

HORSE CREEK WATERSHED ANALYSIS

CHAPTER 4

SIGNIFICANT FINDINGS AND RECOMMENDATIONS

INTRODUCTION

The following Tables summarize significant findings and recommendations documented in the Horse Creek Watershed Analysis. Information to support the recommendations can be found in Chapter 3.

Table 4-1: A summary of significant findings and recommendations documented within the watershed analysis. Detailed information to support these recommendations can be found in Chapter 3. The McKenzie RDMA evaluates all potential projects listed in watershed analyses at the beginning of each fiscal year, and determines their priority in the context of personnel availability, funding, and potential for resource impacts.

SIGNIFICANT FINDING	RECOMMENDATION	ACTION REQUIRED
AQUATIC HABITAT AND FISHERIES		
There has been a reduction in channel complexity (LWD and pools per mile, 40-50%) as a result of stream cleaning and flooding (1964 flood and 1933 moraine failure on South Sister)	Identify opportunities to restore channel complexity and recruitment frequencies based on historic levels in lower and upper Horse Creek. This could include LWD management, opening channels, or vegetation treatment in the riparian zone.	DEVELOP IMPLEMENT PLAN COORDINATE
One significant human-placed fish barrier currently exists in the watershed on Pothole Creek.	Improve fish passage at culvert barrier on Pothole Creek. A plan and finances has been established to correct this problem.	IMPLEMENT PLAN
Bull trout spawning/rearing habitat within in Horse Creek/Separation Creek is incomplete.	Based upon previous probes, focus future probes on Separation Creek (RM 0-4) and Horse Creek (in the Eugene Creek area). Include temperature in data collected. Actively coordinate increased survey efforts and data collection with ODFW. Establish redd index reaches.	COORDINATE WITH ODFW. SURVEY
Spring Chinook numbers have declined in the watershed.	Participate in monitoring efforts of spring chinook with resource agencies. Efforts would include establishment of index spawning reaches and juvenile rearing surveys.	MONITOR AND COORDINATE W/ODFW

SIGNIFICANT FINDING	RECOMMENDATION	ACTION REQUIRED
<i>AQUATIC HABITAT AND FISHERIES cont.</i>		
Brook trout are a threat to native cutthroat trout populations in the Horse Lake Complex, Nash Lake, and upper Horse Creek; and a threat to native bull trout wherever they occur in the watershed.	Participate in brook trout management with resource agencies. Monitor bull trout spawning/rearing for impacts by brook trout. Recommend no stocking of any trout species in lakes with reproducing native populations. Develop brook trout reduction program with resource agencies.	COOPERATE W/ODFW. DEVELOP BROOK TROUT PLAN TO REMOVE FROM WATERSHED
The extent of the impact of hatchery spring chinook and summer steelhead on wild spring chinook and native "redside" rainbow trout populations is unknown.	Assist resource management agencies in monitoring wild spring chinook and "redside" rainbow trout populations.	COOPERATE WITH RESOURCE AGENCIES
Introduced non-native trout in high lakes is likely impacting native fauna.	Determine high lakes biota and water quality in managed and un-manged lakes. Provide stocking recommendations to ODFW based on results.	CONTINUE HIGH LAKES INVENTORIES
Bull trout and Chinook are presently species at risk in the watershed.	Maintain or enhance habitat necessary to both species. Restoration of predator species (bull trout) requires restoration of prey species (spring chinook).	IMPLEMENT RESTORATION
1964 flood significantly altered channel pattern, complexity, and riparian vegetation	Recognize potential impacts of large flood events when planning management within floodplain and slide-prone upslope areas.	INFO FOR FUTURE PLANNING
1996 flood caused relatively insignificant channel changes. Localized bank cutting/bar deposition occurred.	Monitor vegetative recovery on depositional bars. Continue cross-sectional profiles to track channel changes.	MONITOR
Pre-1964 flood, lower Horse riparian vegetation dominated by conifers; post-1964 flood, areas dominated by hardwoods.	Silvicultural activities within the floodplain to promote conifer growth should reflect historic conditions.	INFO FOR FUTURE PLANNING

