United States
Department of
Agriculture

Forest Service

United States
Department of
the Interior

Bureau of Land
Management

Interior Columbia Basin Ecosystem Management Project

Interior Columbia Basin Final Environmental Impact Statement

Proposed Decision

December 2000

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of nationally owned public lands and natural resources. This includes fostering the wisest uses of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interest of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

BLM/OR/WA/Pt-

Interior Columbia Basin Ecosystem Management Project

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Dear Reader:

This package contains two documents: the Final Environmental Impact Statement (EIS) for the Interior Columbia Basin Ecosystem Management Project (ICBEMP), and the proposed decision for the project. The Final EIS incorporates by reference the Supplemental Draft EIS, issued in March 2000. Therefore, it may be useful to use the Supplemental Draft EIS and the document in this package together, depending on the sections of interest.

The Final EIS responds to the comments we received on the Supplemental Draft EIS and reflects several clarifying changes, as explained in the preface. The proposed decision is the preferred alternative (Alternative S2) from the Supplemental Draft EIS, with refinements made in response to public comment and internal review.

Reaching a Final EIS and proposed decision for this project has involved close collaboration among the Forest Service, Bureau of Land Management, National Marine Fisheries Service, U.S. Fish and Wildlife Service, Environmental Protection Agency, tribes, other federal agencies, and state and local governments. The public was instrumental in reviewing, commenting, and suggesting improvement for the documents. We greatly appreciate your participation over the past six years.

If you have participated in this ICBEMP planning process and have an interest that is, or may be, affected by approval of the proposed decision, you may protest such approval. The Bureau of Land Management and the Forest Service will both use this protest process to provide the opportunity for administrative review of the proposed decision. The Forest Service appeal process, familiar to some readers, will not be used in reaching the Record of Decision. A protest may raise only those issues which were submitted for the record during the planning process.

To protest the approval of the proposed decision for the Interior Columbia Basin Ecosystem Management Project use the following procedure:

- Put the protest in writing and mail it to the following address:

  Director, Bureau of Land Management, and Chief, Forest Service
  ICBEMP Protests
  PO Box 65480
  Washington, DC 20035

- The protest shall be filed within 30 days of the date the Environmental Protection Agency publishes the notice of receipt of the Final Environmental Impact Statement in the *Federal Register* (expected in mid December 2000). Public announcement of the exact date for protests will be made through local media and posted on the project website (www.icbemp.gov) when it is known.

- The protest shall contain:
  - ✓ The name, mailing address, telephone number, and interest of the person filing the protest;
  - ✓ A statement of the issue or issues being protested;
  - ✓ A statement of the part or parts of the proposed decision being protested;

- ✓ A copy of all documents addressing the issue or issues that were submitted during the planning process by the protesting party or an indication of the date the issue or issues were discussed for the record; and
- ✓ A concise statement explaining why the responsible officials' proposed decision is believed to be wrong.

The BLM Director and the Forest Service Chief will promptly render a joint decision on the protest. The protest decision will be in writing and will set forth the reasons for the decision. The protest decision will be sent to the protesting party by certified mail, return receipt requested.
The joint decision of the Director and Chief shall be the final decision on the protest of the Department of the Interior and the Department of Agriculture.

Reviewers who do not protest the proposed decision on the project may not preserve their standing to litigate the final decision.

Once any protests are resolved, the responsible officials of the Forest Service and Bureau of Land Management will sign the Record of Decision for the project.

For further information, please call Susan Giannettino, Project Manager, or Geoff Middaugh, Deputy Project Manager, at (208) 334-1770; or write to ICBEMP, 304 North 8th St., Room 250, Boise, Idaho 83702.

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Interior Columbia Basin Ecosystem Management Project

Interior Columbia Basin Final Environmental Impact Statement

Proposed Decision

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USDA Forest Service, Intermountain, Pacific Northwest, and Northern Regions
USDI Bureau of Land Management, Idaho, Montana, Oregon, and Washington

Responsible Officials

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Proposed Decision

This proposed decision incorporates the preferred alternative (Alternative S2) in its entirety, as amended by changes from public comments (includes comments from the Environmental Protection Agency, National Marine Fisheries Service, and U.S. Fish and Wildlife Service) and internal (Forest Service and BLM) review. Substantial changes from the Supplemental Draft EIS can be tracked by looking at Chapter 3 in the Final EIS. Additional minor editorial changes are reflected in the following proposed decision.

Alternative S2

Alternative S2 is the alternative identified by the Regional Executive Steering Committee as "preferred" among all those considered (this includes the seven alternatives in the Eastside and Upper Columbia River Basin Draft Environmental Impact Statements [EISs] and the three alternatives in the Interior Columbia Basin Ecosystem Management Project [ICBEMP] Supplemental Draft EIS). The ICBEMP regional executives agreed that it would provide the strongest and best strategy for: restoring the health of the forests, rangelands, and aquatic-riparian ecosystems in the project area; recovering plant and animal (including fish) species; avoiding future species listings; and providing a predictable level of goods and services from the lands administered by the Bureau of Land Management [BLM] and the Forest Service.

Approximately 530 comment letters were received on the Supplemental Draft EIS for the ICBEMP. The preferred alternative has been modified in response to internal (Forest Service and BLM) review and public comments (includes comments from the Environmental Protection Agency, National Marine Fisheries Service, and U.S. Fish and Wildlife Service). Most of the changes made were to improve the clarity and intent of the management direction.

When the Record of Decision is signed, Alternative S2 will amend the 62 land use plans currently in effect on 32 Forest Service and BLM administrative units in the project area.

This document presents the proposed decision (preferred alternative [Alternative S2] from Supplemental Draft EIS as modified) in its entirety.

Theme

Alternative S2 focuses on restoring and maintaining ecosystems across the project area and providing for the social and economic needs of people, while reducing short- and long-term risks to natural resources from human and natural disturbances. An emphasis on conducting analyses,

such as Subbasin Review and Ecosystem Analysis at the Watershed Scale (EAWS), prior to conducting management activities is intended to minimize short-term risk from management activities in areas where short-term risks are of most concern, and to ensure actions occur in the most appropriate locations in the most appropriate sequence. In this way, Alternative S2 systematically minimizes short-term risks from management activities or disturbance events. Economic participation of the local workforce in management activities is promoted by ensuring restoration activities are prioritized to occur in areas that are economically specialized in industries tied to goods and services from Forest Service- and BLM-administered lands.

Restoration activities are planned and conducted across the project area to effectively and efficiently address the long-term risks associated with disturbance events. Restoration in certain areas is prioritized based on: areas that have high risk to terrestrial and aquatic habitats of unnaturally severe disturbance and high or moderate opportunity to address those risks (for example through the ability to connect and expand scarce aquatic and terrestrial habitats). In addition, some of these areas are near isolated and economically specialized communities, and therefore have opportunity to provide economic value to human communities.

In addition to promoting the broad-scale restoration and maintenance of ecosystems, conservative direction is also provided to further promote the protection of specific subwatersheds containing important fish populations and specific watersheds containing important terrestrial source habitats. These are the habitats that have declined the most (in geographic extent) from historical to current periods, and therefore, they are in short supply. Management is designed to conserve these habitats by avoiding short-term risks to them, while expanding them elsewhere through restoration actions.

Design/Architecture of Alternative S2

Management direction in Alternative S2 is hierarchical in that some types of direction take precedence over others. ICBEMP direction may be basin-wide (applies to all Forest Service- and BLM-administered lands in the project area), geographic (applies to certain mapped or described areas), or conditional (applies wherever particular conditions are found).

The design or architecture of Alternative S2 includes four main elements:

1. **Integrated Management Direction** includes base level, restoration, and geographically specific direction, which addresses landscape dynamics, terrestrial source habitats, aquatic species and riparian and hydrologic processes, and social-economics and tribal governments;
2. A **Step-down** process which applies broad-scale management direction and scientific findings to site-specific activities on national forests and BLM districts;
3. **Adaptive Management**, which allows modification of management direction to incorporate new knowledge and understandings; and
4. **Monitoring and Evaluation** to ensure management activities are achieving desired results.

