V. Management Implications

A. Synthesis

Issue	Physical Influences	Biological Influences	Social Influences
What are the influences and relationships between erosion processes and other ecosystem processes (e.g., vegetation, woody debris recruitment)?			
Erosion Processes	Fire, especially stand replacing fire, has been a primary physical influence on erosion processes in this watershed. This area has the highest incidence of lightning-caused ignitions on the Ranger District. In addition, it has a history of large -scale, catastrophic fires. Some fires were stand replacing and others just underburned the stands. The climate and topography have also influenced fire history. Some area in the watershed receive some of the lowest precipitation on the district, which influences vegetation and therefore fuels and rates of fire spread. After a fire has burned, gravity in combination with water, wind, etc. Influence the amount of erosion on the hillsides.	The rate of vegetative reestablishment, following catastrophic events such as fires or management activities such as timber harvest, is an important biological influence on erosion. In addition, vegetative material, especially large logs and intact root systems, help to stabilize slopes from erosion. Leaf litter and other organic matter, help to shield soils from raindrop impact and erosion. When stand replacing fires burn through an area, vegetation and its shielding effects are removed and erosion rates generally increase for a time.	Fire suppression influences the fuel loading on the landscape. In the absence of fire, fuel loadings gradually build up over time. With more fuel, wildfires will burn with greater intensity than under natural conditions when fires burned through areas with greater frequency and much less intensity. These intense fires tend to damage soils and consume vegetation, which when combined with climatic events, can increase erosion rates. Conversely, by having fire suppression, vegetation persists on the landscape to hold the soil in place and erosion rates may decrease well below some long term rates. Land management activities such as timber harvest; road construction and maintenance; trail construction and use; etc. influence erosion processes as well. Harvest practices such as type of logging system, log suspension requirements, silvicultural prescription, etc. can influence erosion rates. Furthermore, road construction techniques and amount of road maintenance can influence erosion rates. Human-caused fires remove vegetation and may damage soils. When combined with climatic factors, such as storms, they may influence erosion rates.

Issue	Physical Influences	Biological Influences	Social Influences
What are the influences and relationships between hydrology and other ecosystem processes in the watershed (e.g., sediment delivery, fish migration)?			
Flow (both peak and minimum flows)	Fire, topography, soil type and precipitation influence stream flows: fire removes vegetative cover, which can influence snow accumulation etc.; soil type influences water holding capacity, and precipitation type and intensity influences the amount of water entering the system that contribute to peak and low flows.	Vegetation in combination with precipitation and topography influences stream flows: the size of tree canopies affect snow accumulation and the amount and timing of water reaching stream channels; root systems extract water; the spatial distribution of vegetation across the landscape and the topography influence how much water reaches the stream channels.	Past stream cleanout activities, where large woody material was removed from stream channels was one of biggest social influences on flows. Reduced wood, minimized sediment storage and increased stream energies causing downcutting. This eventually led to stream channels being disconnected from their flood plains, so water did not have a place to spread out and reduce energies during high flows. This led to more water in the channels with higher energies. Wood removal also decreased water storage areas within flood plains, once streams were no longer associated with the floodplain, they no longer stored water there to be released during periods of lower flows. Timber harvest, road construction and the powerline right-of-way result in decreased vegetative cover, less precipitation intercept, and increased peak flows.

Issue	Physical Influences	Biological Influences	Social Influences
What are the influences and relationships between stream channels and other ecosystem processes in the watershed (e.g., inchannel habitat for fish and other aquatic species, water quality)?			
Channelbank stability	Rain-on-snow events which generate peak flows have a profound influence on channelbank stability Fire can either consume wood and make it unavailable to stream channels or it can create downed wood for stream channel structure. The amount of available structure in the channel influences stability	Natural mortality, insects or diseases, or other damaging agents to can kill large trees that can provide structure for stream channels and help to stabilize channelbanks Vegetation and root strength can increase channelbank stability	Riparian areas attract recreation use. This recreation use has several influences on channelbank stability. For instance, access trails to water and removal of down wood for firewood can affect channelbank stability Facility protection often results in channel constriction, so the stream does not occupy its flood plain, which in turn affects channelbank stability. Examples where this could happen is in the potential repair of Jefferson bridge that was undermined when the stream channel changed locations during the 1996 storm event. Also, in the summer homes, which are in a riparian area, people have tried to redirect stream channels that have moved, so as not to destroy their structures Timber harvest, road construction and other management activities affect vegetative cover and can influence channelbank stability

