III Affected Environment

Chapter III describes the existing conditions for the resources that could be impacted by implementing any of the alternatives.

Introduction

The planning area is approximately 22,000 acres within the Upper Grande Ronde Watershed. Forest Road 3100, State Highway 204 and the Forest Boundary, form portions of the boundary. Major streams within the planning area include Phillips Creek, East Phillips Creek, Pedro Creek, Little Phillips Creek, Dry Creek and Finley Creek. A portion of the North Mount Emily Roadless Area is in the southwest corner of the planning area. The legal location is T. 1 N. R. 37 E. sections 1 and 12; T. 2 N. R. 37 E. sections 25 and 36; T. 1 N. R. 38 E. sections 1 to 6; T2 N. R. 38 E. sections 3 to 5, 7 to 11, 14 to 19 and 26 to 35; T. 3 N. R 38 E. sections 33 to 35 Willamette Meridian.

Existing permits, contracts, projects, and uses include:

- Grazing: A portion of the North End Sheep and Goat Allotment falls within the Planning Area. The allotment is approximately 122,310 acres in size, comprised of 6 grazing units with five bands of sheep. One pasture is rested each year. Bands are 1,000 head of sheep (ewes plus lambs). The four bands and six grazing units allow a grazing unit to rest each year. Each grazing unit is broken up into pastures. The Annual Operating Plan sets the direction of grazing, the amount of time in each pasture, and where they start each year. The direction is reversed each year so that the pastures are grazed at different times each year. Two grazing units, Phillips Creek and Middle Ridge, are within the planning area. Grazing begins on June 1 and ends October 9. Transitory range (grazing created by timber harvest) provides most of the forage. Ponds for watering the sheep are located in the upper reaches of ephemeral drainages, away from perennial streams.
- Fuelwood: The close proximity to Elgin causes the open roads to receive heavy firewood collection. Dead and down wood within 300 feet of the road is available for personal use. When timber sales are being prepared, the area would be closed until after the timber sale is completed.
- Recreational Road Use: Dispersed recreation is mainly hunting and some camping along Phillips Creek. There are two dispersed use campgrounds on Phillips Creek. Middle Ridge provides mountain bike access during the summer and cross country skiing in the winter.
- Neo-Tropical Bird Survey Plots: Study plots are located along the lower reaches of Phillips Creek, near the Forest Boundary. No actions are being proposed within the study area.
- Noxious weed control: Currently, herbicide and manual methods are being used to reduce infestations along open and some closed roads per guidelines of the Forest Noxious Weed EA. These treatments would reduce the soil seed bank of noxious weeds and lower the production potential of the weeds.

Existing actions and disturbance events near the planning area include:

- Private lands: Most of the lands adjacent to the southern boundary are large parcels managed for timber resources. Residences along Dry Creek have allowed regeneration to infill their lands where open ponderosa pine existed. The heavy stocking provides a degree of privacy and filters dust from the county road. There is also an increased risk to catastrophic damage by the amount of fuels around the residences.
- Wind throw salvage: The northern portion of the planning area along Forest Road 31 and over the ridge into the Umatilla drainage had a major wind event in the winter and spring of 2001. Stands that have been harvested in the past would be salvaged under the Horsefly Salvage Timber Sale scheduled for operation in the summer of 2002 and 2003.

Actions within the foreseeable future include area improvement and restoration projects such as non-commercial thinning and instream fisheries projects. Projects are listed in the Area Improvement Project section in Chapter 2.

- Land use on Private lands: Existing uses on private land are expected to continue. Currently most of the private lands are used for agriculture including grazing and crop production. Adjacent to the Forest Boundary are private forestlands that would continue to have periodic timber management activities. The county is making efforts to control noxious weeds on private lands. Treatment of noxious weeds on National Forest lands is important to the county's success on private lands.
- Grey Rock viewpoint overlooking the Grande Ronde Valley. The Forest Plan identifies this area for viewpoint development.
- Forest Road 3740: The arch crossing of Phillips Creek could be replaced or modified to allow high water flows to pass without damage to the road. The arch constricts the channel and is causing local scouring. A more detailed study to determine the type of crossing, such as low water crossing, relief culverts, or arch replacement, is needed.
- Improvement and Restoration Projects listed in Chapter II.

Physical Resources

Fire and Fuels

The National Fire Plan considers the southern portion of the planning area a wildland-urban interface. Year round residences are located along Dry Creek, the town of Elgin is within 3.5 miles of the southern boundary, and Tollgate/Spouts Springs within 6 miles of the northern boundary.

The Pedro Colt Planning Area occupies a transition zone between coexisting fire regimes, sliding in scale from frequent, low intensity regime to one of somewhat less frequency and moderate to high intensity. Dry forest types typically were maintained by frequent fire ignitions that swept the understory clear of litter, shrubs, and regenerating trees. Fire history studies have shown that low-intensity fire has been an integral part of the dry ecosystems in the Blue Mountains for the last 300 years. Recent studies suggest mean fire return intervals of 19 to 31 years. Approximately 55 percent of the planning area is within the frequent fire regime.

Intermixed with the Dry Forest are Moist Forest stands along drainages, in areas of deeper soils, higher in elevation, or with eastern to northern exposures that retain more moisture. These stands have a longer fire return interval ranging from 35 to 200 years. The mixed regime is most influenced by the frequent fire regime. It has a return interval between 35 and 100 years. The mixed fire regime makes up 37 percent of the planning area. The way the mixed fire regime is intertwined with the frequent fire regime indicates a short fire return interval through most of the mixed fire regime. This is also evident by the plant associations which show a historic favoring of ponderosa pine and western larch. The infrequent fire regime has a greater than 200 year return interval and makes up only 8 percent of the planning area.

Since 1970, the planning area has had 63 fires. Fire causes are closely split between lighting (37 fires, 59 percent) and human caused (26 fires, 41 percent). The largest fire was 7.7 acres. Lighting is the cause of approximately 67 percent of the fires on the Walla Walla District. Human caused fires make up the rest of the fires (33 percent of the District total fires) with campfires making up 65 percent of the human caused fires followed by debris burning, cigarettes, and industrial fires each making up 10 percent. The rate of human caused fires is well above other places on the District. The area provides dispersed recreation opportunities close to residential centers. Given the historical fire record, the planning area has a fire return interval of every 10.8 years on any given 1,000 acres.

Moist Forest stands in their early successional stages are considered “fire proof” in that fire spread is by creeping and is highly localized. As stands mature and move towards middle age, jackpots of fuel develop in conjunction with tree regeneration around openings created by wind throw, disease, or some other localized disturbance. Fires occurring during this time period can cause torching of single trees or groups of trees. Short crowning runs may occur depending on available fuels, weather, topography, and stand structure; surface fire will prevail. When stands reach late successional stage, the potential for widespread, stand replacing fires increases due to complex stand structure and available fuel. This is the typical cycle in the infrequent fire regime.

In the frequent and portions of the mixed fire regimes, fire would occur often enough to consume ground fuels and maintain low intensity fires. Stand structure would not be as complex as infrequent fire regimes. Ladder fuels would not develop and surface fuels would be low. Fire suppression and past forest management practices have changed the fuel conditions in these regimes. Condition Class is used to describe the changes. Condition class 1 is within expected fuel conditions, condition class 2 and 3 deviate from missed fire return cycles becoming like the infrequent fire regime in fuel and stand structure. Higher severity wildfire is expected, causing mortality not characteristic for the frequent fire regime.

Fire Regime	Acres	Percent of Planning Area	Percent Condition Class 1	Percent Condition Class 2	Percent Condition Class 3
Frequent Fire Low Severity	12,066	54.9	7.5	73.3	19.2
Mixed	8,054	36.6	56.4	27.4	16.2
Infrequent High Severity	1,876	8.5			
Total	21,996				

The majority of the frequent fire regime and much of the mixed is transitioning to more complex fuel and stand structural conditions. In doing so they are changing from relatively simple fuel complexes characterized by a fuel model with low volatility to a fuel model with high volatility. The frequent fire regime is 92.5 percent condition class 2 and 3 and the mixed fire regime is 43.6 percent condition class 2 and 3.

Soils and Stand Productivity

The productivity of a forest site varies as biotic and abiotic factors operate over time. Factors that bring about slow changes in productivity include climate, soil, aspect and topography, and mechanical damage from fire, flood, or wind. Productivity loss is generally confined to individual trees or small groups of trees, not affecting the total stand. Dynamic changes can occur from stand level factors or disturbance events such as tree genetics, stand age, stocking levels and the degree of competition, high intensity wildfires, and stand health conditions determined by the interaction of insect, diseases, and other pests within the stand. The scale and timing of disturbance events, the resilience of the landscape structure, and condition of soils interact together to determine whether stand productivity is increasing or decreasing. Increasing stand productivity is normally associated with good stand health while a decreasing productivity is a stand at risk. Current stand conditions that place productivity at risk include: high stocking levels near or above the soil's carrying capacity causing intertree competition and stress; periods of drought over the past fifteen to twenty years, fuels that are increasing in complexity and amount above historical levels; and the uniform nature of forest structure on the landscape, particularly in the Dry Forest. Stocking levels and associated risk to insects are discussed under vegetation. The changes in fuel structure are discussed under fuels.

Soils maintain productivity through the storing and release of nutrients, moisture, and air supplies to tree roots. Each soil type has its own characteristics, developed from parent materials and added to by the biologic community to build a profile that recycles nutrients and supports various types of vegetative cover. Such factors as soil depth, compaction, loss of soil, biomass, water retention, and soil movement affect soil productivity. Soils can be characterized for these attributes. The following table summarizes high-risk characteristics of the soils found within the planning area. Some of the soil attibutes overlap. Units or activities that fall within these soil attributes are listed for special protection measures in Management Requirements in Chapter II.

Important Soil Characteristics

Characteristic	Percent of Total Planning area	Location
High Risk of Puddling	33	Mostly forested sites, toe of slopes and undulating ridgetops
Severe Risk of Surface Erosion	49	Mostly grasslands and steep slopes – shallow soils
Unstable Soils	5	Mostly steep slopes, shallow clay soils in midslope, and breaks of slope
Low Regeneration Potential	32	Mainly grasslands, steep shallow soils and southern exposures
Greatly Increased Risk of Mass Movement	24	Near break in slopes and toe of slopes
High water detention	40	Forested sites, deep soils and porous or fractured bedrock. Little water is yielded to peak flows. Important in sustaining base flows.
High Sediment Yield Potential	25	Soils in and near RHCAs and toe of slopes
High Risk of Displacement from management activities	54	Soils in and near RHCAs, south aspects, steep and shallow soils
Low water detention	50	Steep side slopes, southern aspects, rock outcrops. High rate of surface runoff, most water contributing to peak flows.

