids from logging equipment, nutrients from harvested areas and applied fertilizers, forestry herbicides, and increased water temperatures are the major types of potential pollutants that can be produced by these sources. The fuel haul, storage and transfer, and spill containment design criteria and BMPs (Appendix A), in addition to the fact that no work would take place in RHCAs, would reduce the risk of petroleum products and other chemicals coming in contact with live water.

Soil augmentation with organic material and/or fertilizer as part of the reclamation of disturbed sites would help promote vegetative recovery and reduce the risk of erosion and sediment delivery (Appendix A). Fertilizer would not be applied within the RHCAs to protect water quality.

The Proposed Action would have the greatest potential for direct water quality impacts due to sedimentation because the most acres (1,317) would be disturbed by the proposed actions (Table 1). The greatest soil impacts are generally associated with ground-based logging systems, and a total of 265 acres would be tractor yarded in this alternative (i.e., logging units plus shaded fuelbreak). The prescriptions for canopy closures (50 to 70 percent in ponderosa pine dominated units and 60 to 80 percent in fir dominated units) and organic groundcover (50 percent on slopes less than or equal to 35 percent and greater than or equal to 50 percent on slopes greater than 35 percent) would reduce the risk of erosion. However, it is inevitable that some soil impacts would occur. The proposed logging systems, unit locations, and soil/water/aquatic habitat design criteria and BMPs (Appendix A) have been designed to reduce the risk of erosion and sediment delivery in the short and long-term. No harvest activities would take place in RHCAs, so soil and vegetative infiltration would occur between all the units and live water to mitigate potential sediment delivery. The water temperature baseline condition would be maintained since no harvest would take place within the RHCAs.

The Proposed Action is scheduled to begin in 2004 and be completed in 2009 although it may take up to ten years to complete the entire action. The shaded fuel break would require on-going maintenance to remain functional. Maintenance of the shaded fuelbreak could include all of the same elements included in the initial treatment. Maintenance treatments would be based on site evaluations occurring every three years. As long as soil disturbances are on-going, the site cannot fully recover, however the on-going effects of the actions would be patchy and spread out over time. The largest recovery would occur within the first two years post-disturbance due to vegetative re-growth and site stabilization.
Any short-term erosion and potential water quality impacts associated with the Proposed Action have to be weighed against the risk of potential catastrophic fire that could result from implementation of the No Action alternative. The Middle Fork Payette, the South Fork Payette, and the lower mainstem Payette River are already beyond capacity to route sediment efficiently as a result of numerous land management practices that have created a legacy of stored sediment (IDEQ 1998). Large-scale, long-term reductions in sediment will be required before the system can regain sediment routing balance (i.e., sediment sources equal to sediment transport). A high-intensity, large-scale fire in the Upper Middle Fork Payette Watershed would probably result in large-scale sediment delivery to the Payette River system, and long-term water quality impacts due to poor sediment routing.

#### 3.4.1.3 Shaded Fuelbreak Alternative

Only the 459 acre shaded fuel break along the Warm Springs Road would be implemented in this alternative (Figure 7). This alternative would have less potential to generate soil erosion and sediment to impact water quality than the Proposed Action because fewer total acres would be treated (459 versus 1,317 acres). Initial project implementation would be shorter duration than the Proposed Action so site recovery would be initiated sooner. The fuelbreak

would require on-going maintenance to maintain effectiveness in either action alternative and therefore the effects from maintenance would be the same as with the Proposed Action.

#### 3.4.1.4 Cumulative Effects

Implementation of the No Action alternative would increase the risk of large-scale, catastrophic wildland fire that would add to the cumulative impacts in the Middle Fork and South Fork Payette river segments that are 303(d) listed for sediment (IDEQ 1998) (Table 4). It is unlikely that cumulative impacts due to implementation of the action alternatives would significantly impact the 303(d) listed segments of the Middle Fork or the South Fork Payette due to the relatively low potential for sediment delivery and transport distance.

However, the proposed Warm Springs Road reconstruction has a much greater potential for delivering sediment to the Payette River system due to level of reconstruction (major), length (seven miles), surface area (17 acres), numerous drainage structures, slope position, proximity to the river, and landslide-prone potential. Therefore, there could be a cumulative impact because the road reconstruction is necessary for implementation of either of the proposed fuels management action alternatives. However, the reconstruction efforts would improve current water runoff and reduce culvert blockage and overland flow.

## 3.5 Cultural Resources

Cultural resources are those fragile and non-renewable remains of human activity, occupation, or endeavor reflected in districts, sites, structures, objects, artifacts, ruins, and works of art and natural features that were of importance in human events (USDI BLM 1983). The BLM is required to identify, evaluate, protect and wisely manage cultural resources on BLM-managed public lands and ensure that their actions do not inadvertently harm or destroy cultural resources (USDI BLM 1987).

Three phases are used to describe the prehistory of the area around Garden Mountain: the Early Salmon River Period dates from 8,100 years before present (B.P.) and earlier; the Middle Salmon River period dates from approximately 8,100 to 1,200 years B.P; and the Late Salmon River Period begins approximately 1,300 years B.P. and ends with the removal of all Native American groups from the region in the first decade of the 20th century (Ross 1985).

Historical records indicate that Shoshone, Bannock, and Nez Perce Tribes occupied the region. Like many regions in Idaho, fur traders explored this area in the 1820s and 1830s. Gold was discovered in the Boise Basin in the 1860s and the area gained distinction as the major mining region of the Northwest in 1863 and 1864 (ISHS 1970). Ranching also bloomed in the late 1860s. Cattle ranching and mining continue today in a far more limited form. Logging has also been an important theme in the region.

A literature search/Class I inventory was conducted and revealed that no projects have occurred in the project area and that no sites have been recorded (North Wind 2004). The homestead information from the BLM General Land Office records (USDI BLM 2004) indicated that 12 homesteads were patented in the area. The IDL holds the most land under the patents, followed by the Northern Pacific Railroad Company. The vast majority of this

acreage is outside the project area. The remaining patents average nearly 160 acres and were issued to individuals under various homestead acts (North Wind 2004).

Both prehistoric and historic sites could occur in the project area. However, because of the rugged terrain, few prehistoric sites would likely be encountered. Prehistoric sites would likely consist of open camps and lithic scatters, although cairns, rock alignments, or other rock features may be located on ridges, knolls, or other high spots. Historic sites would likely consist of both mining and stock-raising related sites. Mining sites would likely consist of scattered prospect pits, although adits may also exist. Placer mine sites are possible but unlikely due to the paucity of drainages.

Lands in the Boise District are part of Shoshone-Bannock and Shoshone-Paiute Tribes (the Tribes) aboriginal lands and the Tribes are sovereign, self-governing entities. The Tribes have a government-to-government relationship with the United States, and the Federal government has a trust obligation to protect the Tribes' interests, including protection of paleontological, cultural, and heritage resources. The BLM has consulted with the Tribes regarding this project.

### 3.5.1 No Action Alternative

The No Action alternative would not result in direct effects but may result in indirect effects to unknown cultural sites in the project area. Without the fuels reduction activities there would be a greater chance of a severe fire that would damage or destroy sites that may be eligible for the National Register of Historic Places - particularly wooden structures associated with homesteading in the area. Ground disturbing activities associated with fire suppression could also result in damage or destruction of cultural resources. As noted by Keesling (1993), the major damage to cultural resources usually results from suppression related activities. Post-fire erosion effects to cultural resources would also result from a catastrophic fire.

### 3.5.2 Proposed Action Alternative

Of the methods proposed under this alternative, helicopter logging would have the least potential for impact to cultural resources, followed by hand labor, because they would result in the least amount of ground disturbance. Ground-based mechanical operations, using tractors, would have the most potential for disturbance followed by short-span skyline systems. Ground disturbing treatments such as timber removal, slash piling and burning, prescribed burning, seeding, and implementation of erosion control measures all have the potential to impact cultural resources that may be present in the project area. All activities proposed under this alternative would be conducted in accordance with existing laws that provide for the protection of cultural resources. Design features have been incorporated into the Proposed Action to offset any potential negative impacts (Appendix A).

Prior to initiation of the project, the BLM would conduct a Class III (intensive) inventory as specified in BLM Manual section 8111.4. If significant properties are discovered, the BLM would consult with the State Historic Preservation Office (SHPO) and obtain a determination of eligibility in accordance with 36 CFR Part 63. Any sites discovered would be avoided during project implementation. In the event an inadvertent discovery is made during implementation, all activities would be stopped until the BLM Archaeologist could evaluate

the finding and make a determination as to whether the project could continue or not. By surveying the area, avoiding known sites, and consulting with SHPO cultural resources would be protected and no adverse effects would be anticipated.

Potential impacts from fires related to the Proposed Action would be less than from the No Action because the fires would be smaller and less intense. Post-fire effects resulting from erosion would also be less than with the No Action. Cultural sites may be closed and patrolled as needed to prevent post-fire damage from livestock, vehicles, and people until sites are stabilized.

### 3.5.3 Shaded Fuelbreak Alternative

Potential effects to cultural resources under this alternative would be similar to those described above for the Proposed Action but less extensive due to the smaller number of acres treated. The same mitigations described for the Proposed Action would be implemented and no effects are anticipated due to avoidance of cultural resource sites near the proposed fuels reduction sites.

### 3.5.3 Cumulative Effects

If any cultural resources exist in the project area they could be damaged or destroyed by a large wildland fire depending upon their composition. OHV use that occurs in the project area could impact cultural resources through ground disturbance. Skid trails would be rehabilitated under the Proposed Action and are not expected to create new trails that would lead to additional use by OHVs. Thinning treatments would result in more open areas that may make cultural resources more visible and subject to collection. Grazing use could also damage cultural resources although it is not likely that grazing occurs on the steeper slopes of the project area that are proposed for treatment. Road reconstruction by the BLM would result in some new ground disturbance however; a survey would be required to be completed to avoid impacts to cultural resources. No additional activities are planned on the BLM lands in the project area. Subdivision construction and fuels mitigations on surrounding lands could impact cultural resources if they are present on those lands.

## 3.6 Visual Resources

Public lands have a variety of visual values. Visual values are identified through the Visual Resource Management (VRM) inventory (BLM Manual section 8410) and are considered with other resource values in the resource management planning process. Visual management objectives are established in conformance with the land use allocations. These area specific objectives provide the standards for planning, designing, and evaluating future management projects. There are four classes, I-IV, with Class I being the most restrictive and Class IV being the least restrictive.

The GMFMP area is in a Class III management area. Management activities may attract attention in Class III areas but should not dominate the view of the casual observer. Every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repetition of the basic elements (USDI BLM 1987).

The landform topography of Garden Mountain dominates the view from Garden Valley and provides the backdrop for the town of Crouch. The mountain is primarily comprised of a coniferous forest with areas of non-forested vegetation that create a contrast in color and texture. The color is primarily dark due to the types of trees present and lighter areas represent different types of vegetation, non-forested areas, and bare soils. Due to variations in topography and vegetation type, small-scale vegetation changes are not readily evident when viewed from a distance. The project area has a natural appearance to the majority of viewers and the landscape character can "absorb" some visual alterations. Actions such as vegetation manipulation, road building, and fire can change the appearance of landscapes. The majority of the treatment units would not be visible from the surrounding communities. The three helicopter units (MUs 2, 3, and 6) would be visible from Crouch and the Terrace Lakes and Castle Mountain subdivisions. However, treatments leave sufficient canopy cover to reduce visual impacts and maintain VRM Class III.

### 3.6.1 No Action Alternative

The existing conditions of the project area increase the potential for insect and disease infestations, especially western spruce budworm, mountain pine beetle, Douglas-fir beetle and dwarf mistletoe. Without prescribed burning or associated management activities that disturb the landscape, the extent and intensity of insects and pathogens would increase, resulting in a community that is less healthy. Stand densities would continue to increase and more shade tolerant species would continue to occupy the understory. Under the No Action alternative, the future viewshed would include a less healthy forest.

The No Action alternative would not have the benefit of reducing fuels and creating fuelbreaks within the analysis area. Under this alternative, there would be a greater chance for significant impacts to visual resource values from a large-scale fire due to the continued high fuel load present. In the long-term there would be a need for more ground disturbing fire suppression activities resulting in line and color contrasts. If a large, high intensity wildfire occurs within the analysis area, the landscape character could be greatly altered with the complete loss of existing vegetative cover and possible scars from suppression methods. A large fire would create a larger scale contrasts in the landscape than would result from the Proposed Action and would take much longer to recover.

### 3.6.2 Proposed Action Alternative

The proposed forest management activities have the potential to affect visual resources. However, mitigation measures have been built into the Proposed Action to offset any potential negative impacts and therefore, visual resources in the project area would not be significantly impacted. The project design features, including 1) re-seeding of disturbed areas, 2) noxious weed and invasive species control, and 3) use of the least intrusive/lowest impact methods, would be used to protect viewshed quality by preventing soil erosion, the spread of noxious weed and invasive species, and maintaining vegetative cover.

The Proposed Action would result in density reduction and removal of understory vegetation on 1,317 acres and provide for diverse ecosystems by reducing competition stress from uncharacteristically high stand densities. Removal of much of the understory vegetation, reduction of overall stand densities, and manipulation of species composition toward mid-seral species that are more adapted to a frequent fire interval ecosystem, would promote both

health and sustainability of the landscape and improve the appearance of the forest on MUs 1-10. Treatments would encourage regeneration by opening the canopy and allowing light to reach the forest floor. In MU 11, understory harvests would target small trees for removal, include brush control, and pruning up to five feet on selected residual trees, creating an open space. The 459 acre shaded fuelbreak that buffers the Warm Springs Road would result in an open, park-like stand.