Issue	Physical Influences	Biological Influences	Social Influences
What are the influences and relationships between water quality and other ecosystem processes in the watershed (e.g., mass wasting, fish habitat, stream reach vulnerability)?			
Temperatures	Solar radiation increases stream temperatures Geothermal influences can locally increase water temperature and mineralization. Downstream impacts are not known at this time	Vegetation distribution and development influences stream shade which can affect stream temperatures and erosion processes which can affect turbidity	Recreation and timber management, road construction affect erosion and shade and can affect temperature and turbidity
Turbidity	Fire, in combination with vegetative cover and weather, produce erosion and sediment into stream channels affecting turbidity Type of soil can influence the amount of turbidity, those prone to debris torrents introduce more sediments affecting turbidity than those that are not so prone Type and intensity of precipitation can influence erosion rates and thus turbidity	Lack of large wood in stream channels affects sediment storage and turbidity	
Biological Contaiminants		Organic decomposition can introduce biological contaminants to water	Human waste, fish stocking, fertilization, and other substances can contribute to biological contaminants

Issue	Physical Influences	Biological Influences	Social Influences
What are the influences and relationships between vegetation and seral patterns and other ecosystem processes in the watershed (as they relate to the issues of old growth, plant community and seral stage distribution, insects and diseases, noxious weeds and biodiversity)			
Old growth	Fire occurrence is one of the larger physical influences on *old growth* distribution in the watershed.	Insects and diseases can set the stage for catastrophic fires, thus influencing amount and distribution of *old growth*	Management activities and road construction, as well as, human-caused fires influence the amount and distribution of *old growth*.
Plant community and seral stage distribution	Physical influences on *plant community and seral stage distribution* include fire, soil, slope, aspect, microclimate, precipitation, etc.		Management activities such as timber harvest affect seral stage distribution across the landscape
Insects and diseases	Climate, especially drought, windstorms and the blowdown they bring, floods and the down wood resulting, have a significant physical influence on *insect and diseases* severity.	Vegetative competition, including inter-tree competition, can affect *insect and diseases* by increasing demands for nutrients, moisture and light.	
Noxious weeds	Soil disturbance has a large influence on *noxious weed* spread.	Lack of competition from native plants, spread of seeds by animals, and lack of natural predators and diseases influence the rate of spread of *noxious weeds*	Human movement can spread seeds of noxious weeds from one place to another
Biodiversity	Fire, climate, and topography influence lanscape level *biodiversity*.	Insects and diseases, and vegetative competition influence *biodiversity*	Management activities can influence biodiversity.

Issue	Physical Influences	Biological Influences	Social Influences
What are the influences and relationships between aquatic species and habitats and other ecosystem processes in the watershed?			
Maintaining habitat components for native species	Solar radiation and its influence on stream temperatures affect the health of fish populations Erosion and the resulting sedimentation affect fish survival and reproductive success The complexity of stream channels (i.e. pools, riffles, large wood) etc. affect carrying capacity of fish habitat	Vegetation such as trees provide: channel structure that can affect streambank stability; shade that can moderate stream temperatures; and organic matter input that can affect productivity	Construction of Detroit dam affected the ability of migratory fish to migrate thus contributing to the decrease or elimination of those species above the dam Road construction, timber harvest, and various other human uses affect sediment in stream courses and affect fish survival Recreational fishing pressure affects fish populations Fish stocking programs

Issue	Physical Influences	Biological Influences	Social Influences
What are the influences and relationships between terrestrial species and habitats and other ecosystem processes in the watershed?			
Maintaining habitat components for native species	Fire can influence vegetative seral stages and affect habitat of species dependent on them Climate (wind srorms, snow storms, etc.) can influence fragmentation of interior habitat and development of edge habitats through blowdown or snowdown. Topography (i.e. elevational differences, etc.) can influence vegetative species composition, etc. and therefore habitat types.	Vegetative condition can influence species dispersal, foraging, and reproduction.. Species adaptation to certain habitat types can influence what species are present in given habitats	Management activities such as timber harvest, road construction, powerline development, etc. can influence habitat effectiveness, connectivity, etc. Human uses can influence habitat disturbance and degradation, reproductive success, habitat removal, animal harassment, predation, etc.
Conflicting habitat needs			Conflicting habitat requirements of various species (i.e. owls and elk) require humans to make choices between species in their management, sometimes to the detriment of another species
What are the influences and relationships between sustainable communities and other ecosystem processes?			
Sustainability of forest-product dependent communities	**Soil, slope, aspect, elevation, climate, etc. influence vegetative growth, which in turn influences the potential products available from the forest.** **Soils and slopes affect potential for development (i.e. roads, recreation facilities, etc.)**	**Vegetation, especially trees, provide the primary forest product utilized by local communities**	**Scientific research, public sentiment and political processes, etc. can influence forest management practices, which in turn, can influence the amount and types of products available to local communities.**
What are the influences and relationships between scenic quality and other ecosystem processes?			
Management of the landscape for Scenic Quality	**Fire, geology, topography and water all influence the scenic character of the area**	**Vegetative reestablishment following management activities and or catastrophic events influences scenic quality**	**timber harvest and road construction have altered scenic quality**