Integrated Management Direction

The management direction in Alternative S2 is designed to address four major broad-scale ecosystem components: landscape dynamics, terrestrial source habitats, aquatic species and riparian and hydrologic processes, and social-economics and tribal governments. The direction is organized to integrate the interconnections among these components. The management intent and management direction which includes objectives, standards, and guidelines for Alternative S2 are presented in full later in this document. A summary of the management intent follows:

Landscape Dynamics

The landscape dynamics component of the integrated ecosystem management strategy was developed to maintain ecosystems that are in good condition, and to restore ecosystems that are degraded on Forest Service- and BLM-administered lands. The intent of management direction for **landscape dynamics** is to maintain or, if necessary, restore the health, productivity, and diversity of native fish, wildlife, and plants; maintain or improve water quality; sustain stream flows; and maintain and/or enhance the resiliency of forests and rangelands to fires, disease, and other disturbances. This direction provides the foundation for managing long-term risk to fish, wildlife, and plant species and habitats, and social-economic needs (including tribal rights and interests). It provides the thread that connects and integrates the individual components. Management direction for landscape dynamics can be found in the base level, restoration, and terrestrial T watershed sections, and for aquatic A1 and A2 subwatersheds.

One intent of managing native plant communities is to slow the rapid spread of **noxious weeds** using an integrated weed management strategy. Another intent is to protect and enhance vegetation types that are in short supply and are important to wildlife, such as **old forests**.

Management direction for fire and roads is included as part of landscape dynamics. The intent of direction for **fire management** is to improve vegetation conditions and reduce the threat of unnaturally severe wildfire through the use of prescribed fire. Coordinating fire management with adjacent landowners is intended to increase the resiliency of forests and rangelands to unnaturally severe wildfires while also reducing the negative air quality impacts that are associated with unnaturally severe wildfires.

The overarching intent for **roads management** within the ICBEMP is to progress toward a smaller transportation system that provides public access, reduces road-related adverse effects, and can be maintained in the long term with minimal environmental impact. Roads that are no longer needed will be closed or obliterated and ecological values restored. Roads that are needed for land management, public access, and tribal rights are intended to be safe, promote efficient travel, and be improved as needed. New road construction will be reduced from past levels. The focus of road restoration is intended to occur where reduction of adverse effects and benefits to resources can be maximized.

Terrestrial Source Habitat

The terrestrial component of the integrated ecosystem management strategy was developed to consider and provide habitat for productive and diverse populations and communities of plant and animal species; provide for recovery of listed species; provide habitat capable of supporting harvestable resources; and provide for terrestrial habitats on Forest Service- and BLM-administered lands. The focus of the **terrestrial source habitat** direction is to change declining trends in terrestrial habitats by maintaining important vegetation characteristics (such as plant species composition, forest and rangeland vegetation structure, snags, and coarse woody debris) which various terrestrial species need to survive and reproduce. Management direction for terrestrial source habitat can be found in the base level, restoration, and terrestrial T watersheds sections.

Terrestrial T watersheds were identified because they contain source habitat for one or more of five "Families" of terrestrial species. Terrestrial species in these Families in general represent those for which source habitats have declined the most from historical to current periods in the project area. In addition, the pattern of source habitats within these watersheds is most similar to that historically found. T watersheds are an important, but not the only, component of the terrestrial habitat strategy. In the short term, the intent of managing source habitats, especially

in T watersheds, is to conserve habitats with old-forest characteristics and those that have shown the greatest decline in geographic extent from what they were historically and therefore are in short supply. In the long term, the overall intent is to increase the geographic extent and connectivity of these same habitats, and to have a sustainable mix and pattern of habitats, which should contribute to the long-term persistence of terrestrial species.

Aquatic Species and Riparian and Hydrologic Processes

The aquatic/riparian/hydrologic component of the integrated ecosystem management strategy was developed to maintain and restore the health of watersheds and aquatic ecosystems on Forest Service- and BLM-administered lands. It focuses on maintaining and restoring watershed conditions, water quality, and aquatic and riparian habitat by replacing interim strategies (PACFISH and INFISH), and addressing long-term aquatic species viability, recovery of listed species, short- and long-term risks to these resources from management activities, and long-term risks from uncharacteristically severe natural disturbances. Geographically specific areas, such as riparian conservation areas (RCAs), aquatic A1 subwatersheds, and aquatic A2 subwatersheds, are important components of the aquatic strategy. Management direction for aquatic-riparian-hydrologic resources can be found in the base level, restoration, and aquatic A1 and A2 subwatersheds sections. In addition, management direction for landscape dynamics and terrestrial source habitats is intended to enhance aquatic/riparian/hydrologic resources.

RCAs, A1 subwatersheds, and **A2 subwatersheds** were identified because of their importance to fish, riparian-dependent species, water quality, and other aquatic, riparian, or hydrologic resources. The management intent in these areas is to protect these resources in the short term and improve them in the long term. Protection and enhancement of these areas is intended to contribute to a network of connected aquatic/riparian habitats and enhance the long-term persistence of aquatic and riparian-dependent species.

Socio-Economic and Tribal Considerations

The socio-economic-tribal component of the integrated ecosystem management strategy was developed to support the economic and social needs of people, cultures, and communities of the interior Columbia Basin, and to provide for sustainable levels of products and services from lands administered by the Forest Service and BLM within the capabilities of the ecosystem. It focuses on producing **products and services** from public lands to encourage and support people's use of public land resources within the capacity of ecosystems and to provide sustainable levels of products and services, consistent with other ecological and restoration goals. Another intent is to support economic activity for local and tribal communities to the extent possible, particularly those that are isolated and economically specialized, which will help maintain their viability as they move toward achieving their long-range goals of economic development and broader economic diversification. Management direction that specifically addresses this component can be found in base level and restoration sections.

The socio-economic and tribal government direction promotes agency support for, and collaboration with, local communities and tribal governments when developing methods to support their **social and economic needs**. Another intent is to integrate the needs of local and tribal communities more thoroughly into agency decision-making and management activities.

The **socio-economic-tribal restoration** direction highlights areas where restoration activities have a direct influence on human community economic, social, and cultural needs. This direction is linked to restoration direction provided in the landscape dynamics, terrestrial, and aquatic/riparian/hydrologic sections; it relates to considerations for designing and implementing restoration activities that are intended to promote workforce participation, serve demands for

commodity products at various levels, encourage intergovernmental collaboration, and consider tribal needs and interests.

The intent of management direction for **federal trust responsibility and tribal rights and interests** is to address as fully as possible tribal concerns and interests and to reflect consideration of federal legal responsibilities both to tribes and American Indian people as expressed through treaty language, federal laws, executive orders, and federal court judgements.

Step-down

Step-down is the process of applying broad-scale science ICBEMP findings and management direction to site-specific activities on national forests and BLM districts.

Four levels of analysis make up this step-down process:

- Subregional analysis (BLM resource management plans or Forest Service land and resource management plans);
- Mid-scale analysis (Subbasin Review);
- Fine-scale analysis (Ecosystem Analysis at the Watershed Scale [EAWS]);
- Site-specific National Environmental Policy Act (NEPA) analysis (environmental analysis or environmental impact statement).

The Supplemental Draft EIS proposes direction for mid-scale analysis (Subbasin Review) and fine-scale analysis (Ecosystem Analysis at the Watershed Scale). Forest Service and BLM direction already exists for the development of resource management plans and site-specific NEPA analysis.

The intent of conducting these analyses in this step-down manner is to reduce overall short-term and long-term risks to resources from human and natural disturbances, while maximizing conservation and restoration opportunities. For example, broad-scale or regional resource risks are addressed through the Final EIS, subregional resource risks are addressed through land use plans, mid-scale or landscape resource risks through Subbasin Review and/or EAWS, and site-specific resource risks through site-specific NEPA analysis.

Adaptive Management

The intent of adaptive management is to incorporate and build on current knowledge, observation, experimentation, and experience to adjust management methods and policies, and to accelerate learning. The intent is for management direction to be modified if a site-specific situation is different than what was assumed during ICBEMP planning. Some examples include if a flood, fire, or other event changes the characteristics of the environment; if new information gathered through monitoring indicates objectives are not being met; or if new science information indicates a need for change. Changes to management direction will be made consistent with the requirements of the National Forest Management Act (NFMA), Federal Land Policy and Management Act (FLPMA), NEPA, and their implementing regulations. Accelerated learning is intended to occur from formal research designed to test hypotheses of scientifically uncertain and/or controversial management issues, or to use field trials to test the usefulness of new strategies to achieve objectives.

