

HORSE CREEK

CHAPTER 2

ISSUES AND KEY QUESTIONS

The development of high priority issues is critical to focus the scope of a watershed analysis. Key questions that address the issues further refine the analytical task.

The following chapter lists current, high priority issues and key questions identified within the Horse Creek Watershed. The issues are organized by domains as recommended by the Watershed Analysis Handbook (1995).

AQUATIC AND RIPARIAN DOMAIN

1 Management practices such as road building and maintenance, timber harvest, and slash treatments may have changed the frequency and spatial distribution of mass wasting and surface erosion. This can result in increased turbidity and filling of large pools with sediment.

- a. Question: What are the main sediment sources to Horse Creek? Where do they occur?
- b. Question: Where are road fills that are unstable and what is the potential for fills to initiate debris torrents or debris avalanches?
- c. Question: Have roads and harvest units increased the frequency and magnitude of slope failures over time? Do we see conditions typical of this type of failure here?
- d. Question: Where are soils conducive to timber harvest and road construction?
- e. Question: Where are soils of concern where timber harvest or road construction could potentially cause detrimental resource effects?
- f. Question: How has fire influenced the erosion processes in this landscape historically, and how would future prescribed natural fire or management ignited fire implementation affect these processes?

2 Increases in peak flows resulting from timber harvest and extension of the drainage network by road systems may have reduced channel complexity through: scouring and downcutting of the channel; isolating side channels; and transporting large woody debris out of the system.

- a. Question: Have management activities affected the magnitude and frequency of peak flows? Have increased peak flows reduced channel

complexity or modified aquatic habitat beyond the range of historic variability? How have flood events and management activities affected channel characteristics and channel patterns through time?

b. Question: To what extent and degree have riparian areas and floodplains been altered by management? Have alterations affected the aquatic ecosystem?

c. Question: What are the in-stream erosion processes and where do they occur? Where have management activities altered these processes?

d. Question: Which water quality parameters are critical to beneficial uses? What are the existing water quality conditions, do they meet state standards, how do they impact beneficial uses, and how do they compare with benchmarks currently in place?

e. Question: How has fire influenced the aquatic habitat in this landscape historically, and how would future prescribed natural fire or management ignited fire implementation affect their maintenance?

3 Private lands can be affected by changes in channel morphology that result from management practices (i.e. road building/maintenance, timber harvest, prescribed natural fire, and fish habitat manipulation). This is especially true if those activities change flow regimes or alter within-stream large wood.

a. Question: What is the historic pattern of channel changes along Horse Creek, particularly in the Horse Creek delta near private residences?

4 Private landowner practices such as construction (housing and roads), and stream bank protection measures may have altered historic channel patterns. The results may change channel morphology.

a. Question: Where and what actions on private lands might be affecting natural channel morphological processes?

b. Question: What private landowner activities are regulated by county, state, and federal regulations, and how are they impacting beneficial uses?

5 As a Key Watershed, Horse Creek provides important habitat to fish (streams and lakes) in this basin.

a. Question: What is the current and historic distribution of fish in Horse Creek Watershed?

b. Question: What are current in-stream habitat conditions, and how do they compare to historic conditions?

c. Question: Where are non-native fish present in the watershed? How have non-native fish influenced native fish?

d. Question: What role does Horse Creek play in providing refuge for aquatic organisms? Where are areas critical to spring chinook and bull trout in Horse Creek?

e. Question: What recreational impacts occur to native fisheries?

f. Question: What passage barriers exist and which ones are causing critical problems?

6 Existing riparian habitat must adequately maintain the quality/quantity of habitat to support viable populations of riparian-dependent species.

a. Question: What was the historic composition of the riparian vegetation? How does that compare to current conditions?

b. Question: What is the historic role of disturbance in the riparian areas? How do historic disturbances compare to the current processes?

c. Question: Will the riparian reserves adequately function to meet all objectives outlined in the Northwest Forest Plan?

d. Question: What criteria could lead to interim riparian reserve adjustments, and where are some of the areas that fit these criteria?

7 Since the completion of the 1990 Forest LMP and implementation of the watershed analysis process direction has been developed to make a preliminary analysis as to the possible eligibility of rivers and streams for inclusion under the Wild and Scenic Rivers Act. This analysis provides an opportunity to document current information about the streams within the watershed for use in a future Forest-wide process that determines additional eligible Wild and Scenic Rivers.

a. Question: Which major tributaries in the watershed were not analyzed in the eligibility assessment developed for the 1990 Willamette National Forest LRMP? What attributes (Outstandingly Remarkable Values) do they have that may warrant their further consideration under the Wild and Scenic Rivers Act?