Issue	Physical Influences	Biological Influences	Social Influences
What are the influences and relationships between facilities and other ecosystem processes in the watershed?			
Maintaining facilities Public Safety	Topography and soil types determine facility locations Weather such as snow, floods, wind, etc. can damage facilities Facilities deteriorate with age Erosional processes can create safety hazards or damage to facilities	Trees can create safety hazards or facility damage	Vandalism Use (wear and tear) Demand and need influences types of facilities created
What are the influences and relationshhips between human uses and other ecosystem processes in the watershed			
Recreation Supply and Demand	Landform and topography influence human use patterns. In the Breitenbush, the steep topography concentrates use mostly in the valley bottoms where slopes are flatter. Topographic features such as peaks, high Cascade plateaus, etc. are also recreational attractions. Water and geothermal hot springs are recreational attractionss and increase social crowding in popular areas. Weather controls when people recreate and the type of activity in which they engage	Old growth or mature Douglas-fir forests and other vegetation provide the recreational setting and influence the type of recreational activities that occur in an area Fish and big game provide recreation opportunities such as hunting, fishing, and wildlife viewing	Construction of Detroit Dam , that formed Detroit Lake serves as a recreational destination and influences social crowding. An improved transportation network and proximity to urban areas provided easier access to recreational opportunities and increased social crowding. Population growth, socio-economic status and cultural background influences user demand Funding levels influence ability to provide for recreational demands. Social capacity in excess of resource capacity increases resource impacts such as compaction, etc.

V. Management Implications

B. Recommendations

i) *What and where are the opportunities for management, restoration or improvement within the watershed?*

Issue: Influence of Human Activities on Erosion Processes	
Objective	**Potential Treatments**
Restoration of erosion-prone areas	1. Develop a road and traffic management plan which includes priorities for road decommissioning and storm proofing 2. Aggressively decommission and storm proof high- risk local roads, to reduce risk of catastrophic failure during storm events. Priorities are central, western, then eastern landform blocks. 3. Sidecast pullback of unstable road fills on steep hillsides. Priorities are central, western, then eastern landform blocks. 4. Revegetate erosion-prone, denuded areas using native vegetation
Minimize erosion potential from management activities	1. Avoid management activities such as timber harvest on areas of active slope instability or potentially highly unstable (not necessarily unsuited) terrain. Priority is in the central landform block. 2. Reintroduce large woody material into deficient stream channel reaches. This is one of the highest priorities from an upland standpoint. Priority is in the central landform block. 3. Retain green trees on critical sites. Priorities are central, western, then eastern landform blocks. 4. Retain duff and large woody material. Priority is in all landform blocks. 5. Reduce fuel loading, by low-intensity prescribed fire or other method such as hand piling, in identified hazard areas that threaten soil stability. Priorities are eastern, central, then western landform blocks.

Issue: Peak flows and minimum flows	
Objectives	**Treatment**
Minimize effects of peak flows	Fire prevention and fuel treatment to minimize risk of vegetation loss, fire impacts of soil infiltration rates, etc. that contribute to peak flows Spatially distribute timber harvest across the landscape, rather than concentrate it is small areas Within other resource constraints, encourage development of at least 70% canopy closure to intercept snow, etc. thereby regulating the amount of precipitation reaching stream channels (highest priorities are in drainages below ARP tresholds) Reduce drainage network through actively decommissioning and storm proofing roads Reconnect stream channels to their floodplains to reduce energies from peak flows by allowing water to spread out over a larger area. This would be done through capturing sediment, reducing stream energy and increasing stream structure In specific stream reaches and with interdisciplinary and public input, mechanically reshape channels in the Breitenbush, stabilize the areas with large woody debris to reduce stream energies so sediments are deposited. This will reduce downcutting and the channels will begin to build up to the level of the floodplains
Maintain desired level of minimum flows	Create additional water storage areas in the floodplain by reconnecting stream channels to the floodplains

