APPENDIX E

Outline for Ecosystem Cruisers: Fieldwork, Writing, and Project Validation

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Outline for Ecosystem Cruisers: Fieldwork, Writing, and Project Validation

The Upper Swan Valley Landscape Assessment designates five unique ecosystems at a scale useful for management purposes. This outline assumes that land managers have identified portions of each ecosystem that have highest priorities for management attention. See "Chapter 7: Management Implications and Summary."

These priorities permit focusing attention on localized areas within the larger ecosystems. But more detailed information is needed to propose and validate restoration, ecosystem health, timber harvest, wildlife, range improvements or similar beneficial projects. Therein lies the job of the eco-cruiser and the reason for the following outline.

Primarily Office Work

1. Review pertinent parts of the Upper Swan Valley Landscape Assessment. In particular, become familiar with and study Chapter 1 through Chapter 6.

   In these chapters, the eco-cruiser will learn about the purpose of the Landscape Assessment, Concepts of Ecosystem Management as they relate to the Upper Swan Valley Ecosystems, Landscape and Habitat Connections, as well as the impact of Disturbances such as fire and noxious weeds on the Swan Valley.

   Eco-cruisers should internalize the entire Upper Swan Valley Landscape Assessment with emphasis on the above listed sections and the location of potential projects within the area targeted for ecosystem management attention.

2. Map the location of the area under consideration and document the reasons why management wants to focus attention on this place.

3. Assemble and study available data pertinent to the place (e.g., research, reports, history, maps, resource inventories) and the condition of its immediate surroundings.

Primarily Field Work

1. Identify and map the unique, smaller ecosystems that comprise the whole place under consideration.

2. Identify and describe the natural processes and attributes of the place necessary to sustain ecological integrity over time, such as:

    - Linkages within the place
    - Linkages to other ecosystems
    - Continuity of topography and vegetative patterns
    - Wildlife migration routes and home range habitats
    - Riparian linkages
    - Other factors.

3. Identify and integrate past disturbances, natural succession, fire, human occupation and use, and other factors that brought the place to its present condition.

4. Identify and describe outstanding key values inherent in this place under consideration, such as:

    - Historic artifacts
    - Rare or endangered species habitat
    - Outstanding wild or semi-wild places
    - Key wildlife dependent areas
    - Areas with strong appeal to people
    - Excellent tree growing sites
    - Other values.

5. Describe the existing situation regarding fire influences and fire threat.

6. Describe the natural spirit (sense of place) inherent in this ecosystem.

7. Integrate the foregoing information and describe the present condition of the ecosystem in terms useful to land managers and the public.

8. Recommend projects if any are needed, including timing, economics, methods and environmental constraints necessary to assure protection of and, where possible, enhancement of the ecological integrity of the place.

9. List any detrimental actions that should be excluded from the management of the ecosystem.

Source: Personal communications from Bud Moore, April 2003.

Definitions of Fire Regimes

Knowledge of historical fire regimes and area fire history is useful for ecosystem-based management. For example, areas that were dominated by high frequency/low severity regimes such as the "Nonlethal" (NL) and low severity "Mixed Severity" (i.e., MS1) regimes generally had stands that were dominated by early seral species, such as old growth ponderosa pine and western larch. Stand stocking was generally low, and the stands were either uneven-aged, or, had multiple age classes as a result of frequent and uniform-to-patchy understory fires. Therefore, ecosystem-based planning often seeks to restore those previous stand patterns, for example, with restoration silviculture and applied fire.

Areas dominated by moderate frequency/moderate severity mixed regime, such as the MS2 type, generally had the highest biodiversity level of any regime type. Swan Valley stands generally were dominated by long-lived and highly fire resistant western larch, and the landscape mosaic ranged from small to large stands that ranged from relatively open to relatively dense stocking. Individual stands likewise were highly diverse, ranging from one-aged to three-aged (or more) seral component. Tree species mixes also were more diverse than in the other fire regimes, with various mixes of larch, lodgepole pine, Douglas-fir, spruce, firs, aspen, and cottonwood. Therefore, ecosystem-based planning and management likewise could be highly diverse and creative.

Finally, areas dominated by low frequency/high severity regimes such as the "Stand Replacement" (SR1, SR2) regimes generally had stands that were dominated by early seral species, such as lodgepole pine and long-lived western larch, and by shade-tolerant trees in later stages of succession. It is important to note as well that stand stocking typically was dense, often developing for 100 to 400 years without fire disturbance. The presettlement landscape pattern also was less complex than in the other fire regime types, that is, one-age stands ranging from hundreds to thousands of acres in size.

Knowing the mix of regimes in a local area (i.e., fire severities, interval ranges, and landscape patterns), as well as the actual fire history (i.e., years since last fire) therefore can help guide ecologically appropriate management planning. For example, high-grade logging in the low- and mixed severity regimes has disrupted both the stand- and landscape patterns. As a result, the current fire hazard and current fire regimes (and other ecosystem components) have been drastically altered from the presettlement pattern in place for thousands of years. Remnant unlogged old growth stands that have become heavily infilled as a result of fire exclusion likewise may be at risk. Consequently, restoration is often highly appropriate for those fire regime types, and options can range from highly aggressive- to passive management activities.

Ecological restoration generally is not an issue for the remaining unlogged stands in the stand replacement regimes. In fact, the plant and animal species that are dependent naturally dense forests can be highly impacted by aggressive management activities such as thinning, large-scale clearcutting, and the associated road networks.

Source: Personal communications from Stephen W. Barrett, February 2004.

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