Impacts to visual resources related to fire would include smoke production during the fire and the charred appearance of the lands after the fire. Smoke from the use of fires would cause short-term impacts to scenic values. Burning activities would be evident during the first year but visibility of burned areas would be reduced after a season of snow-cover and spring growth. Thinned areas would also create a greater contrast because of the opening of the canopy and increase in understory plants. Thinning and the use of prescribed fire would result in line, color and texture contrasts. In general, these contrasts would be of small scale associated with the landscape. Line contrasts would result from fingers of burned and thinned areas within a landscape of a generally forested hillside. Small fire blackened areas interspersed with areas of unaltered, live vegetation would create color contrasts. This would remain noticeable to the casual observer for two to three years. Changes in texture would also result but would depend primarily on viewing distance. As the revegetation of grasses and shrubs occurs, the visual effects could change adding greater visual diversity to the landscape. In the long-term, the alternative could improve scenic quality by increasing vegetative diversity and age class.

Logging activities and post-harvest actions including prescribed burning and slash treatment would directly impact soils in the project area. These disturbed areas would be visible in the foreground to people in the treatment areas. Because of the remaining canopy cover however, these areas are not expected to be visible from a distance. Skid trails would be visible in the short-term until revegetation occurs. This would be particularly true during the winter months when there is snow on the ground. The ponderosa pine/Douglas-fir areas (MUs 7, 10, 12) would retain a target canopy closure of 50 to 70 percent. MUs 1-6, 8, and 9, which are dominated by grand fir, Douglas-fir, and subalpine fir, would have a target canopy closure of 60 to 80 percent. Implementation of the project specific design criteria (Appendix A) would effectively minimize any impacts to soils and consequently to the visual resource.

### 3.6.3 Shaded Fuelbreak Alternative

The Shaded Fuelbreak alternative is a subset of the Proposed Action alternative and would implement only the treatments discussed in the Proposed Action for MU 12. The 459 acre shaded fuelbreak unit would be visible along its entire length on either side of the Warm Springs Road. A combination of mechanical and hand treatments would be used to remove hazardous fuels under this alternative. Effects to visual resources would be similar to the effects described above for the Proposed Action. However, because less area would be treated fewer impacts would be visible. Less prescribed burning and slash pile burning would occur because of the smaller total treatment area.

### 3.6.4 Cumulative Effects

Other recent actions or reasonably foreseeable actions include State and private land timber harvest for commercial and fuel mitigation purposes, private land development, and

prescribed burning (Table 3). Recent harvesting and prescribed burning has taken place on adjoining state lands and the Castle Mountain Subdivision, located northeast of the project area, is planning to remove, modify, or break up fuel loads on 250 acres within the subdivision between 2004 and 2006. These other projects in the area will lead to greater reduction of fuels and an increase of open areas.

The impacts from ground disturbance associated with the Proposed Action would be visible for one or two growing seasons. The cumulative impact of the Proposed Action would be positive in the long term because it would reduce fuel loads and lower the risks of large, stand-replacing fires which could significantly alter the area and result in a long-term loss of some of the visual resources in the project area. Other thinning activities on private lands, state lands, and Forest Service lands would also be visible and would result in a greater contrast across the landscape as fewer large trees are present and more understory vegetation develops. Additional subdivisions are planned in the area and would also result in clearing of forested vegetation. Development of these areas to housing will create a contrast in the landscape.

## 3.7 Air Quality

Under the Clean Air Act, (1990 as amended) BLM-administered lands (including the project area) were given a Class 2 air quality classification, which allows for moderate deterioration associated with moderate, well-controlled industrial and population growth (USDI BLM 1987). The Sawtooth Wilderness, approximately 35 air miles east, and the Hells Canyon Wilderness, approximately 90 air miles northwest, are the closest Class 1 airsheds to the project area.

Minor periodic occurrences of pollutants may occur in the Garden Valley area during summer and fall wildfires, prescribed burning, and from smoke from home heating sources. Roads in the project area also contribute fugitive dust to the atmosphere. IDEQ monitors levels of particulate matter (PM) (specifically PM2.5, particulate matter less than 2.5 microns in diameter) in Garden Valley and although the area is technically unclassified it is considered to be in attainment because no exceedances have been measured (IDEQ 2004). There are no significant industrial sources and vehicle traffic is not a factor. Local dust, prescribed fires and wildfires are considered to be the main sources of particulate matter.

Fires are a potentially significant source of air pollutant emissions. The amount of emissions depends on the size and intensity of the fire, the fuel type and moisture content, and the available fuel loading. The most effective means of controlling air pollutant emissions from wildfire is to inhibit large, high-intensity fires through vegetation treatments that break up heavy, continuous fuels. Depending on conditions, prescribed fire can effectively reduce heavy fuels and create vegetation mosaics. All prescribed fires would be continually monitored to assure that the burning conditions remain within a previously determined prescription of controlled fire and smoke behavior. When properly executed, these managed fires are expected to result in fewer air quality impacts in both the short-term and the long-term. Logging and hauling are also potential contributors to increased particulate matter and could result in a temporary decline in air quality for the homes and businesses in the area.

### 3.7.1 No Action Alternative

This alternative precludes the implementation of the fuels reduction and therefore no prescribed or post-harvest burning would occur. In the short term, the No Action Alternative would result in no change to air quality. Wildland fire suppression activities would continue as in the past. Continuing the practice of suppressing wildfires could provide some short-term benefit to air quality by eliminating any smoke production as quickly as possible. In the long-term, continued fire suppression would lead to further accumulation of fuels increasing the chance of more severe fires. As the fuel loading increases, the incidence and intensity of wildland fires, and the smoke they produce, would increase. The amount of smoke produced by uncontrolled wildland fires would greatly exceed that produced by prescribed fires. High-intensity fires produce high air pollutant emission levels and would result in more intense and widespread air quality impacts. Therefore, this alternative would eventually increase air quality and visibility impacts from smoke and increase the potential of sensitive receptors being impacted. In the long-term there would be greater degradation of air quality. A large wildland fire could potentially impact air quality in the Sawtooth Wilderness Class 1 area.

Under this alternative, fugitive dust related to road use would not be produced beyond the amount produced by existing activities. However, large areas of bare ground created by a severe wildland fire could significantly increase fugitive dust.

### 3.7.2 Proposed Action Alternative

Soil disturbing activities associated with the Proposed Action, such as harvest activities, post-harvest seeding, prescribed burning and slash burning, and weed treatments, may affect air quality for a short duration through increased fugitive dust. This alternative also has the potential to affect air quality through increased fugitive dust produced by logging traffic, especially on unpaved roads. The effects of fugitive dust are directly related to the volume of timber to be removed and include reduced visibility on and adjacent to roads and increased levels of PM 2.5 and PM10 (particulate matter less than 10 microns). Mitigation measures would be employed to address fugitive dust emissions. Mitigation measures that may be used to reduce fugitive road dust emissions within the project area include: the application of chemicals that increase the moisture retention of road surfaces, watering during high use periods or during road maintenance operations, and speed and timing restrictions in sensitive areas.

Project implementation would include the burning of slash piles and prescribed burning. This burning would take place at favorable times to ensure safe burning and minimization of adverse effects and would be conducted in accordance with applicable air quality regulations. Post-harvest burning would be conducted consistent with plans such as the Montana/ Idaho Smoke Management Plan. Methods such as those in the Operating Guide of the Montana/Idaho State Airshed Group would be utilized to reduce impacts of post-harvest burning.

Smoke produced from the post-harvest burning of slash piles under the action alternatives can have a direct effect on air quality and may impact local communities including residents of Garden Valley and Crouch. There would be some short-term impacts to air quality resulting from smoke that may last from several hours to several days. In non-forested

vegetation types, smoke would dissipate rapidly and should be gone shortly after the fire. In the forested areas, there would be some residual smoke for approximately one to five days after active burning. The impacts to air quality would vary by the amount of smoke produced, which varies by the amount, type and timing of burning as well as weather conditions. The criteria used to select timing of post-harvest burning would include fuel moistures, risk of escape, general weather patterns, smoke dispersion, live fuel moistures, and other factors.

Impacts from smoke emissions would be minimized through daily monitoring of airshed conditions. Burning would not all occur in one day and days would be selected on which atmospheric conditions are such that emissions drift into the upper atmosphere and away from developed areas. The BLM would monitor weather and the burning and smoke dispersion conditions to assure air quality impacts remain within prescribed smoke management levels. A smoke monitoring system has been established that provides daily air quality predictions and determines the need for restrictions on prescribed burning. If the monitoring unit forecasts ventilation problems, burning is either restricted by elevation or curtailed until good ventilation conditions return. The IDEQ uses the monitoring data to inform the public of high levels during burns, wildfires, and other activities. The data is available in real time on the IDEQ website (www.deq.state.id.us). No impacts to Class 1 airsheds are expected.

### 3.7.3 Shaded Fuelbreak Alternative

The amount of fugitive dust produced under this alternative would be less than the Proposed Action because of the smaller size of the area harvested. Slash pile burning and prescribed burning would still occur under this alternative but not to the same extent. Because fewer acres would be treated in comparison to the Proposed Action, fewer smoke emissions would result. No long-term effects to air quality are expected from this alternative.

### 3.7.4 Cumulative Effects

Present and foreseeable effects include impacts from State and private land timber harvest for commercial and fuel mitigation purposes, other prescribed burning, as well as wildland fires, residential wood combustion, traffic exhaust, fugitive road dust, subdivision development, or point sources of pollution (Table 3).

The FRFO has proposed a major road reconstruction project as a separate action along seven miles of the Warm Springs Road. Road building on this soil and landtype is potentially a major source of fugitive dust that could impact air quality. Some of the adjoining state lands have undergone recent harvesting and prescribed burning, and the Castle Mountain Subdivision is preparing to implement a plan for removing, modifying, or breaking up fuel loads on 250 acres within the subdivision. Treatments will begin in 2004 and will be completed by 2006. Road construction associated with the private land development, as well as the timber clearing and construction, could also result in localized increases of fugitive dust.

Not all of these projects would occur concurrently and therefore effects would be spread out over time. The greatest potential foreseeable effects would occur due to a large long-term wildfire if one were to occur before any of the dead and dying trees and high levels of

hazardous fuels could be removed. No long-term adverse effects to air quality are expected from any of the action alternatives. In the long term, there would be an indirect reduction of total smoke emissions because of smaller less intense fires resulting from reduced fuel loading. This would result in less degradation of air quality.

The cumulative effects on air quality of prescribed and post-harvest burning smoke, produced by implementation of one of the action alternatives, would result in a temporary decrease in air quality. PM2.5 and PM10 particles from this source combined with other particles produced both by the implementation of other aspects of this project, specifically fugitive road dust, as well as other upwind local and regional sources, would lead to the decline. Other prescribed burning would also contribute particulates, as would private burning, and fugitive dust from roads.

The cumulative effects of wildland fire on air quality, for all alternatives, would include the smoke produced by wildland fires and all other pollution sources that contribute to the amount of particulate matter in the air. If multiple wildland fires were burning concurrently in the general area or multiple thinning or road construction projects were taking place at the same time, the cumulative effect of these sources could result in extended periods of poor air quality.

## 3.8 Fishes and Aquatic Habitat

Anadromous fish historically occurred in the Middle Fork Payette River Subbasin and included pacific lamprey (*Lampetra tridentatus*), Snake River spring/summer chinook salmon (*Oncorhynchus tshawytscha*), and Snake River steelhead trout (*O. mykiss*). The Black Canyon Dam on the mainstem downstream of the Middle Fork Payette and the project area effectively blocked migration of these fishes when the dam was completed in 1924.

Resident fishes include native suckers (*Catostomus* spp.), sculpins (*Cottus* spp.), mountain whitefish (*Prosomium williamsoni*), interior redband trout (*O. m. gairdneri*), and Columbia River bull trout (*Salvelinus confluentus*). Bridgelip suckers (*C. platyrhynchus*) have been collected at the confluence of the Middle Fork and South Fork of the Payette rivers and also observed in Anderson Creek (IDEQ 2003). The upper portions of Bull Creek and Upper Middle Fork Payette are the only segments currently being used for bull trout spawning and rearing (IDEQ 2003). Redband trout, the resident form of steelhead trout has a distribution in tributaries within the watershed. Middle Fork Payette River Subbasin fishes are species of concern because of their reduced numbers (IDEQ 2003). For example, redband trout are a BLM special status species and an Idaho Department of Fish and Game (IDFG) state species of special concern. Introduced, non-native resident fishes include coastal rainbow trout (*O. m. irideus*) and brook trout (*S. fontinalis*).

The beneficial uses of the Middle Fork Payette and South Fork Payette rivers include coldwater communities (i.e., game and non-game fishes, macroinvertebrates, and aquatic plants) and salmonid spawning (IDEQ 1998). Bull trout were listed as threatened by the USFWS June 10, 1998 (64 FR 31647), and the State of Idaho has identified the Middle Fork Payette River Subbasin as a key bull trout subbasin. The Upper Middle Payette Watershed is proposed bull trout critical habitat for Columbia River bull trout that are listed as threatened

under the ESA. The Payette River Subbasin including the project area is part of the Southwest Idaho Bull Trout Recovery Unit (USFWS draft 2002). The bull trout recovery goals are "to ensure the long-term persistence of self-sustaining, complex, interacting groups of bull trout distributed throughout the species' range, so that the species can be delisted" (USFWS draft 2002).

Historically, there were no barriers between the Payette, Boise, and Weiser subbasins in the Southwest Idaho Bull Trout Recovery Unit. Today, the bull trout in this recovery unit occupy suitable habitat upstream of the dams and the unsuitable habitat lower in the subbasins. Therefore, these subbasins were combined as a recovery unit since historically they probably functioned as a population unit. The reasons for population declines include habitat fragmentation and degradation (USFWS draft 2002).