Issue: Channelbank stability	
Objectives	**Treatment**
Promote channelbank stability	Prior to management activities, evaluate resistance of channelbank to erosion and design projects to fit the channel conditions Implement Best Management Practices during management activities such as timber harvest and road construction Restore unstable channelbanks through introduction of channel structure such as large wood and boulders and mechanically reshape channels to increase stability. Priorities are in the central landform block. Facilitate vegetative growth on the channelbanks to promote stability Within other resource constraints, manage identified headwater areas for future large woody material recruitment into stream system Revegetate broad flood plains with conifers, concentrate on portions that are stable. Evaluate fuel loading and fire risk within riparian reserves. Where appropriate, manage fuels to minimize risk of stand replacing fires Mitigate channelbank destabilization that occurs in areas of high recreation use Apply Forest Plan riparian reserve widths during project implementation as this analysis did not identify any ecosystem process or species that would benefit from narrower widths. Monitor stream restoration work and stream dynamics for Breitenbush and Devils Creek.

Issue: Water temperatures	
Objectives	**Treatments**
Maintain year-round stream temperatures at 58 degrees F. or below	Maintain forest plan riparian reserves on springs, streams and also on seeps contributing significantly to temperature regulation , to provide thermal regulation of water In selected areas where large conifers are not present in riparian areas, implement silvicultural practices to stimulate growth so trees will eventually shade streams. Evaluate locations based on various resource considerations such as biodiversity, etc. Revegetate streamside areas where vegetation is not providing adequate shade Evaluate and modify timber types, where appropriate, along selected stream reaches from deciduous to conifer species. Maintain and enhance water storage areas in floodplains, so in times of low flow there is more water available to cool stream temperatures Study geothermal influences on water temperatures Evaluate fuel loading (hazard) and risk of fire starts, and manage fuels to minimize risk of stand replacing fire, in order to maintain vegetative cover, etc.

Issue: Turbidity	
Objectives	**Treatments/Opportunities**
Balance social and biological turbidity needs within the physical parameters of the watershed	1. As directed by Best Management Practices and standards and guidelines, minimize erosion by careful selection of harvest units and other management activities outside of erosion-prone areas 2. Clean out culverts and complete access and travel management plan to allow for road decommissioning and/or storm proofing. Priorities are central, eastern, then western landform blocks. 3. Recommend raising threshold ARP levels to 75% on Byars, Slide, Wind, and Cliffs planning subdrainages. Raising beneficial uses from low to moderate. 4. Minimize potential risk of wildfire through active fuels management and fuel treatment. Priorities are eastern then central landform blocks. 5. Implement standards and guidelines to retain large organic material (i.e. down logs) on the uplands 6. Evaluate and design large wood placement opportunities within streams. Priority is in the central landform block. 7. Develop a Fire/fuels Management Plan. Evaluate and treat areas at high risk for stand replacing fire, where appropriate 8. Revegetate debris torrent prone headwall areas and other sites prone to erosion, where appropriate 9. Complete Access and Travel management plan for entire watershed.

Issue: Biological Contaminants	
Objectives	**Treatments/Opportunities**
Monitor biological contaminants	Study sources of contamination to determine what contaminants there are, where and why the occur, how they affect the ecosystem and develop methods to mitigate impacts
Mitigate impacts of biological contaminants	Implement recommended methods to decrease impacts of contaminants Install sanitary facilities along the Breitenbush corridor and other concentrated dispersed areas, and replace existing old ones as needed.

Issue: Harvest of Old Growth		
Objectives	**Treatments**	**Data Source**
Old growth protection	Implement standards and guidelines to protect late-successional characteristics in Late Successional Reserves, Riparian Reserves, and in required areas within the matrix, etc.	Amended Forest Plan
Old growth harvest	Implement Forest Plan objectives in matrix lands	Amended Forest Plan

The following discusses management by various land allocations:		
Late Successional Reserves		
Develop old growth characteristics	Planting multi-species	Reforestation Needs
	Precommercial thinning	Map of unthinned stands<20 years old, acre report
	Commercial thinnings	Map and report of stands in size class 3.5 to 4.0 , 20 years old
	Create snags	Map of snag density by stand size class
	Salvage	Identify areas of blowdown >10 acres which retart old growth development
	Large wood placement	Map of downed wood occurrence
Prevent large scale disturbances	Treat existing slash by prescribed fire, fuel breaks, or prescribed natural fire.	Current treatment needs
	Prescribed fire, fuel breaks	Map of fire risk, fuels, stand size, past fires, human activity, access, insect damage, blowdown, aspect, slope

