2 HOW TO USE THIS REPORT

This report is organized into ten major sections and several appendices. Each major section is divided into multiple related sub-sections. Sections 1-3 provide introductory information. Sections 4 and 5 present descriptions of important watershed characteristics. Sections 6-9 present summaries or analyses of watershed resources and summarize watershed processes. Section 10 summarizes our recommendations. The LWC requested that wherever possible, results be summarized for the Luckiamute and Ash Creek watersheds separately. To minimize redundancy we have referenced material from related sections to each other throughout the report. The LWC, however, requested that recommendations be repeated both after each main section and again at the end of the report.

Wherever possible, each section contains a description of the resources, the ecological importance of those resources, a description of the data and methods used in the assessment, the general results, and, where appropriate, our team's recommendations. Since material on any given subject may appear in several places throughout the text, **we recommend that the entire document be read.**

We have supplied LWC with identical versions of this report, both "hard" (printed) and electronic copies. The electronic copy consists of Adobe's Portable Document Files (PDF). PDF can be easily viewed and printed from any computer using the Adobe Acrobat Reader, available free on the World Wide Web at *http://www.adobe .com /products/ acrobat/readstep.html*.

Spatial data files were supplied to the watershed council in a common GIS projection. These data are available from the watershed council.

The LWC requested that English units be used instead of metric units.

Photo 4: Soap Creek Ranch entrance

3 DATA

3.1 Use Restrictions

Some of the data used in this report were given to us with the condition that they would not be distributed. Specifically, we agreed not to distribute data concerning rare, threatened and endangered species that we acquired from the Natural Heritage. The Natural Heritage Program data will be kept in the LWC office. In addition, we obtained the Coastal Landscape Modeling and Analysis Study (CLAMS) land cover data from researchers at Oregon State University Program and the Weighted Species Richness (WSR) data grids from Patti Haggerty. These data cannot be distributed by LWC. Persons wishing to use the CLAMS data should contact the CLAMS directly. CLAMS researchers are in no way responsible for our use of or conclusions drawn from our use of their data. Those wishing to use the WSR data grids should contact Patti Haggerty. **We recommend that the LWC coordinator be contacted before any of the data are distributed from this assessment.**

3.2 Use of Existing Data

This assessment was conducted with existing data. No new data were collected for this report. Both descriptive and quantitative data were used in this assessment. Some data were supplied in geographic information format (GIS). For GIS data, we used uniform scale data that covered the entire study area whenever possible. Quantitative data were used to rank 7th field watersheds or stream reaches. In some instances, data were only available for portions of the study area or stream network. In these cases, we used our judgment to determine if enough data were available to summarize the condition of a 7th field watershed or stream reach and to rank it. In cases where there were not enough data to rank a watershed, we left the 7th field watershed or steam reach unranked. In other cases where there was only partial coverage, we indicated such on the map and in the report.

3.3 Scale of Data and Units of Comparison

This watershed assessment was performed using existing1:24,000 data sets, unless otherwise noted. This is the scale of a 7.5' USGS topographical map. In this assessment we provide descriptive information on species distributions, and general watershed characteristics and processes. With an eye toward action planning, we have used GIS to highlight areas for consideration by future monitoring and restoration planning. Since we relied almost exclusively on existing data, some of our prioritizations were constrained by those data sets. In particular, LWC requested that we prioritize stream reaches using the aquatic habitat inventory (AHI) data. Since the existing AHI data set did not cover the entire study area, we prioritized individual stream reaches, as defined by the data collection agency, in this assessment. Therefore, the

units of comparison for the AHI summaries are individual stream reaches. In other summaries, the 7th field watersheds are the units of comparison.

3.4 Accuracy & Uncertainty

Both **accuracy** and **precision** are important considerations in making any measurement; generally, as accuracy and precision go up, so do the costs. Accuracy tells us how well our measurements reflect the condition of a variable (*e.g.*, how many salmon there actually are in the watershed in which we are interested). Precision tells us how repeatable our measurement is time after time. You can have measurements that are precise and not accurate, ones that are accurate and not precise, and ones that are neither accurate nor precise. Statistics are used to assess accuracy and precision. Of course, the accuracy and precision of anecdotal observations cannot be known (in a statistical sense).

The relationships between the various salmonid species and the watersheds they inhabit are extremely complex. Often, we assume that "given enough research and the right models, or other analytical approaches, exact numbers [of salmon] can be determined for population size, components of population dynamics, and the responses of populations to given harvest levels... this assumption is nearly always erroneous" (Botkin *et al.*, 1993). Botkin *et al*. (1993) have identified three sources of environmental uncertainty: (1) incomplete information regarding the current state of a resource; (2) incomplete information on details of cause and effect relationships; and, (3) intrinsic unpredictability in nature. Since most population estimates are based on a relatively small proportion (*i.e.*, a sample) of the actual population, appropriate sampling methods and interpretation of results are necessary to allow one to estimate the amount of uncertainty associated with each sample and to develop an understanding of causal relationships.

Making management decisions based on observations or measurements that do not accurately describe watershed conditions may produce unexpected results.