The Middle Fork Payette River Core Area (USFWS draft 2002) is one subbasin in the Southwest Idaho Bull Trout Recovery Unit and includes the watersheds upstream of the confluence with the South Fork Payette. Spawning and rearing occurs primarily in the upper watersheds. Bull trout in this area are primarily resident fish and relatively low numbers of migratory fish. Adult bull trout have been found in the lower mainstem indicating migratory individuals may exist. Connectivity of the Middle Fork Payette fish with bull trout in the South Fork Payette is unknown.

Historically the low gradient reaches of the Payette River system provided high quality fisheries habitat. Currently, the aquatic habitat in the Payette River system, including the Middle Fork and South Fork Payette is degraded due to high sediment loads (IDEQ 1998), which cause aggrading, shallow width to depth ratios, low habitat complexity, and low productivity.

The six perennial streams in the project area are headwater reaches with steep gradients and natural upstream migration barriers. The streams in the project area have not been surveyed so fish presence or absence has not been determined. There is fish habitat and a bull trout population approximately one to two miles downstream of the project area in the Middle Fork Payette.

Four of the project area perennial streams flow directly into the Middle Fork Payette River (Figure 8). The distances from the project boundary to the confluence of the Middle Fork Payette range from approximately 0.9 to 1.7 RM (Table 4). The distances from the tributaries' confluences with the Middle Fork to the South Fork Payette range from approximately 0.8 to 5 RM. These segments of the Middle Fork and South Fork Payette are both IDEQ 303(d) listed for sediment (IDEQ 1998).

The other two perennial streams in the Crouch Watershed action area are the headwaters of Warm Springs Creek and a tributary that flows into Warm Springs Creek approximately two RM from the Middle Fork Payette (Figure 8). Fish surveys have not been done in Warm Springs Creek.

The distances from the project boundary to the confluence of Warm Springs Creek range from approximately 0.3 to 1.6 RM. The distance to the confluence of Warm Springs Creek with the Middle Fork is approximately 1.8 RM. The distance from the confluence of Warm Springs Creek and the Middle Fork to the South Fork Payette is approximately 5.6 RM (Figure 8).

### 3.8.1 No Action

There would be no direct fisheries or aquatic impacts as a result of the No Action alternative. Indirect impacts to proposed bull trout critical habitat in the Middle Fork and South Fork Payette, water quality, and aquatic habitat could occur in the event of catastrophic wildland fire due to sedimentation if the No Action alternative is implemented. A stand-replacing fire in RHCAs would increase short-term large woody debris recruitment but would reduce long-term large woody debris recruitment potential and stream canopy cover.

### 3.8.2 Proposed Action

Aquatic and riparian habitat elements such as canopy cover, water temperature, bank stability, and large woody debris recruitment potential would not be impacted by the Proposed Action because there would be no project activities in the RHCAs.

Whether or not the stream reaches in the project area are fish bearing has not been determined. There is known fish habitat and a bull trout population approximately one to two miles downstream of the project area in the Middle Fork Payette and there could be indirect impacts to water quality, aquatic habitat, and proposed bull trout critical habitat in these reaches as a result the Proposed Action. The project specific RHCAs, design criteria and BMPs (Appendix A) were developed to minimize the potential of erosion and sediment delivery in the short-term.

In the long-term, proposed bull trout critical habitat and other fisheries habitat would be protected by implementation of the Proposed Action because the risk of large-scale, catastrophic fire and subsequent erosion would be reduced in this section of the watershed.

### 3.8.3 Shaded Fuelbreak Alternative

Alternative 3 would have the same direct and indirect impacts on fisheries, riparian and aquatic habitat, and proposed bull trout critical habitat as the Proposed Action. However, the potential for project-related sediment delivery would be less because fewer total acres (459 versus 1,317) and fewer tractor yarded acres (108 versus 157) would be treated than the Proposed Action.

### 3.8.4 Cumulative Effects

The biggest fisheries concerns are cumulative impacts to the proposed bull trout critical habitat and the redband trout habitat downstream of the project area. The major Warm Springs Road reconstruction and other recent or proposed vegetation management and land development actions (Table 3) have the potential to cumulatively impact water quality, water yield, sediment delivery, and aquatic habitat. Implementation of the No Action alternative would also increase the risk of large-scale, catastrophic wildland fire and subsequent erosion

which would add to the existing cumulative impacts in the Middle Fork and South Fork Payette river segments that are 303(d) listed for sediment (IDEQ 1998).

It is unlikely that cumulative impacts due to implementation of an action alternative would significantly impact the 303(d) listed segments of the Middle Fork or the South Fork Payette due to the relatively low potential for sediment delivery and transport distance. The proposed Warm Springs Road reconstruction has a relatively high potential for delivering sediment to the Middle Fork Payette River system due to level of reconstruction (major), length (7 miles), surface area (17 acres), numerous drainage structures, slope position, proximity to the river, and landslide-prone potential. Therefore, implementation of either action alternative could result in an interrelated/interdependent cumulative impact because the road reconstruction is necessary for implementation of either of the action alternatives.

## 3.9 Wildlife

### 3.9.1 General Wildlife Species

The Garden Mountain project area provides habitat for many small mammals, songbirds, forest raptors (accipiters and owls), and big game ungulates (mule deer and elk). The project is located within an area designated as critical elk winter range, which is located in the southern extent of the project area. There is also crucial mule deer winter range located adjacent to the western extent of the project area (USDI BLM 1987). Within these areas activities would be scheduled to avoid or minimize disturbance to wildlife between December 1 and April 30 (USDI BLM 1987).

#### 3.9.1.1 No Action Alternative

The No Action alternative is not anticipated to have a direct impact on wildlife within the project area. Indirect impacts to wildlife would occur as the canopy closes and reduces the amount of light that reaches the understory vegetation. This would reduce forage for big game. Without treatment of the fuel loads, the stands within the project area are at a higher risk of a stand replacing fire that would remove wildlife habitat for many years.

#### 3.9.1.2 Proposed Action Alternative

The increased human activity and noise within the treatment area would cause wildlife species to avoid the area during the times that thinning occurs. Burning activities would also remove foraging vegetation from the areas burned. The removal of trees associated with the establishment of the fuel breaks and thinning of stands to reduce fuel would open the canopy cover allowing more light to reach the forest floor and burning would promote the growth of understory grasses and provide an increase in forage habitat for deer and elk. The removal of brush and downed woody debris would reduce habitat for small mammals making them more susceptible to predation. Project activities would avoid trees containing raptor nests.

#### 3.9.1.3 Shaded Fuelbreak Alternative

The Shaded Fuel Break alternative would have less impact on general wildlife that utilize forest habitat because: 1) fewer forested acres would be treated, 2) the large diameter trees would not be harvested, 3) fewer total acres would be treated, and 4) the disturbance time frame would be shorter than the Proposed Action. Cover habitat, particularly downed woody debris, would be removed making small mammals more susceptible to predation. Tree

thinning, brush removal, and understory burning would promote the growth of more palatable, forage for big game and small mammals within the treated areas.

This alternative would treat the areas with the highest risk of wildland fire, and reduce the risk of stand-replacing fire so that forest habitat would be protected. However, forest health would not be improved and early seral habitat would not be promoted.

#### 3.9.1.4 Cumulative Effects

The Warm Springs Road major reconstruction may cause terrestrial wildlife to avoid the area due to the increased human activity and the noise that would be present due to the use of heavy equipment during construction. The additional fuels treatment that is scheduled on the adjacent Castle Mountain Subdivision would also cause wildlife to disperse from the general area and would reduce cover habitat. If the land sold by Boise Cascade is developed as a subdivision there would be an additional loss of forest habitat.

### 3.9.2 Special Status Terrestrial Species

The ESA requires: 1) all Federal departments and agencies to utilize their authorities to conserve species, subspecies or populations of plants and animals officially listed by the Secretary of the Interior or Secretary of Commerce as threatened or endangered; 2) Federal agencies to ensure that the continued existence of listed species is not jeopardized and that designated "Critical Habitat" of listed species is not destroyed or adversely modified; 3) consultation with the USFWS or NOAA Fisheries if it is determined that any BLM action may adversely affect a federal candidate or threatened or endangered species or its critical habitat; and 4) conference with USFWS or NOAA Fisheries if it is determined that an action may affect a candidate, proposed, listed threatened, or listed endangered species.

In accordance with the ESA requirements any action implemented by the BLM would be designed so as not to jeopardize the continued existence of federally listed threatened or endangered species or result in the destruction or modification of critical habitat. Federally listed species and BLM sensitive species will all be given the same consideration.

BLM Instruction Memorandum No. ID-2003-057 (BLM 2003) includes two fish, ten mammal, 23 bird, three amphibian, four reptile, and two invertebrate special status species that occur in the FRFO (Appendix D). Of these, nine species are federally listed as threatened, endangered, or candidate under the ESA. One of these is a fish species that is discussed in Chapter 3: *Fisheries and Aquatic Habitat.* The other 30 species are BLM sensitive species.

The ESA listed and candidate terrestrial species with potential to occur in the FRFO are northern Idaho ground squirrel, southern Idaho ground squirrel, gray wolf, Canada lynx, bald eagle, yellow-billed cuckoo, Bliss Rapids snail, and Idaho springsnail (Table 5). Of these, only the gray wolf and Canada lynx have potential habitat in the Garden Valley project area. The other species have very specific habitat requirements that are not found in or near the project area, and therefore none of the alternatives would impact these species (Table 5). The other two species are considered below.

Suitable habitat for gray wolf exists within the project area although there have been no documented occurrences within a five-mile radius of the project area (IDFG 2003). As part of reintroduction efforts in 1995 and 1996, all gray wolves in Central Idaho were listed as an "experimental/non-essential population" under provision 10 J of the ESA (59 FR 60252-60266). There are two gray wolf packs that occur in the vicinity. The Scott Mountain Pack and the Orphan Pack. The Orphan Pack occurs east of the Crouch area, and there is the potential they may travel through the project area. The Scott Mountain Pack territory is located approximately 20 miles to the east of the project area around Scott Mountain. There are no known den or rendezvous sites within the project area (J. Holyan, pers. comm.).

**Table 5. Four Rivers Field Office Terrestrial ESA Listed, Proposed, and Candidate Species**

| ESA Listed, Proposed & Candidate Animals | | ESA Status |
|---|---|---|
| **Scientific Name** | **Common Name** | |
| *Canis lupus* | Gray Wolf | E/NE |
| *Lynx canadensis* | Canada Lynx | T |
| *Spermophilus brunneus brunneus* | Northern Idaho Ground Squirrel | T |
| *Spermophilus brunneus endemicus* | Southern Idaho Ground Squirrel | C |
| *Haliaeetus leucocephalus* | Bald Eagle | T |
| *Coccyzus americanus* | Yellow-Billed Cuckoo | C |
| *Taylorconcha serpenticola* | Bliss Rapids Snail | T |
| *Pyrgulopsis idahoensis* | Idaho Springsnail | E |

X/NE – Experimental/Non-Essential; T – Threatened; E – Endangered; C – Candidate

The *Lynx Conservation Assessment and Strategy* (LCAS) (Ruediger *et al*. 2000) was developed to provide a consistent and effective approach to conserve Canada lynx on federal lands in the contiguous United States. Preferred lynx habitat includes areas above 4,000 feet in elevation in Engelmann spruce/subalpine fir forests (Koehler and Brittell 1990). Important habitat features include den sites and foraging habitat. Den sites are typically located in hollow logs or rootwads within mesic, mature or old growth coniferous forest (Koehler and Brittell 1990). Lynx foraging habitat corresponds with snowshoe hare habitat, because the hare is the lynx's favored prey. Snowshoe hare are most abundant in seedling/sapling lodgepole pine, subalpine fir, and Engelmann spruce forest stands.

There is suitable habitat for Canada lynx within the project area, although there have been no documented occurrences within a five-mile radius of the project area (IDFG 2003). The project is not located within a designated Lynx Assessment Unit. Therefore, under the definitions established within the LCAS, there is no lynx habitat within the project area (Ruediger *et al*. 2000).

Appendix D lists the BLM sensitive species that occur within the FRFO management area and describes their suitable habitat. There is suitable habitat in the project area for five mammals, nine birds, one amphibian, and one reptile listed as BLM sensitive species (Table 6).