Riparian Reserves		
Maintain/restore structural diversity, provide adequate coarse woody debris, large trees	Precommercial thinning	Map of unthinned stands<20 years old, acre report
	Commercial thinning	Map and report of stands in size class 3.5 to 4.0
	Fertilization	Thinned stands not fertilized in the last 7 years
	Salvage	Identify salvage where conditions don't meet riparian reserve objectives
	Large wood placement	Identify streams deficient of large wood
Matrix		
Commercial timber sales	Regeneration harvests Commercial thins Salvage Other partial cuts	Map of matrix, size class, stand exams, LMP classification, salvage, insect and disease activity, non-timber resource needs
Maintain and enhance growth and health of managed stands, assure reforestation within 5 years of harvest	Precommercial thin	Map and report of unthinned stands <20 years old
	Planting/site preparation	From current reforestation needs
	Pruning	Thinned stands <30 years old on high site class lands, and white pine stands (for blister rust control)
	Release, animal control	Identify stands with less than recommended stocking or growth
Issue: Noxious Weed Control		

Minimize the spread of noxious weeds	Systematic removal of scotch broom in the Breitenbush	
Issue: Ecological Diversity		
Create big game forage	Regeneration harvests, seeding in winter range	Soils, plant association maps to identify high potential sites
	Regeneration harvests, site preparation, seeding on beargrass dominated sites	Map of plant associations in mountian hemlock series
Restore role of underburning	Understory removals, underburning	Identify stands with historic underburning
Wilderness		
Reduce stand replacing fire occurrence, restore fire dependent ecosystems	Prescribed fire or by a prescribed natural fire plan	Identify hazards and need for treatment from maps of insect activity, stand size, past fires and cause, physical features, fuels, etc.

Issue: Habitat components necessary to sustain native fish populations	
Objective	**Treatment/Opportunity**
Maintain or restore habitat complexity	Evaluate current habitat condition following the Flood of 1996 and determine appropriate restoration projects (may include: large woody material placement, etc.)
Maintain or reduce stream temperatures	Increase stream shade in areas deficient of shade Fire prevention Fuels reduction in high hazard areas
Manage amount and timing of sediment as a result of management activities	Follow recommendations for timing of instream work issued by the Oregon Department of Fish and Widlife
Maintain or enhance stream complexity	Introduce large woody material into deficient channels
Issue: Reintroduction of Native Species	
Provide adequate habitat to sustain populations once migration issue around dam is resolved	Evaluate current habitat condition following Flood of 1996 and determine appropriate restoration projects (may include: large woody material placement, etc.)
Issue: Introduction of non-native species	
Evaluate impacts of non-native populations on the ecosystem (i.e. stocking fishless lakes)	Study ecosystem effects Work cooperatively with ODFW and public input to determine action to take regarding non-native species Do not introduce non-native species into anymore new areas while evaluation is being done

Issue: Habitat components necessary to sustain native species: Peregrine Falcon	
Objective	**Treatment/Opportunity**
Protect integrity of peregrine nest site and protect/enhance breeding habitat surrounding the nest site	1. Develop a Peregrine Falcon Management Plan within the next year (1997) that accomplishes the following: • Protects breeding habitat • Establishes specific direction for management of the habitat • Prevents habitat disturbances and directs human interference away from the nest site • Provides suitable habitat for prey species near the nest site • Establishes monitoring criteria 2. Consult with US Fish and Wildlife Service and peregrine specialist, Joel Pagel on placement of Urban Link trail. Contact project leader regarding peregrine concerns
Maintain/enhance area surrounding peregrine eyrie to attract a diversity of avian prey species	1. Maintain/enhance grass/forb, early successional stands, abundant snags and hardwood stands according to Peregrine Management Plan. This would be outside of the LSR.
Monitor	1. Determine nesting chronology, reproductive success, disturbances, foraging behavior, etc. on an annual basis.