Biomass is important as it moves into the soil. Decomposing biomass maintains porosity, releases nutrients, and holds water. Currently, both the Moist Forest and Dry Forest have large amounts of dead, forest floor biomass. Most of the frequent fire regime is above historical levels of down wood, 93 percent of the frequent fire regime and 44 percent of the mixed have complex fuel structure because of missed fire return intervals. Frequent fires returned nutrients more quickly into the soil by burning the small diameter fuels, needles, and herbaceous vegetation while leaving large wood intact. Insect, disease, wildfire, and wind are mechanisms that bring large wood to the forest floor and play a role in recycling biomass into soils. Stocking levels are higher than that maintained by historical disturbance processes resulting in higher levels of down wood and biomass. The nutrient recycling processes has been altered by extended fire return intervals and increased biomass in the Dry Forest environments.

Compaction causes a loss of porosity affecting gas exchange, water availability, and root uptake and growth. The more times harvest occurred in a given area, the higher the risk for soils reaching detrimental conditions. See Forest Plan pages 4-80 and GL-12 for a discussion on detrimental soil conditions. The last harvest in the planning area occurred in the early 1990's

comprised of skyline and tractor logging. Harvest history indicates a major entry within the planning area every ten years, beginning in 1955. There has been harvest on approximately 1,240 acres of the units proposed for harvest; 1,110 acres have one entry while 130 acres have been harvested twice. Approximately 50 acres were harvested in 1983, 790 acres in 1972 and 74 and 400 acres in 1963. Units harvested 30 to forty years ago show good recovery. Field review indicates that the skid trails have regenerated and the young trees are growing well as indicated by good leader growth. The skid trails did not make up much of the activity area, less than 10 percent of the original harvest area. Exposed soil has recovered with small areas of compaction remaining. Compaction does not appear to be limiting productivity; less than 5 percent of the activity area in currently impacted by detrimental soil conditions, confined mainly to landings and old roads. Units that were skyline logged in the past have their disturbance confined to the road system. None of the skyline units display detrimental soil conditions.

Detrimental soil effects can be greatest when multiple entries occur on soils with high risk to puddling. Fourteen units, totaling 480 acres, are located on soils with a high risk for puddling that have past harvest. There are another 7 units, totaling 164 acres that have never been harvested and are on soils with a high risk to puddling. Approximately 33 percent of the planning area has soils with a high risk to puddling. Approximately 40 percent of the proposed forwarder units are on soils with a high risk of puddling. Puddling is of most concern when soils have high moisture contents, and tend to be relatively resistant when dry. Units 7, 27, 32, 33, 43, 47, 50, 52, 77, 78, 80, 84, 90 and 93 are a concern because of past harvest. Units 5, 6, 8, 15, 16, 61, and 65 have not been harvested in the past. These units will be harvested under dry soil conditions. Unit 84 is a noncommercial thinning unit, mechanical treatments will be allowed when soils are dry.

Surface Erosion potential is severe on 49 percent of the planning area, with 676 acres within proposed harvest units. Forwarder units of concern: 31, 56, 79, 82, 83, 92, and 94, total 491 acres. All but 16 of the acres are associated with shallow soils along ridgetops dominated by ponderosa pine. There are another 185 acres including Helicopter Units 4, 14, 15, 17, 18, 24, 29, and 60 located on steep, shallow soils with southern exposures. Volcanic ash and loess have moved to the lower slopes and valley bottoms. These soils have a high risk for erosion, forming rills or gullies when ground cover is lost or water is channeled. Several gullies have been found associated with past management actions in the Phillips Creek area. One associated with a culvert on Forest Road 3738 and the other formed by an old skid trail that diverted an intermittent channel to a new course. These two sites are proposed for restoration projects.

Five percent of the planning area has unstable soils. Most of these soils are located midslope, above Little Phillips Creek. The northern exposure, high clay content, and shallow nature of these soils causes a slow creep. There is a band of pistol-butted trees around grassy openings associated with the midslope creep. The upper reaches of Little Phillips Creek and several side drainages also have year round flows associated with springs. Subsurface water along the bedrock contributes to the instability. No activity is being proposed in this area.

Twenty-four percent of the planning area has a soil with the attribute of "greatly increased risk of mass wasting as a result of management actions". Interbedded lacustrine sediments and soils developing a higher proportion of clay in the surface layers contribute to this risk. Past management activities that included clearcuts and road construction have not revealed problems with mass wasting on these soils or other areas. Roads are stable and debris flows have not been observed in the past harvest units. Helicopter units 4, 14, 15, and 16 (87 acres) are located on soils of concern. Increasing ground water in these units can place them at risk for mass wasting. Units 4 and 16 would have partial removals and units 14 and 15 would be seed tree harvest.

Water Quality

The planning area is a portion of the 77,910-acre Willow/Phillips watershed within the Upper Grande Ronde River Basin. Approximately 60.5 percent of the watershed is private land used for agriculture and forest management. National Forest lands are found in the upper reaches of the watershed characterized by moderately to very steep slopes. A small portion of the planning area, approximately 625 acres, is within the Umatilla Watershed because Forest Road 31 was used for the northern boundary.

Beneficial uses of the Phillips/Willow Creeks Watershed, as defined by the State of Oregon for the Grande Ronde Basin, are: public domestic water supply, private domestic water supply, industrial water supply, irrigation, livestock watering, anadromous fish passage, salmonid fish rearing, salmonid fish spawning, resident fish and aquatic life, wildlife and hunting, fishing, boating, water contact recreation, and aesthetic quality. None of the streams in the planning area are listed on Oregon's 303(d) list as water quality limited. The *Upper Grande Ronde Water Quality Management Plan* lists the Willow/Phillips watershed as a high priority for treatments that would improve temperatures, decrease the amount of sediment delivered, and increase stream flow into the Grande Ronde River. The primary focus would be in Willow and Dry Creeks below the forest boundary, where water remains year round. In the Phillips/Willow Creeks Watershed, there are approximately 8 water rights on the National Forest filed with the Oregon Water Resources Department (OWRD). Most of these water rights are spring or pond developments designated for livestock or wildlife use.

The Umatilla National Forest monitored daily stream temperatures on East Phillips Creek in 1986 and 1988. Several other locations in the Phillips/Willow Creeks Watershed were monitored by Oregon Department of Forestry in 1993. All streams show an average 7-day maximum below the state standard of 64°F. However, stream surveys indicate elevated single point stream temperature measurements on several stream reaches in the analysis area.

Annual 7-Day Moving Average of the Daily Maximum Stream Temperatures.
Na is not available, measurements were recorded in 1993

Stream	Agency	Average 7-Day Maximum (°F)		
		1986	*1988*	*1993*
East Phillips Cr. at mouth	USFS	56	63	-
East Phillips Cr. Above Pedro	ODF	Na	Na -	57
Upper East Phillips Cr.	ODF	Na	Na -	54
Pedro Cr. At mouth	ODF	Na	Na -	56
Upper Phillips Cr.	ODF	Na	Na -	55
Phillips Cr.	ODF	Na	Na -	55

Ephemeral and intermittent streams dominate the planning area. East Phillips and Pedro Creek are perennial streams that provide some of the highest quality fish habitat in the Planning Area. The upper reaches of Phillips and Little Phillips Creek also provide fish habitat. Forest Service surveys in the summer of 1994 documented that Phillips Creek above the Forest boundary was 30 percent dry and above East Phillips Creek was 60 percent dry. Stream flows are dominated by snowmelt with peaks in the spring that subside quickly to intermittent flow. Mainstreams, like Phillips Creek, appear to be flashy with low sand and other fine substrate. Cobble embeddedness is low with sediment transport occurring during high flows. Clear water conditions return quickly after high water events.

The upland intermittent channels are Rosgen A type channels and are in good condition. As gradients decrease and valleys widen, as in Phillips Creek, Dry Creek, Finley Creek and East Phillips Creek, the channels become Rosgen B3 type channels which have moderately entrenched, narrow valleys, moderate width to depth ratios, and a cobble-gravel substrate. B Streams are considered relatively stable and resilient to disturbance.

The planning area falls within 5 subwatersheds of the Willow/Phillips watershed. The following table shows a summary of the existing condition. SWS – subwatershed; ECA – Equivalent Clear Cut Acres; RHCA – Riparian Habitat Conservation Area.

Code	SWS Name	Acres (Umatilla NF)	SWS Square Miles	% ECA (UNF)	Road Miles (UNF)	Road Density (mi/mi^2)	RHCA Road Density (rd. mi/ stream mi)	% of Roads located on Ridgetops
84B	Little Phillips Creek	5,543	8.7	1.0	30.36	3.5	1.04	30
84C	Middle Phillips Creek	3,437	5.4	0.8	17.0	3.2	1.0	30
84D	East Phillips Creek	4,219	6.6	4.6	23.3	3.5	0	41
84E	Upper Phillips Creek	4,215	6.6	6.1	32.4	4.9	1.02	37
84I	Dry Creek	5,568	11.2	0.7	28.0	2.5	1.04	46

Many of the Willow/Phillips subwatersheds have valley bottom roads, including Forest Road 32 along Dry Creek, Forest Road 3738 along Phillips Creek, and Highway 204 along Little Phillips Creek. Some areas have had a shift from valley bottom access to ridgetop access; Finley Creek is an example. All subwatersheds in the planning area have road densities higher than 2.0 miles per square mile, which is identified as a road density level of concern by the National Marine Fisheries Service. Little, Middle, and Upper Phillips Creek subwatersheds had total road densities on Forest Service ownership greater than 4 miles per square mile prior to recent road obliteration work. Total road densities are currently lower and range from 2.5 in Middle Phillips Creek to 4.9 in Upper Phillips Creek. Open road density is much lower.

Ridgetop roads range between 30 to 46 percent of the road miles within subwatrshed. Ridgetop roads have a low risk of direct effects on water quality and do little to change hydrologic functions. Road density in these subwatersheds poses a lower risk than the numbers might indicate due to road location. These roads have fewer direct effects on channels and adequate drainage can prevent extension of the drainage network by moving water rapidly off roads and allowing infiltration. Road densities within subwaterseds would range between 1.3 and 3.1 miles per square mile when ridgetop roads are not factored into the total road density.

Although a substantial percentage of the roads in the Pedro Colt analysis area are located on ridgetops many of the Pedro Colt subwatersheds have valley bottom roads; Road 32 along Dry Creek (SWS 84I), Road 3738 along Phillips Creek (SWS 84C,E), and Highway 204 along Little Phillips Creek (SWS 84B). RHCA road density (the miles of road in RHCAs divided by the miles of stream) was calculated for subwatersheds in the Pedro Colt analysis. Four of the five subwatersheds in Pedro Colt have RHCA road densities along fish-bearing streams of 1mile per mile of stream or greater, which means that there are 1 or mores miles of road within the RHCA for each mile of stream. For all the stream categories (including intermittent and non-fish bearing streams) there is less than 0.30 road miles within RHCAs per mile of stream. The concentration of roads along fish bearing streams reflects long patterns of use. The location of the roads would have a direct affect on water quality (temperature and sedimentation) and channel morphology (confinement, sinuosity, depositional/scour patterns, access to flood plains).