**Table 6. BLM Sensitive Terrestrial Wildlife With Potential Habitat in the Project Area**

| Common Name | Scientific Name | Known in the Project Area | Habitat |
|---|---|---|---|
| **Mammals** | | | |
| Fisher | *Martes pennanti* | N | Dense canopied, late seral timber types at higher elevations. Dead and down timber in grand fir, Douglas fir, or other conifer types. |
| Wolverine | *Gulo gulo* | N | Forested areas with minimal human intrusions at higher elevations. |
| Townsend's big-eared bat | *Plecotus townsendii* | N | A wide variety of habitats, which include canyon lands, arid juniper/pine forests, to high-elevation mixed conifer forests. Uses caves, mine tunnels, and buildings for roosts, obligate cave/mine user. Forages near foliage of trees and shrubs in riparian areas. |
| Fringed Myotis | *Myotis thysanodes* | N | Found in desert, grassland, and woodland habitats, primarily at middle elevations of 3,940 to 7,050 feet. |
| Spotted Bat | *Euderma maculatum* | N | Found, up to 8,040 feet, in various habitats from desert to montane coniferous forests. Individuals normally roost in deep rock crevices of canyon and cliff walls. |
| **Birds** | | | |
| Northern goshawk | *Accipiter gentilis* | N | Preferred habitats include forests, forest edge, and open woodlands. Most common in ponderosa pine, lodgepole pine, and Douglas-fir forests. Uses riparian habitats in the winter. Nests in tall conifers. |
| Flammulated owl | *Otus flammeolus* | N | Montane forests, open stands of fire-climax ponderosa pine or Douglas-fir forests. Nests in abandoned woodpecker holes. |
| White-headed woodpecker | *Picoides albolarvatus* | N | Montane coniferous forests, primarily dry open forests with ponderosa pine and Douglas fir. Nests in a hole in tree or stump, often close to ground. |
| Lewis' Woodpecker | *Melanerpes lewis* | N | Found in open forests and woodlands (often logged or burned), coniferous forests (primarily ponderosa pine), and riparian woodlands and orchards. |
| Black-backed woodpecker | *Picoides arcticus* | N | Coniferous forests, especially windfall and burned. Boreal forests, fir, lodgepole pine, ponderosa pine at lower and middle elevations of mountains. Nests in holes in stump or dead tree. |
| Williamson's Sapsucker | *Sphyrapicus throideus* | N | Found in montane coniferous forests, especially fir and lodgepole pine. Cavity-dependent species associated with mature forests and requires snags for nesting, roosting, and foraging. During migration and in winter, also found in lowland forests. Nests in cavity in standing snag/hollow tree; sometimes returns to same tree, but not same cavity, year after year. |
| Hammond's Flycatcher | *Empidonax hammondii* | N | Found in old-growth Douglas-fir/ponderosa pine forests. During migration and in winter, they are found in desert habitats. |
| Olive-sided Flycatcher | *Contopus borealis* | N | Found in forests and woodlands (especially in burned-over areas with standing dead trees) such as taiga, subalpine coniferous forests, mixed forests, boreal bogs, muskeg, and borders of lakes and streams. |
| Calliope Hummingbird | *Stellula calliope* | N | Found in mountains (along meadows, canyons and streams), in open montane forests, and in willow and alder thickets. During migration and in winter, found in chaparral, lowland brushy areas, and deserts. |
| **Amphibians and Reptiles** | | | |
| Western toad | *Bufo boreas boreas* | N | Found from low to high elevation areas, in wide variety of habitats such as desert springs and streams, meadows and woodlands and in and around ponds, lakes, reservoirs, and slow moving rivers and streams. |
| Common gartersnake | *Thamnophis sirtalis* | N | Inhabits virtually any type of wet or moist habitat. |

**The treatment areas are dominated by mature mixed coniferous forest with full crowns and a dense brush understory. There has been minimal past disturbance caused by land use and little to no habitat fragmentation has occurred in the proposed thinning areas. Fire suppression and the lack of**

**timber harvest has increased the amount of mature and over-mature/old growth forest that provides habitat for fisher, wolverine, Williamson's sapsucker, and Hammond's flycatcher that require large interior blocks of older forest. Some of the BLM sensitive birds are migratory species. It is important to maintain habitat for these species so that migratory patterns are not disrupted. The black-backed woodpecker uses early seral habitats seasonally or throughout the year. The bats primarily use the riparian areas or moist forest openings for foraging. Reptiles and amphibians use moist riparian areas and forested areas directly adjacent to riparian areas, bogs, and marshes.**

#### 3.9.2.1 No Action Alternative

If the thinning activities do not occur within the project area the general health of the forest would continue to decline. The decline in forest health would increase the risk of stand-replacing fires that would remove the vegetation and habitat from the landscape, which would remove habitat for all of the BLM sensitive species that exist or have potential habitat within the project area. The implementation of the No Action alternative would also increase the closure of the forest canopy, which would have a negative effect on BLM sensitive species that occur in open coniferous forests (Table 6). Suitable habitat for these species would be lost within the project area. However, the No Action alternative would maintain the habitat for those species that use old growth.

#### 3.9.2.2 Proposed Action Alternative

The area is not considered as Canada lynx habitat and no lynx have been documented in the area; therefore, the Proposed Action is not anticipated to have an effect on this species or its habitat. Wolves are not known to occur in the project area and no impacts to this species or its habitat are anticipated.

Thinning trees and prescribed burning have the potential for localized impact to BLM sensitive species. The design criteria and BMPs for cull logs (down woody debris), standing snags, and slash retention are meant to minimize terrestrial wildlife impacts. In the areas where thinning would occur but prescribed fire would be excluded there would be large amounts of slash and debris left on site that would provide suitable habitat for small mammals. These areas could be used as foraging and cover habitat. However, in the areas where prescribed fires would remove the woody debris there would be a reduction in the amount of habitat available for small mammals. The loss of habitat may indirectly affect raptors, in that these species are the primary prey of many raptors, including owls, and larger, carnivorous animals.

The proposed thinning activities would reduce the canopy cover and increase foraging habitat for forest raptors (accipiters and owls) such as northern goshawk and flammulated owls. Opening the canopy cover would also benefit the olive-sided flycatcher, which catches its prey in flight. Increasing forest health and reducing the risks of stand replacing fire would maintain suitable habitat for migratory birds in the project area.

Species that prefer dense mature coniferous forests (i.e., fisher, wolverine, Williamson's sapsucker, Hammond's flycatcher) would be impacted by the reduction in canopy cover. However, there are no known occurrences of these species in the project area.

Increased noise associated with the thinning and harvest activities would cause wildlife to avoid areas where tree cutting and brush removal are occurring. The burning activities would also cause wildlife to avoid or disperse while treatment activities are occurring. Suitable habitat for these species would remain in areas adjacent to the project area.

RHCAs would be excluded from project activities, which would minimize or eliminate any impacts to the western toad and common garter snake. RHCA designation would also protect bat foraging areas.

#### 3.9.2.3 Shaded Fuelbreak Alternative

The Shaded Fuel Break alternative would have less impact on sensitive wildlife that utilize forest habitat because: 1) fewer forested acres would be treated, 2) the large diameter trees would not be harvested, 3) fewer total acres would be treated, and 4) the disturbance time frame would be shorter than the Proposed Action.

This alternative would treat the areas with the highest risk of wildland fire, and reduce the risk of stand-replacing fire so that forest habitat would be protected. However, forest health would not be improved and early seral habitat would not be promoted.

#### 3.9.2.4 Cumulative Effects

The Warm Springs Road renovation may cause terrestrial special status species to avoid the area due to the increased human activity and the noise that would be present due to the use of heavy equipment during construction. The additional fuels treatment that is scheduled on the adjacent Castle Mountain Subdivision would also cause wildlife to temporarily disperse from the general area and would reduce cover habitat.

## 3.10 Vegetation

### 3.10.1 Forestry and Fuels

The dominant timber species found on Garden Mountain are subalpine fir, Douglas-fir, grand fir and ponderosa pine. Three forested zones occur within the project area. Zone 1 (6,000 to 7,000 feet) is dominated by subalpine fir (55 percent). The remainder is Douglas-fir (40 percent) and Engelmann spruce/quaking aspen (5 percent). This is a mid-aged, mixed species stand with multiple stories and 90 percent canopy closure. The majority of the timber stands are dense (approximately 300 trees per acre (TPA)). Non-forested areas are dominated by mountain sagebrush habitat or ceanothus/chokecherry/willow/Rocky Mountain maple shrubland. Of the three zones, this zone has the most natural regeneration within the forested areas, primarily comprised of subalpine fir seedlings. There is a moderate infestation of western spruce budworm.

Zone 1 is also characterized by a continuous fuel load of five to 20 inch DBH downed woody debris with an overall medium fire potential within forested portions. Ceanothus is present in all zones, which is a concern because the foliage contains volatile oils that may contribute to

fire hazard and carry a fire once it is started. The potential rate of spread through ceanothus can be expected to increase as the growing season progresses from June 20 to September 10 (USDA Forest Service 2004).

Zone 2 (4,600 to 6,000 feet) is dominated by a mix of Douglas-fir (40 percent) and grand fir (40 percent), with small percentages of subalpine fir (10 percent) and ponderosa pine (10 percent) present at higher and lower elevations, respectively. The Douglas-fir/grand fir stands tend to be dense and have a canopy closure greater than 85 percent, and a high soil moisture holding capacity. These stands also have a high amount of shrubs in the understory.

On northern aspects there is a continuous fuelbed comprised of medium to large diameter downed woody debris that is "jackstrawed" with high fuel loads and a medium to high fire potential rating. Eastern to southern aspects have open, park-like stands of mature ponderosa pine on slopes with eastern to southern aspects. These stands have lower density, little to no understory, and a discontinuous fuelbed with low fuel loads. The possibility of a lightning fire spreading through the duff is the largest fire hazard in these stands.

Mountain pine beetle and Douglas-fir beetle infestations are causing low to moderate mortality rates in Zone 2. There is also dwarf mistletoe present throughout this zone. Dwarf mistletoe is a parasite that induces a localized swelling of bark and wood and, often, nearby buds and branches are stimulated to grow excessively, resulting in abnormal clumps of branches called "brooms" or "witches' brooms". These brooms are highly flammable and can carry understory fires into the forest crown. However, brooming of branches within the project area tends to occur high enough off the ground that the potential for brooms to act as ladder fuels is reduced. Except for areas that have been opened by disturbance, this zone has virtually no natural regeneration. Litter depth is much deeper in zone 2, averaging two to three inches with a three to five inch deep humus layer.

Zone 3 (below 4,600 feet) is dominated by ponderosa pine (70 percent) and Douglas-fir (30 percent). The understory canopy is predominately Douglas-fir. Canopy closure ranges from 30 to 80 percent, with denser canopy occurring in Douglas-fir stands and more open canopies occurring in ponderosa pine stands. Shrubs are present in strips and in openings created by disturbances. Natural regeneration is low and appears to be generally limited to the openings. Portions of MU 7 were affected by a timber trespass that removed most of the high valued ponderosa pine. Consequently, there are portions of the area that have continuous standing and downed dead woody debris (80 plus tons/acre). The rest of the forested areas are predominantly mature trees with some reaching 150 feet tall and 200 plus years old.

Overall, lands within the project boundary fall into Fire Regime I and Condition Classes 2 and 3 (Dynamac 2003). Fire Regime I areas historically experienced fire with a zero to 35 year frequency. Low surface fires are the most common type so fires in this regime but may include fires of mixed severity, with generally less than 75 percent of the dominant overstory vegetation replaced. Condition Class 2 fire regimes have been moderately altered from their historical range. A moderate risk of losing key ecosystem components has been identified on these lands. Condition Class 3 fire regimes have been extensively altered from their historic

fire-return interval. The risk of losing key ecosystem components from fire is high. Fire frequencies have departed from historical ranges by multiple return intervals and vegetation composition, structure, and diversity have been extensively altered.

### 3.10.1.1 No Action Alternative

The proposed treatment areas are not in a healthy condition due to a history of fire suppression and existing high stand densities. This alternative would not provide management actions that would facilitate achieving a healthy ecosystem because long-term ecosystem health is linked to disturbance, including fire. Ecosystems have evolved in response to disturbance-recovery regimes. Recurrence of disturbance and recovery within ecosystems is an important mechanism for energy flow, nutrient cycling, and for maintaining age, species, genetic, and structural diversity (NIFC 2004). Continued fire suppression efforts under this alternative would further hamper this important process.

No fuels management would occur to reduce insect and disease infestations, tree density, or ladder fuels. With no vegetation management the successional pathway of species would continue along its current trend to non-fire resistant late successional or climax species. If wildfires are successfully suppressed as they occur, shade intolerant species presently found on the sites would eventually be replaced with shade tolerant species. Stand density would continue to increase, creating unnaturally high fuel loadings and increasing the risk of broad scale, stand-replacing fire and WUI risk. Without prescribed burning or associated management activities that disturb the landscape, the extent and intensity of insects and pathogens would increase, resulting in a community that is less resilient to fire and other disturbances.

Historically, this area developed under a dominant regime of frequent lower intensity fires. If fire suppression efforts fail and catastrophic fires occur, the shade-intolerant species may not have the seed source to regenerate naturally following a widespread fire. The post-fire area would progress very slowly from the grass/shrub stage to a forested landscape.

The existing conditions of the project area increase the potential for insect and disease infestations, especially western spruce budworm, mountain pine beetle, Douglas-fir beetle and dwarf mistletoe. The No Action alternative would not reduce this risk, and could actually increase the risk as stands continue to suffer from environmental stresses, such as drought and competition, that reduce tree vigor and ability to withstand insect and pathogen attack. As stand densities increase and more shade tolerant species continue to occupy the understory, the potential impacts to the forest from root diseases also increases.

### 3.10.1.2 Proposed Action Alternative

The direct and indirect effects of the Proposed Action alternative would result mainly from the harvest and fuels treatment activities described in Chapter 2 and design criteria described in Appendix A. These activities are primarily density reduction, removal of understory vegetation, and the re-introduction of low-intensity fire.

The Proposed Action (Figure 3) would treat 1,317 acres and provide for diverse ecosystems by reducing competition stress from uncharacteristically high stand densities. Removal of

much of the understory vegetation, reducing overall stand densities, and manipulating species composition toward mid-seral species that are more adapted to a frequent fire interval ecosystem would promote both health and sustainability of the landscape. It would also reduce the potential for large scale losses through fires uncharacteristic of the historic regime.

The Proposed Action would move treatment areas from Condition Classes 2 and 3 to Condition Class 1, which is within the historical range. Vegetation composition and structure would remain intact. Therefore, the risk of losing key ecosystem components from the occurrence of fire would remain relatively low.

**MUs 1-10** - Selective harvest treatments in MUs 1-10 would target the following trees for removal: insect and disease infested trees; late seral species (grand fir and subalpine fir); and trees in the 12 to 28 inch diameter class. Treatments would encourage regeneration by opening the canopy and allowing light to reach the forest floor. For ponderosa pine dominated stands canopies would retain 50-70 percent canopy and grand fir/subalpine fir dominated stands would retain 60-80 percent canopy. The difference in canopy between the two species is because, in general, pines require greater openings in the canopy to encourage regeneration of shade-intolerant species. Infested trees within each treatment unit would be removed, reducing the threat to adjacent trees. Reducing the competition stress would increase the ability of the residual trees to withstand infestations.