Issues: Habitat components necessary to sustain native species: Northern Spotted Owl	
Objectives	**Strategy/treatment**
Increase nesting habitat in LSR	1. Develop Late Successional Reserve Assessment. 2. Implement silvicultural techniques to develop late successional characteristics in identified areas of the LSR. Target stands in LSR that have known spotted owl pairs or resident singles that are deficient of habitat; or large openings like Switchagain and portions of Devils Creek.
Maximize protection of owl habitat in LSR from fires	1. Administer fuels reduction in high hazard areas in the LSR, where there are large patches of intact mature forests and nesting habitat. The areas around pairs 14, 66, and 89 would be first priority to treat. The area along the wilderness boundary near Crown Lake should also be treated. 2. Reduce fuels in critical areas infected with spruce budworm and in areas of heavy wood accumulations from snow breakages and from recent wind storms. Do not go below standards and guidelines for down woody debris. 3. Reduce spruce budworm activity in nest sites and other high priority areas with pheromones or by other means
Minimize habitat gaps	1. Lake Creek, North and South Forks, and Roaring Creek have areas that are flanked by young plantations. These areas should be targeted within the LSR for future opportunities to enhance and promote late-successional characteristics.
Provide adequate dispersal habitat	1. Enhance late-successional characteristics in riparian reserves using silvicultural techniques 2. Develop 11-40 conditions in quarter townships 09062 and 10061 through various silvicultural techniques to facilitate tree growth 3. Restoration and management of stands not meeting 11-40 conditions in Section 36 (T.9S., R.6E.) should be the highest priority for management to facilitate dispersal. 4. Stand enhancement should occur within the headwaters of Slide and Wind Creeks to move it toward meeting 50-11-40 conditions. Devils Creek riparian reserve and the headwaters of Skunk Creek should also be a priority to treat in order to reach dispersal habitat.

Maintain or enhance connectivity	1. T.9S., R.7E., Section 31: Maintain stands 4004303, 4004852, and 4004610 around Gale Hill for connectivity. Enhancement of stands 400852 and 4004610 could be a possibility. 2. Maintain connectivity in eastern half of sections 4 and 9 in T.10S., R.7E. 3. T.9S., R.6E., Section 31 and 32 and T.10S., R.6E., Section 5 and 6 in quarter townships 09063 and 10064 respectively. Retain stands that meet dispersal habitat and management other stands so as not to preclude dispersal in this area.
Monitoring	1. Monitor spotted owl populations and breeding success. Monitor habitat conditions 2. Work with Breitenbush Community to address potential effects of hiking trail on known spotted owl pair
Issue: Habitat components necessary to sustain native species: Red Tree Vole	
Determine status in watershed	1. Protocol is still being developed.
Issue: Habitat components necessary to sustain native species: Late Successional Habitat	
Promote late-successional characteristics	1. Develop LSR Assessment 2. Silviculturally manipulate stands to increase trend toward late successional characteristics
Issue: Habitat components necessary to sustain native species: Riparian Reserves	
Promote late-successional characteristics	1. Silviculturally manipulate stands to increase trend toward late successional characteristics
Promote spotted owl dispersal characteristics	1. Silviculturally manipulate stands to increase dispersal characteristics in areas deficient of dispersal habitat. 2. Minimize fragmentation

Issue: Habitat components necessary to sustain native species: Snag and Down Wood Habitat	
Promote development of snags and down wood in deficient areas	1. Girdling, topping, innoculation with fungus, etc. in deficient areas such as Eagle Rock, Short Creek and Canyon Creek.
Issue: Habitat components necessary to sustain native species: Special Habitats	
Enhance/rehabilitate special habitats	1. In a Forest Plan Amendment, recommend removal of the Special Wildlife Habitat Area designation from the Dunlap Lake area and designate it around the Geibler Lake area. Develop a management plan for the Special Wildlife Habitat Area 2. Survey and prioritize rehabilitation of identified special habitats that have been degraded by road construction, harvest, etc.
Big Game	
	1. Improve forage, especially in winter range for big game. Forage enhancement could be captured along closed roads. 2. Reduce number of road miles in both winter and summer range. Address snow plowing in winter range 3. In Short and Humbug MEA's initiate an upward trend for HEI to meet Standards and Guidelines. 4. Due to lack of forage in the watershed, special habitats should be monitored to determine if big game are negatively affecting these areas. 5. To achieve a higher quality of forage, fertilization and seeding with a big game forage mix should be added to future activities.