Changes in forest stand and canopy density caused by harvest, fire, or insect and disease can change the distribution of the snow pack, increase the rate of melt of the snow pack, and cause the timing of the melt to be earlier. The reduction of stocking levels reduces the overall use of water, increasing the amount of water available for runoff and increases ground water contributions to summer flows. Equivalent Clearcut Acres (ECA) is used to evaluate the current level of impact to water yield. The percent ECA measures the extent of harvested openings and is used as an indirect measure of hydrological effects such as increases in water yield and peak flows. The procedure accounts for both harvest prescriptions and vegetative recovery rates. Measurable changes in water yield generally are not seen until greater than 15 percent of the watershed is in a cutover condition. National Marine Fisheries Service uses an ECA of 15 percent as a level of concern. All subwatersheds are currently well below 15 percent ECA; ranging from 0.8 percent in Middle Phillips Creek to 6.1 percent in Upper Phillips Creek. The majority of the planning area was harvested in the mid 1970s as a result of tussock moth outbreaks and no longer contributes to ECA.

Total Daily Maximum Loads: The Clean Water Act requires States to develop Total Maximum Daily Load allocations and Water Quality Management Plans in basins where water bodies are listed as water quality impaired, that is, do not meet State Water Quality Standards. The Upper Grande Ronde River Sub-Basin Total Maximum Daily Load (TMDL) and Water Quality Management Plan (WQMP) was completed in December 1999. The document establishes water quality goals for the streams of the Upper Grande Ronde Sub-Basin and lays out steps toward meeting them by establishing numeric goals for allowable levels of pollution (loads) by sub-basin within the larger basin (ODEQ 1999). Streams on National Forest System lands have been identified as water quality impaired primarily for temperature, with some listings for sediment and habitat modification; however there are none that are listed in the Pedro Planning Area.

In the Grande Ronde Sub-Basin stream temperatures are already too high and no additional anthropogenic inputs that can raise the water temperature are allowed. Measures have been developed to guide improvement in water temperatures such as increasing percent effective shade, reducing channel width-to-depth ratios, and maintaining instream flows.

No TMDL for sediment was developed in the Upper Grande Ronde Sub-basin. The state determined that, "the load allocations provided to address temperature, pH, and dissolved oxygen standard violations, coupled with ongoing efforts by the U.S. Forest Service (USFS) to reduce loads from roads and other sources, will be adequate to address sedimentation and turbidity concerns in the Upper Grande Ronde Sub-Basin." To insure that sediment standards are met, long-term monitoring will be implemented.

Establishing a TMDL for habitat modification is not feasible or suitable. Habitat modification is not a direct result of pollutants, although it affects beneficial uses. Excessive surface fines, lack of large woody material, and channel characteristics such as pool frequency and width-to-depth ratio are included in this category of impairment.

Grande Ronde Sub- Basin Water Quality Management Plan: The Forestry WQMP relies on current laws, management plans and, BMPs to provide the basis for improving water quality in the forested landscape (ODEQ 1999). All federal land management activities must follow standards and guidelines (S&Gs) listed in the Umatilla National Forest Plan, as amended by PACFISH, and BMPs as defined in the Implementation Plan for 208 (Water Pollution Control Act, PL 92-500, as amended). PACFISH provides management direction in the form of interim Riparian Habitat Conservation Areas (RHCAs) and S&Gs for Key Watersheds. All of the NFS lands in the Grande Ronde River Basin have been designated as Key Watersheds.

Sediment, temperature, and habitat modification are the primary concerns in meeting water quality standards on forested lands. Strategies to improve water temperature conditions include providing shade, and providing conditions for the development of natural channel morphologies, which are generally narrower and less easily heated than management affected channels. Current policies, regulations, BMPs, and adaptive management techniques are expected to minimize unwanted sedimentation from forestry related activities. Habitat conditions are expected to be improved through implementation of BMPs developed for the temperature TMDL, which promote riparian conditions that improve channel stability and reduce erosion and promote the protection and recovery of channel morphology to the most stable forms.

Air Quality

The planning area falls within a Class II airshed. The North Fork Umatilla Wilderness is to the north of the planning area. The town of Elgin is to the southeast and Summerville to the south, both in Union County. Airflows predominately move towards the east with potential effects to northern Union County and Wallowa County. The Environmental protection Agency (EPA) monitors Carbon Monoxide, Nitrogen oxides, Ozone, Lead, Particulate (PM 10) and Sulfur Dioxide for Union County in La Grande. EPA gives portions of Union County a pollutant standards index of moderate because the yearly mean falls within the middle third of the PM 10 standard of 50 ug/cubic meter. EPA records since 1994 shows seasonal peaks in the pollutant standard index daily values for PM 10. None of the days exceeded the daily standard of 150 ug/cubic meter. These peaks occur in mid to late winter and late summer and early fall. The winter peaks are associated with wood heating and the late summer with wildfires. Fall peaks are a mixture of prescribed fire and wood heating. In the winter months, when temperature inversions become established in the La Grande Valley, smoke from wood heating is held in the valley. There are more peaks for extended periods of time during the winter than any other time of the year. Over the past 5 years the amount of days peaking above moderate levels have declined. There are days when visibility is reduced from field burning, wildfires, and slash burns. These levels do not appear to cause unacceptable air quality problems even during high fire years. Air Quality is relatively high in the planning area.

Biological Resources

Riparian and Fish Habitat

The natural flow regime of the planning area limits habitat quality. The area has a history of low summer flows with most of the streams, or the major portion of streams, going dry. East Phillips Creek and Pedro Creek are the major sources of perennial stream flows. Fish move out of the system to rear in the Grande Ronde River, lower Willow Creek, in springs in the upper reaches of Phillips and Little Phillips Creeks, in the East Phillips Creek system, or in sections were ground water provides stream flow throughout the summer. With streams going dry during the summer, connectivity to the Grande Ronde River is limited. Historically fish are stranded in pools that reach lethal temperatures or dry up during the summer. Fish have been observed in isolated pools in Little Phillips Creek. Hand held water temperatures taken during summer low flow conditions show a range of high temperatures from 54 to 76 degrees Fahrenheit. Dry channels during the summer months are probably the most limiting factor to fish production.

There is subsurface flow that maintains riparian conditions. Phillips Creek has stands of large cottonwood trees. These trees are regenerating quite well in areas of past harvest while conifers are not. The deep, porous soils of the floodplain limit water-holding ability. Willows and alder are producing dense thickets along the edge of the channel. Stream shade and in channel large woody debris is low in the areas of past harvest. Within the riparian areas and floodplain the hardwood component is growing well. There are also good growth rates of conifers in the older (30 plus years) harvested areas. Time is the major factor to developing shade.

The Phillips-Gordon Ecosystem Analysis indicated that riparian vegetation and stream bank stability along some streams have been seriously degraded by past land use practices. Resource uses, including timber harvest and livestock grazing in riparian areas, livestock water developments, roads, and ATV use have adversely affected riparian and aquatic habitat. Phillips Creek has been the most impacted by past land use activity. Occasionally cows move onto the National Forest from the private lands to the south and graze within the RHCA. Phillips Creek is the boundary between two sheep grazing units, however the sheep do not utilize the RHCA. All water developments are located in the upper reaches of ephemeral drainages, away from perennial streams. East Phillips and Pedro Creeks are at the bottoms of steep canyons and do not receive grazing impacts.

Past harvest within RHCAs has removed shading and large woody debris. The lower reaches of Phillips Creek were harvested in the 1970s and acquired in a land exchange in 1992. Regeneration harvest into the late 1980s removed all stream cover from 24 percent of the category 1 and 2 RHCAs. Large wood was also removed from the streams during the harvest activity. A few logs were left however, they are mostly rotten and will not persist until new trees become established, grow, die, and fall into the stream channel. Currently these sections of stream do not meet large wood standards for fish bearing streams and are dry during the summer.

Outside of East Phillips Creek, road density within RHCAs is approximately 1 mile per stream mile, as indicated in the water quality section. This planning area has higher road density within RHCAs than other parts of the District because access routes from the east follow streams. The roads are within RHCAs but outside the floodplains.

Sediment transport does not appear to be impacting spawning areas. Stream surveys indicate a cobble imbeddedness range of 18 to 39 percent. These numbers seem low for an area that has as much activity and road density. The flashiness or quick response flushes sediment quickly out of the system. The volume of flow late into the spring does not allow much sediment to remain in the system. Cobble and gravel was the dominant and subdominant substrate for all but one surveyed stream reach. One reach in Little Phillips Creek had sand as the subdominant substrate because of winter sanding of Highway 204.

Phillips Creek: Floodplain and streamside vegetation is recovering in the logged-over portions of RHCAs, but is well below the size and density found prior to logging. Cottonwoods and willows are regenerating well on their own. Conifers are not. In the short-term, shade recovery will depend on hardwoods. Even though the use of Phillips Creek by steelhead and redband trout is well documented, the habitat quality is probably marginal; primarily due to a high proportion of dry channels, warm water temperatures in the summer, and habitat simplification from logging on the floodplain. A culvert on Forest Road 3738 near the headwaters is a barrier to fish passage. The cottonwood regeneration in Phillips Creek not only provides future shade but also forage for beaver. Beaver are known to occur in the lower reaches, below the Forest boundary. As habitat improves, beaver should move into the area and add complexity to the fisheries habitat. It is uncertain how much year round flow could be returned to the stream. Water is quickly discharged and moves underground for most of the summer. The inherent hydrological regime limits fish habitat over most of the system.

East Phillips Creek: East Phillips Creek is important fish habitat with rainbow/steelhead trout found throughout the entire 6.2-mile length. Pedro Creek is a tributary of East Phillips Creek and provides approximately 10 percent of East Phillips Creek's summer flow. Approximately 2.7 miles of the stream provides fish habitat. A culvert on Forest Road 3734060 is a fish barrier. These two streams have the most intact and least developed floodplains. Pool and large wood frequency is good creating good fish habitat. This system provides high quality fisheries habitat and provides a core area to build fish recovery from. During late summer, Phillips Creek provides over half the flow of Phillips Creek at their confluence.

Little Phillips Creek: Little Phillips Creek runs parallel to Oregon Highway 204. The highway occupies most of the floodplain forcing the creek to the toe of either slope. The highway is also plowed and sanded during the winter with snow and sand finding its way into the creek. Pool and large wood frequency are low. During late summer much of the creek goes dry. The creek is occupied by rainbow/steelhead trout throughout its length, but at low density due to extensive dry segments and degraded habitat along the highway.

Dry Creek: Dry Creek is primarily a dry channel during the summer. The Dry Creek floodplain has been constricted by road construction and impacted by past logging where Forest Roads 3200130 and 3200140 cross the creek and in the switchback were the 32 road moves away from the stream. Much of Dry Creek is within Management Areas C1, Dedicated Old Growth, and C5, Riparian and Wildlife. Dry Creek historically is steelhead habitat. Data from ODFW show most of the length as steelhead spawning habitat. Under current conditions Dry Creek is marginal steelhead habitat. There are few pools that remain in the summer.