TERRESTRIAL DOMAIN

1 Management activities within these forests, including timber harvest, road building, and fire exclusion, may have altered species' composition or created patterns and conditions that are outside of the historic range of variability. The biological diversity of the watershed may have been altered.

a. Question: What is the array and landscape pattern of forested plant communities in this watershed?

b. Question: How does the current condition of forested vegetation compare with the historic range of variability?

c. Question: What processes caused these patterns? (fire, wind, insects, diseases, volcanism, timber harvesting, erosion, rain on snow, etc.)

d. Question: How does the current conditions affect future land management objectives or ecosystem function?

e. Question: How will the implementation of Prescribed Natural Fire or management ignited fire affect the vegetation on this landscape?

2 Levels of large woody debris and snags in managed forests, including plantations, campgrounds, roadsides, etc., may be outside of the historic range of

natural variability for unmanaged forest systems. This could impact a variety of species that depend on these structural elements for habitat.

- a. Question: What is the historic natural range of variability for large woody debris and snags on this landscape?
- b. Question: Have management activities altered the landscape condition significantly outside the historic range for snags and large woody debris?
- c. Question: Have management threshold levels been achieved? Where are conditions outside of "acceptable" ranges?

3 Future land management strategies focused on the maintenance or development of late-successional forest species may result in diminished availability of habitat for early seral species.

- a. Question: What species are associated with early seral habitats?
- b. Question: What is the historic and projected future availability of early, mid, and late seral habitat over time in this watershed?
- c. Question: How will the availability and distribution of these habitat types affect species associated with them over time?

4 The majority of sensitive and rare plant species that are known or suspected to occur in the watershed occupy non-forested areas (special habitats). These areas, though protected by S&G's, are generally un-mapped and unsurveyed. It is unknown what their current contribution to biodiversity on the landscape is or what threats they may be receiving.

- a. Question: Where and what kind of special habitats are present within the watershed? How have these habitats evolved?
- b. Question: Are there special habitats within the watershed that have limited distribution across the watershed/Forest/or Region?
- c. Question: What threatens the continued stability or functioning of these special habitats?
- d. Question: What wildlife and botanical species of interest are associated with these areas?
- e. Question: What are the threats to the Research Natural Areas?

5 Diversity (i.e. horizontal structure, species mix, stocking levels) in past harvest areas may be providing low quality habitat for species that rely on early seral stages.

- a. Question: What is the current diversity level within managed plantations? How does this compare with early seral habitat that resulted from natural disturbances?

6 The Northwest Forest Plan requires surveys and management for numerous species of wildlife, fungi, lichens, bryophytes and vascular plants (Northwest Forest Plan ROD Table C-3). The location and potential distribution of many of these species within the watershed is unknown.

- a. Question: What C-3 species potentially occur in the watershed based on their known range and habitat requirements?

- b. Question: What Table C-3 wildlife and plant species are known to occur in the watershed?
- c. Question: Do the Northwest Forest Plan standards and guidelines adequately protect existing habitat and provide long-term habitat for species of concern listed within the Plan?

7 The watershed must continue to contribute to the recovery of several threatened and endangered fish and wildlife species, and it also must maintain or increase the populations of rare or sensitive species.

- a. Question: What TES species are known to occur or potentially occur within this watershed?
- b. Question: What is the condition of the populations of these species and their habitat?
- c. Question: What is the status of TE species recovery, and how is this watershed contributing to recovery goals?

8 The watershed contains a portion of a Late Successional Reserve. Its potential contribution to the recovery of the spotted owl and maintenance of late successional species can be influenced by human activities, such as timber harvest. * Answers to these questions should be fully addressed in the Forest-Level Late Successional Reserve Analysis currently underway. The condition of the LSR will be briefly summarized in this Watershed Analysis.

- a. Question: What is the amount and distribution of late successional habitat (current and historic) in the LSR?
- b. Question: What is the potential for success in maintaining late successional habitat over time? What are the major risks to maintaining this habitat?
- c. Question: Are there management techniques that can promote late successional conditions in these stand types (i.e. prescribed fire, mechanical treatments, etc.)? Do stands exist that would be appropriate for this management? Where are they?
- d. How stable and productive are the existing spotted owl sites?
- e. What is the expected population level of this LSR's spotted owls in the future? How does this differ from the current level?
- f. What other late successional species occur or could occur in this area? Are there significant concerns for their viability related to management of this area?