Monitoring and Evaluation

Monitoring and evaluation are an integral part of adaptive management and are key to achieving the short- and long-term goals and objectives of the ICBEMP. Success in meeting ICBEMP goals and objectives requires that the effects of this outcome-based direction be monitored and evaluated in a timely manner to determine if modifications are needed.

The monitoring and evaluation process is intended to:

- Focus on ICBEMP goals and objectives to guide key elements to monitor;
- Be developed collaboratively using an intergovernmental, interdisciplinary team;
- Address linkages and relationships among scales in the project area;
- Be based on scientific understandings of interactions among ecosystem components and human activities; and
- Be technically feasible, affordable, and operationally attainable.

The implementation monitoring strategy for the Interior Columbia Basin is described in Appendix 10 of the Supplemental Draft EIS. Additional discussion on the implementation organization and implementation monitoring program for Appendix 10 is included with the Final EIS.

Hierarchy of Management Direction

Management direction is either base level (applies to all Forest Service- and BLM-administered lands in the project area), restoration (applies wherever restoration occurs), or geographically specific (applies only to certain mapped areas; in this EIS, these areas are aquatic A1 and A2 subwatersheds and terrestrial T watersheds). These different types of direction are intended to be consistent. When there are conflicts *within ICBEMP direction*, the most restrictive direction prevails.

Base Level Direction

The intent of base-level direction is to *maintain* ecosystems and resources that are in good condition, and *prevent further deterioration* of ecosystems and resources that are not in good condition until they can be actively or passively restored. Base-level Direction would amend or augment management direction in existing land use plans, although the specific location, timing, and intensity of management actions required to achieve the broad-scale ICBEMP direction still would be determined by local Forest Service and BLM managers. Acceptable levels of short-term and long-term risk from conducting management actions and from conducting no management actions must be considered when making these finer-scale decisions.

Restoration Direction

The intent of restoration direction is to *improve* resource conditions that are not functioning properly by focusing restoration activities in the most efficient and effective manner possible. Restoration activities are intended to address and benefit multiple ecosystem components, including the needs of communities and American Indian tribes. Restoration direction applies wherever restoration activities occur, such as in subbasins identified as high restoration priority and in areas with locally identified restoration priorities.

Subbasins with functional (one resource, such as aquatics) and integrated (many resources) priorities have been identified and mapped as having a high restoration priority from a broad-scale perspective (see Maps 3-2 through 3-7 in the Supplemental Draft EIS). This was done to assist national forests and BLM districts in prioritizing local restoration activities and to assist in their budget planning processes.

Certain subbasins were identified as high restoration priority because they have high risk to fish and wildlife and their habitats from natural disturbances, there is good opportunity to reduce those risks through restoration activities, and some of the restoration actions would provide employment and economic opportunities for isolated and economically specialized communities and tribal communities. In Alternative S2, 40 high restoration priority subbasins were identified. Thirteen of the 40 subbasins were included because of the opportunities to expand and improve extent, condition, and connectivity of aquatic habitat.

Geographically Specific Areas

Several areas (called aquatic A1 and A2 subwatersheds and terrestrial T watersheds) were identified and mapped because of their importance for fish and wildlife and their habitats. The management intent of these geographically specific areas is to secure, or protect, the habitats from adverse effects in the short term from management activities, and to build upon, or restore, the habitats in the long term, in part by decreasing the likelihood of uncommon natural disturbance (such as from unusually severe wildfire). Management direction for these mapped areas is generally more restrictive than base level or restoration direction, and would take precedence if there were a conflict in direction. Management direction for riparian conservation areas also falls into this category.

Threatened and Endangered Species Direction

The intent of threatened and endangered species direction is to protect and restore habitats for listed or proposed species and to contribute to recovery. Since a large portion of the project area is occupied by listed or proposed species or is designated critical habitat, and since a large portion of the project area is in need of terrestrial habitat restoration, watershed restoration, and restoration of succession/disturbance regimes, potential conflicts may exist between short-term protection of listed or proposed species habitats and long-term recovery and resiliency of ecosystems that they inhabit. The hierarchical step-down analysis direction presented in the Step-down section should aid land managers in strategically identifying risk and opportunities for conservation and restoration of listed species habitats while implementing adopted recovery plans and meeting resource objectives and legal requirements. The Forest Service and BLM will continue to consult with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service on agency decisions that may affect listed species or their habitat. The management direction for listed and proposed species would take precedence over other ICBEMP direction.

Key Terms Used in The Proposed Decision

Broad Scale — A large, regional area such as a river basin and typically a multi-state area.

Fine scale — A small landscape, such as a watershed (50,000 to 60,000 acres), a subwatershed (approximately 20,000 acres), or in some cases, groups of watersheds or subwatersheds.

Goal — The state or condition that implementation of this Record of Decision (ROD) is intended to achieve. Goals in the ICBEMP EIS and ROD are expressed in broad, general terms, and are timeless in that they are not required to be completed by a certain date. Goals form the principal basis from which objectives are developed, and are consistent with the purpose and need statement.

Guideline — Suggested action, priority, process, or prescription that would be useful in meeting one or more objective(s). Guidelines are not required but are included in the ICBEMP EIS and ROD to provide suggested techniques to meet the objectives. "May", "can", or "could" are used in guidelines to indicate that they are suggested techniques, which are optional.

High Restoration Priority Subbasins — Subbasins identified by the ICBEMP as high priority for restoration at the broad scale, where management intent is to concentrate restoration efforts (such as aquatic, water quality, vegetation management, or reestablishing fire) and to make restoration activities more effective and efficient.

Long Term — As used in this chapter, more than 10 years.

Mid scale — A subregional area, such as groups of subbasins or a RAC/PAC (Resource Advisory Council/ Provincial Advisory Committee) area.

Objective — Indicates short-term (10 years) and/or long-term outcome(s) that is(are) expected or desired. Objectives are more specific than goals, and they focus primarily on conditions or processes we are trying to achieve or prevent rather than on specific actions or restrictions. Whenever possible, time periods expected to attain the outcome are specified.

Actions taken after the ICBEMP ROD is signed must be consistent with the objectives. However, ICBEMP objectives are broad scale; therefore, it is neither expected nor appropriate to achieve each objective to the same degree on every acre of Forest Service- or BLM -administered land in the project area. Also, since objectives focus on conditions and processes, it is possible that specific authorized activities may not individually meet each objective. However, in the long term (more than 10 years), management actions must move broad-scale resource conditions toward the desired conditions described in the objectives. If actions are moving toward a different condition than is described by the goals or objectives then the agencies are not in compliance with the ROD.

Short Term — 10 years or fewer.

Standard — Required action, priority, process, or prescription that addresses how to achieve one or more objective(s). Standards can include restrictions on or prohibitions from taking an action in certain areas or situations. Compliance with standards, as with objectives, is mandatory. If standards are not followed, then the agencies are not in compliance. When "shall" is used in a standard, the action is mandatory. When "should" is used in a standard, the action is mandatory unless other actions (including non-action) meet the intent of the standard.

Management Direction—Step-Down, Adaptive Management, and Monitoring

Step-down

Description and Management Intent—Step-down

Step-down is the process of applying broad-scale science findings and land use decisions to site-specific areas using a hierarchical approach of understanding current resource conditions, risks, and opportunities. Information developed through analysis at different scales provides additional context that is beneficial in understanding how projects can be developed that meet multiple management objectives, including reducing risks to sensitive or unique resources.