Finley Creek: Finley Creek is a small tributary of Dry Creek and goes completely dry every summer. Steelhead are known to spawn in the lower mile and a half. It does not provide rearing habitat.

Streams Tributary to the Umatilla River: There are only 380 acres of the planning area that falls within the headwaters of the North Fork Umatilla River. No actions are proposed in these areas. There will be no impacts to fisheries. The discussion of impacts will be confined to the Grande Ronde Basin.

Intermittent Streams: Intermittent stream channels contain large amounts of woody debris of various sizes. The debris stores and routes sediment, dissipates stream energy, and acts as a grade control, limiting the potential for stream incision. Trees are abundant along most of the channels so the potential supply of future wood is adequate. Woody debris and channel vegetation enhance stability of the channels. Unstable stream banks are encountered in few places. Streamflows originate from snowmelt; by midsummer the streams are dry. Stream data is not available for intermittent streams; however, field review indicates that channels are functioning appropriately.

Ares of Regeneration Harvest within RHCAs

		Stand Clearcut		Patch Clearcut		Shelterwood	
Stream Class	Total Acres in RHCA	Total	Last 20 years	Total	Last 20 years	Total	Last 20 years
I	2,019	188	132	0.1	0.1	88	85
III	1,394	126	57	3	1	139	41
IV	3,774	232	106	106	19	370	145
Total Acres	7,187	546	295	109	20	597	271

Regeneration harvest has occurred in: 37 percent of the RHCAs used by anadromous fish (class I streams), 64 percent of these harvest acres occur in Phillips Creek; 20 percent of the RHCA along fish bearing streams (Class II streams), with 82 percent of the harvest acres along Phillips Creek; 23 percent of the RHCAs along perennial streams (Class III streams); and 26 percent of the RHCAs of intermittent streams (Class IV streams). There has been additional harvest for thinning and salvage within the RHCAs. Regeneration harvest began in the late 1950s and early 1960s. Approximately 43 percent of the regeneration harvest occurred in the past twenty years.

Threatened, Endangered, and Sensitive Aquatic Species

Blue Mountain Cryptochian - *Cryptochia neosa.* This invertebrate species is listed as "Sensitive" by the Regional Forester. Review of existing data indicates that habitat for Blue Mountain Cryptochian is present in the higher elevation perennial water. A District wide survey conducted in 1992 indicated that streams containing Cryptochia where above 3,800 feet. The upper reaches of Phillips Creek and Little Phillips Creek have springs above 3,800 feet. East Phillips Creek and Pedro Creek both have year round stream flows above 3,800 feet providing the most likely habitat. No activities are proposed in these areas.

Columbia River Bull Trout - *Salvelinus confluentus.* The US Fish and Wildlife Service list this fish species as “Threatened”. Bull trout have not been found in the planning area. Both migratory and resident bull trout occupy the Grande Ronde subbasin in upstream headwaters. The Grande Ronde River is utilized as a migration corridor and as winter habitat. The species is found in tributaries both upstream and downstream of the mouths of Willow and Phillips Creeks.

Redband Trout - *Oncorhynchus mykiss.* Inland redband trout are the same species as steelhead and juveniles cannot be distinguished phenotypicaly. Isolated populations above longstanding natural passage barriers may be assumed to be resident redbands. Since there are no such isolated resident populations in the planning area, inland redband trout will not be disused separate from steelhead.

Snake River fall chinook salmon - *Oncorhynchus tshawytscha.* This fish species is listed as "Threatened" by the National Marine Fisheries Service (NMFS). Review of existing data indicates that habitat for this species may be present in the mainstem Grande Ronde River downstream from the Wallowa River. Field surveys have documented the presence of Snake River fall chinook salmon in the Grande Ronde River downstream of Troy, Oregon. Known spawning areas are distant from the planning area.

Snake River spring/summer chinook salmon - *Oncorhynchus tshawytscha.* Although Snake River spring/summer chinook salmon spawn in other parts and tributaries to the Grande Ronde River, they do not spawn or rear in streams of the planning area. They have not been known to spawn in the Grande Ronde River below La Grande. Historically the planning area has not had spawning salmon probably because of the streams going dry during the summer and perhaps from water temperatures being too warm for the fish to hold in tell spawning season.

Snake River steelhead trout - *Oncorhynchus mykiss.* The National Marine Fisheries Service lists this fish species as “Threatened”. Review of the existing data indicates that spawning occurs in the Phillips and Willow Creek drainages on land administered by the National Forest. In Phillips, Little Phillips, and Dry Creeks, much of the summertime habitat is comprised of short sections with surface flow separated by long stretches of dry channels with occasional residual pools. Most of Dry Creek and Finely Creek go completely dry in the summer. Rearing habitat is found in East Phillips Creek and in the headwaters of Phillips Creek and Little Phillips Creek. Spawning activity is from March through May.

Westslope cutthroat Trout appears is a Regional Forester’s sensitive species. This species does not presently nor historically occur within the planning area.

Margined sculpin is a Regional Forester’s sensitive species found on the Umatilla National Forest. They are not known to occur in any streams of the Grande Ronde drainage and do not occur in the planning area.

Pacific lamprey is a Regional Forester’s sensitive species. It was known to occur in the Grande Ronde subbasin but was extirpated in the early 1900s. Young lamprey burrow into softer substrate in slack water areas of streams. Since they are summer spawners (June and July), they would find the dry stream channels and low water conditions of the planning area unsatisfactory reproductive habitat.

Northern leopard frog is a Regional Forester’s sensitive species. It was widely distributed in the Columbia and Snake River basins. They live in marshes, wet meadows, riparian area, and moist, open woodlands. Leopard frogs have never been observed on the Umatilla National Forest.

Columbia spotted frog is a Regional Forester’s sensitive species found at mid and higher elevation areas of the Blue Mountains. It is the most aquatic of the frogs of the Pacific Northwest and is almost always associated with perennial sources of water such as springs, sluggish streams, ponds, and lakes. They are most often associated with non-woody forms of vegetation such as sedges, rushes, and grasses. They have been observed in Mottet Creek and in a pond in Jarboe Meadow south of the planning area. Although no formal surveys have been performed, it can be safely assumed that they may be present in lower gradient streams with wide floodplains. In the planning area these streams would include the perennial portions of Phillips Creek, lower East Phillips Creek, and perhaps Pedro and Little Phillips Creeks. Spotted frogs may also be present in any human created ponds, such as old rock pits and stock ponds.

Painted turtle is a Regional Forester’s sensitive species with widespread distribution in the Pacific Northwest. Habitat for this species is present at lower elevations from the base of the Blue Mountains westward. They prefer shallow, quiet waters with sandy or muddy bottoms. The turtle has not been observed in Phillips or Willow Creeks.

Essential fish habitat applies to habitat for commercially important fish species. For the Umatilla National Forest these are chinook and coho salmon. This habitat includes all currently viable waters and most of the habitat historically accessible to salmon within designated USGS hydrologic units that includes the Upper Grande Ronde and Umatilla units. Chinook salmon would be excluded from the planning area because of dry or extremely low flows during spawning time. Coho are winter spawners and the planning area may have been used before they were extirpated from the Grande Ronde system.

Wildlife Habitat

The quantity and quality of wildlife habitat was assessed using aerial photographs, district records, and field reconnaissance. Where quantitative information is available, it is presented. Vegetative information used in this evaluation was obtained from the District Silviculturist, either through personal communications, specialist report, or a vegetative database. Descriptions of wildlife conditions in the "watersheds" refer to the watersheds in the Phillips-Gordon Ecosystem Analysis (36,400 acres) (USDA 2001), which encompass the analysis area.

The analysis area contains a mosaic of forested and grassland habitat that support a wide variety of terrestrial wildlife. Habitats include subalpine fir and Engelmann spruce forest, stringer stands of Douglas-fir, ponderosa pine, and western larch; cold mesic north facing slopes and grassy or mixed conifer south facing slopes; ridge top scabland, small meadows, and riparian hardwood communities. Changes in vegetative communities have occurred in the last 60 years. Non-forested areas have increased; spruce, Douglas-fir, and mixed conifer have increased; and lodgepole pine, ponderosa pine, western larch and grand fir have decreased in the Phillips and Gordon watersheds (USDA 2001). Approximately 29 percent of the planning area is Dry Forest, 61 percent is Moist Forest, 1 percent is Cold Forest, and 9 percent is Grasslands.

Old Forest Habitat

The amount of late/old forest habitat has declined substantially in the Phillips and Gordon Creek watersheds. The estimated acreage of old forest in 1936 is around 31,000 acres, and in 1999 about 8,500 acres, a 73% decline (USDA 2001:Table 5-5). The Dry Forest type, which occurs on 27% of the planning area, is well below HRV for Late Old Structure, but all other forest types are within the range of amounts of old forest estimated to occur historically (USDA 2001). Past timber harvest emphasized the removal of mature and over-mature trees primarily through overstory thinning. Clearcutting was also used to regenerate stands and remove timber damaged by the tussock moth outbreak in the 1970's. The exclusion of natural wildfire over the past 90 years has caused a significant increase in shade tolerant, fire intolerant tree species in the lower canopy. Many of the historically single layer canopy stands have developed into dense multi-layered stands.

Two Dedicated Old Growth (C1) units fall within the project area: #2552, which contains only 8.4% old forest, and #0801 which contains 22.5% old forest (USDA 2001). Boundary changes are proposed for the Dry Creek stand (#2552). Appropriate old forest habitat has been identified that could be added (portions of inventoried old growth #s 4419, 4409, and 4399); while roadside and more open grassy areas would be removed from C1 designation.

Connectivity between blocks of late and old structure (LOS) stands as well as C1, Dedicated Old Growth has been assessed for the planning area. Connective habitat does not necessarily need to meet the same description of suitable habitat, but provides "free movement" between LOS stands for various wildlife species associated with old forest conditions. For the majority of the analysis area, LOS stands and OG areas are connected to each other with medium (9-14.9" dbh) to large trees (>14.9" dbh), stands with variable widths greater than 400 feet, and attached with 2 or more different connections.

Dead and down wood habitat

Many wildlife species rely on moderate to high levels of snags and down logs for nesting, roosting, denning, and feeding. Guidelines for dead wood management is based on the Regional Forester's Forest Plan Amendment #2 (USDA 1995) and the Interim Snag Guidance for Salvage Operation (Umatilla NF 1993).

Adequate levels of both standing dead and down wood are believed to occur after 20 years of insect and disease problems, high stocking levels, and fire suppression. Limited data is available on the current levels of down wood in the analysis area. Walk through and past surveys in like areas indicate that down wood exceeds Forest Plan Standards; see EA page 28. Snag levels were evaluated at the fine scale by collecting data from proposed harvest units. The estimated snag density *post-harvest* would be 3.2 snags per acre >20" dbh, and 5.9 snags per acre >12" dbh on average. This is within the Forest Plan standards, as amended.