Other	
	1. Reduce fragmentation of late and mid seral habitat for large home range guilds. 2. Enhance and maintain mid and late seral habitats for all guilds. Priorities are in Switchagain area, Eagle Rock, and areas between Leone and Hill Creeks. Concentrate on specific habitat requirements for species of concern 3 Create forage in the matrix 4. Conduct goshawk surveys in the Breitenbush watershed to determine levels of use 5. Conduct surveys for species of concern in the watershed that have little or no known presence to determine abundance and distribution. 6. Develop a wildlife interpretive plan to increase of awareness of wildlife needs and habitat characteristics. This needs to be coordinated with overall interpretive plan. 7. Coordinate activities within the Winter Recreation Plan to meet big game winter range objectives

Timber Supply	
Objectives	**Treatments/Opportunities**
Provide for a sustainable timber supply	1. Set appropriate harvest level within the management allocation requirements and the ecological limits of the watershed 2. Use commercial timber harvest as one method of achieving a variety of ecosystem objectives such as thinning to increase growth and therefore development toward late-successional habitat
Community Economic Stability	
Provide a variety of forest products Balance communities needs for increased tourism/recreationaly opportunities, especially in the spring and fall, with other resource objectives	Post and poles through pre-commercial thinning, beargrass, boughs, rocks, Christmas trees, etc. Work with local communities to help determine ways to diversify their economies Develop a comprehensive Composite Recration Management Plan for the watershed to guide orderly development of the area Work with local communities to analyze potential tourism opportunities Implement fire prevention, fire protection and hazard reduction to a level commensurate with growth in tourism and populations

Objectives	Treatments/Opportunities
Scenic Quality	
Maintain and enhance the inherent beauty and integrity of the watershed	Develop a Breitenbush Viewshed Implementation Guide. The plan would provide a method for implementing principals set forth in the FS scenic resource management guides, handbooks and Forest Plan standards and guidelines. Due to the committment of portions of land base for LSR's and Riparian Reserves there is increased demand for timber production from visual corridors in matrix lands. This makes it essential to provide planners guidelines to optimize resource benefits as described in the Forest Plan. Implement recommended visual guidelines defined in the watershed analysis for regeneration harvests. Mt. Hood Forest: Develop a Landscape and Design Analysis for the Olallie Lakes Scenic Area. The analysis would address visual considerations when treating fuel for forest health reasons. Develop a Breitenbush Scenic Byway Corridor Management Plan. Implement fire prevention, fire protection and hazard reduction to a level commensurate with growth in tourism and populations

Objectives	Treatments/Opportunities
Facility Maintenance	
Maintain facility condition at or above acceptable standards	Replace and maintain facilities reported in the Recreation Facilities Condition Assessment
	Upgrade sanitary facilities at campgrounds, where needed
	Improve parking spaces in campgrounds to accommodate RV use
	Upgrade road 46 to meet Highway Safety Standards Act
	Develop Access and Travel Management Plan
	Repair Jefferson Bridge
	Minimize road failures by decommissioning and storm proofing roads that cannot otherwise be maintained
	Locate roads in stable areas
	Rehabilitate and stabilize Gold Butte Lookout
Inventory and monitor facilities	Survey facilities for repair and maintenance needs

Objectives	Treatments/Opportunities
Public Safety	
Provide for public safety	Fall danger trees that pose a threat to people or property. Develop a method to fund this activity, when salvaging the trees is not an option Prioritize hazard tree reduction based on facility development and use. Remove hazards within developed campgrounds, day use areas, summer homes, trailheads and parking areas, showshelters, popular dispersed camp sites (especially those with minimal developments), and major access roads, etc. Within 1 tree length of the main Breitenbush Road, manage to matrix standards and guidelines so that hazards, such as fuel build ups, and standing dead trees can be removed or reduced where risk of fire is high or scenic quality is adversely affected. Post warning signs of dangerous situations or facilities. Fire prevention and fuels management to reduce risk. Develop an evacuation plan in the Olallie Lake Scenic Area in the event of a fire. Provide road maintenance on roads used by the public. Develop a Scenic Byway Management Strategy that addresses public safety and other site specific objectives.
Remove barriers to dealing with public safety issues	Change the land allocation for adminstrative sites so that they do not include LSR or riparian reserve designations. Replace LSR acreage in another portion of the watershed.
Powerline Corridor	
Provide direction for management of the powerline corridor	Update Memorandum of Understanding with BPA and PGE for the powerline corridor Develop a Management Plan for the powerline right-of-way corridor considering such items as noxious weed control, wildlife habitat/forage, recreational opportunities, heritage site protection, special forest products, etc. Monitor implementation of agreements with BPA and PGE Inventory to determine condition of existing powerline right of way access