SIGNIFICANT FINDING	RECOMMENDATION	ACTION REQUIRED
<i>AQUATIC HABITAT AND FISHERIES cont.</i>		
<p>Water temperature in Horse Cr. meets anadromous temperature standards, but does not meet current bull trout standards as set by DEQ. However, background temperatures have only been minimally influenced by human activity.</p>	<p>Continue water temperature monitoring station in lower Horse Creek. Install temperature instrument in Separation Creek. Work with DEQ, USFWS, and ODFW to determine appropriate standards based on site-specific conditions.</p>	<p>INSTALL TEMP INSTRUMENT IN SEPARATION CR. DIALOG WITH DEQ/ODFW/USFWS FOR APPROPRIATE STANDARDS</p>
<p>Riparian areas on Class I and II streams fall within late successional reserves and wilderness.</p>	<p>Manage for ACS Objectives with consideration for extent of floodplain.</p>	<p>INFO FOR FUTURE PLANNING</p>
<p>Riparian Reserves widths on Class III and IV streams in the watershed could be altered following a Landscape Design if ACSO's can still be met.</p>	<p>Consider historic range of variability of landscape and ACSO's to determine riparian reserve widths.</p>	<p>INFO FOR FUTURE PLANNING</p>

SIGNIFICANT FINDING	RECOMMENDATION	ACTION REQUIRED
SOILS AND WATERSHED		
<p>The frequency of slope failures has trended outside of the historic range of variability due to road construction on slopes greater than 70 percent and/or on unstable soils or landforms, particularly on the FR1993.</p>	<p>Road alignments that are currently contributing to slope failures due to their position on the landscape or soil type should be evaluated for potential re-alignment or decommissioning. Field validate slopes, soils and landforms which should be avoided during future road construction. Full bench construction and end haul of material should be required where road alignments must be constructed on potentially unstable soils or slopes.</p>	<p>IMPLEMENT RESTORATION. INFO FOR FUTURE PLANNING.</p>
<p>The frequency of slope failures has trended outside of the historic range of variability where regeneration harvest has occurred on potentially unstable soils. Known slope failures related to land management occurred on SRI 16, 168, 203 and 612 soil/landform types.</p>	<p>Field validate soils and landforms that contribute to slope failures following regeneration harvest. Implement silvicultural prescriptions that leave sufficient numbers of live trees to maintain a relatively high evapotranspiration demand and an interlocking root network.</p>	<p>INFO FOR FUTURE PLANNING. INVENTORY</p>
<p>Upland grassland communities are uncommon and are decreasing in size due to extension of the fire return intervals through human intervention.</p>	<p>Accurately map grassland communities and the associated soils that were historically maintained by frequent fire. Re-introduce fire to these systems.</p>	<p>MAPPING AND RESTORATION WITH FIRE</p>
<p>The 1990 SRI Atlas (GIS spatial data base) does not reflect the diversity of various soils that occur within the watershed. These soil types include: rock outcrop, unsuited soils; wetlands; soils associated with fire disclimax grassland ecosystems; and soils common to riparian areas.</p>	<p>Accurately map the diversity of soils with project-level surveys. Priority should be given to mapping restrictive soil types (rock outcrop and unsuited soils), grassland, riparian and wetland soils and their associated plant communities.</p>	<p>CORRECT DATA AND INFO FOR FUTURE PLANNING</p>

SIGNIFICANT FINDING	RECOMMENDATION	ACTION REQUIRED
<i>SOILS AND WATERSHED cont.</i>		
As mapped with existing, un-field-verified SRI information, there are soils with high erosion potential throughout the watershed. These soils occur primarily in the Wilderness and within the LSR; however, they are present in the matrix allocation. .	Field verify the erosion potentials of soils on a project-level basis, and incorporate information in project design, adoption of BMP's, and site specific mitigation measures.	INFO FOR FUTURE PLANNING
The majority of soils are site class 4 & 5 (low productivity). These soils are located throughout the watershed, however, the least productive soils occur in the wilderness and steep slopes of the LSR. Matrix land allocations are dominated by higher productivity soils; however, site class 4 and 5 do exist in inclusions in these areas.	Validate soil productivity on a project level basis and adopt silvicultural prescriptions which address the ability to meet desired future conditions.	VALIDATE DATA. INFO FOR FUTURE PLANNING
A site-specific assessment of sediment production from roads and transport mechanisms into the drainage network has not been performed. Specific road alignments that indirectly contribute sediment into Horse Creek have not been determined.	Conduct surveys and map locations where sediment production from roads could enter the Horse Creek drainage network.	SURVEYS
Several residences on the east side of Horse Creek are located within the area potentially subject to flooding during >50 year flood events.	Share this information with landowners.	OBSERVATIONAL MONITORING