Average dead standing tree (snags) density in the Phillips and Gordon watersheds

Umatilla Forest Plan, Amended (1995)			CVS Plot Data		
Working Group	**Diameter Class Groups**	**Snag Density** (#/acre)	**Potential Vegetation Group**	**Diameter Class Groups**	**Snag Density** (#/acre)
Ponderosa Pine	> 10" dbh	2.25	Dry Upland Forest	> 10" dbh	9.7
	> 12" dbh	1.50		> 12" dbh	7.8
	> 20" dbh	0.14		> 20" dbh	3.5
South Associated (Mixed Conifer)	> 10" dbh	2.25	Moist Upland Forest	> 10" dbh	14.5
	> 12" dbh	1.50			
	> 20" dbh	0.14		> 12" dbh	10.4
North Associated (Grand fir)	> 10" dbh	1.80			
	> 12" dbh	1.50		> 20" dbh	3.5
	> 20" dbh	0.14			
Lodgepole Pine	> 10" dbh	1.80	Cold Upland Forest	> 10" dbh	7.3
	> 12" dbh	0.59			
	> 20" dbh	0.00		> 12" dbh	4.6
Subalpine Zone	> 10" dbh	1.80			
	> 12" dbh	0.59		> 20" dbh	0
	> 20" dbh	0.00			

Snag habitat was assessed at the landscape scale using the USFS current vegetation survey (CVS) inventories. CVS inventories (Brown 2003) are permanent plots on a 1.7-mile grid that samples the vegetative condition across National Forest Lands. Snag densities meet or exceed Forest Plan standards in this area according to the Philips-Gordon Ecosystem Analysis.

Recently, the Decayed Wood Advisor (DecAid) by Mellen et al. (2003) has become available. DecAid is not a mathematical model or wildlife/wood-decay simulator. Data provided in DecAid allows the user to relate the abundance of dead wood to the frequency of occurrence of selected wildlife species that require dead wood habitat for some part of their life cycle. This data is displayed at 30%, 50%, and 80% "tolerance level." Tolerance levels are estimates (percent) of species use of a particular parameter (e.g., snag density, snag diameter, down wood density) (Mellen et al 2003).

For the DecAid evaluation we used the Eastside Mixed Conifer Forest habitat type to compare to our snag data from the Phillips-Gordon Ecosystem Analysis (USDA 2001), of which about 73% is categorized as moist forest. DecAid provided cumulative species curves for snag density for American marten, cavity nesting birds, pileated woodpecker, silver-haired bat, and white-headed woodpecker. Data from scientific research is available for all tolerance levels for the white-headed woodpecker, but only the 50% tolerance level for all other species. (see table below)

DecAid tolerance levels for six species compared to snag density from CVS estimates in the Phillips-Gordon Ecosystem Analysis. Blank fields indicate no data from studies.

Species	**Diameter Group**	**Snag Density (#/acre)**			
		DecAid Tolerance Levels			**CVS Data Phillips-Gordon**
		30%	**50%**	**80%**	
White-headed woodpecker	**>= 10" dbh**	**0.3**	**1.9**	**4.3**	**14.5**
	>= 20" dbh	**0.0**	**1.5**	**3.8**	**3.5**
Pileated woodpecker	>= 10" dbh	-	30.4	-	14.5
	>= 20" dbh	-	7.3	-	3.5
American marten	>= 10" dbh	-	16.2	-	14.5
	>= 20" dbh	-	5.0	-	3.5
Cavity-nesting birds	>= 10" dbh	-	-	-	14.5
	>= 20" dbh	-	2.4	-	3.5
Silver-haired bat	>= 10" dbh	-	56.4	-	14.5
	>= 20" dbh	**-**	**16.8**	**-**	**3.5**
Long-legged myotis	>= 10" dbh	-	10.2	-	14.5
	>= 20" dbh	-	-	-	3.5

Current CVS estimates for snag densities exceeded the 80% tolerance level for the white-headed woodpecker in the greater than or equal to 10-inch (9.85") dbh group. This essentially means that in one study in eastside mixed conifer forest, around 20% of all individuals observed used areas with higher (>4.3 acre) densities of ≥ 10" dbh snags. In the larger diameter snag category, the existing snag density falls between the 50% and 80% tolerance levels given for the white-headed woodpecker. This essentially means that in one study in eastside mixed conifer forest, at least 20% of all individuals observed used areas with higher densities of snags (>3.8/acre) greater than 20"dbh. There may have been a population of white-headed woodpeckers in the analysis area historically, but densities and distribution are unknown. Late and old structure stands in the dry forest types have declined to the point that white-headed woodpeckers probably do not commonly occur in the area.

The availability and quality of roost sites are thought to be critical factors influencing population size and distribution of some **bat species** (Sallabanks et al. 2001:219). Forest dwelling bats often use large-diameter snags and trees as roosts. DecAid tolerance levels (based on one study in northeastern Washington) indicate that 50% of the time, silver-haired bats were found using areas with higher than 16.8 snags per acre in the >20" dbh class. This is a much higher density of large snags than the *average* found in the Phillips and Gordon watersheds, however higher densities of large snags are likely present in patches.

Pileated woodpecker, marten, and cavity nesting birds are discussed in the Management Indicator Species section.

Management Indicator Species

These are species selected by the Forest Plan to represent the welfare of a larger group of wildlife species presumed to share the same habitat requirements. Rocky Mountain elk were selected to represent general forest habitat and winter ranges, pileated woodpecker for dead/down tree habitat in mature and old growth mixed conifer stands, northern three-toed woodpecker for dead/down tree habitat in mature and old growth lodgepole pine stands, American marten for complex mature and old growth stands, and the primary cavity excavator guild for snag and down tree habitat utilized by nearly 100 vertebrate species.

Current population status and distribution of pileated woodpecker in the analysis area is unknown, however Partners in Flight data indicates an increasing trend. They are most commonly found in large blocks of grand fir and mixed conifer stands in the late and old structural states. Large diameter snags and down wood are important features. Primary reproductive habitat is limited to small patches at higher elevations. Only about 20% of the Phillips and Gordon watersheds is considered suitable habitat for pileated woodpecker (USDA 2001). The habitat quality is considered poor because of the decline in the overall amount of old forest, and the small size and lack of connectivity of habitat blocks. Existing estimated average snag levels (3.5 snags >20" dbh per acre) are below the 50% tolerance level (7.3 snags >20" dbh per acre) indicated in the Decayed Wood Advisor for pileated woodpecker. This essentially means that in one study, 50% of all individuals observed used areas with higher (>7.3/acre) densities of snags.

Preferred habitat for the three-toed woodpecker consists of mature and old lodgepole pine stands with abundant snags and down wood. Very little reproductive habitat for this species occurred historically, and it is unlikely that three-toed woodpeckers currently exist in the analysis area except as occasional foragers (USDA 2001). The three-toed woodpecker will not be affected by the proposed activities because preferred habitat does not occur in the affected area. Therefore, no further analysis of environmental effects will occur for the three-toed woodpecker.

Other primary cavity excavators represent a vast array of vertebrate species that depend upon dead standing trees and down logs for reproduction and/or foraging. Primary cavity excavators include 15 bird species that create holes for nesting or roosting in live, dead or decaying trees. Secondary cavity users such as owls, bluebirds, and flying squirrels may use cavities later for denning, roosting, and/or nesting. Potential habitat for these species can be found throughout the Phillips and Gordon watersheds, however the amount of quality habitat (areas capable of providing large snags >16" dbh) has declined. Overall quality of habitat is considered fair because of high snag densities (USDA 2001). Many of these species have small territory sizes and are able to persist in fragmented areas. Populations of the primary cavity excavator species preferring open ponderosa pine habitat have been reduced due to loss of habitat, while those preferring dense multi-story forest conditions have likely done well.

American marten probably occurred in the area historically in low numbers. Marten are generally found in moist, old forest types with developed riparian areas and high down wood densities. Habitat quality in the Phillips and Gordon watersheds is currently poor due to small patch size and poor distribution of remaining old forest habitat. Snag densities in the watersheds are relatively close to the numbers identified in DecAid at the 50% tolerance level for marten (Table 1). Riparian areas in the planning area are mainly characterized as intermittent streams and underground flows; well developed riparian habitat is scarce. It is unlikely that marten currently occupy the affected area except as occasional foragers (USDA 2001). The marten will not be affected by the proposed activities because preferred habitat does not occur in the affected area. Therefore, no further analysis of environmental effects will occur for American martin

Currently the planning area meets Forest Plan Standards and Guidelines for Rocky Mountain elk. The planning area is within the Mt. Emily big game hunting unit, which has a "Management Objective" of 5700 elk. The 2002/2003 winter elk population was estimated at 3700, well below the objective. Reasons for this decline are not clear but appear to be tied to elk calf productivity and survivorship (M.Kirsch, ODFW per comm.).

The elk habitat effectiveness model (HEI) is used to predict the influence of forest management on elk and other big game species. The model uses the distribution of cover and forage areas, cover quality, and road factors to help indicate how effective an area will be in supporting big game. It is intended to be a relative measure of effectiveness, and does not consider many other factors such as weather, predation, disease, nutrition, hunting, and harvest (Forest Plan EIS, page IV-71; Forest Plan, Appendix C).

Two major Forest Plan Management Areas were assessed using HEI: C4 – Wildlife Habitat, and E2 – Timber Management and Big Game. The area of C3 has been analyzed with the C4 because the acres in C3 are not large enough to provide meaningful analysis (see Forest Plan Amendment). C4 (7,835 acres) currently has an HEI value of .85, well above the Forest Plan standard of .60. Total cover is currently 57% with 26% in a satisfactory condition (>70% canopy closure). This is above minimum standards of 30% total and 15% satisfactory cover. The C4 is located on Middle Ridge and big game habitat is managed using road closures. There are 19.81 miles of road; approximately 4.1 miles are open. The open road density is quite low at 0.32 miles per square mile. Open roads access the middle portion of the C4 off Highway 204 and the upper portion off Forest Road 3100. Forest Road 3738 also accesses the lower slopes of the ridge along Phillips Creek.

E2 currently has an HEI of .73, well above the Forest Plan standard of .45. Total cover is currently 58%, with 38% in a satisfactory condition (>70% canopy closure). This is above minimum standards for E2 of 30% total and 10% satisfactory cover. There are 42.7 miles of road within E2 of which 27.5 miles are open. This gives an open road density of 2.24 miles per square mile.