- 9 Important geological resources may be at risk from management activities.
 - a. Question: Are there areas of with unique geological value (fossils or formations) that are at risk from management activities?
- 10 Road management strategies for the watershed may increase or decrease the quality of wildlife habitat and hunting opportunities.
 - a. Question: What are the current road densities and network within the watershed? How do they currently impact wildlife habitat, hunting opportunities, and dispersed recreation?

SOCIAL AND ECONOMIC DOMAIN

(Note: this will be a qualitative treatment, not quantitative)

- 1 There may be conflicts between economic growth and resource conditions. Increased demands on campgrounds, wildlife hunting and viewing, and fishing may affect the resource and/or change visitor use.
 - a. Question: What actions in the future may change the tourism-generated economic benefits to the local economy?
- 2 Impacts to the scenic quality of natural features may be occurring from degradation caused by rock sources and harvest units.
 - a. Question: What management existing conditions are inconsistent with the Scenic allocations within the Forest Plan?
 - b. Question: Is this area approaching any thresholds? Are there restoration opportunities?
- 3 Prescribed natural fire (natural or management ignited) may occur within designated Class 1 airsheds. This type of management may be limited by air quality regulations. The public's desires for clean air and good visibility, and the ecological need for using Prescribed Natural Fire as an ecosystem management tool, may conflict.
 - a. Question: What was the historical air quality between 1850 and 1900?
 - b. Question: What is the current National Ambient air quality Standards and benchmark for our areas?
- 4 Access management strategies (roads and trails) within the watershed may be affecting sensitive areas, conflict with land use allocation objectives, or not address other issues in the watershed.
 - a. Question: Are there roads and trails leading forest users into sensitive areas (i.e. riparian, RNA, LSR)? If so, what and where are they? And, is current or future projected levels of use in conflict with their desired future condition?
 - b. Question: Are existing road management measures effective? If so, why not?

- c. Question: What are current road use patterns and are they expected to change in the future?
- d. Question: What is the current level of trail development within Wilderness and is that level appropriate to the WRS class?

5 Road standards may not be appropriate to current and anticipated uses, and funding of those standards may/may not be adequate.

- a. Question: Are road standards appropriate to anticipated uses? And can we maintain that based upon funding outlooks?

6 Human uses (transportation system, recreation) may be in conflict with the ability to maintain elk habitat. Effectiveness of existing habitats may have been altered.

- a. Question: What is the HEr within the watershed?
- b. Question: What are the seasonal impacts of these uses during winter, early summer, summer, and fall?

7 Recreation uses within the watershed may have affected forest resources, visual quality, social encounters, and visitor's recreational experiences. Some recreational uses result in conflicts with other forest resources, and between recreationists who participate in various legitimate uses within the watershed.

- a. Question: What types of recreation uses occur within the watershed? Where and when do they occur, and to what intensity?
- b. Question: What impacts do current levels of recreational use have on natural resources? Where are unacceptable impacts occurring?
- c. Question: How and where are current levels of recreation use impacting user experience including scenic quality, social encounters, and user conflicts?

8 Grazing of pack animals and human use in wilderness areas may be impacting Aquatic Conservation Strategy Objectives.

- a. Question: Where and what kind of disturbance has occurred to riparian habitat from grazing and other human uses in the wilderness?
- b. Question: Where are areas with the highest potential for degradation in from grazing the future?
- c. Question: What are some of the restoration activities that could be recommended?

9 Congressionally designated Wilderness has traditionally been viewed as a "recreational" allocation. This view may have limited past management strategies in achieving integrated Wilderness management.

- a. Question: What and where has non-recreational resource coordination and integration occurred? How have those efforts been incorporated in overall Wilderness management efforts?

10 Areas within this watershed may contain prehistoric and historic sites. Management activities within the watershed may have impacted these areas.

- a. Question: What are the major human uses, including tribal uses and treaty rights?
- b. Question: Where are these sites in the watershed, how were/are they used?
- c. Question: Where site specific information is not known, where are the areas of "high probability" of Native American sites.
- d. Question: Where and what levels of damage are occurring to these sites?
- e. Question: What restoration/protective measures could be implemented?

11. Cities and un-incorporated communities along the McKenzie River have a close tie to federal lands for their economic base. The local economy is tied to the health of the ecosystem.

- a. Question: What are the management opportunities within the watershed that will contribute to sustainable communities?
- b. Question: What are the additional, marketable products that can help diversify the local economies that are not now being sold from the watershed? (i.e. special forest products)
- c. Question: How can the watershed best provide diverse recreational opportunities that reflect current and future demands and contribute to the stability of local economies?
- d. Question: What are the suitable and available acres for harvest in the watershed?