SIGNIFICANT FINDING	RECOMMENDATION	ACTION REQUIRED
<i>SOILS AND WATERSHED cont.</i>		
Two of the Midpoint ARP values should be updated due to additional information gained since the LMP was finalized in 1990: Lower Horse and Separation Creek.	Change the recommended Midpoint ARP for Lower Horse to 75-80 due to a high landtype sensitivity and high beneficial use of anadromous fish; and change Separation Creek to 70-75 because it is bull trout habitat, and therefore should have a high beneficial use., instead of its current moderate level.	FOREST PLAN REVISION OR NON-SIGNIFICANT AMENDMENT TO PLAN
Though none of the drainages exceed 3.0 miles/square mile of roads, Avenue/Wilelada and Castle/Pothole may experience increased peak flows due to road densities, steep slopes, and shallow soils.	Monitor contribution of these areas to peak flows through a research project.	RESEARCH. INFO FOR FUTURE PLANNING
LWD in the Horse Creek floodplain may be reduced from historic levels because sideslope large woody debris in carried by debris torrents could be intercepted by road 2638.	Review debris torrents intercepted by roads as a source of instream /riparian restoration material. Provide a means of instream and riparian recruitment of sideslope debris torrent material to the Horse Creek floodplain and channel.	RESTORATION
<i>ARCHAEOLOGY</i>		
Majority of known pre-historic sites are on Foley ridge (due to sampling intensity associated with timber sales). Existing data is still sketchy.	Consider developing a broad area research design to identify location of sites.	RESEARCH
Wilderness lake locations have high probability for pre-historic/historic sites from sheep grazing activity. Virtually no surveys have been conducted in the wilderness, resulting in impoverished data.	Consider developing a sample survey for the wilderness in high probability sites.	SAMPLING
In 1872-1938: three allotments for sheep grazing. Probably grazing in 1860's also, but un-allotted.	Conduct archival research into grazing and historic period of Native American presence.	RESEARCH

SIGNIFICANT FINDING	RECOMMENDATION	ACTION REQUIRED
<i>ARCHAEOLOGY cont.</i>		
Rumored conflicts between sheepherders and native Americans may have occurred in the 1860's.	Conduct archival research into grazing and historic period of Native American presence.	RESEARCH
Incursions by northern Pauite is poorly known. May be archaeological sites relating to this that we haven't found yet.	Conduct archival research into grazing and historic period of Native American presence.	RESEARCH
Medicinal plant gathering occurred in Lamb Butte area.	Conduct interviews with Warm Springs Indian Tribe members, and members of the Siletz and Grande Ronde tribes.	INTERVIEWS
We assume that until around 1910, humans caused a fair amount of fires. More of the historical fires were caused by sheep herders than native Americans.	Consider influence of humans in development of existing vegetation during PNF planning.	INFO FOR FUTURE PLANNING
<i>HUMAN USE</i>		
Human use is highly associated with water. Exceptions occur where there are special resources of interest (i.e. James Creek shelter)	Establish and implement monitoring strategy to examine possible impacts of this use on water associated values	DEVELOP MONITORING PLAN MONITOR
AUM's are down from historic levels. AUM's are now recreational stock.	Determine if current grazing levels are compatible with range conditions.	RESEARCH MONITOR
The season of use for grazing is more critical than number of stock.	Monitor meadow and forage condition.	MONITOR
The trail system was develop in 1930's. Changes that have occurred have been in response to resource problems.	Continue monitoring trail condition for associated resource impacts.	MONITOR RECONSTRUCT /RELOCATE SEGMENTS AS NEEDED