Subalpine fir and grand fir have thin bark with resin blisters making them sensitive to fire and susceptible to suffer high mortality even from low intensity fires. Once a crown fire begins, it spreads easily because subalpine fir and grand fir have a tendency to grow in dense stands and have highly flammable foliage. The fuel structure in subalpine fir/grand fir dominated stands generally promotes highly destructive stand-destroying fires. Fuelbeds tend to be irregular, with over twice as much fuel accumulating under the canopies as between them. The needles are relatively small and fine and form a compact fuelbed in which fire spreads slowly. These concentrated, slow burning fuels frequently produce flames high enough to reach low, dead branches (FEIS 2004). Targeting subalpine fir and grand fir for removal would reduce the accumulation of fuels and ladder fuels thereby reducing the potential for crown fires and promote the regeneration of ponderosa pine and Douglas-fir that are fire tolerant species at maturity.

**MU 11 -** Understory harvests in this 30-acre unit would target trees for removal up to ten inches in diameter. Other treatments include brush control and pruning up to five feet on selected residual trees. This would create a defensive space that would reduce the risk of catastrophic fires from spreading onto adjacent lands and into WUI areas.

**MU 12 -** This alternative is a 459 acre shaded fuelbreak that buffers the Warm Springs Road only. The area is the highest-risk zone in the project area due to the high volume of recreational use and proximity to private and state land. The shaded fuelbreak would be a defensible zone strategically located to fragment the continuity of fuels and reduce the potential for high intensity crown fires that could spread to private land and threaten WUI areas. Treatments would include tree felling, brush cutting, pruning, tractor or hand piling of slash, brush, and debris, and covering and burning slash piles. The result of treatments

would be an open, park-like stand and an environment that would allow the ground fuels to burn in a controllable manner. This zone could slow, and even stop, the spread of a wildland fire. There would be less fuel to carry the flames, which would provide firefighters with safe zones to take a stand against a wildfire, or retreat from flames if the need arises.

**All MUs** - Prescribed burning is proposed for all MUs. Prescribed fires would be used to reduce forest fuels and associated fire risk and also to help restore forest structure to historical conditions. Prescribed burning reduces the accumulated needles, ground fuels, branches, and slash piles on the forest floor. Fire would also induce "limbing up," or burning off the lower branches of pines, which would eventually die and fall off, effectively raising the crown height of the remaining living trees. This would make the trees more fire resistant to subsequent fires. In the event of a wildland fire, the intensity of the fire would be decreased, reducing damage and costs. Wildfire costs include resources to fight fires, as well as possible property damage in WUI areas. Lower intensity wildland fires would be much easier to contain and control.

#### 3.10.1.3 Shaded Fuelbreak Alternative

The Shaded Fuelbreak alternative is the treatment described in the Proposed Action for MU 12. Although this treatment alone does not address nor improve forest health, it is the most critical and cost effective treatment for the reduction of fuels and the potential of a catastrophic wildfire. The volume of human traffic on the Warm Springs Road makes this unit highly susceptible to human caused fires from cigarettes, chainsaws, engines and other activities. Brush control, understory thinning, pruning, and prescribed understory burning would create a defensible zone with little fuel to carry a fire into adjacent stands, state and private lands, and WUI areas.

#### 3.10.1.4 Cumulative Effects

Some of the adjoining state and private lands have undergone recent fuels reduction, harvesting and prescribed burning (Table 3). These projects in combination with the Proposed Action would lead to a greater reduction of fuels, and the hazards of high intensity wildfires, thereby protecting resources on Garden Mountain and in adjoining WUI areas.

### 3.10.2 Threatened, Endangered and Sensitive Plants

There are 26 BLM special status plants identified as potentially occurring in the FRFO. A list of these species is located in Appendix E. Slickspot peppergrass, which is proposed for listing as endangered (67 FR 46441), has been identified in the FRFO management area. Habitat for the slickspot peppergrass, as well as for the majority of the sensitive species on the FRFO list, is described as arid desert habitats dominated by sagebrush or other desert shrubs.

Suitable habitat exists in the project area for prostrate ceanothus, stalk-leaved monkey-flower, Douglas' clover, and plumed clover; however, there have been no documented occurrences of these species in the area. Prostrate ceanothus occurs in the understory of ponderosa pine/shrub communities in coarse granitic soils. Douglas' clover and plumed clover occur in open ponderosa pine to Douglas-fir forests, in moist meadows and along stream courses. Stalk-leaved monkey-flower occurs in wet meadows in montane and alpine

areas. A botanical survey of the treatment areas would be conducted prior to project implementation to verify the presence or absence of these species.

#### 3.10.2.1 No Action

If the thinning activities do not occur within the project area the general health of the forest would continue to decline. The decline in forest health would increase the risk of catastrophic fires that would remove the vegetation and habitat from the landscape. This would remove any BLM sensitive plants that occur in the project area. By not thinning and reducing fuel loads within the project area there would be a continued closing of the canopy that would reduce the amount of light that reaches the forest floor making the project area unsuitable for any of the BLM sensitive plant that have the potential of occurring within the project area.

#### 3.10.2.2 Proposed Action

During the initial fuels field survey performed in 2003, there were no individuals or communities of BLM sensitive plants observed in the areas proposed for thinning or treatment for shaded fuel breaks. An additional botanical survey would be performed prior to any thinning or burning activities at the appropriate time for the identification of the species of concern. Any areas identified as containing BLM sensitive species would be excluded from the treatment areas. Therefore the proposed activities are not anticipated to have an impact on these species.

#### 3.10.2.3 Shaded Fuelbreak Alternative

Implementation of the Shaded Fuel Break alternative would decrease the amount of acres that would be disturbed compared to the Proposed Action. By treating only the shaded fuel break areas there would be very little reduction in fuels and only a minimal increase in forest health, which would potentially increase the risk of fires. An additional botanical survey would be performed prior to any thinning or burning activities at the appropriate time for the identification of the species of concern. Any areas identified as containing BLM sensitive species would be excluded from the treatment areas. Therefore this alternative would not have any impact on these species.

#### 3.10.2.4 Cumulative Effects

The reconstruction of the Warm Springs Road would increase the amount of vegetation that would be removed or impacted. These impacts would occur during the grading, reconstruction, and rerouting portions of the roadway. The continued use of the area for recreation and grazing would also continue to cause impacts to vegetation within the project area. Other proposed fuels treatments and subdivision establishments would remove vegetation from adjacent areas. The treatment and removal of vegetation could possibly remove or impact species that are identified as BLM sensitive. However the majority of these activities are proposed to occur on private land and would not be required to consider BLM sensitive species in their design plan.

### 3.10.3 Noxious Weeds/Invasive Species

Invasive species are species that tend to invade an area and outcompete and crowd out native species. Noxious weeds are plant species that have been designated “noxious” by law. These species are known to occur in disturbed sites throughout Idaho, and Idaho State law

requires that noxious weeds be treated and eradicated by landowners and prevented where possible. Noxious weeds can have a detrimental impact on an ecosystem by altering soil stability causing an increase in runoff, increasing the salinity of the soils, thus retarding salt intolerant native species, and increasing stream flows, which in turn can increase sediment loads (Prather *et al*. 2002).

There are six Idaho State listed noxious weed species documented as occurring in Boise County. These species are: Canada thistle (*Cirsium arvense*), dalmatian toadflax (*Linaria genistifolia dalmatica*), hoary cress (*Cardaria draba*), leafy spurge (*Euphorbia esula*), musk thistle (*Carduus nutans*), and rush skeletonweed (*Chondrilla juncea*) (Prather *et. al.* 2002). Thirteen additional noxious weeds are suspected to occur within Boise County but the presence of these species has not been confirmed:

- Common crupina (*Crupina vulgaris*)
- Diffuse knapweed (*Centaurea diffusa*)
- Dyer's woad (*Isatis tinctoria*)
- Field bindweed (*Convolvulus arvensis*)
- Jointed goatgrass (*Aegilops cylindrical*)
- Perennial pepperweed (*Lepidium latifolium*)
- Poison hemlock (*Conium maculatum*)
- Puncturevine (*Tribulus terrestris*)
- Purple loosestrife (*Lythrum salicaria*)
- Scotch thistle (*Onopordum acanthium*)
- Spotted knapweed (*Centaurea maculosa*)
- Yellow starthistle (*Centaurea solstitialis*)
- Yellow toadflax (*Linaria vulgaris*)

These species occur in a wide range of habitats including pastures, riparian areas, roadsides, cultivated fields, rangeland, and forested areas (Prather *et. al.* 2002).

A formal survey for noxious weed species has not been completed for the project area, however, during the ground cover vegetation survey, rush skeletonweed and musk thistle were observed along the Warm Springs Road and in the cutslopes associated with the road. Concentrations of rush skeletonweed were found along the Warm Springs Road in MU 12 near MU 11. There were no noxious weeds or invasive species observed in the stands proposed for thinning. Pre- and post-herbicide treatment would be implemented along access roads, landings, skid trails, and other disturbed areas to control noxious weed and invasive species establishment and proliferation. Herbicide treatments would not be applied within RHCAs.

#### 3.10.3.1 No Action Alternative

The No Action alternative is not anticipated to directly increase the risk of the spread of noxious weeds and invasive species beyond the rate of spread that currently exists within the project area. However if a large-scale fire occurs within the project area due to thinning and harvesting activities not occurring, it would leave the soils exposed and susceptible to infestation of invasive species and noxious weeds.

### 3.10.3.2 Proposed Action Alternative

The species that are potentially present within the project area often become established in areas that have been disturbed. The risk of establishing a weed community increases with the ground disturbing activities associated with this project. The soil disturbance associated with the thinning and burning activities during the project would increase the potential for spread of invasive species and noxious weeds. Equipment and supplies necessary for this project are possible threats to the spread of noxious and invasive weeds. Noxious weeds and invasive species may also be introduced to the project area by the equipment used for the thinning activities. There is a concern with transporting weeds by vehicles and equipment from infested areas to areas free of weeds. Seeds from weeds could be transferred to the site from previous work locations that contained invasive species and noxious weeds.

Ongoing programs exist to identify locations of all noxious weeds as well as efforts to initiate management and/or eradication of these weeds in the State of Idaho. State law assumes cooperation by the federal agencies in controlling noxious weeds on federally managed lands (Idaho Code, Section 22-2476). The Federal Public Rangelands Improvement Act emphasizes such cooperation in order to improve "unsatisfactory condition" of the federally managed rangelands (43 U.S.C. §§ 1901-1908). The guidelines specified in the contract in addition to the mitigations in Appendix A would be followed during this project to control the spread of noxious weeds. With the proposed mitigation measures outlined for the proposed project it is anticipated that there would be little spread or increase of existing individual noxious weeds within the project area.

### 3.10.3.3 Shaded Fuelbreak Alternative

The implementation of the Shaded Fuel Break alternative is anticipated to have similar effects as the Proposed Action. However, there would be less potential for the spread of noxious weeds and invasive species deeper into the forested stands due to the exclusion of these areas from treatment. Since less acreage would be treated in this alternative than the Proposed Action there is greater potential for more areas to be impacted by a large fire in the area. This would increase the extent of area that would be susceptible and suitable to the invasion of noxious weeds and invasive species.

### 3.10.3.4 Cumulative Effects

In addition to the Proposed Action, OHV use and grazing routinely impact vegetation and soil within the project area. Grazing in the area impacts riparian habitat due to the tendency of livestock to loaf or congregate around water. OHV use that deviates from designated trails on a routine basis has the tendency to remove vegetation and cause rutting and compacted soils. OHV use and grazing also pose a risk of spreading noxious weed and invasive species seeds throughout the project area by seeds attaching to livestock, and OHVs can also transport seed from other locations by seeds collecting in tires and the undercarriage of the vehicles.

## 3.11 Additional Disclosures

Irreversible commitments are those that cannot be reversed, except in the extreme long-term and irretrievable commitments are those that are lost for a period of time. There would not be any irreversible or irretrievable commitments of resources from the Proposed Action. No

unavoidable adverse effects are anticipated from implementation of the project. Energy requirements and conservation measurements would not be affected. Any effects would be short-term in comparison to the impacts that would result from a catastrophic fire.

# 4 - CONSULTATION AND COORDINATION

The following individuals, Federal, state and local agencies, tribes and non-BLM persons were consulted during the development of this EA:

## 4.1 BLM Interdisciplinary Team Members

Members of the BLM IDT are from the FRFO, Lower Snake River District, and the Owyhee Field Office (OFO).

| | |
|---|---|
| Irene Saphra | FRFO Fuels Use Specialist/COR |
| Mark Rooney | Acting FRFO Fuels Use Specialist/COR |
| Mark Steiger | FRFO Botanist |
| Pat Kane | FRFO Weeds Specialist |
| Michele Jones | FRFO Forestry Technician |
| Jim Jones | FRFO Forester |
| Juanita Allen | LSRD Fire and Fuels Archaeologist |
| Jill Holderman | FRFO Wildlife Biologist |
| Bob Arnold | FRFO Range Technician |
| Greg Moody | FRFO Fishery Biologist |
| Zig Napkora | OFO Hydrologist |

## 4.2 Federal, State and Local Agencies

The IDFG, IDL, and the Emmett Ranger District of the Boise National Forest were sent scoping notices regarding the project. The USFWS was contacted directly regarding the project. A Biological Assessment is being prepared in conjunction with this EA to address potential effect to threatened and endangered species. The Boise County Commissioners also received a scoping notice and Fred Lawson the Boise County Commissioner for District 2, which encompasses the project area, was contacted regarding the project and an informational package was provided. The Boise County Commissioners responded to the scoping notice in favor of the proposed project. No other responses were received from these agencies.

## 4.3 Tribes

Consultation with the Tribes regarding the Proposed Action has taken place via their monthly Wings and Roots meeting.