Objectives	Treatments/Opportunities
Recreational Supply and Demand	
Provide for a wide range of demanded recreational settings to achieve satisfactory user experiences	Develop a comprehensive composite recreation management plan for the Breitenbush watershed to guide orderly recreational development of the area. The guide would study public recreational demands, market analysis, visitor profiles, land suitability, and existing and desired future resource conditions, to make management decisions about recreational development within the ability of the natural and physical environment. Within ability of natural and physical environment, provide for existing demands; eg. improve parking near the Detroit Lake, Humbug trailhead, etc., provide day use facilities along the Breitenbush corridor, improve and create accessible recreation opportunities, provide new camping areas especially group areas, provide mountain bike and OHV trails, improve parking spaces within existing campgrounds to accommodate RV's, increase winter recreation opportunities, designate areas for special use events. Provide demanded semi-primitive opportunities within the LSR, where appropriate Develop an interpretive plan for the watershed. Breitenbush hot springs permit area has a unique and demanded resource. A study should be conducted on how this area should be developed. Work with local tourism/business development groups to complete a demands analysis, and assess potential and feasibility for site development (including resort, campground, group area, day use facility, etc.) Develop prospective based on recommendations. Develop a powerline corridor management plan that incorporated demanded recreational uses

Objectives	Treatments/Opportunities
Decrease resource impacts and improve aesthetics at recreational areas	Restore and rehabilitate resource damage surrounding lakes, streams and meadows in high use areas within the wilderness; revegetate denuded areas eg. transplanting, reduce camp barren core size, replace down wood, discourage use at nondesignated or undesirable campsites by making them unattractive (rock placements), etc. Close and rehabilitate high impact user created trails in Jefferson Park and other sensitive meadow and lakeside areas. Outside of wilderness, rehabilitate resource damage, install traffic control barriers, and develop facilities in heavily impacted campsites and user developed access trails and roads, especially within Riparian Reserves. Implement items on the Wilderness Implementation Schedule which sets up baseline data collection to evaluate impacts humans have on wilderness resources, eg. water quality, stock use on meadows, fish stocking program.
Gather information that is currently lacking	Update all campsite inventories to monitor current campsite conditions. Implement water quality studies at high use lakes and streams.
Provide stable funding to achieve recreation goals	Find alternative funding sources and partnerships

Objectives	Treatments/Opportunities
Increase solitude in wilderness by decreasing social encounters. Decrease resource impacts and improve aesthetics at recreational areas. Reduce user conflicts.	Evaluate, identify and implement ways to reduce encounter rates such as; limited entry, quota system (limiting number of day, overnight users and groups), designating campsites, closing areas to overnight use, increasing education, banning campfires, reducing size of trailheads, moving or eliminating trailheads, as appropriate
Reduce user conflicts.	Increase administration, management, education, and law enforcement in areas where conflicts are occurring. Identify areas for designation or development of specific or complementary activities to occur.
Gather information that is currently lacking.	Monitor encounters in wilderness areas, this information is lacking.

Data Gap/Monitoring

A Wilderness Implementation Schedule (WIS) has been developed to identify data needs and processes that will ultimately result in the Forest being able to meet wilderness management direction. The WIS basically sets up a baseline data collection and monitoring program. Funding will continue to be an issue as to whether wilderness implementation schedule items will be fully implemented. In the meantime, it creates a data gap from gaining a better understanding of the ecological function within wilderness or its natural and historic range of variability. Some priority considerations should focus around the fish stocking program and its affects on the resources and use patterns, and water quality at intensively used lakes. Furthermore, no baseline data exists to determine if human influences has had an effect on the overall functioning of the ecosystem in the short or long term.

LAC campsite inventories were last conducted in 1987-88. There is a data need to update LAC inventories in order to monitor campsite conditions for more accurate information for wilderness management decisions and future watershed analysis processes. In addition, monitoring the effectiveness of designated campsites and campfire bans will help with future management decisions. User trails have not been inventoried and require some future rehabilitation efforts.

Encounter monitoring is lacking in some places of the wilderness. As use increases throughout the wilderness, areas that have not had the intensive use may start to receive more use.

Data Gap

Dispersed campsite inventories were conducted in 1988. In order to more accurately monitor campsite conditions, a need exists to reinventory the sites for more current information. It would also benefit to include other sites such as non-system access roads and social trails.

In addition, dispersed use data is insufficient to give an accurate picture of the kind of use patterns that occur on a watershed scale. Sampling dispersed use information within each opportunity class by watershed would enable managers to track the conditions and use patterns/trends in order to make better management decisions.

Water quality studies need to be conducted and monitored especially in areas such as lakes that receive intensive use.

However, a Breitenbush Composite Area Management Guide should be developed to give general direction for the development of the area. This plan would recognize natural resources and the potential for recreation opportunities as they relate to public needs and desires, environmental setting, location and environmental protection.

An interpretive plan for the area is recommended to identify the opportunities and management strategies.