Neotropical Migratory Birds

Neotropical migrants account for a large portion of the avian species diversity in the watersheds, and occupy a wide variety of habitats. There are 43 species of neotropical migratory birds that are known and/or suspected to be present in the planning area. There are 29 species that utilize Ponderosa pine stands, 33 species in mixed conifer, 24 species in grand fir, and 19 species in subalpine fir. Many are associated with riparian areas and/or old forest. Population trend studies for the 43 birds showed 5 exhibiting an increasing population trend; 15 were stable, 19 were decreasing, and 3 are undetermined. Trend data has been collected at two nearby MAPS stations (Monitoring Avian Productivity and Survivorship) for 10 years. Populations on the Umatilla National forest appear to be experiencing significant declines based on mist net data from 1992-1999 (Pyle et al. 2000). Changes to habitat may be a large factor in these declines, but other causes may be contributing. Long distance migrants face many challenges not only on their summer breeding and rearing habitat, but also along their migratory routes and in their wintering habitats.

The Conservation Strategy for Landbirds (Altman 2000) identifies three priority habitat types, which are *Dry Forest, Mesic Mixed Conifer*, and *Riparian Woodland and Shrub*. Several "unique" habitats are also important.

The *Dry Forest* habitat type is characterized as coniferous forest composed exclusively of ponderosa pine, or dry stands co-dominated by ponderosa pine and Douglas-fir or grand fir. It is generally at lower elevations and mostly on xeric, upland sites with shallow soils. The desired condition is a large tree, single-layered canopy with an open, park-like understory dominated by herbaceous cover, scattered shrub cover, and pine regeneration. The conservation focus includes the following habitats conditions: large patches of old forest with large trees and snags; old forest with interspersed grassy openings and dense thickets; open understory with regenerating pines; and patches of burned old forest. Focal species include: white-headed woodpecker (large patches of old forest with large trees and snags), flammulated owl (old forest with interspersion of grassy openings and dense thickets), chipping sparrow (open understory with regenerating pines, and Lewis' woodpecker (patches of burned old forest).

The dry forest type comprises 27% of the Phillips and Gordon Creek watersheds (close to 10,000 acres). The historic range of variability analysis for this area indicates that 15-70% of dry forest stands would occur in the old forest single stratum (OFSS) stage. Dry forest exhibiting the above characteristics is rare in this area, comprising less than 1%. Many of the old forest single stratum (OFSS) stands are now multi-structured because Douglas-fir and grand fir have become established in the understory.

Late Successional Mesic Mixed Conifer habitats are primarily Douglas-fir and grand fir sites that are generally higher elevation, wetter, on northerly aspects, and in draws where soils are mesic. The desired condition is a multi-layered old forest with a diversity of structural elements. The conservation focus is on the following five habitat conditions: large snags; overstory canopy closure; structurally diverse and multi-layered; dense shrub layer in forest openings or understory; and edges and openings created by wildfire. Focal species include Vaux's swift (large snags), Townsend's warbler (overstory canopy closure), varied thrush (structurally diverse, multi-layers), MacGillivray's warbler (dense shrub layer in forest openings or understory), and olive-sided flycatcher (edges and openings created by wildfire). Of 22,376 acres of moist forest stands in the Phillips and Gordon Creek watersheds, 30% occurs in the late successional phase. Habitat for these species is relatively abundant in the area.

The desired condition of *Riparian Woodland and Shrub* habitat for birds is a structurally diverse vegetative community of native species that occur in natural diversity relative to hydrological influences. The conservation focus includes the following habitat conditions: large snags; canopy foliage and structure; understory foliage and structure; and willow/alder shrub patches. Riparian vegetation is particularly important to Neotropical migratory songbirds (Sallabanks et al. 2001). Focal species include: Lewis' woodpecker (large snags), red-eyed vireo (canopy foliage and structure), veery (understory foliage and structure), and willow flycatcher (willow/alder shrub patches).

Riparian vegetation on some streams has been degraded by past timber harvest, livestock grazing, roads, and ATV use (USDA 2001). Black cottonwood and willows are present along streams in the middle and lower elevations of the watersheds (Phillips Creek and its tributaries). Aspen trees are rare, in some cases occurring as single trees. There are many spring providing small patches of riparian habitat.

The land bird conservation focus for *Unique habitats* includes the following: subalpine forest; montane meadows; steppe shrublands; aspen; and alpine. Focal species for these habitats include: hermit thrush (subalpine), upland sandpiper (montane meadows), vesper sparrow (steppe shrubland), red-naped sapsucker (aspen), and gray-crowned rosy finch (alpine). A small amount of subalpine habitat habitat occurs in the highest elevations. No montane meadows, steppe shrublands, aspen, or alpine habitat occurs in this area that would support these focal species.

Threatened, Endangered, and Sensitive Wildlife Species

Federally "listed" species includes those identified as Endangered, Threatened, Proposed, or Candidate species by the U.S. Fish and Wildlife Service (1999 and 2001). "Sensitive" species are those identified on the Regional Forester's (R6) Sensitive Animal List (USDA 2000) that meets National Forest Management Act obligations and requirements. Sensitive species addressed on the Umatilla National Forest include those that have been documented or suspected (likely to occur, based on available habitat to support breeding pairs/groups) and occurring within or adjacent to Forest boundary. Based on District records, surveys, and monitoring, as well as published literature about distribution and habitat utilization, species that may occur in the analysis area include the gray wolf, Canada lynx, California wolverine, and northern bald eagle.

The gray flycatcher, peregrine falcon, upland sandpiper, and Rocky Mountain bighorn sheep, have not been observed in the analysis area; and their preferred habitat does not occur in the affected area. None of these species would be affected by the proposed activities or alternatives. Therefore no further analysis of the environmental effects on these species will be performed.

Gray wolf – Threatened. Individual gray wolves have dispersed from Idaho into the Blue Mountains, but as of yet no packs have formed to our knowledge. The Idaho wolf population has been increasing steadily, and dispersion into the Blue Mountains will likely continue. There have been no verified tracks or sightings of gray wolf within the planning area. There is a slight chance that a wolf could pass through the general project area. There are currently no known denning or rendezvous sites near this project or on the District.

Canada lynx (Threatened). The Blue Mountains are considered to be on the fringe of the range of Canada lynx. Potential lynx habitat occurs in the northern portion of the Planning Area, but outside the proposed activity areas. Unverified observations of lynx have been reported east and north of the analysis area along OR204 highway corridor between 1992 and 2000. However, during snow-tracking surveys from 1992-1994, lynx tracks were not observed on a route northeast of the project area or other routes on the district during forest carnivore (wolverine, marten, lynx, etc.) surveys. Lynx Hair Surveys, in coordination with the Fish and Wildlife Service, were conducted on three separate grids north and northeast of the analysis area (Spout Springs, Jubilee Lake and Elk Flat) in 1999. Hair samples were collected and sent in for DNA analysis; none of the collected hairs were identified as lynx.

California wolverine (sensitive). Wolverine typically inhabit high elevation conifer forest where sufficient food is available and human activity is low. Denning habitat is usually open rocky talus slopes where snow depths remain over 3 feet into spring. They tend to forage over large areas and travel long distances. No potential denning habitat is known in the analysis area. There have been unverified sightings adjacent to the analysis area. There are no indications that wolverine do more than pass through the area.

Northern Bald eagle (Threatened). Bald eagles winter along the nearby Grande Ronde River, approximately 6 miles east of the planning area. There are occasional reports of summering bald eagles along the river but no report of roosting or nesting within or adjacent to the planning area.

Other Wildlife Species of Interest - Northern goshawk,

Habitat for goshawks is generally considered poor in the watersheds as a result of the reduction in acres and patch sizes of reproductive habitat (USDA 2001). No nest territories are known in the analysis area. Foraging habitat is readily available in the analysis area since a mosaic of structural stages occurs.

Ecosystems and Diversity

The primary modifying events that create diverse plant communities are: wildfire, grazing and browsing, insect and disease epidemics, windthrow, flooding, and erosion. Of these, wildfires historically played the greatest role in maintaining diverse

landscape vegetation. Fires of various intensities and sizes burned across the landscape, shaping the vegetation patterns. The shorter the return interval, the less dramatic would be the result of the fire on total plant composition, maintaining the stand with a dominance of seral tree species. Stands with infrequent fire return intervals burned more completely and often were replaced by vegetation different in composition, structure, and age. Fire, landscape variation, topography, climate patterns, and other disturbance patterns have all combined to provide a rich mosaic of plant communities. With the current lack of fire disturbance, this diversity of plant communities no longer exists. Forests maintained by frequent fires have shifted, becoming over stocked with higher levels of grand fir and Douglas-fir and a more complex fuel structure. The changes in vegetation structure has been documented since the early 1990's beginning with the *Blue Mountains Forest Health Report, "New Perspectives in Forest Health"* in 1991 to the Interior Columbia Basin Project in 2000.

There are four fire regime groups that shape the planning area's landscape. Ponderosa pine stands were maintained by the frequent fire regime, a low severity fire with a 0 to 35 year return interval. Both ponderosa pine and western larch were favored by the mixed fire regime, wildfires of mixed severity with a 35 to 100 year return interval. Grand fir, Douglas fir, and subalpine fir were favored by the longer return interval of the infrequent fire regime, a stand replacement severity wildfire with a return interval greater than 200 years. The dry grasslands on the south facing slopes had a sort return interval, stand replacement regime that helped to keep trees from encroaching on the grasslands.

The stands in the planning area have departed from historic vegetation conditions and have become overstocked with shade-tolerant climax species. In ponderosa pine stands maintained by the frequent fire regime, Douglas-fir has become overstocked in the understory and grand fir has become overstocked in the mixed fire regime. The competitive pressure on the older, less vigorous overstory component has been occurring for a number of years with changes in canopy structure from mostly single canopy stratum to multi-canopy structures. The dry grasslands have also seen encroachment of conifers.

Charles Johnson's (a Forest Service zone ecologist) findings in the Blue Mountains fits here, "The decrease in low-intensity surface fires, increased conflagration crown fires, and fire exclusion management practices has resulted in plant communities with more uniform stand composition and structure." Approximately 93 percent of the frequent fire regime is transitioning to a more uniform condition. Even though relics of the past exist in the overstory, stands have become dominated by young forest. Dry Forest stands, with large ponderosa pine in the overstory, have become uniform in appearance (similar to the Moist Forest grand fir stands) with an increase of shade tolerant species in the understory. Stands have higher stocking levels and higher crown closures. Climax grand fir and Douglas-fir are becoming the dominant tree species. When disturbances are absent for an extended period, particularly in stands that naturally receive periodic disturbance, instability is heightened increasing the risk for catastrophic events associated with insect epidemics and fire stand replacement events.

The nature of frequent and mixed fire regimes would have created pockets of overstocked trees. In the frequent fire regime, a fire would return on a 0 to 35 year interval on any 1,000 acres. This would create a mosaic of vegetation types within an open forest landscape. Some areas would receive a wildfire event more frequent than others, allowing overstocked pockets to escape a fire-modifying event. These overstocked areas provide important functions to the forest by providing bedding areas, thermal cover, and suppressed trees. They can range in size from several acres to over 100 acres and provide resilience to changing environmental conditions. The pockets of overstocked conditions cause tree stress that supports endemic populations of insects.