SIGNIFICANT FINDING	RECOMMENDATION	ACTION REQUIRED
<i>Wild and Scenic</i>		
There are 2 streams eligible for Wild and Scenic evaluation that do have outstanding remarkable values.	Validation of this analysis will occur in a Forest-level suitability study EIS. This will involve the public.	FOREST-LEVEL PLANNING
These eligible rivers will be protected with Forest Plan direction until study is completed and Congress determines if the rivers are to be designated.	Any activities that may take place within 1/4 mile of these streams must be evaluated to determine if they will alter the ORV's.	INFO FOR FUTURE PLANNING
<i>FIRE</i>		
Fires are generally smaller in size now than historically because of suppression efforts, resulting in early seral forests trending outside of the natural range of variability, and the pattern of forested stands shifting to a smaller average patch-size, particularly in the wilderness.	Investigate re-introduction of fire in the wilderness, either through PNF or MIF, to re-establish historic regimes.	RE-INTRODUCE FIRE
High intensity fires >5000 acres in size are possible under current vegetation conditions in the absence of active suppression.	MIF may be an option to reduce risk of large fires that would otherwise conflict with other resource values.	INFO FOR FUTURE PLANNING
<i>VEGETATION</i>		
White bark pine may be reduced due to changes in associated vegetation and increased in disease (blister rust)	Monitor for resistant trees. Develop a select-tree program.	MONITOR
Insects (spruce budworm) and disease (Mistletoe/Canker) have increased with fire suppression.	Investigate treatment of Pacific silver fir to reduce stress and subsequent insect and disease infestations.	INFO FOR FUTURE PLANNING
All white pines in watershed have been significantly reduced by blister rust.	Emphasize planting disease-resistant white pines in areas within historic range.	INFO FOR FUTURE PLANNING

SIGNIFICANT FINDING	RECOMMENDATION	ACTION REQUIRED
<i>VEGETATION cont.</i>		
More phelinus will be seen as more stands develop late successional characteristics. This may become impactive to campgrounds and other recreation sites.	Monitor progress of disease. Areas of high recreation use should consider site conversion to hardwoods and resistant conifers.	MONITOR
Many of the stands in the matrix allocation have high density conditions contributing to stress. This is a result of natural conditions created by stand replacement fires at the turn of the century.	Emphasize stocking control through precommercial thinning and commercial thinning to increase growth and vigor on remaining trees. Use prescribed fire where appropriate.	INFO FOR FUTURE PLANNING
There has been a loss of old growth system function from edge effect in leave blocks.	Opportunity for large block, minimum fragmentation strategies may be appropriate in these areas.	INFO FOR FUTURE PLANNING
Historically, fires driven by east winds have had the most significant affect on landscape diversity.	This orientation could be used as a guide for shaping future landscape patterns.	INFO FOR FUTURE PLANNING
Fire is critical for maintenance of meadow vegetation and subalpine habitat.	Prescribe low intensity surface burns in dry meadows and subalpine areas.	RESTORATION
The size class for un-managed, older stands in Forest GIS vegetation layer is overestimated. This will significantly overestimate timber volume and habitat on the landscape whenever size class is used as the primary field for queries.	Fix database as soon as possible with field collected information. Re-calculate resources based on new information.	DATA CORRECTION
Olallie Ridge Research Natural Area is surrounded by an LSR.	Manage young stands in the LSR to develop late-successional & old-growth characteristics. Monitor and manage for invasive non-native & noxious weeds.	INFO FOR FUTURE PLANNING

SIGNIFICANT FINDING	RECOMMENDATION	ACTION REQUIRED
SPECIAL HABITATS / PLANT SPECIES OF CONCERN		
Appendix J2 of the 1994 Forest Plan FSEIS listed several recommendations for the Lamb Butte Scenic Area that have yet to be investigated.	Investigate changing land allocation for Lamb Butte to be an RNA or Mycological SIA. Survey & manage known fungi sites & habitat.	SURVEY. INVESTIGATE LAND ALLOCATION CHANGE OR ADD EMPHASIS OF MYCOLOGICAL SIGNIFICANCE IN AN SIA IMPLEMENTATION GUIDE
Horsepasture Mountain is one of the most floristically diverse area in the entire Western Cascades.	Non-forested habitat types and associated plant communities need to be field verified & entered into GIS.	FIELD VERIFICATION
During this century, tree invasion & establishment in many of the meadows was promoted on cold/ wet sites by warmer, dry weather. Conversely, this process was promoted on warm/dry sites by cold, wet weather.	Maintain integrity of the plant communities and habitat types. Monitor and manage for invasive non-native & noxious weeds.	MONITOR AND MANAGE