## 4.4 Public Meetings

Two public meetings were held, in Boise and Crouch, to inform the public of the proposed action for the Garden Mountain Fuels Management Project. Scoping notices were sent to local homeowners associations, other agencies, and the interested public informing them of the meetings and requesting comments on the project. Public notices were published in the Idaho World Newspaper, a weekly publication in the Garden Valley/Crouch area, and the Idaho Statesman Newspaper in Boise. In addition flyers were posted in several locations in

Crouch, such as the local restaurant, library, health clinic, etc., informing people of the meeting location and time.

At the meetings, the EA process was described including the background of events leading up to the proposed action. The proposed action was described and issues and concerns were solicited. Present at both meetings were Mark Rooney and Rosey Thomas, BLM, and Elspeth Pevear and Kelly Green, North Wind, Inc.

Thirteen members of the public and one agency representative attended the public meeting, held at the Crouch Community Hall on March 15, 2004. The list of attendees is provided below. Where affiliations were provided, they are included in the list.

Vera Hunt
John Harrington (IDL)
Ron Richter
Jay Baker
Kelly Hagele
Scott Briggs
Alan Ward (Payette River Lumber)
Deanna Stevenson
Brian Elcox (Castle Mountain Fire and Safety)
Susan Elcox (Castle Mountain Fire and Safety)
Jere Callaway
Hal Netten
Henrietta Gunn
Jamie Anderson

A summary of the main points of the discussion is included below.

- Inaccessibility of the road was mentioned as a concern. The Warm Springs Road would be repaired as part of another project in order to facilitate lumber removal and improve access to the area.
- Timing of the project was discussed. The project is expected to take place over the next five, and possibly ten, years with some work beginning this year. The timing will depend on the funding and whether a market exists. One person commented that the project needs to be expedited and that five to ten years is too long.
- The economics of the project was discussed along with whether or not there were any local people that could do the work. It was stated that the lumber may be trucked to Oregon or McCall because there may not be a local operator that could handle the volume. It is likely that most of the products would go out of the area.
- Air quality was mentioned as an issue. Concerns about burning were discussed.

The meeting held in Boise on March 16, 2004 was attended by one member of the public, Tony Yeamans, who represented the Warm Springs Creek Road Improvement Association, and voiced several concerns related to the hauling of lumber out of the area.

- The hazard of dust from use of the road to remove timber was of concern.

- Safety was raised as a concern related to logging trucks traveling on the road.
- Noise from the trucks traveling on the road (chains and metal noises and jake breaks) was also a concern for local homeowners.
- Dust from other logging projects has impacted small businesses along the road.

Requirements are commonly put on contracts to control adverse impacts such as timing of the truck traffic, noise, dust abatement, and speed. The BLM stated that they would work with the Boise County Commissioners to see what could be done to ensure impacts are minimized.

In addition to the comments received at the public meetings, one other comment was received from a private citizen. Overall, he was supportive of the project, however, he suggested no activity two weeks before and during hunting season and no burning before hunting season. He also stated that erosion control was a concern and suggested installation of water dips rather than water bars.

## 4.5 Additional Outreach

Information regarding various federal cost-shared programs available for non-industrial private lands was distributed at the public meetings and given to local establishments (restaurants, grocery store, laundry mat, etc.). The information encourages non-industrial private landowners to establish fuel mitigation and forestry health treatments on their lands. Attempts have been made to contact several private landowners with property adjacent to the project area in order to discuss opportunities for fuels reduction on private land. To date, no response has been received.

## 4.6 Preparer

This document was prepared for the BLM by North Wind, Inc., Idaho Falls and Salmon, Idaho.

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# APPENDIX A
# PROPOSED ACTION DETAILS AND DESIGN CRITERIA

### Improvement Harvest (MUs 1-10):

The goal of an improvement harvest is to increase overall forest health. This would include removal of climax species (i.e. grand fir and subalpine fir), retention of seral species (i.e. Douglas-fir and ponderosa pine), creation of small openings in the canopy to encourage regeneration, and removal of infected or diseased trees. Harvesting would target: 1) trees that are insect or disease infected, 2) deformed, 3) dead or dying, or 4) climax species that are not fire adapted.

Treatments would: 1) remove trees infected with dwarf mistletoe, bark beetle, western spruce budworm, and heart rot, 2) harvest stands to a target basal area (BA) of 60 to 70 square feet per acre or approximately 25 x 25 foot spacing between stems, and 3) target trees for removal in the 12 to 28 inch diameter range to release suppressed species and retain large mature trees for wildlife, seed stock, and visual aesthetics.

BA is a measure of stand stocking, roughly equivalent to standing volume. Stand BA is the cross-sectional area of all the trees at breast height per acre of forest. Stand BA can be used to estimate stand volume and is a useful measure of the degree of competition in the stand. For the purposes of this plan, BA and tree spacing are used to define how much would be harvested and what residual stands would "look" like post-treatment. There will be variations in tree spacing because of natural variations. As a result, tree spacing is a rough approximation of post-treatment stand conditions.

**MU 7 and MU 10** are ground-based logging units that total 157 acres on the eastern side of the Warm Springs Road (Figure 3). Slopes range from 25 to 35 percent. In general, these units are dominated by ponderosa pine and Douglas-fir with some grand fir. Tree sizes range from eight to 40 inches in diameter, with an average of 193 TPA (15x15 foot spacing) and a BA of 240 square feet per acre. Both these units occur at the lower elevations (3,800 to 4,400 feet) of the project area. Harvest would be accomplished through manual felling (chainsaw) and rubber tired, crawler tracked tractor skidding, jammer yarding, or highlead yarding.

**MUs 1, 4, 5, 8, and 9** are running skyline cable yarding units that total 364 acres along the western edge of Warm Springs Road (Figure 3). Slopes in these units range from 50 to 70 percent at elevations between 4,200 to 5,400 feet. In general, these units are dominated by grand fir and Douglas-fir with some ponderosa pine and subalpine fir. Tree sizes range from eight to 40 inches in diameter, with an average of 270 TPA (13x13 foot spacing) and a BA of 205 square feet per acre.

Harvest would be accomplished through manual felling (chainsaw) and would utilize a running skyline system (Figure 6). Most running skyline carriages can extend up to 200 feet from the haulback line, which increases lateral yarding distance allowing 400 feet between skidding lines. This system works with both uphill and downhill yarding and is capable of

fully suspending the logs to protect granitic soils. Yarding distances vary, depending on the specific model used, but range from 1,000 to 2,500 feet. Yarding distances tend to decrease with downhill yarding and increase with uphill yarding.

**MUs 2, 3, and 6** are helicopter units that total 337 acres on steep slopes (>60 percent) with highly erodible, granitic soils and no road access (Figure 3). All of these units occur at elevations between 4,800 to 6,600 feet. In general, these units are dominated by grand fir, Douglas-fir and subalpine fir, with scatterings of ponderosa pine. They have the most extensive infestation of western spruce budworm in the project area, and the greatest number of seedlings waiting for release. There is an average of 1,000 TPA (6x6 foot spacing) and a BA of 223 square feet per acre. Harvest would be accomplished by helicopter logging because it eliminates the need for new roads, spurs, cable corridors or skid trails and protects sensitive terrain.

### Fuel Treatments (MUs 11 and 12):

**MU 12** is a 429-acre shaded fuelbreak unit located along the entire length and on either side of the Warm Springs Road within the GMFMP area (Figure 3). In general, the dominant species are ponderosa pine, Douglas-fir, and grand fir. The shaded fuelbreak would be a 300 to 500 feet wide defensible zone strategically located to breakup the continuity of fuels and reduce the potential for high intensity crown fires that could spread to private land within the WUI. The result would be an open, park-like stand and an environment that would allow the ground fuels to burn in a controllable manner. Treatment for this unit is described below.

**MU 11** is a 30-acre fuel reduction unit in an ephemeral (i.e. seasonally flowing) draw that slopes onto private lands (Figure 3). The draw contains heavy brush, ponderosa pine saplings and high volumes of downed hazardous fuels. The adjacent private land is comprised of dog-haired stands of 30 to 60 foot tall ponderosa pine that is infested with bark beetle and experiencing some mortality. A new residential subdivision, Mountain Shadows, is in the area. Treatment for this unit would be the same as those used for shaded fuel unit (MU 12), except that the total shaded fuelbreak would be 2,600 feet wide in this location to provide additional WUI protection.

To establish the shaded fuelbreak the following treatments would occur within the management units:

- Thin the understory to a target (approximately 25 to 39 percent of original stand) BA of 60 to 80 square feet per acre (25x25 foot spacing).
- Remove hazardous snags, in terms of fire danger and logging safety.
- Target trees that have been infested with insects or infected with diseases.
- Target grand fir and subalpine fir in the 6 to 12 inch diameter range.
- Retain the seral species (ponderosa pine and Douglas-fir) whenever practicable.
- Remove brush and slash and pile 4 to 10 feet high before burning.
- Mechanically or hand pile slash in areas where thinning and removal of material is not sufficient to allow follow-up understory burning.
- Prune selected residual Douglas-fir and grand fir up to 5 feet.

- Reduce hazardous fuels and restore fire to the ecosystem with controlled understory burns within the shaded fuelbreak. Prescribed burning would take place during the late spring and fall when moisture levels are such that prescribed burns can be controlled, and would be limited to time periods when atmospheric conditions normally would allow dispersion of the smoke from the prescribed burn during each day of the burn.
- Maintenance treatments would be based on site evaluations occurring every three years.

## Project Design Criteria and Best Management Practices Common to All Action Alternatives

Design criteria and BMPs were developed to ease some of the potential impacts the various alternatives may cause and would be integral to project implementation. The following design criteria and BMPs are management requirements and constraints applicable to all action alternatives. In addition, the Sale Administrator would identify specific provisions that may be required based on site-specific and temporal conditions during project implementation.

BMPs are the primary mechanism to achieve water quality standards and ensure compliance with the Federal Clean Water Act of 1972, as amended (1977 and 1987). BMPs are applied as a whole management and planning system in relation to sound water quality goals, including both broad policy and site-specific prescriptions that are a preventative rather than an enforcement system designed to accommodate site-specific conditions. BMPs are tailor-made to account for the complexity and physical and biological variability of the natural environment.

## Timber Harvest

- Use the logging system that best fits the topography, soil type, and season, minimizes sod/soil disturbance, and economically accomplishes silvicultural objectives.
- Full log suspension would be required when implementing the skyline cable system.
- Use “whole tree yarding” and “yarding with tops attached” to reduce slash and facilitate subsequent prescribed fire treatments as practicable.
- Trees left for future harvest must be of sufficient vigor and acceptable species to ensure continuous growing and harvesting. Protect “leave trees” from damage to enhance their survival and growth.
- Minimize the size and number of landings to accommodate safe, economical operation.
- Locate landings away from natural drainage systems and divert runoff to stable areas. Avoid locating landings that require skidding across drainage bottoms.
- When natural revegetation is inadequate to prevent accelerated erosion before the next growing season, apply seed or construct cross-ditches on landings. A ground cover of slash or mulch will retard erosion.
- Design and locate skid trails and skidding operations to minimize soil disturbance.
- Locate skid trails to avoid concentrating runoff and provide breaks in grade.
- Locate skid trails and landings away from natural drainage systems and divert runoff to stable areas.

- Skid trails for ground-based equipment would be designated to meet the Idaho Forest Practices Act.
- Limit the grade of constructed skid trails on geologically unstable, saturated, highly erosive, or easily compacted soils to a maximum of 30 percent (otherwise the operating slope can be 45 percent or less).
- The ponderosa pine/Douglas-fir areas (MUs 7, 10, 12) would retain a target post-harvest canopy cover of 50 to 70 percent.
- MUs 1-6, 8, and 9, which are dominated by grand fir, Douglas-fir, and subalpine fir, would have a target post-harvest canopy cover of 60 to 80 percent.
- Post-project ECA would not exceed 15 percent of the 6$^{th}$ field Pyle Creek Subwatershed.
- No skid trails would be located perpendicular to RHCAs within 500 feet.

**Soil**

- Mechanical treatment would be limited to slopes less than or equal to 35 percent. Hand treatment would be required on slopes greater than 35 percent.
- No operation of off-road ground-based equipment would be permitted during wet weather conditions. This applies to the ground-based equipment on connected projects, and road construction, reconstruction, and landing construction. This restriction may be waived if soils are dry or frozen or if operators switch to skyline or other systems.
- On slopes less than 35 percent, at least 50 percent of the ground surface would be covered by well distributed organic cover, including slash.
- Leave greater than 50 percent well distributed organic cover on slopes greater than 35 percent.
- Lop and scatter logging slash to less than or equal to 4 inches in diameter and 4 feet in length to protect soils and reduce fuelbed height and facilitate subsequent prescribed fire treatments in units, on log landings and skid trails.
- Use brush blades on dozers when piling slash. Avoid use of dozers with angle blades.
- Leave low slash and small brush to slow surface runoff, protect soil, return soil nutrients, provide small mammal habitat, and shade for conifer seedlings.
- Understory burn selected stands with a cool prescribed fire to reduce slash and reintroduce fire as a natural process, as practicable.
- Burn accumulated slash on log landings.
- Scarify the soil only to the extent necessary to meet the reforestation objective of the site.
- Site preparation equipment that produces irregular surfaces is preferable.
- Carry out brush piling and scarification when soils are frozen or dry enough to minimize compaction and displacement.
- Minimize or eliminate vertical patterns (i.e. up and down the slope) during mechanical scarification. Carry out scarification on steep slopes in a manner that minimizes erosion.
- Ground-disturbing activities would be planned to limit the disturbance to the organic soil horizon. The use of ground-based operations (e.g. tractors, skidders) on slopes greater than 45 percent would be avoided because of the risk of damage to soil and

water resources. Ground-disturbing activities would be restricted to non-saturated soil areas.

