II. ISSUES AND KEY QUESTIONS

II. A. Issue I - Water Quality and Fish Habitat

One of the principal issues in the Wall watershed analysis is not at optimum levels. Low summer flows, loss of riparian vegetation, water storage and withdrawal, and changes in channel structure cause elevated stream temperatures in many tributary streams and in main Wall Creek. High stream temperatures, low dissolved oxygen, and channel changes have degraded the aquatic habitat and may be affecting resident and anadromous fish populations. These conditions also exist in the North Fork John Day River both above and below the confluence with Wall Creek.

Water quality monitoring and stream inventories in the Wall watershed indicate that important habitat parameters are in unsatisfactory condition, to the point of rendering many streams incapable of sustaining viable populations of resident and anadromous fish. High water temperatures in July and August, sediment concerns, insufficient pools, shortage of large wood for habitat complexity, and low stream flows are all concerns in the Wall Analysis Area streams. Riparian shrub cover and streambank stability are believed to be below their ranges of natural variability in most of the river basins in the Blue Mountains, particularly in the central and southern portions of the North Fork John Day subbasin which includes Wall Creek and tributaries. Upland and watershed condition and function also influence stream conditions and fish habitat. Existing management facilities (roads, trails, ponds, recreation sites) and past and present management practices such as livestock grazing, timber harvest, road use and maintenance have detrimental effects to water quality, riparian habitat, and fish populations.

The Wall Creek ecosystem analysis team identified the following key questions relating to fish and aquatic habitat and water quality to address this issue. Following each question is a reference to where the answer is presented. For a detailed discussion of information related to this issue, see Section VII. N. and Q.

Specific questions to be addressed include:

1. What is the relationship of the fish populations in Wall Creek and its tributaries to the fish metapopulation structure of the rest of the John Day River basin? (Section III. B. 1.)

2. What are the current conditions of the aquatic habitat in the Wall Creek watersheds? (Section III. B. 1.)

3. Which biophysical factors influence fish habitat in Wall Creek and its tributaries? (Section III. B. 1.)

4. Do present fish population levels meet Forest Service objectives? (Section III. B. 1.)

5. What effects has timber harvest had on aquatic habitat. In which stream reaches and subwatersheds are these effects most evident? (Section VII. Q. Interpretations)

6. Has grazing of riparian vegetation by livestock and/or wild ungulates in the Wall Creek Watersheds contributed to changes in water quality? If so, what have the changes been, where have they occurred and how severe are they? (Section VII. Q. Interpretations)

7. Where and how has the current road network affected water quality parameters important to fish and other aquatic organisms? (Section V. C. and VII. N. and P.)

8. What is the risk of long-term negative effects to fish populations and other aquatic organisms as a result of large (stand replacement type) fires? (This question was not directly answered. It is hoped that it will be addressed in the ICBEMP assessment. Concern for this question was addressed in Section VI. A. 2, 5 and B.)

9. Which streams or reaches in the Wall Creek watersheds are closest to meeting PACFISH and Forest Plan DFC's for stream conditions, aquatic habitat, and aquatic habitat diversity? How close are they? (Section III. B. 1)

10. Which of the streams or reaches in the Wall Creek watersheds would benefit most from special protection or restoration? (Section VI. A. 2. and B.)

11. Can fish, aquatic habitat, and water be better protected by adjustments to management protocols? If so, identify specific management recommendations. (Section VI. A. 2. and B.)

12. What is the relative contribution of the flow of Wall Creek to the North Fork John Day River? (Section III. A. 3.)

13. What is the contribution of the discharge from the Wall Creek system to temperature and sediment concerns of the North Fork John Day River? (Section III. A. 3.)

II. B. Issue II - Forest Vegetation Sustainability

Elements and processes within ecosystems are naturally dynamic and the composition and structures of plant communities shift over time. The shift of elements and processes occurs within a range of variability. The combined effects of past timber management practices (primarily extensive harvest of large ponderosa pine, followed by substantial increases in white fir forests), the suppression of fire, and heavy grazing prior to 1930's has been to move these elements and processes outside their Historic Range of Variability (HRV). In the Wall Analysis Area, additional concerns regarding forest vegetation sustainability include soil compaction, erosion, insect damage in the northeast portion of the area, and encroachment of juniper.

The following questions are addressed in detail by resource area in Section VII. M., R., S., and T. Additional integrated discussion is found in sections referenced after each question.

1a. What are the historic ranges in variability for plant association groups in the Wall subwatersheds? (answer in Section IV. B. 2 and V. A.)

1b. What are the historic landscape patterns in the Wall subwatersheds? Mix of successional stages? Stand structure and composition? (Section IV. B. 2 and V. A.)