Past forest management activities have contributed to the landscape diversity. Salvage of dead or dying trees during the mid 1970's caused by tussock moth, regeneration harvests to distribute forage and cover in a way to optimize big game management, and the focus on even-aged management by the Forest Plan created patches of early successional stages. Plantations make up approximately 15 percent of the planning area, many of them are moving into the young forest stage. The regeneration units also provide early successional stages, a component of horizontal diversity. Early successional stages are relatively abundant making up approximately 13.3 percent of forest vegetation in the planning area. Late old structure single stratum forest is lacking.

The Historic Range of Variability (HRV) analysis covered 36,402 acres in the Phillips, Gordon, and Willow watersheds. The HRV analysis area covered forestlands that permitted timber harvest in the Forest Plan. The HRV analysis area included the North Mount Emily Roadless Area. The HRV analysis is summarized in the following table and is taken from the *Phillips Gordon Ecosystem Analysis*. SI is Stand Initiation, SECC is Stem Exclusion Closed Canopy, SEOC is Stem Exclusion Open Canopy, UR is Understory Reinitiation, YFMS is Young Forest Multistructure, OFMS is Old Forest Multistructure, and OFSS is Old Forest Single Stratum.

Forest Type	Total Acres		SI %	SECC %	SEOC %	UR %	YFMS %	OFMS %	OFSS %
Cold Forest	721	Current Historical	11 1 - 20	3 5 - 20	25 0 - 5	1 5 - 25	14 10 - 40	19 10 - 40	29 0 - 5
Moist Forest	22,376	Current Historical	11.8 1 - 15	1.6 1 - 25	15.1 0 - 5	11.0 5 - 25	30.2 10 - 60	19.5 10 - 60	10.8 0 - 5
Dry Forest	9,990	Current Historical	17 5 - 15	10.7 0 - 10	46.0 5 - 20	4.9 0 - 10	7.8 5 - 25	13.6 5 - 20	0 15 - 70
Non-Forest Grasslands	3,315								
Total	36,402	Current	13.3	4.4	24.7	8.9	23.1	17.7	7.9

The HRV analysis indicates that much of the planning area is above historical range for young open canopy stands. Stem Exclusion Open Canopy is above HRV for each biophysical environment. Even though Stem Exclusion Open Canopy is above HRV, 81 percent of it is in condition class 2 and 3, having missed two or more fire return intervals. The understory is more complex than what natural disturbance processes would have maintained. Old Forest Single Stratum is above HRV in the Moist Forest and Cold Forest. Field review of the units proposed for harvest indicated many of these stands to be Young Forest Multi Strata or Old Forest Multi Strata. Many of the Moist Forest stands are within the mixed fire regime having a short fire return interval causing stands to appear like the frequent fire regime. The Old Forest Single Stratum may make up a higher percent of the landscape as evident by the amount of large ponderosa pine in the stands. Much of the Old Forest Single Stratum (open forest) are now multistructured because Douglas-fir and grand fir have become established in the understory. The multistructured forest has higher stocking levels and higher canopy closure than would be found in open forest conditions. The Dry Forest is below HRV for Late Old Structure and no green trees larger then 21 inches will be cut. Since the objective is to return open ponderosa pine structure to the landscape, no ponderosa pine larger than 21 inches would be cut in any forest type.

Vertical and horizontal diversity are landscape components discussed in the Forest Plan Standards and Guidelines for Ecosystems and Diversity. Vertical diversity is measured by the degree of complexity in the above ground structure, either the more tiers of vegetation or the more diverse the species makes for higher vertical diversity. Vertical diversity is maintained by small-scale disturbance events such as insect and disease pockets, fires that occur at early successional stages when stands are "fire proof", and windthrow. The landscape will also have thickets of young trees because every acre does not burn when a fire returns. Vertical diversity in the frequent fire regime is seen in the development of cohort age grouping under an open canopy while in the infrequent fire regime it is the scattering of age classes and suppressed trees in the understory that create size and height diversity. There is a high degree of vertical structure in the forested stands, outside of plantations.

Horizontal diversity is a measure of the successional stages found across the landscape or the amount of edge. Large-scale disturbance events maintain horizontal diversity. Stand replacement wildfires renew stands to earlier stages over large areas; frequent, low intensity wildfires maintain open stand conditions. Windthrow events, root diseases, localized and catastrophic insect outbreaks provide disturbance events that form multi-aged stands or patches of early successional stages. For forest planning purposes early successional stages are developed through plantations. Even-aged management prescriptions emulate the renewal of a stand. Currently there are 4,840 acres of early successional forest in the HRV analysis area.

Forest Vegetation and Condition

The frequent and mixed fire regimes make up about 91 percent of the planning area. There are approximately 12,100 acres of frequent fire regime; 93 percent of the acres have missed two or more fire cycles. The mixed fire regime is in better shape, 44 percent of 8,050 acres have missed two or more fire cycles. Stand characteristics of missed fire cycles include increased stocking levels, additional canopy layers, smaller diameter trees, shade tolerant species, and increased ladder fuels. This overstocked condition has increased the risk and vulnerability of stands to damage by defoliating insects, dwarf mistletoes, and root rots. The increased fuel ladder structures could lead to stand replacement fire events. The increase of grand fir and Douglas-fir in the understory helps to proliferate root diseases and insects, such as spruce budworm and Douglas-fir tussock moth.

The recent drought cycle in the mid-1980's to early 1990's in combination with overstocked stand conditions has reduced individual tree vigor and predisposed susceptible tree species to increased incidence of insect attack. At endemic levels, insects infest and kill scattered overmature, slow growing, diseased trees weakened from intertree competition, lightning, fire or other mechanical injury. This scattered killing is part of the landscape ecological processes. When susceptible trees are abundant, insect populations can build rapidly leading to catastrophic damage.

The primary insects that have cyclic population levels in this area are Douglas-fir tussock moth, Douglas-fir and pine bark beetles, and western spruce budworm. Currently 93 percent of the planning area has a high risk for western spruce budworm infestation and 33 percent of the area is high risk for Douglas-fir tussock moth. Spruce budworm had been active in 1984 and again in the early 1990's. Bt was sprayed in 1988 and 1992 to control the budworm population. Douglas-fir tussock moth reached epidemic levels in the mid-1970's. DDT was sprayed in 1974 to control the moth. In 2000, Bt was used to control tussock moth outbreaks near the planning area. The early 1990's saw an increase in spruce beetle populations associated with blowdown events along Forest Road 3100, killing large diameter Englemann spruce.

Findings from the Phillips Gordon Ecosystem Assessment for upland vegetation include:

- 51 percent of the Moist Forest have stand densities within or above the "self thinning" zone where trees compete with each other for moisture, sunlight, and nutrients.
- 32 percent of the Dry Forest is within or above "self thinning" tree densities.
- Over most of the Phillips Gordon watersheds, the physical, biotic, and trophic networks are intact to support fully functioning forest ecosystems.
- A significant threat of stand-replacing disturbance exists within the Phillips and Gordon watersheds that could dramatically alter plant and animal structure and composition.
- The Phillips and Gordon watersheds support a relatively well-balanced distribution of seral stages and stand structures. Historical forest practices have resulted in substantial changes in the spatial pattern of vegetation diversity and complexity, particularly in the frequent fire regime were over-crowded, multi-strata forests were rare before fire suppression.

Field review indicated large areas of root rot in the area acquired in a 1993 land exchange along Phillips Creek. It needed more intensive mapping and vegetation planning than at this time. It is proposed to give this area further study and develop a management plan for control of the root rot.

Threatened, Endangered, and Sensitive Plant Species

The planning area was surveyed as part of the following seven plant surveys: Finley, 1990; 84I Dry Creek, in 1997; 84C Middle Phillips Creek Corridor, 1997; 84D East Phillips Creek, 1998; 84C Middle Philips Creek, 1998; 84B Little Phillips Creek, 1998; and 84E Upper Phillips Creek in 1998. The surveys did not find any Sensitive plants in the planning area.

Carex crawfordii and *Carex interior* are two plants added to the Regional Forester's sensitive list in May 1999 for the State of Oregon. These two sedges grow in perennially wet areas with surface water present during the growing season. Current completed surveys did not look for these species. Habitat for these areas would be protected within riparian habitat conservation areas (RHCAs).

Silene spaldingii was proposed for Federal Listing as Threatened on Dec. 3, 1999. It is known to occur on the Forest at the northeast corner of the Pomeroy Ranger District in open areas of deep Palousian soils, often on north aspects. No suitable habitat was identified during the course of sensitive plant surveys.

Pest Management (Noxious Weeds)

There are presently 10 species on the Umatilla National Forest's Noxious Weed List documented in the panning area. There are 101 sites totaling 1,630 gross acres or 157 net acres. Diffuse knapweed is the majority species making up 95 percent of the acres infested by noxious weeds. Other species include bull thistle, Canada thistle, houndstongue, spotted knapweed, tansy ragwort, flannel mullein, common burdock, klamathweed and yellow hawkweed. The knapweeds, tansy ragwort, yellow hawkweed and houndstongue all have a high or very high priority for treatment. Knapweed infests portions of the road system and represents the highest risk to infesting additional areas. Vehicle travel, hunter camps, and grazing are the most common vectors in spreading weeds in this area.

The majority of the net acres (90 percent) have already been included in the 1995 Decision implementing the Environmental Assessment for the Management of Noxious Weeds. Guidelines were established for the treatment of weeds that included hand and mechanical methods prior to the use of herbicide. There are 142 net acres included in the Noxious Weed EA and an additional 15 acres on 57 sites recorded since 1995. These are not new sites and do not indicate spread, they existed at the time of the EA. Records were incomplete at the time of the Noxious Weed EA.

Social Resources

Transportation System

The project area is accessed via Forest Road 3100 from the north or Forest Road 3738 from the south. Both roads intersect State Highway 204 west of Elgin, Oregon. There are 131 miles of road in the planning area including 7.5 State Highway 204. The Walla Walla District Access and Travel Management Plan designates 38.2 miles as open, 11.3 miles as seasonal,

13.1 miles as restricted, and 60.5 miles as closed. Open roads are available and maintained for passenger vehicles; other roads would require high clearance vehicles.

There are 49 miles of native surface roads of which 6.4 miles are open. There are 59.9 miles of aggregate surface and 20.6 miles of paved. There are 72 miles of maintenance level 1; 25.2 miles of maintenance level 2; 8 miles of maintenance level 3; 5 miles of maintenance level 4; and 13 miles of maintenance level 5. Yearly maintenance occurs on level 4 and 5 roads. Many of the roads have not been used for many years and need brushing, surface rock replacement, installation of cross drains, and ditches cleaned.

Total road density for the planning area is 3.8 miles per square mile with an open road density of 1.1 miles. Road density for Management Area C4 is 1.5 miles per square mile with an open road density of 0.32 miles. The total road density of Management Area E2 is 3.5 miles per square mile with an open road density of 2.24 miles.