SIGNIFICANT FINDING	RECOMMENDATION	ACTION REQUIRED
SPECIAL HABITATS / PLANT SPECIES OF CONCERN cont.		
Mesic & wet meadows at James Creek, Separation Meadow, & Buck Meadow are impacted by human/packstock use.	Develop a management plan that could include recommendations for rehabilitation such as closing and rehabilitating heavily impacted campsites; continued use of riparian and trail setbacks; educational signs; pellet food for stock animals.	REHABILITATION EDUCATION. COORDINATION W/MAN IN THE BIOSPHERE PROGRAM
Conifer encroachment is occurring in some higher elevation meadow habitats.	Prescribe ignition or natural fire where possible. Mechanical thinning of conifers may be necessary in specific meadows.	INFO FOR FUTURE PLANNING
Human traffic is impacting Wickiup Plains because of the erosive soils. The actual acres impacted, however, is extremely small (<0.25 acres or 0.002% of the entire community).	Investigate the recreation use & impacts to the area. Make recommendations to improve habitat conditions and to mitigate future negative impacts; manage stock and foot traffic moving through Wickiup Plains.	INVESTIGATE IMPACTS. RESTORE
Subalpine/alpine plant communities are most at risk to global warming impacts.	Monitor subalpine/alpine plant communities for changes. Coordinate long term field studies with the scientific community.	MONITOR. RESEARCH
No comprehensive plant surveys have been done in wilderness for rare plants or noxious weeds. No surveys for survey and manage species have occurred in the watershed.	Initiate field reconnaissance for rare plants and non-native plant species. Establish survey protocol for wilderness rangers to record non-native plants in the wilderness.	SURVEY

SIGNIFICANT FINDING	RECOMMENDATION	ACTION REQUIRED
SPECIAL HABITATS / PLANT SPECIES OF CONCERN cont.		
Significant quantities of weeds are located adjacent to roads to trailheads: weeds have the potential to move into the wilderness.	Survey trailheads to determine type & quantity of weeds. Treat weeds to prevent entry into wilderness areas. Place weed educational signs at trailheads to inform the public.	SURVEY AND TREAT
The sensitive plant, Adder's tongue, near Owl Creek is being impacted by aggressive vegetation in the meadow. This is one of only six populations in Oregon.	Manually remove encroaching vegetation. Continue to monitor population.	RESTORATION AND MONITORING
WILDLIFE		
The only known breeding sandhill cranes on the District are in this watershed	Develop monitoring strategy to assess extent of population. Consider re-location of trail and/or campsite to reduce impacts if necessary.	MONITOR. DEVELOP SITE PLAN
Spotted frog populations within and adjacent to this watershed may be negatively impacted by sport fish stocking	Survey habitat to determine population extent, and develop Conservation Agreement with USFWS. Increase awareness of ODFW to known populations, and reach agreements to reduce stocking in populated habitat.	SURVEYS DEVELOP CONSERVATION AGREEMENT
High Emphasis elk areas in wilderness do not meet HEc or HEs and can not meet with existing forest types.	Develop alternative model thresholds with ODFW that realistically reflect the condition of the landscape or redefine habitat definitions to reflect the habitat potential for higher elevation forested communities.	COORDINATION W/ODFW
Impacts from hunters in wilderness camps is increasing.	Develop hunter's ethics material, and locate at trailheads.	EDUCATION

SIGNIFICANT FINDING	RECOMMENDATION	ACTION REQUIRED
<i>WILDLIFE cont.</i>		
HEr could be increased in 2 elk emphasis areas with the closure/decommissioning of roads 2643-485, 2643-469, and road into Rainbow Falls viewpoint.	Investigate with recreation and soils/hydrology the decommissioning/closure of these roads.	ROAD CLOSURE/-DECOMMISSIONING
Potential Habitat for Threatened, Endangered, Sensitive, and other species of concern has not been systematically surveyed in the wilderness.	Develop strategy for conducting surveys for these species. Use the Wilderness Implementation Guide.	INVENTORY
Gaps in the small LSR network occur in the extreme western portion of the watershed because of the low density of historic spotted owl sites.	Retain pileated/pine marten area 296, of which 141 acres is in Horse Creek Watershed and 22 acres is in Upper McKenzie Watershed	INFO FOR FUTURE PLANNING