Analysis of ecosystems is a systematic way of gathering, organizing, and understanding information within a selected geographic area. It is not a decision-making process, but it does provide the information and context to make well-informed decisions. With this information, managers can better understand and disclose the effects of their decisions. It is useful in guiding the type, location, and sequencing of appropriate management activities within a watershed, as well as in helping identify inventory and monitoring needs. Information gained from this hierarchical analysis approach may also be used in future amendments and revisions of land use plans.
Four levels of analysis below the basin-level analysis conducted by the ICBEMP are intended to provide the context to appropriately implement these broad-level decisions on individual national forests and BLM districts. They include:

- Subregional analysis (programmatic, or broad overview, EIS; for example, BLM resource management plans or Forest Service land and resource management plans);
- Mid-scale analysis (Subbasin Review);
- Watershed-scale analysis (Ecosystem Analysis at the Watershed Scale);
- Site-specific NEPA analysis (environmental analysis or environmental impact statement).

It is intended that these analyses be conducted in certain circumstances to reduce the overall risks to resources, while maximizing the opportunities to conserve and restore resource conditions. In essence, the step-down process is a risk management approach, which addresses risks at different scales. The ICBEMP EIS addresses broad-scale or regional risks, whereas the various step-down analysis processes address finer-scale risks. Subregional risks are addressed through land use plans, mid-scale or landscape risks through Subbasin Review and/or EAWS, and site-specific risks through site-specific NEPA analysis. Under this approach, regional, subregional and landscape analyses and decisions provide context for the remaining risks to be addressed at the site level. Through a multi-level analysis and decision process, all levels of risk would be addressed, with management activities focused on risks at the site level where the most detailed analyses are conducted. The hierarchical analysis process will be phased in over seven years. Figure 3-1 illustrates how analysis will be done during the phase-in period.

Because site-specific NEPA analysis and programmatic planning analyses have been widely used since the inception of National Environmental Policy Act in 1969, Federal Land Policy and Management Act in 1976, and National Forest Management Act in 1976, further elaboration of these analysis requirements or techniques is not included in the following step-down discussion. However, a few components of site-specific analyses that are particularly important to an ecosys-

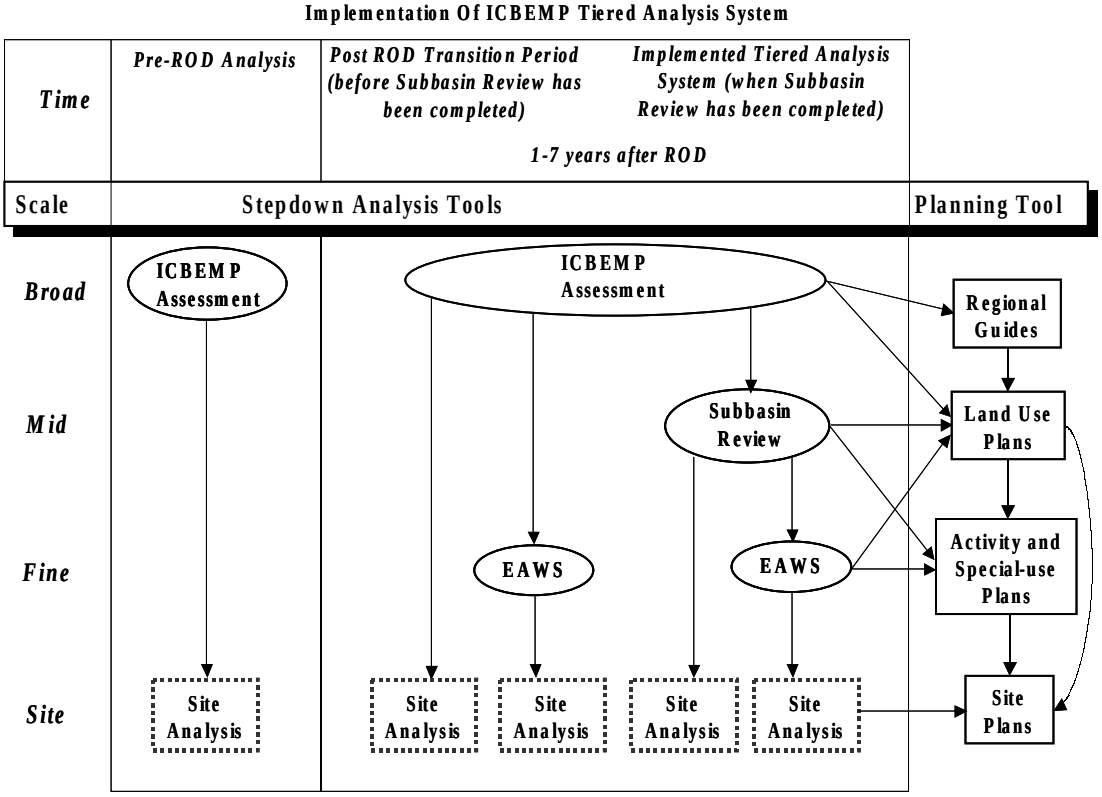


Figure 3-1. Step-down

tem management strategy warrant some discussion. Mid-scale and watershed-scale analyses can provide valuable context, focus, and information for site-specific NEPA analysis.

Documenting the proposed and alternative actions and the analysis of their impacts, including cumulative impacts, is a particularly important function of NEPA. Documentation of the context provided by mid- and fine-scale analyses that are relevant to site-specific analysis and decisions is also important. That context includes information that facilitates management of risk to resources from natural events and management actions at different scales (geographic and temporal). Subbasin Review and EAWS enhance the understanding of risk and opportunities and provide a hierarchically scaled context and information base of support for site-specific analysis and decisions. Decisions regarding where and when to take short-term risks, particularly where listed or proposed species are present, need to be made to the extent possible within the context of information generated through the step-down process, with clear documentation of analysis and rationale.

In Alternative S2, one of the main emphases is to minimize short-term risk, especially to threatened, endangered, or proposed species, important species habitats, and riparian areas. Therefore, the intent is to put a greater emphasis on conducting analyses, such as Subbasin Review and Ecosystem Analysis at the Watershed Scale (EAWS), prior to conducting management activities.

Collaboration is also important during step-down processes. By conducting mid- and fine-scale analyses in a collaborative environment, management opportunities and priorities can be agreed on earlier in the process, which leads to decisions that have more support at finer scales. At the

same time, collaboration can be a challenge. The Forest Service and BLM must initiate collaboration to demonstrate a good faith effort during step-down. However, the step-down processes cannot stop if all the appropriate parties cannot come to agreement on certain elements of a decision or if one or more partners cannot or do not remain involved throughout the process.

The ICBEMP base level and restoration direction includes specific expectations regarding subsequent analyses and/or processes. The intent is that field personnel will conduct related, scale equivalent processes in conjunction with the key step-down analyses to the extent appropriate. For example, Objective B-O30 addresses identification of existing old forest stands and source habitats in T watersheds. This can be done in conjunction with Subbasin Review using existing information. Standard B-S42 requires an area influencing sediment delivery to RCAs be identified prior to conducting new management activities. This can be done in conjunction with site-specific NEPA.

Description and Management Intent—Mid scale

The *Assessment of Ecosystem Components in the Interior Columbia Basin* (Quigley and Arbelbide 1997) found that the mid scale is an important scale for addressing management of ecosystem components, because many important relationships and patterns are evident only at the mid scale. The following direction to complete Subbasin Review as an initial step in implementing broad-scale decisions through site-specific actions is intended to provide this mid-scale understanding of relationships and patterns within the subbasin (4th-field HUC, approximately 800,000 to 1,000,000 acres) or groups of subbasins. By conducting Subbasin Review, decision makers can better balance the short- and long-term risks to resources and provide more predictable and sustainable levels of goods and services for people and communities. Information from Subbasin Review is used to identify opportunities and priorities, focus finer-scaled analyses, and provide context for future decision-making at the land use planning and project levels.