- Minimize disturbance from machinery by requiring handwork where machines would cause undue soil disturbance.
- Access to the work site is only allowed on existing open roads.
- Travel must cease when damage to the road surface would result or is occurring.
- Dozer piling on slopes less than or 35 percent would be limited to excavator; rubber-tire skidder with grapple, or other low soil compacting/ground disturbing equipment.
- Piling on slopes greater than 35 percent would be hand pile only.
- Ensure that the project does not prevent or retard attainment of RMOs and is consistent with appropriate biological opinions.
- Ensure that the project does not retard progress towards "properly functioning" condition of the following relevant indicators in the Watershed Condition Pathway: Road Density, Disturbance History, Riparian Condition, and Disturbance Regime.
- Livestock grazing will be excluded from prescribed burn units for a time period previously agreed upon during consultation, or a time period which will allow the vegetation to regeneration to a stage that can withstand grazing effects sufficiently to achieve and maintain natural rates of surface erosion.

**Hydrology/Water Yield and Water Quality**

- Construct cross ditches in firelines.
- Avoid intense fires unless needed to meet silvicultural goals.
- Prescribed fires would not intentionally be lit within RHCAs. If fire does enter RHCAs, it would be allowed to “back down” on its own.
- Prepare and implement a Spill Prevention Control and Countermeasures Plan (40 CFR 112) that incorporates the rules and requirements of the Idaho Forest Practices Act Section 60, Use of Chemicals and Petroleum Products; Department of Transportation rules for fuels haul and temporary storage and IDEQ rules and regulations for fuels haul, storage and spill containment.
- Hazardous and deleterious materials must not be stored, disposed of, or accumulated adjacent to, or in the immediate vicinity of, state waters, unless adequate measures and controls are provided to ensure that these materials do not enter state waters (Idaho Administrative Procedures Act [IDAPA] 16.01.02.800).
- Locate storage containers at least 300 feet from surface water.
- Store adequate supplies of manufactured fuel absorbent material (granules, pads) at the site.
- Rehabilitate storage areas after use.
- Activate the Idaho Hazardous Materials Response Plan (call 800-632-8000) in the event of a hazardous materials release.
- Notify the IDEQ of any petroleum releases greater than 25 gallons on the land, or if a sheen is present on water (IDAPA 16.01.02.851.04.a, b).
- Notify the BLM immediately of any fuel spill on BLM lands.
- Construct an earthen dam or other stable barricade of sufficient size to contain and prevent a spill from spreading overland.
- Utilize booms and absorbent materials to contain and remove fuels from water.

- Dispose of spilled materials in a manner approved by IDEQ (IDAPA 16.01.02.850.04). Depending on the size and location of the spill, the contaminated soils should be spread out and plowed into soils at a BLM approved site, or placed in disposal containers and removed to an approved site. Monitor implementation.
- Remove all logging machinery debris to proper disposal site (tires, chains, chokers, cable, filters, oil cans and miscellaneous discarded parts).
- No aerial application of fertilizer within 300 feet of perennial streams.
- Fertilizer applications within 300 feet of intermittent drainages will be done only when dry.
- When INFISH standards & guidelines RA3 and RA4 are met, then add the following: do not apply fertilizer within 25 feet of streams and supersaturated soils.
- Apply fertilizer by following labeling instructions.
- All helicopter fueling operations require an approved transportation, storage, and emergency spill plan.
- Other heavy equipment fueling operations will consist of a slip-tank not greater than 250 gallons.
- Maintenance operations must have spill containment and cleanup provisions.
- No landing of helicopters or aircraft within RHCAs.
- No construction of helicopter pads within RHCAs.
- Avoid sediment routing from skid trails and landings into streams.
- Overstory mortality due to prescribed fire shall not cause the ECA to exceed 15 percent in the subwatershed.
- No prescribed fire blackline construction perpendicular to the RHCA (up the slope) within 500 feet of any stream channel.
- Mortality due to prescribed fire shall not exceed 10-30 percent of the remaining overstory trees in the project area.
- Hydrologist will insure that the overstory mortality due to prescribed fire will not adversely alter the flow regimes (timing, magnitude, duration, and spatial distribution of peak, high, and low flows) at the subwatershed scale.
- Prevent sediment production and delivery to streams by using standard erosion and sediment control measures.

### Cultural Resources

- An intensive Class III cultural resource survey would be conducted prior to ground disturbing activities.
- Cultural sites, if any would be flagged and avoided.
- If significant properties are discovered, consultation with the State Historic Preservation Officer (SHPO) would be conducted and clearance received prior to project implementation.
- In the event that inadvertent discoveries are made during project implementation, all activities would cease until the BLM archaeologist can evaluate the finding and determine whether or not activities could continue.

### Air Quality

- All prescribed fire treatments would be conducted in accordance with the procedures outlined in the *Montana/Idaho State Airshed Group Operating Guide* (August 2003).

- The BLM would cooperate with other land managers and the State of Idaho to minimize air quality impacts from smoke on local communities and individuals.
- The BLM would obtain all necessary air pollutant emission permits and approvals from the State of Idaho prior to initiating a prescribed fire.
- The BLM would follow and implement the terms of any interagency MOUs.
- The BLM would apply management techniques to minimize smoke production and to enhance dispersion, including burning under optimum weather conditions, expanding the burning season, using backfires where applicable, burning small blocks, etc. These techniques are described in the Prescribed Fire Smoke Management Guide, published by the National Wildfire Coordinating Group (NFES No. 1279, PMS 420-1; 1985).
- The BLM would ensure that the general public is informed of the status of managed fires, including smoke management contingencies, through the local press.
- Mitigation measures would also be employed to address fugitive dust emissions. Mitigation measures that may be used to reduce fugitive road dust emissions within the project area include: the application of chemicals that increase the moisture retention of road surfaces, watering during high use periods or during road maintenance operations, and speed restrictions in sensitive areas.

### Visual Quality

- To help achieve the visual quality objectives, project implementation would avoid straight control lines that would line up with viewing corridors, and would create burned area patch size and configurations that are not predictable patterns.
- The prescribed fire would create unburned islands.
- Irregular boundaries and feathering of boundaries would be used to help blend treatment areas into the surrounding “natural” landscape patterns.
- Slash and debris would need to be completely burned, cleared or chipped, and stumps cut flush in areas viewed as foreground from trails and recreation sites.

### Fisheries and Aquatic Habitat

- Streamside buffer zones on either side of all non-fish bearing perennial and intermittent streams would be excluded from all project activities to meet or exceed INFISH requirements.
- INFISH regulations on buffer widths would be followed and buffer widths would be approved by the FRFO fisheries biologist.
- RHCAs would be designated to protect fisheries habitat, riparian habitat, and water quality within the project area as directed by INFISH (USDA 1995).
- Water for dust abatement would be drafted at a rate that would not decrease the wetted width of the channel.
- Any draft suction hose used would be equipped with a screen of 3/32 inch mesh or less and will have an intake flow of less than 1 foot/second to prevent entraining juvenile fish.
- Fish-bearing streams would not be dammed for dust abatement.
- Conduct work during the normal dry season when soil is less likely to be damaged by compaction and/or erosion.

- Drafting water for dust abatement and road compacting will be restricted to an area identified by a fishery biologist and/or hydrologist to prevent "take" of bull trout.
- Ensure that the project does not prevent or retard attainment of INFISH riparian management objectives and is consistent with appropriate Biological Opinions.
- Ensure that the project does not retard progress towards "properly functioning" condition of the following relevant indicators in the Watershed Condition Pathway: Road Density, Disturbance History, Riparian Condition, and Disturbance Regime.

### Wildlife and Special Status Terrestrial Species

- Retain two hard snags per acre greater than 15 inch DBH and one hard snag greater than 20 inch DBH. Snags would be a minimum of 40 feet in height.
- Retain 4 or more cull logs per acre greater than or equal to 20 feet long and greater than or equal to 12 inches DBH.
- Avoid harvesting trees containing nests or cavities.
- No burning would take place during the nesting periods of sensitive bird species.
- Use native species for revegetation.
- No project related activities would take place within one mile of gray wolf rendezvous or den sites.
- No project related activities would take place within one mile of known Canada lynx denning sites or where kittens are present.

### Special Status Plants

- Burn piles would be located away from any known sensitive plant sites.
- Any areas with sensitive plants would be excluded from spring burning.

### Noxious Weeds and Invasive Species

- Herbicide treatments would not be applied within RHCAs.
- The herbicides that are approved for use on BLM public lands may be used to control noxious weeds and invasive species. Selection of an herbicide for site-specific application would depend on its chemical effectiveness on a particular weed species, success in previous similar applications, habitat types, soil types, and nearness of the weed infestation to water.
- Pre- and post-herbicide treatment would be implemented along access roads, landings, skid trails, and other disturbed areas to control noxious weeds and invasive species establishment and proliferation.
- Herbicide treatment would not be used in RHCAs.
- Ground-based herbicide application would include broadcast “block” spraying or spot spraying with backpack pumps, spraying from a pumper unit on the back of a pickup truck or an ATV, or pack animals to transport and apply herbicides in more rugged terrain. Ground-based application would occur in smaller, fragmented patches of weeds and along skid trails and roads where chemical treatment may be the most effective means of controlling or eradicating noxious weeds and invasive species.
- Combinations of herbicides may be the most appropriate treatment where several species of noxious weeds occur together, or where the herbicides affect weeds differently.

- The best time to survey burn areas for weeds is when post-fire growth begins (just after the burn or the following fall) and as plants begin to grow in the first spring following the burn.
- All noxious weed and invasive species treatments would conform to agency policy and the Boise District Noxious Weed EA.
- All herbicide applications would follow federal label instructions, specifications, and precautions as well as applicable BLM policy. In instances where herbicide labels, federal, or state stipulations overlap, the more restrictive criteria would apply.
- No spraying of any herbicide would occur when wind velocity exceeds 10 miles per hour, as per Idaho Department of Agriculture standards.
- Dyes (e.g. Insight, Hilite) may be used to obtain uniform coverage. This would help prevent under or over treatment/application and help with detection of drift. It would also reduce the risk of treating non-target species.
- Application of any herbicides to treat noxious weeds would be performed by or directly supervised by a state or federal licensed applicator.
- Herbicide applications would be coordinated with permit holders within the project areas, as appropriate.
- All weed abatement procedures would be stipulated in the implementation contracts.
- All equipment, materials, personal vehicles, sanitary facilities, and staging areas would be confined to a limited number of specified locations to decrease the chance of incidental disturbance and spread of weeds.
- Prior to entering relatively weed free areas, vehicles and construction equipment would be cleaned (pressure wash or forced air) including radiator, air intakes on the equipment, and the underbody and tracks of the vehicles or construction equipment of all mud, dirt, and plant parts.
- Vehicle and equipment wash sites would be in a relatively flat area, away from live water to prevent weed seed from being transported downstream and prevent any antifreeze or oil, potentially washed off this equipment, from entering live water.
- Vehicles and equipment would be cleaned and inspected prior to entering the project area and all vehicles and equipment would be cleaned before leaving the project area when operating in areas of weed infestations.

### Reclamation

- Log landings and skid trails would be reclaimed through tilling and soil augmentation with organic material such as weed-free straw or manure and/or fertilizer, as practicable.
- The soil surfaces would be left with a rough, corrugated surface to help anchor seed.
- If the slopes are tracked, the tracks would be perpendicular to the slope contour.
- Use cross-ditches and grass seeding, and other design criteria and BMPs to reduce erosion on skid trails. Appropriate spacing between cross-ditches is determined by the soil type and slope of the skid trails. Timely implementation is important.
- Disturbed areas in the units and reclaimed landings and skid trails would be seeded with a mixture of BLM approved native grasses, forbs, and/or shrubs suitable for the site.
- Fertilizer would be added to disturbed sites to improve seeding success.

- Fertilizer would be uniformly and lightly incorporated into the soil areas that will be seeded.
- Fertilizer would not be applied within RHCAs.
- Disturbed areas, such as log landings and skid trails, would be seeded with species approved by the BLM Botanist to meet erosion control needs and other management objectives such as wildlife habitat enhancement.
- Bare soils would be revegetated prior to wet weather conditions to reduce erosion.
- Seed would be evenly distributed at appropriate rates to ensure successful establishment.
- Certified weed-free mulch may be used on slopes greater than 20 percent and dry sites to retain soil, moisture, and facilitate seed germination and survival.
- Livestock grazing will be excluded from prescribed burn units for a time period previously agreed upon during consultation, or a time period which will allow the vegetation to regeneration to a stage that can withstand grazing effects sufficiently to achieve and maintain natural rates of surface erosion. In no case shall either of the above time period be less than two years.

# APPENDIX B

# SCHEDULE

It is anticipated that all treatments in the Proposed Action (MUs 1-12) would take place by December 2009. Initial treatments would include improvement harvest in MUs 1-10 (858 acres), and fuels treatment harvests (shaded fuelbreak) in MUs 11 and 12 (459 acres). Treatment of the shaded fuelbreak is the highest priority and would begin in 2004. Improvement harvest in MUs 1-10 could not begin until the Warms Springs Road renovation is completed.

The shaded fuelbreak would create a strategically located, defensible zone to break up the continuity of fuels and reduce the potential for high intensity crown fires that could spread to private land within WUI areas. Treatments would include tree felling, brush cutting, pruning, tractor or hand piling of slash, brush, and debris, and covering and burning slash piles. All treatments would include post-treatment prescribed burning (1,317 acres). The result would be an open, park-like stand and an environment that would allow ground fuels to burn in a controllable manner.

Over time, brush and saplings would re-grow in the treated areas, therefore the shaded fuelbreak (MUs 11 and 12) would require on-going maintenance to remain functional. Maintenance of the shaded fuelbreak could include all of the same activities included in the initial treatment. Maintenance treatments would be based on site evaluations that would occur approximately every three years. An appropriate resource manager knowledgeable in forestry, fuels, and the use of prescribed fire would perform site evaluations.