Roadless Area and Undeveloped Areas

A small portion of the North Mount Emily Roadless Area falls within the project boundary, approximately 300 acres of the total 5,400 acres. No harvest or prescribed fire is proposed within or adjacent the roadless area. This inventoried roadless area is described in Appendix C of the Forest Plan, pages C - 150 to 157.

There are several Undeveloped Areas; two are larger than 1,000 acres. East Phillips Creek is 2,600 acres containing habitat for Snake River steelhead and has value for non-motorized dispersed recreation. Much of the area is steep, west facing slopes of grasslands and trees. East Phillips Creek and Pedro Creek are pristine systems with minor disturbance. Road access is from ridgetops that are closed under the Access and Travel Management Plan or from Forest Road 3738 along Phillips Creek. Prescribed fire and harvest are proposed in this area.

Elgin/Highway 204 is 1,110 acres. State Highway 204 forms the east boundary. Little Phillips Creek, also along the east boundary, is a Snake River steelhead stream. The hillside provides landscape character and the lower slopes are within Forest Plan Management Area A3, Viewshed 1. No actions are being proposed in this area.

Dry Creek is a 570-acre area adjacent to the North Mount Emily Roadless Area. The northern portion is Management Area C1, Dedicated Old Growth. No activities are being proposed in this area. There has been skyline logging in the past in this area.

Upper Dry Creek is 235 acres. It is old structure forest. No actions are being proposed in this area. It would be used to replace C1 that needs to be shifted 100 feet off Forest Road 3200 along Dry Creek (see Forest Plan Amendment).

The boundaries for undeveloped areas were determined by identifying a core area. Core areas provided interior habitat that was at least 300 feet from road disturbance. Three hundred feet was used because it is recognized for providing interior habitat for old growth habitat, it is used by the Eastside Eco Screens. Fingers where generated between road systems. To provide interior habitat the fingers needed to be at least 600 wide. Fingers less than 600 feet wide were dropped. The boundary was than adjusted to readily definable landscape features, such as ridgelines between road systems.

Undeveloped areas, Condition, Goals, and Management actions

Undeveloped Area	Inherent Characteristics	Management Goal/concerns	Management Actions
Dry Creek 570 Acres	1. Adjacent to existing Roadless Area.	1. Close to Forest boundary. 2. Much of the area has been harvested using skyline or tractor logging to the existing road system. 3. Concern for high intensity wildland fire. Much of area is in condition class 1.	1. No actions are being proposed at this time. Will need to maintain the area in Condition Class 1. 2. The amount of past harvest activity does not lend the area to be considered for an extension of the North Mount Emily Roadless Area.
East Phillips Creek 2,600 Acres	1. Habitat for Snake River steelhead. 2. Diversity of plant and animal habitat. 3. Primitive nonmotorized dispersed recreation. 4. Isolated stream system with restricted access from ridgetop road system.	1. Mostly frequent fire regime with mixed regime along the streams. Mostly condition class 2 and 3. Maintain frequent fire character and a low resistance to control. 2. Grass-tree mosaic with dense canopy along riparian corridors. 3. East Phillips Creek has had skyline logging in the 1970's.	1. Landscape prescribed fire with some harvest pretreatment. 1,475 acres of prescribed fire with 225 acres by helicopter.

Undeveloped Area	Inherent Characteristics	Management Goal/concerns	Management Actions
Elgin/Highway 204 1,110 Acres	1. Habitat for Snake River steelhead along Little Phillips Creek. 2. Landscape character and scenic integrity. A3 along Highway 204.	1. Evenly split between mixed and frequent fire regimes. Mostly condition class 2. 2. Upland areas of grasslands and forest are in condition class 3. Adjacent to Highway 204 and 3 miles from Elgin. Concern for intensity of wildland fire.	1. Field review indicated there was no need for treatments at this time.
Upper Dry Creek 235 Acres	1. Diversity of plant and animal habitat.	1. Mainly Old Forest Multistructure. Use to replace Dedicated Old Growth (C1) that Forest Road 3200 passes through the east edge of and for shifting the C1 boundary 100 feet from road.	1. Forest Plan Amendment to adjust the C1 boundary.

Recreation

Although the area is close to State Highway 204 and the town of Elgin, the area receives little recreation use. The majority of use comes in late summer and early fall as hunting. There are two dispersed sites on Phillips Creek; others are located along ridgetop roads. Forest Road 3734 accesses Middle Ridge from Highway 204 and provides a pick-up point for hunters or skiers coming from above. Hunter camps are also located where Forest Road 3734 is closed. The 3734 road system also provides access for mountain biking.

Winter use is light. A main snowmobile route is located at the top of the planning area on Forest Road 3100 with a warming shelter near the intersection of Forest Roads 3100 and 3200 at Ruckel Junction. Middle Ridge, Forest Road 3734, also provides cross country skiing.

Visual Quality

There are 1,466 acres of Forest Plan Management Area A3 – viewshed 1along Highway 204. There are also 1,231 acres of A4 – Viewshed 2 along Forest Road 3100.

A3 would be managed as a natural appearing landscape. Visual quality objectives would be retention in the foreground and partial retention in the middle ground. Vegetative manipulation would be conducted so that Forest management activities are not noticeable in the foreground and remain visually subordinate in the middle ground. Forest stands would be occasionally logged in order to maintain long-term health and vigor, and to encourage park-like, natural appearance with big trees in the immediate foreground. The viewshed should have a mix of size classes of trees with an emphasis on viewing large trees and multi-aged stands. Created opening size would range from one to two acres for uneven-aged management objectives, and 3 to 10 acres for even-aged objectives. The percent of Created openings would range from 8 percent in retention to 20 percent in partial retention. Currently created openings make up 3.5 percent of the A3 area. One stand was clearcut in 1989 creating a 15 plus acre opening. This harvest occurred before the Forest Plan was implemented.

A4 would be managed as a natural to slightly altered landscape appearance. The viewshed would be managed to meet partial retention and modification visual quality objectives. Vegetative manipulation would be conducted so that Forest management activities remain visually subordinate in the foreground. Management activities would be obvious in the middleground and background, but designed to compliment their surroundings. Forest stands would occasionally be logged in order to maintain long-term health and vigor, and to encourage a park-like, near natural appearance with big trees in the immediate foreground. The viewshed would be managed for an overall mix of size classes of trees. The percent of created opening would range from 10 percent in the foreground to 20 percent in the middleground. The size of opening should not exceed 2 acres for uneven-aged management objectives and 5 to 10 acres in size for even-aged management objectives. Currently 3 percent of the A4 area is in created openings. One stand in the foreground was clearcut in 1987 creating a 24 plus acre opening. It is currently regenerating to lodgepole pine, ten to fifteen feet tall.

Timber

There has been 10,825 acres of past timber harvest beginning in the 1950's. Many acres were salvaged in the early 1970's during the last major tussock moth outbreak. Regeneration harvest totals 3,288 acres most of this is approaching 25 years old. The table below shows the harvest activity within the planning area. The "current acres" column represents the existing condition by silvicultural prescription. The other columns show harvest by decade and represent multiple harvest entries on the same acres.

Harvest History in the Planning Area

Prescription	Current Acres	1950's	1960's	1970's	1980's	1990's
Clearcut	1,360	502	1,022	26	275	290
Patch Clearcut	108	15	41	16	19	17
Sanitation	1,116	248	1,180		900	605
Salvage	593					620
Commercial Thinning	4,369		2,215	8,684	682	
Overstory Removal	916				600	323
Group Selection	250					250
Single Tree Selection	293		110	221		
Shelterwood	1,820		260	1,730	882	305
TOTAL	10,825	765	2,828	10,677	3,358	2,410

Communities

Local county populations likely to use the resources or be impacted by management activities within the planning area include Union, Umatilla, and Wallowa Counties in Oregon, and Walla Walla County in Washington. People from outside the countries visit the National Forest but most never leave the main highways. Most people pass through the area on Oregon State Highway 204. The major users of the area would be locals, gathering personal use firewood or post and poles, hunting, or berry or mushroom gathering, or other disperse use. During hunting season most users come from outside the local communities. Some demographics and trends for these counties are found in US Census Bureau reports and summarized below.

County	2000 Population	Percent Growth since 1990	State Growth since 1990	Percent Minority Population	Largest Minority group
Union	24,530	4	20.4	6.9	Hispanic
Umatilla	70,548	19	20.4	22.5	Hispanic
Wallowa	7,226	5	20.4	4.3	Hispanic
Walla Walla	55,180	14	21.1	21.2	Hispanic

The following table shows some selected business patterns for the counties, also based on the US Census Bureau information from 1996.

County	Total Number of Workers	Agricul-tural Percent of Work-force	Construc-tion Percent of Work-force	Lumber and Wood Products % Work-force	Lumber and wood Products Percent of annual Payroll	Transpor-tation Percent of Work-force	Wholesale Trade Percent of Work-force	Retail Trade Percent of Work-force	Retail Trade Percent of Annual Payroll	Services Percent of workforce	Services Percent of annual payroll
Union	6,834	< 2	4	15	35	4	6	33	20	27	23
Umatilla	17,480	< 2	5	4	7	5	7	26	17	28	24
Wallowa	1,460	< 2	11	12	23	4	< 5	28	23	31	26
Walla Walla	16,520	< 2	4	6	8	4	5	22	13	46	38

Walla Walla and Umatilla Counties are not timber dependent communities. Union and Wallowa counties appear to be timber dependent based on the percent of employment and or the percent of the total annual payroll for lumber and wood products. Lumber and Wood products jobs appear to provide the higher wages based on the percent of the workforce employed and the percent of the total annual payroll.

Findings from *Forest Management in the Blue Mountains: Public Perspectives on Prescribed Fire and Mechanical Thinning*:

A survey has conducted by the Blue Mountains Institute about the Blue Mountain communities' perspectives on the use of fire and mechanical thinning to restore forest health in the Blue Mountains. Most residents have traveled extensively in the Blue Mountains and pay attention to forest issues; 84 percent were at least moderately informed about forest conditions. The majority rated Forest conditions as unhealthy based on personal observations. Findings include:

- Prescribed fire is generally a useful, safe, and an acceptable practice. Local forest users are willing to live with the resulting short-term impacts on soils, wildlife habitat, water quality, recreation, and scenic views. The study showed 84 percent support of a management policy of prescribed fire over not using prescribed fire.
- Most people agree that mechanized thinning is an effective tool for minimizing insect and disease damage to the forests. Overall, 93 percent support a policy of mechanical thinning for reducing forest disease and infestation over not using the practice.
- In ranking treatment, 76 percent preferred selective thinning over using prescribed fire (16 percent), with 8 percent opting for no program, preferring instead to let nature take its course.

The Treaty with the Walla Walla, Cayuse, Etc, 1855, ceded this area to the United State government. Traditional uses that still occur in the area include gathering and hunting. The Phillips Creek watershed contains a steelhead fishery, an important resource to the Confederated Tribes of the Umatilla Indian Reservation. The area was an important travel route between the Umatilla and Grande Ronde basins.