Specifically, Subbasin Review is intended to be conducted collaboratively to:

- Review information provided in the *Assessment of Ecosystem Components, Integrated Assessment* (Quigley, Haynes, and Graham 1996), other applicable science information, pertinent results from other mid-scale assessments (for example, *The Subbasin Assessments Template* completed under the Northwest Power Planning Council Fish and Wildlife Program), and existing local information;
- Identify data gaps;
- Identify local resource issues, and describe how they interact with each other and with broad-scale issues within the subbasin;
- Identify the need for Ecosystem Analysis at the Watershed Scale (EAWS), roads analysis, and other analyses within the subbasin(s);
- Prioritize/schedule EAWS and other analyses that are needed within the subbasin(s);
- Provide mid-scale context for finer-scale analyses and activities, including EAWS and roads analysis;
- Identify opportunities for land use plan amendment or revision to meet broad-scale and more localized objectives;
- Identify and prioritize risks and opportunities to meet broad-scale and more localized objectives through site-specific management actions;
- Assess risks and opportunities to reduce potential unwanted effects from management actions and land uses (for example, road-related adverse effects) and to better balance short- and long-term, and mid- and fine-scale risks;

- Establish context for assessment of effects on environmental justice (Executive Order 12898 [59 Federal Register 7629]) and civil rights at mid- or fine-scale decision-making levels;
- Characterize landscape elements that contribute to or influence hazards and risks associated with roads;
- Identify opportunities for pooling interagency (federal agencies) and intergovernmental (tribes, states, counties, cities) resources for prioritizing and completing EAWS and other analyses;
- Consider state, county, tribal, or other agency restoration priorities;
- Invite tribal participation to identify and characterize resources and places of value, solicit data and other information, and solicit tribally identified priorities and restoration opportunities. Use this information along with the broad-scale tribal restoration priority subbasins map (see Map 3-7 in the Supplemental Draft EIS) to assist in prioritizing local restoration activities;
- Identify and map important areas and dispersal corridors for wide-ranging carnivores;
- Identify areas, priorities, and opportunities for restoration to create a larger or more contiguous network of connected, productive aquatic/riparian and/or terrestrial habitats. Use broad-scale aquatic/riparian restoration priorities (see Map 3-3 in the Supplemental Draft EIS), broad-scale old forest/rangeland habitat restoration priorities subbasins (see Map 3-5 in the Supplemental Draft EIS), A2 subwatershed restoration priorities, location of A1 and A2 subwatersheds, and location of source habitats that have declined substantially in geographic extent from historical to current periods in T watersheds.

Because of the variability of conditions within the interior Columbia Basin, the broad-scale ICBEMP direction is outcome based rather than activity based. Ecosystems are characterized at different scales, as appropriate, through hierarchical analysis (programmatic planning, Subbasin Review, EAWS, and site-specific NEPA analysis). This provides information necessary to ensure that site-specific decisions implement broad-scale, outcome-based direction, while giving managers the discretion necessary to select the action that also fits the situation on the ground. Measurable indicators will be used, where appropriate, to provide context and decision support to determine the appropriateness of management activities with respect to the broad-scale objectives.

Landscape characterization includes historical as well as current conditions of the land; therefore, it should also include people who have used the area historically and their relationship to the land and resources, as well as people who currently use the land. Understanding of how and where people historically lived and worked in an area can be improved by knowing the types of uses that existed in a given area through time. For example, historical mining areas, old railroad beds, ceded lands, Civilian Conservation Corps structures, or the presence of a nearby Japanese internment camp might be indicative of a particular minority or ethnic group that used and related to the land in a particular way. These uses/features might provide the impetus to seek out representatives of these groups to better describe their relationship with the land/resources from historical to current times as a part of characterization. This information can then be used to address subsequent NEPA analysis and decision-making requirements.

Subbasin Review is intended to be a dynamic process whereby risks, opportunities, and priorities are revisited when issues or conditions change. Information can be added to respond to additional issues as they arise, or as information is developed through other avenues.

Since Subbasin Review is intended to provide information that helps identify opportunities and priorities, for Alternative S2 it is intended that Subbasin Reviews should be completed for

subbasins identified as high priority for restoration (see Map 3-8 later in this document) within three years following the signing of the ICBEMP Record of Decision. This goal is intended to ensure the mid-scale level of information is available sooner than later in areas where greater levels of restoration activities are anticipated. See the Description and Management Intent for Restoration direction for a discussion of broad-scale integrated high priority restoration subbasins. All other Subbasin Reviews or requirements described in B-S1, and/or as they might be modified by B-S2, are intended to be completed within seven years of the signing of the ICBEMP Record of Decision. Monitoring will assess and evaluate the timeliness and effectiveness of the step down processes, such as Subbasin Review, as well as the accomplishment of management activities.

To assist in understanding the intended outcome of Subbasin Review, as well as to help field offices carry out their responsibilities to conduct these reviews, *Ecosystem Review at the Subbasin Scale: A Guide for Mid-scale Inquiry (Subbasin Review Guide*; ICBEMP 1999*)* has been prepared. This guidebook describes a tested process that would meet the purpose of Subbasin Review as described above. It includes a series of questions relative to the key resources addressed by the ICBEMP, including aquatic, terrestrial, landscape dynamics, and socio-economic resources, that are intended to help focus the review. While these questions have been determined to be appropriate for a Subbasin Review, they can be answered in different ways, depending upon the resources at issue and the type of existing data available to address the issue. Administrative units are encouraged to use creative thinking in addressing these questions, identifying opportunities, and developing priorities.

Objectives, Standards, and Guidelines—Subbasin Review

B-O1. Objective. Use mid-scale information on the status, risk, and opportunities within a subbasin as context for finer scale analysis and to identify and prioritize types of management activities appropriate to meet broad-scale objectives. Inform and coordinate with collaborating partners when using broad- and mid-scale information to identify and help balance short- and long-term risks to resources, to identify opportunities to conserve and restore resource conditions, and to produce goods and services for people and communities within the subbasin. Collaboratively revisit risks, opportunities, and priorities through subsequent Subbasin Review iterations in response to new, critical issues or information or substantially changed conditions.

> ***Rationale****: Status* is defined here as the condition of the resources relative to the historical condition. *Risk* includes both short- and long-term risks of adversely affecting the current condition of these resources. *Opportunities* are situations where improvements in resource condition or a reduction in risk can be achieved through some form of subsequent management decision. These decisions will be made either through adjustments in land use plans or through project decisions, both of which include additional analysis and public involvement. In certain cases, Ecosystem Analysis at the Watershed Scale will be needed or required prior to developing site-specific proposals. This analysis is intended to provide additional information to decision makers so they can better balance the short- and long-term risks to resources. *Informing* and *coordinating* are the minimum required collaborative approaches. Cooperating and consensus are desired, but not required. (See the Glossary definition of Collaboration for a description of these terms.)

B-S1. Standard. Subbasin Review shall be conducted to provide the mid-scale context outlined in B-O1 and as described in the latest version of the Subbasin Review Guide. Subbasin Review shall be used to: (a) prioritize and provide context for EAWS and other analyses; (b) within high restoration priority subbasins, identify the schedule for completing EAWS that are needed in the subbasin; (c) identify opportunities for future activities and land use plan

amendments/revisions; (d) understand the potential for effects from possible activities; (e) identify data gaps; and (f) identify opportunities to pool resources.

Rationale: While the context provided by Subbasin Review will help decision makers balance short- and long-term risks to resources within the subbasin, it is not the intent of B-S1 to prohibit resource management activities from occurring prior to its completion. Rather, as subbasin reviews are complete, information from these analyses will be used to provide context for other analyses and for future land use plan and project decisions. In Alternative S2, several conditions trigger EAWS (see Standard B-S5). Subbasin Review can be used to identify priorities and schedules for conducting additional EAWS if they are determined to be appropriate and have not already been triggered.

B-S2. Standard. Subbasins with less than five percent BLM/Forest Service ownership (Map 3-1 in the Supplemental Draft EIS) or areas where there is consensus among interagency partners that the intent of Subbasin Review has been met through other analytical processes are exempt from B-S1 requiring Subbasin Review. BLM and Forest Service administrative units shall initiate collaboration with National Marine Fisheries Service, U. S. Fish and Wildlife Service, and U. S. Environmental Protection Agency (EPA) to discuss the general condition of BLM and Forest Service resources within the subbasin, the role these lands play within the subbasin, and the potential to reduce risks or provide opportunities to meet broad-scale objectives for the subbasin.