1c. How do these historic landscape patterns compare to existing conditions? (Section IV. B. 2)

2. Are there subwatersheds that depart from the historic range in variability? If so, where are they and how do they vary from HRV (by PAG and structure)? (Section IV. B. 2)

3. What types of treatments and other management actions would be appropriate to move toward historic patterns of PAG composition and structure? (Section VI. A. 4., B. and VII. R.)

4a. What are the historic levels of fire, insects and disease by plant association groups in the Wall subwatersheds? (Section IV. B. 4)

4b. How do these compare to existing conditions? (Section III. B. 4)

4c. What are the implications of current vegetation composition on potential future fire, insect and disease events? (Section VII. S. and T.)

5a. What is the success of forest regeneration?

5b. Are measures needed to improve regeneration success?

5c. What Wall subwatersheds are of higher priority for treatment? (Section III. A. 2. and V. A. 1.)

6. How do the subwatersheds compare with respect to attributes that reflect inherent sensitivity to resource management? (Section III. A. 2.)

7. How do subwatersheds compare with respect to past timber harvest and constructed road influences on sustainability of upland vegetation? (Section III. B. 2.)

II. C. Issue III - Botanical and Vertebrate Biodiversity

Historically, the rate and scale of landscape change allowed native plant and animal species to gradually adapt to new conditions. Over the past 100-150 years, environmental change has accelerated greatly in response to man's activities. Biological diversity (the diversity of native life forms and ecological processes) in the Blue Mountains and, specifically, in the Wall Analysis Area, has changed as a result. A number of species have been lost from their former range; some species are listed as "sensitive." Recent research indicates that existing management strategies for some species may be inadequate to assure viability of local populations. Replacement of native plant species with introduced and/or noxious species has reduced biodiversity and reduced resiliency of some ecosystems. Protection and restoration of biodiversity was identified as an important issue for this analysis. The following questions are addressed in more detail in Section VII. V., location of answers to each key question is shown in parentheses.

Biodiversity: Terrestrial Vertebrates (T.V.)

T.V.1. How have the types and proportions of habitats available to terrestrial vertebrate species changed over the last century? Have these changes resulted in changes in terrestrial biodiversity? (Section III. B. 5)

T.V.2. Are there specific components of diversity in the Wall drainage that are "at risk"? In particular:
a. severely reduced acreages of specific habitats, loss of habitat components
b. Threatened, Endangered or sensitive species
c. loss of ecosystem "function"
d. species having low "versatility", i.e., species that are least able to successfully adapt to changing habitat conditions
e. Neotropical Migrant Birds (Section III. B. 5)

T.V.3. What species of animals are closely associated with old growth habitats in the Wall Watershed? (Section III. B. 5)

T.V.4a. Where are the remaining old growth patches? How large are they, and how much interior habitat do they provide (connectivity)? Are they large enough to provide for successfully reproducing pairs of closely associated species? (Section III. B. 5)

T.V.4b. Are there places where we might be able to speed development of "future" old growth? Is this desirable? (Section III. B. 5)

T.V.5. What are current population levels and herd structures for wild ungulates in the Wall watershed? How does the current distribution and condition of habitat contrast with historic conditions? If changes in habitat have occurred, what are they, and how do those changes affect deer and elk populations in the watershed? (Section III. B. 5)

Biodiversity: Floristics (F)

F1. What vascular plant species presently occur in the Wall Ecosystem Analysis Area? (Section III. B. 3)

F2. What is the floristic richness of the Wall Ecosystem Analysis Area in comparison with the rest of the Heppner Ranger District, with the Umatilla National Forest, and with the Pacific Northwest Region? (Section III. B. 3)

F3. What are the ecological distributions and habitat affinities of these species within the seven plant association groups selected for this analysis? (Section III. B. 3)

F4. What are the floristic similarities between the plants of one plant association group and the other PAGs? (Section III. B. 3)

F5. What historically-listed or presently-listed sensitive plant species occur within the Wall Watershed Ecosystem? (Section III. B. 3)

F6. How might management activities occurring in the Analysis Area adversely impact plant species with an historic track of sensitivity? (Section III. B. 3)

F7. What other plant species might be "at risk" in the Analysis Area and which of the Plant Association Groups support these potentially 'at risk" species? (Section III. B. 3)

F8. What is the ratio of native to introduced species in the Analysis Area? Is this ratio an accurate indicator of Historic Variability in Floristic Biodiversity? (Section III. B. 3)

F9. What noxious weeds occur in the Analysis area and what are their affinities for Plant Association Groups? (Section III. B. 3)

F10. What are the culturally-significant plant species of the Analysis Area? Are any of them "at risk" because of management activities? Are any of these species so limited in abundance and/or geographical amplitude that they may become major issues in the future? (Section III. B. 3)