# APPENDIX C
# COST ANALYSIS

This appendix provides information about the costs associated with the Proposed Action. This is not intended to be a comprehensive analysis but rather the intention is to provide a general range of costs and values. The cost and economic benefits as well as the resource benefits of the Proposed Action must be measured against the potential for wildland fire and the costs that could be incurred due to suppression and emergency stabilization and rehabilitation treatments if the No Action alternative is selected. If a wildland fire were to occur in the Garden Mountain project area the suppression costs and damage would far exceed the cost of implementation of the Proposed Action.

Revenue generated from MUs 1-10 could offset the cost of creation o f the shaded fuelbreak (MUs 11 and 12). In the Proposed Action a total of 854 acres would have treatments that include harvesting merchantable timber. The shaded fuelbreak would produce minimum revenue, however the cost of an uncontrolled, large-scale wildfire far exceeds the cost of the shaded fuelbreak treatment. For example, a 2,006-acre wildfire burned in the Back Mountain Experimental Forest in Lassen National Forest in 2002. While this example is not near the project area, it is provided to illustrate the effectiveness and cost comparison of creation of a fuel break versus the cost of suppression. Four years prior to the fire a shaded fuelbreak had been constructed in that forest. The fire effects of the 2002 fire were dramatic in that it was predominantly a stand-replacing crown fire where most of the trees were killed by the fire. Once the fire burned into the shaded fuelbreak however, it dropped to the surface and became a low intensity ground fire that was more easily and quickly suppressed. The suppression cost of the wildfire was $3,462,204 or $1,726/acre. The cost of constructing the shaded fuelbreak was $204/acre.

At the present time hauling costs from Garden Valley, Idaho to La Grande, Oregon (approximately 200 miles) would range from between $135 to $160 per thousand board feet (MBF). This could fluctuate depending on cost of fuel. Up to 4.5 MBF to 5.5 MBF of logs can be hauled at one time depending on the type of truck used. Haul costs to La Grande are representative of the distance to potential mills that would be available to handle the volume of lumber that would be produced by the Proposed Action. The Payette Lumber Mill in the Garden Valley/Crouch area may receive some of the products but it is not large enough to handle the entire volume.

Current stumpage prices (price paid for timber in the woods) are dynamic and fluctuate depending on the current market value. On June 1, 2004, stumpage prices by species were as follows:

| Species | Price Per MBF |
|---|---|
| Douglas-fir | $180 to 300 |
| Ponderosa pine | $170 to 250 |
| Grand fir | $170 to 250 |
| Subalpine fir | $100 to 150 |

An estimated 8,580 MBF would be available under the Proposed Action. At current markets, total stumpage value of the proposed action would be between $858,000 and 2,574,000, not including the cost of harvesting or hauling.

The Proposed Action would reduce the risk of catastrophic wildfire in the project area and the potential costs of future suppression and rehabilitation treatments. In addition, the Proposed Action would reduce the threats to life, property, and natural resources that would result in the event of catastrophic wildfire. The Proposed Action could contribute to the socio-economic well being of the local community by providing jobs, requiring services, and producing wood products.

Implementation of the No Action alternative would increase the risk of high intensity, large-scale wildfire occurring in the WUI, loss of natural and cultural resources, and increased risk to human life and property. The potential for large-scale, catastrophic fire would also increase the potential for large fire suppression and rehabilitation expenditures.

# APPENDIX D. BLM SPECIAL STATUS ANIMALS

**BLM Special Status wildlife species that may occur in the project area and their habitat associations**

| Common Name | Scientific Name | Sagebrush /grassland | Riparian | Aspen | Mt. Brush | Conifer | Other | Habitat Occurs within the project area |
|---|---|---|---|---|---|---|---|---|
| **Birds** | | | | | | | | |
| Bald Eagle | *Haliaeetus leucocephalus* | | | | | | Open waters large river systems | N |
| Yellow-billed Cuckoo | *Coccyzus americanus* | | X | | | | | N |
| American White Pelican | *Pelecanus erythrorhynchos* | | | | | | Open waters | N |
| Greater Sage-grouse | *Centrocercus urophasianus* | X | X | | X | | | N |
| Flammulated Owl | *Otus flammeolus* | | | | | X | | Y |
| Calliope Hummingbird | *Stellula calliope* | | | X | | X | | Y |
| Lewis' Woodpecker | *Melanerpes lewis* | | | | X | X | | Y |
| Williamsons Sapsucker | *Sphyrapicus thyroideus* | | | | | X | | Y |
| Willow Flycatcher | *Empidonax trailii* | | X | | | | Pastures | N |
| Hammond's Flycatcher | *Empidonax hammondii* | | | X | | X | | Y |
| Olive-sided Flycatcher | *Contopus borealis* | | X | | | X | | Y |
| Loggerhead Shrike | *Lanius ludovicianus* | X | | | X | | | N |
| Sage Sparrow | *Amphispiza belli* | X | | | | | | N |
| Brewer's Sparrow | *Spizella breweri* | X | | | | | | N |
| Upland Sandpiper | *Bartramia longicauda* | | | | | | Prairies/ farmland | N |
| White-headed Woodpecker | *Picoides albolarvatus* | | | | | X | | Y |
| Black-throated Sparrow | *Amphispiza bilineata* | X | | | X | | | N |
| **Mammals** | | | | | | | | |
| Northern Idaho Ground Squirrel | *Spermophilus brunneus brunneus* | | | | | | Forest meadows | Y |
| Southern Idaho Ground Squirrel | *Spermophilus brunneus endemicus* | X | | | | | | N |

| Common Name | Scientific Name | Sagebrush /grassland | Riparian | Aspen | Mt. Brush | Conifer | Other | Habitat Occurs within the project area |
|---|---|---|---|---|---|---|---|---|
| Gray Wolf | *Canus lupus* | X | | X | X | X | | Y |
| Canada Lynx | *Lynx canadensis* | | X | | | X | | Y |
| Pygmy Rabbit | *Brachylagus idahoensis* | X | | | | | | N |
| Fringed Myotis | *Myotis thysanodes* | | X | X | | X | | Y |
| Spotted Bat | *Euderma maculatum* | | X | X | | X | | Y |
| Townsend's Big-eared Bat | *Plecotus townsendii* | X | X | X | X | X | | Y |
| Fisher | *Martes pennanti* | | X | | | X | | Y |
| Wolverine | *Gulo gulo luscus* | | | | | X | | Y |
| **Amphibians** | | | | | | | | |
| Northern Leopard Frog | *Rana pipiens* | | X | | | | | N |
| Idaho Giant Salamander | *Dicamptodon aterrimus* | | X | | | | Mountain streams | N |
| Western Toad | *Bufo boreas* - (Northern Rocky Mountain Group only) | X | X | X | X | X | | Y |
| Woodhouse Toad | *Bufo woodhousii* | | X | X | | X | | Y |
| **Reptiles** | | | | | | | | |
| Mojave Black-collared Lizard | *Crotaphytus bicinctores* | | X | | | | Desert | N |
| Longnose Snake | *Rhinocheilus lecontei* | | | | | | Desert | N |
| Western Ground Snake | *Sonora semiannulata* | | | | | | Arid habitat | N |
| Common Garter Snake | *Thamnophis sirtalis* | | X | | | | | N |
| **Fish** | | | | | | | | |
| Bull Trout | *Salvelinus confluentus* | | | | | | X | Y |
| Redband Trout | *Oncorhynchus mykiss gibbsi* | | | | | | X | Y |
| **Invertebrates** | | | | | | | | |
| Bliss Rapids Snail | *Taylorconcha serpenticola* | | | | | | X | N |
| Idaho Springsnail | *Pyrgulopsis idahoensis* | | | | | | X | N |

# APPENDIX E. BLM Special Status Plant Species

**Summary of Rare Plant Species Known or Suspected to Occur in the Garden Valley Area**

| Common Name | Scientific Name | Present within project area | Status | Habitat/Community Type | Elevation (ft) | Determination |
|---|---|---|---|---|---|---|
| Slickspot peppergrass | *Lepidium papilliferum* | N | PE | Bare slickspot soils within Wyoming sagebrush habitat. | | NI |
| Aase's onion | *Allium aaseae* | N | Type 2 | Open, relatively barren, xeric, gentle to very steep, sandy slopes, generally with a southerly aspect | 8,858-16,732 | NI |
| Packard's milkvetch | *Astragalus cusickii* var. *packardiae* | N | Type 2 | Sandy slopes and ridges with needle-and-thread grass, Indian ricegrass and bitterbrush mostly on south facing exposures. | 2132-2788 | NI |
| Mulford's milkvetch | *Astragalus mulfordiae* | N | Type 2 | Sparsely vegetated light colored soils. Usually associated with Wyoming sagebrush. | 2,788 | NI |
| Indian Valley sedge | *Carex aboriginum* | N | Type 2 | Dry gumbo or gravelly soils. | | NI |
| Packard's buckwheat | *Eriogonum shockleyi* var. *packardiae* | N | Type 2 | Gravelly benches on lake sediments in shadscale, mixed desert shrub and sagebrush communities. | 2,493-4,265 | NI |
| Stalk-leaved monkey-flower | *Mimulus patulus* | P | Type 2 | Moist areas in montane to alpine areas. | | |
| Malheur princesplume | *Stanleya confertiflora* | N | Type 2 | Dry plains on somewhat sparsely vegetated clay soils. | 2,401-5,003 | NI |
| Woven-spore lichen | *Texosporium sancti-jacobi* | N | Type 2 | On well decomposed humas, flat or north facing slopes in especially old clumps of Sandberg's bluegrass, on Wyoming sagebrush-Thurber needle grass-bluebunch wheatgrass sites. | 2,887-3,280 | NI |
| Douglas' clover | *Trifolium douglasii* | P | Type 2 | Open Ponderosa pine to Douglas fir forests, in moist meadows and along stream courses. | | MI |
| Plumed clover | *Trifolium plumosum* var. *amplifolium* | P | Type 2 | Open Ponderosa pine to Douglas fir forests, in moist meadows and along stream courses | | MI |
| Mourning milkvetch | *Astragalus atratus* var. *inseptus* | N | Type 3 | Sagebrush/grass communities in thin soil of stony basalt flats where moist in spring. | below 4,921 | NI |

| Common Name | Scientific Name | Present within project area | Status | Habitat/Community Type | Elevation (ft) | Determination |
|---|---|---|---|---|---|---|
| Prostrate ceanothus (Mahala mat) | *Ceanothus prostratus* | P | Type 3 | Ponderosa pine/shrub community in course granitic soils. | | NI |
| Silver-skin lichen | *Dermatocarpon lorenzianum* | N | Type 3 | Dry desert areas in sandy or volcanic soils, | | NI |
| Chatterbox orchid | *Epipactis gigantea* | N | Type 3 | Minerotrophic seeps and springs | 5,905-16,404 | NI |
| Calcareous buckwheat | *Eriogonum ochrocephalum var. calcareum* | N | Type 3 | Rolling clay hills with four-wing saltbrush. | 2,801 | NI |
| Cronquist's stickseed (Cronquist's forget-me-not) | *Hackelia cronquistii* | N | Type 3 | Sandy or loamy soils of sagebrush-bunchgrass slopes mostly on north exposures. | 2,296-2,624 | NI |
| Snake River goldenweed | *Haplopappus radiatus=Pyrrocoma radiata* | N | Type 3 | Loam soils on steep rocky hillsides in big sagebrush, bluebunch wheatgrass, arrowleaf balsamroot and Idaho fescue communities. | 2,132-4,921 | NI |
| Davis peppergrass | *Lepidium davisii* | N | Type 3 | Mostly barren hard bottom playas, but sometimes with a few shadscale and silver sage plants, surrounded by Wyoming big sage, four-wing saltbush and sandberg bluegrass habitat. | 2,903-5,905 | NI |
| Squaw (Indian) apple | *Peraphyllum ramosissimum* | N | Type 3 | On heavy clay soils, often as small inclusions in sagebrush-bunchgrass or mountain brush communities. | 3,280-4,921 | NI |
| Turtleback | *Psathyrotes annua* | N | Type 3 | Salt desert shrub communities, usually on sandy well drained soils | 2,395-3,937 | NI |
| American wood sage | *Teucrium canadense var. occidentale* | N | Type 3 | Streambanks and moist bottomlands. | 2,624-3,937 | NI |
| Earth lichen | *Catapyrenium congestum* | N | Type 4 | Dry desert areas in sandy or volcanic soils, | | NI |
| Desert pincushion | *Chaenactis stevioides* | N | Type 4 | Dry desert areas in sandy or volcanic soils, | | NI |
| White eatonella | *Eatonella nivea* | N | Type 4 | Dry desert areas in sandy or volcanic soils, often with sagebrush. | 2,500-6,233 | NI |
| White-margined wax plant | *Glyptopleura marginata* | N | Type 4 | Dry sandy-gravelly or loose ash soils in shadscale, greasewood, rabbitbrush, spiny hopsage, winterfat, and sagebrush communities. | 2,624-3,937 | NI |

**Category:** **S** = Sensitive; **S1**: Critically imperiled because of extreme rarity or because some factor of its biology makes it especially vulnerable to extinction; **S2**: Imperiled because of rarity or because other factors demonstrably make it very vulnerable to extinction; **S3**: Rare or uncommon but not imperiled.

**Sensitive Species Determination: NI** = No Impact; **BI** = Beneficial Impact; **MI** = May impact individuals or habitat but not likely to cause trend toward federal listing or reduce viability for the population or species; **LI** = Likely to impact individuals or habitat with the consequence that the action may contribute towards federal listing or result in reduced viability for the population or species**.**