Rationale: Mid-scale analysis, landscape analysis, or Ecosystem Analysis at the Watershed Scale has already been conducted in many places within the project area. Where the collaborating partners agree that the intent of Subbasin Review has been met through previous analysis, efforts should focus primarily on gaining a broader understanding of the conditions, risks, and opportunities. Collaboration can increase awareness and understanding among the partners concerning what analysis has been completed, the results of these analyses, and a mid-scale view of the resources, issues, and opportunities within the subbasin. In this case, reanalyzing the information may not be necessary to accomplish the intent of Subbasin Review. Collaboration can enhance interagency awareness and understanding; however, if all collaborating partners cannot or do not participate, the land management agencies (BLM and Forest Service) will continue with the step-down process.

B-S3. Standard. Conduct Subbasin Review using a subbasin (4th-field HUC, approximately 800,000 to 1,000,000 acres) or groups of contiguous subbasins as the analysis unit, except where interagency partners reach consensus on an alternative analysis unit.

Rationale: For this standard, the interagency partners include only federal agencies with interest in the area.

B-S4. Standard. The latest version of *Ecosystem Review at the Subbasin Scale, A Guide for Mid-scale Inquiry* (Subbasin Review Guide) shall be used when conducting Subbasin Reviews (subject to exceptions under Standard B-S2).

Description and Management Intent —Watershed-scale

Ecosystem Analysis at the Watershed Scale (EAWS) is an analytical process that characterizes the human, aquatic, riparian, terrestrial, and other special features, conditions, processes and interactions that occur within a watershed (*Ecosystem Analysis at the Watershed Scale, Federal Guide for Watershed Analysis*, revised August 1995, version 2.2, Portland, Oregon [*Federal Guide for Watershed Analysis;* Regional Interagency Executive Committee]). It is an issue-driven process that provides information concerning resource conditions, risks, and opportunities in a

systematic way, thereby enhancing agencies' ability to estimate direct, indirect, and cumulative effects of management actions. EAWS follows the six-step process outlined in the *Federal Guide for Watershed Analysis*. Collaboration is to be initiated by the Forest Service and BLM.

EAWS is intended to be used as a tool for identifying management actions needed to meet overall management objectives, and at the same time provides information useful in managing the mix of short- and long-term risks to resources that occur within the watershed. It is intended to be conducted where it adds value by contributing information needed for planning, locating, and designing activities across a watershed.

While Standard B-S5 will "trigger" the need to conduct EAWS prior to initiating project planning and implementation in some areas, it is intended that Subbasin Review (described in Standard B-S1) and EAWS be used to identify actions that would best meet the management objectives within a watershed. In this way, actions are proposed within the context provided by the mid- and watershed-scale analyses, and managers will have a better opportunity to balance the needs of resources and humans and be less likely to negatively impact threatened, endangered, or proposed aquatic species or species at risk.

Information gathered through EAWS is valuable for identifying riparian conservation area (RCA) criteria as described in Standard B-S35; however, other programmatic planning processes also may be used to identify RCA criteria. Information from these analyses, where completed, will provide the contextual information to revise the interim RCA criteria (see the RCA Delineation and Management Direction sections, later in this document).

While recognizing that EAWS is useful in locating and designing management activities, it is neither reasonable nor appropriate to assume that all activities are "on hold" until EAWS is completed. In an effort to balance the amount of analytical process requirements with the intent to actively and quickly restore resource conditions, the EAWS "triggers" described in Standard B-S5 are designed to generate a more detailed understanding provided by EAWS. These are situations where the potential for risk to threatened, endangered, and proposed aquatic species from management activities exists. EAWS will facilitate risk management. Areas previously identified under the 1995 and 1998 Biological Opinions (NMFS 1995 and 1998, U.S. Fish and Wildlife Service 1998) as priority watersheds are encompassed by this EAWS trigger as well as the remaining threatened, endangered, and proposed aquatic species habitat excluded from those designations. EAWS will also be used to reduce risks to those terrestrial species with source habitats that have declined substantially in geographic extent from historical to current periods, as defined in Objective T-O1, and to reduce risks in high restoration priority subbasins.

Standard B-S5 requires EAWS to be conducted where there is potential to negatively impact certain species or their habitats, unless those impacts are anticipated to be negligible, short term, and localized in extent. Some assert that this can only be determined after EAWS or site-specific NEPA is conducted. However, the intent is that EAWS will precede NEPA analysis; in fact, it will be the analytical process used to identify the need for the project or activity. The intent is for managers to use EAWS as a tool to help in subsequent planning, design, and implementation of projects. In general, managers have the knowledge and experience to determine the type of activities that are likely to have negligible, short-term, and localized effects.

Managers should consider the scope, intensity, location, and duration of the potential activity(ies). For example, a potential activity, such as development of a new mining operation, could be limited in scope but because of its probable intensity and location it could result in negative effects on listed aquatic species that would be measurable, last longer than days or weeks, and prevent attainment of objectives; or the effects could be cumulative, affecting

resources downstream or upstream of the activity area. In this instance EAWS would be required prior to the activity. Conversely, a potential activity (such as a prescribed burn) could be large in scope but because of the location and duration would likely result in impacts that would be negligible (unmeasurable), localized (contained) to the activity area, and would last less than days or weeks. In this example, EAWS would not be required prior to proceeding with the activity. These examples highlight the need for interdisciplinary and collaborative discussions when making such determinations prior to initiating project planning.

One of Subbasin Review's primary purposes is to provide a setting for such a determination (see Standard B-S1). When conducting Subbasin Review, land managers will be able to identify areas where they believe there is a need to conduct management activities that have the potential to negatively impact threatened, endangered, or proposed aquatic species or their habitats. It is not intended that management activities have zero effect on these species' habitats, but rather that the degree of impact be viewed in terms of the likelihood of a measurable change in the quantity or quality of the habitat.

For example, there may be a situation in Alternative S2 where Subbasin Review identifies that terrestrial source habitats in a T watershed are at risk from wildfire due to changes in understory structure. A prescribed fire in the cool, moist, spring would likely reduce the risk from wildfire, which would probably occur in the hottest, driest part of the year. In turn, fire effects would be less severe in the spring, reducing the chance that it would adversely affect the source habitat in the T watershed. However, although the management activity would be designed to protect a source habitat from wildfire, there is a potential for the source habitat to be negatively affected by the activity. Therefore, EAWS would be required prior to designing the management activity. In this example, the land manager would not need to know the precise prescription before determining whether EAWS was required. This determination would likely be collaborative.

In other cases, where the potential to negatively impact listed species or source habitat is less obvious, and where consensus cannot be reached among the collaborating partners, the line officer will make the determination, document the rationale for the determination, and notify the partners of the decision. Where a dispute arises concerning this determination, the dispute resolution process which will be included in the Record of Decision is intended to be used.

It is not the intent of EAWS to limit ongoing actions. Ongoing activities will still be evaluated during the conference/consultation process when new species or populations are listed under the Endangered Species Act, as is currently happening.

Objectives, Standards, and Guidelines— Ecosystem Analysis at the Watershed Scale (EAWS)

B-O2. Objective. Use watershed-scale information to address resource conditions, risks, and opportunities; to provide context and focus for site-specific NEPA analysis, decision-making, implementation, and monitoring; and to enhance the agencies' ability to estimate direct, indirect, and cumulative effects.

> ***Rationale:*** EAWS is an issue-driven process that is a valuable tool in understanding the conditions and risks to resources. It is intended to help balance short- and long-term risks through the proper placement and timing of management actions within a watershed. While the intent of this objective is to use watershed-scale information to manage risks associated with threatened, endangered, and proposed species and those species with habitat that has declined substantially in geographic extent from historical to current periods, the

expectation is that Ecosystem Analysis at the Watershed Scale will be used to meet the broad-scale objectives in this EIS.

B-S5. Standard. Subject to valid existing rights, Ecosystem Analysis at the Watershed Scale shall be conducted prior to planning and designing resource management activities where there is potential for those activities to negatively impact threatened, endangered, or proposed aquatic species or their habitats, or the source habitats within T watersheds that have declined substantially in geographic extent from the historical to current period. The only exception is where impacts are anticipated to be negligible, short term, and localized in scope or in the case where there is imminent threat or unacceptably high risk to scarce natural, cultural, or historical resources; human life; or property.

In subbasins identified as high priority for restoration (see Map 3-8), the location and timing of watersheds or subwatersheds requiring EAWS shall be determined through Subbasin Review, and shall be prioritized by level of risk to aquatic and terrestrial species habitat (watersheds with the highest risk would require EAWS first).

Rationale: *Resource management activities*, as used in this standard, refer to those actions that require the preparation of an environmental assessment (EA) or EIS under the National Environmental Policy Act of 1969, for example timber sales and road construction. The magnitude or intensity of an EAWS is intended to be appropriate to the anticipated issues. It is an issue-focused not activity-focused process, and therefore can be done without being "triggered" by an activity. *Potential to negatively impact* is defined here to include potential for measurable long-term, direct or indirect management-related change, of an individual or cumulative nature, in the quantity or quality of the habitats referred to in the standard. In determining measurable change, the project proposal should be evaluated relative to both the types of habitat potentially affected and the location of those habitats. The intent is to ensure the location and design of activities are improved with the information generated through EAWS; therefore, EAWS are conducted where they add value by improving planning, design, and implementation of projects and activities. Therefore, it is the expectation that Standard B-S5 exceptions dealing with imminent threat or unacceptably high risk are very limited and that consideration is given to exploring options such that EAWS can be conducted prior to design of the project. Without benefit of EAWS, some projects may not be located to address risks and opportunities as effectively and efficiently as they would be if preceded by EAWS; however, site-specific NEPA and, as appropriate, ESA Section 7 Consultation, would occur and be used to address project specific issues. It is the intent that consensus be reached by interagency partners regarding the determination of the imminent threat or unacceptable risk that leads to the exception.

B-S6. Standard. The latest versions of the *Ecosystem Analysis at the Watershed Scale, Federal Guide for Watershed Analysis* and the Forest Service/BLM policy implementation guides shall be used when conducting watershed-scale analysis unless there is consensus among interagency partners that the intent of the watershed-scale analysis has been or can be met through an alternate analytical process.

B-S7. Standard. Exemptions from Standard B-S5 requirements may be granted following review and approval by the ICBEMP Executive Steering Committee or their designated representatives. Requests for exemption shall be submitted in writing and include detailed rationale.

Rationale: Some resource management activities, while having only limited, site-specific impacts, may trigger the requirement to prepare an EA or EIS because of their controversial

nature. Decisions concerning these actions would not likely gain substantial benefit from the information provided by Ecosystem Analysis at the Watershed Scale. The intent of this standard is to screen these types of activities and exempt them from EAWS requirements where determined appropriate.

Adaptive Management

Description and Management Intent

Adaptive management is a procedure in which decisions are made as part of an on-going process. It involves planning, implementing, monitoring, evaluating, and incorporating new knowledge into management approaches (see Figure 3-2). This process builds on current knowledge, observation, experimentation, and learning from experience, which are then used to modify management methods and policies. This definition of adaptive management used in this EIS differs from what is sometimes used within scientific literature.

Adaptive management is useful for two primary purposes:

1. Adjust management because:
   a. planned direction is adapted to a site-specific situation which is different than what was assumed during planning (for example, high road density for an area was assumed in the EIS but low road density was found on the ground);
   b. an event (for example flood or wildfire) changes the characteristics of the environment;
   c. new information accumulates over time through monitoring that indicates planned objectives are not being met (for example, fish habitat declines in an A1 subwatershed); and
   d. new scientific information indicates a need for change (for example, university-sponsored research indicates current management practices are leading to unintended results).
2. Accelerate learning from:
   a. formal research designed as experiments to test hypotheses about critical management issues that have high scientific uncertainty and/or are very controversial socio-economically or politically; and
   b. testing the usefulness of new strategies to address management issues through the use of field trials.

The complex interrelationships of physical, biological, and social components of the ecosystem and how they will react to land management practices often are not fully understood when an ecosystem management plan is developed. To be successful, plans must have the flexibility to adapt and respond to new knowledge or conditions.

The need for an adaptive management approach can be illustrated by the following examples:

Until the 1970s, it was commonly thought that logs and other woody debris should be removed from streams to provide for fish passage. Through the accumulation of knowledge it is our current understanding that instream woody debris is important for developing pools and other habitat for fish.

Until the 1980s a commonly held view was that all wildfires should be aggressively suppressed to conserve forests. In recent years we have recognized that universal fire suppression has led to more frequent catastrophic fires and outbreaks of insect and diseases.

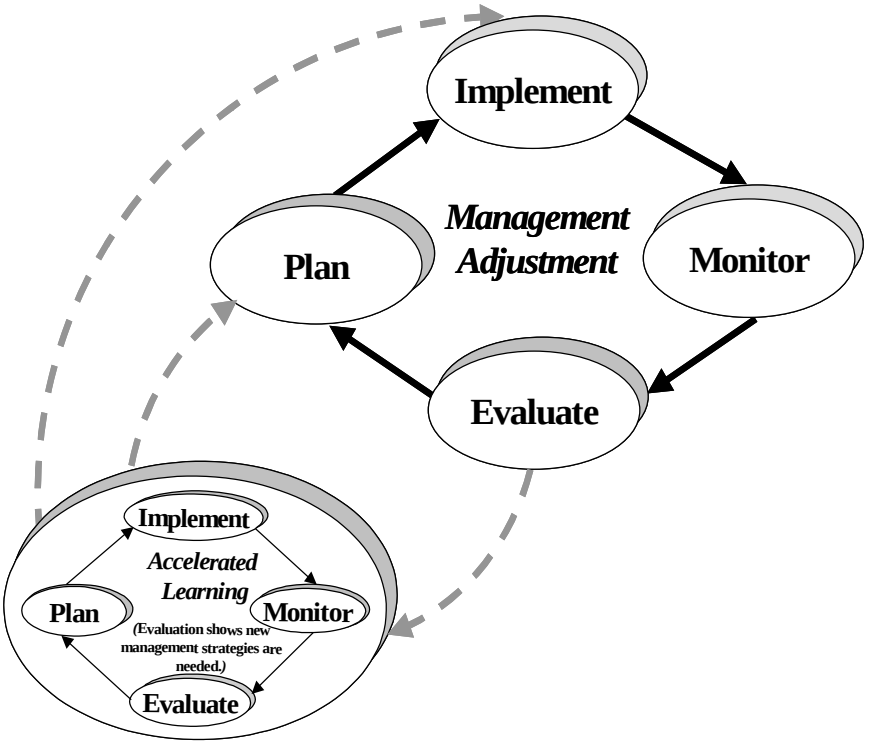


Figure 3-2. Adaptive Management

In developing this EIS, the Forest Service and BLM used the best science currently available, collaborated with other governmental agencies, and involved the public. However, the agencies' knowledge evolves as society's desires change, as local environmental conditions change, as new management techniques are learned, and as the advances in science and technology are better understood. Therefore, it is inevitable that in the future, some of the management direction in this EIS will be found to be erroneous or inadequate. To address this, implementation of the ICBEMP decision will use an adaptive management approach to modify management plans and activities to incorporate new knowledge gained over time.

Management Adjustment

B-O3. Objective. Use a continuing process of planning, implementing, monitoring, evaluating, and incorporating new knowledge into management strategies, for adjustment purposes, where: (1) a planned direction is adapted to a site-specific situation which is different than what was assumed during planning, (2) an event changes the characteristics of the environment, (3) new information accumulates over time through monitoring that indicates planned objectives are not being met, and/or (4) research indicates a need for change.

> ***Rationale*:** This objective is intended to ensure management direction and designations adapt to new information and/or site-specific conditions.

B-S8. Standard. When a land use plan amendment or revision has the potential to change the expected outcomes (described in the management direction for the ICBEMP EIS) for issues that transcend individual administrative units, the administrative unit shall consult and coordinate with the appropriate intergovernmental partners. Adaptive management modifications that

require changes in Forest Service Regional Guides or Forest Service or BLM land use plans shall be adopted following applicable planning and regulatory procedures.

Rationale: BLM and Forest Service planning regulations require many or all of the same procedural steps to change a plan (amendment) as to develop a new plan (revision). These requirements include involving the public in the planning process, completing a NEPA environmental analysis, approval of proposed changes by the BLM state director and Forest Service regional forester, and an opportunity for the public to protest or appeal the final decision. This standard gives intergovernmental partners an opportunity for involvement in the process and ensures that solutions to issues that are larger than a particular planning area are designed to avoid unintended broad-scale results. The dispute resolution process, which will be a part of the ROD, will provide a mechanism for raising issues that can not be resolved by local intergovernmental partners. *Management direction* includes goals, objectives, standards, and management intent.

Accelerated Learning

B-O4. Objective. Pursue opportunities for both formal research experimentation and management-developed field trials for accelerated learning.

Rationale: The ICBEMP makes assumptions to fill the gaps in understanding of the complex interrelationships of the physical, biological, and social components of ecosystems. These assumptions are tested over time by developing and testing new management strategies and methods, and by conducting experiments to enhance understanding. Administrative units, through the use of field trials, and scientists, through the use of formal research experimentation, can both contribute to extending the knowledge base and testing new ideas. *Field trials* are not designed as formal research experiments; rather they are operational trials or administrative studies, carried out with less statistical rigor and no up-front intent to publish the results in peer-reviewed publications. These trials, in contrast to formal research experiments, focus more on the outcomes of management activities, rather than on enhanced understanding of cause-and-effect relationships or on ecological processes. While it is most beneficial to know the cause of the outcomes, formal research experiments across numerous, variable site-specific areas are often more expensive than the agencies can afford.

B-S9. Standard. Formal research experimentation and management-developed field trials that require deviations from ICBEMP standards shall be submitted to the appropriate intergovernmental partners for consultation and coordination.

Rationale: Accelerating learning by experimental deviation from ICBEMP standards can be appropriate for finding new approaches to meet the goals and objectives in this EIS. ICBEMP standards were developed using the best available information regarding appropriate conditions and practices required to achieve objectives and were approved after extensive consultation and coordination with intergovernmental partners. Any variations on the standards—whether for scientifically validated research or for management projects or administrative studies—should be reviewed by the intergovernmental partners before approval.

B-S10. Standard. Techniques (treatments or management actions) that have limited testing by research experimentation or limited field application, whether used in management-developed field trials or formal research experimentation, should be used in aquatic A1 and A2 subwatersheds and terrestrial T watersheds only if it has been shown that they would aid achievement of the objectives.

***Rationale*:** The management intent of A1 and A2 subwatersheds and T watersheds is focused on minimizing risks to aquatic and riparian systems (A1 and A2 subwatersheds) and terrestrial source habitats (T watersheds), for example, from sediment delivery and noxious weed invasions. Management objectives in A1, A2, and T areas are designed to minimize these risks. In these areas, it is possible that the risk involved in applying techniques (that is, treatments or management actions) with limited credibility might exceed acceptable risks. Thus, for techniques with limited credibility, caution is warranted before proceeding with application.

B-G1. Guideline. When selecting areas to conduct adaptive management accelerated learning trials, weigh the potential value of information gained from evaluating management prescriptions against potential risk to the resource value(s). Select sites to test hypotheses by considering areas where risks from management can be minimized and where the value of information gained is commensurate with the potential effects.

B-G2. Guideline. Consider testing alternative approaches to standards and best management practices that are designed to meet ICBEMP goals and objectives in new ways. If such alternative approaches are used, Standard B-S9 would need to be followed.

B-G3. Guideline. Consider including agency or other researchers in study design, sampling methods, data collection, management and analysis, and evaluation of management applications for activities aimed at enriching knowledge of management techniques or ecological knowledge.

Monitoring and Evaluation

Description and Management Intent

Monitoring and evaluation are an integral part of adaptive management and are key to achieving the short- and long-term goals and objectives of the Interior Columbia Basin Ecosystem Management Project. The wide diversity and variability of biophysical resources and socioeconomic conditions within the project area require that ICBEMP direction describe desired outcomes (outcome-based direction) rather than prescribing or prohibiting site-specific activities (activity-based direction). Success in meeting ICBEMP goals and objectives requires that the effects of this outcome-based direction be monitored and evaluated in a timely manner to determine if modifications are needed.

The intent is for the monitoring and evaluation strategy to be developed through a collaborative, intergovernmental, interagency, and interdisciplinary process; based on scientific understanding of interactions among ecosystem components and human activities; affordable; and technically feasible. It needs to be designed to accommodate many geographic levels by addressing linkages and relationships among scales in the project area (such as basin, subbasin, and watershed) by providing for both broad-scale and locally gathered information to be compiled and interpreted. This hierarchical pattern of answering questions and measuring trends at various levels will assist in answering broad-, mid-, and fine-scale questions.

Each type of monitoring will focus on different facets of this EIS. For example, *implementation monitoring* would determine if planned activities are being implemented and if standards and objectives are being followed. In addition, implementation monitoring would address the impacts the step-down analyses would have on accomplishment of anticipated activities, including whether analyses contribute useful information, thereby meeting the intent desired for them; if analyses are accomplished within projected timeframes and commitments of resources; and if analyses are supporting or impeding desired rates of restoration activities. *Effectiveness monitoring*

would determine if decisions in the ROD are effective and appropriate to achieve the desired results, using the management intent, objectives, and standards. For more information, see Appendix 10 in Volume 2 of the Supplemental Draft EIS.

The intent is to present the implementation monitoring portion of the monitoring plan with the ROD and complete the remainder of the monitoring plan within two years after the ROD is signed. The intent is also to evaluate the broad-scale monitoring data every five years to determine if the ICBEMP Record of Decision is being implemented and if management practices are leading to achievement of the broad scale goals and objectives. Broad-scale ecosystem changes occur slowly over time. Management evaluations made too frequently may not detect changes in the ecosystem because cost-effective monitoring systems are not sensitive enough to detect them. However, if ecosystem management evaluations are not conducted or are delayed for too long, irreversible changes may take place without detection. Therefore, five years was selected as an appropriate monitoring interval.

B-O5. Objective. Monitor the broad-scale health and integrity of ecosystems in the project area to determine ecological and economic status and trends, provide linkage to finer scales, and provide the basis for changes in management direction through adaptive management.

> ***Rationale*:** Monitoring plays a pivotal role in the adaptive management process, primarily to detect undesirable changes early enough that management activities can be modified to work toward achieving the desired goals and objectives of the ICBEMP ROD. Information developed through monitoring will be used to evaluate management strategies, alter decisions, change implementation, or maintain current management.

B-S11. Standard. Forest Service and BLM administrative units shall contribute resources to collect, store, and interpret information needed to implement a broad-scale monitoring plan, which will be developed jointly by Forest Service regional offices and BLM state offices through informing, coordinating with, and cooperating with intergovernmental partners.

> ***Rationale*:** *Intergovernmental partners* include other federal agencies, state and local governments, tribal governments, resource advisory committees, and provincial advisory councils. Informing, coordinating, and cooperating are the minimum required collaborative approaches. Consensus is desired, but not required. (See the Glossary definition of Collaboration for a description of these terms.)

B-O6. Objective. ***Deleted.***

Management Direction—Base Level

Description and Management Intent: Overall

Forest Service- and BLM-administered lands throughout the project area will continue to be covered by management direction in existing land use plans, recovery plans, and other current direction related to threatened or endangered species, which would be augmented or amended by specific base-level direction (standards and objectives) when the ICBEMP Record of Decision is signed.

Complying with objectives and standards in the base-level direction generally means that the Forest Service and BLM must implement actions to maintain or promote desirable resource conditions. The specific location, timing, and intensity of these management actions would depend on acceptable levels of risk determined at the local level. To determine acceptable levels

of risk, managers must consider both the risks from management actions and the risks from not conducting any activities, in the short term and long term. They must also consider fine-scale risks in the context of larger-scale processes and conditions.

Some of the direction specifically indicates that it applies in either the short term (up to 10 years) or in the long term (more than 10 years), or that it specifically addresses short-term risk or long-term risk. Although the emphasis may be on the short or long term, it is recognized that the situation is not usually that simple. While it is important to understand the emphasis, the intent is to consider both types of risks in local-level decisions. In many cases short-term impacts could result from implementing management actions (such as road decommissioning) to attain objectives. The intent is to analyze and weigh the risks and benefits to the various resources in the local decision-making process.

The proposed decision emphasizes minimizing short-term risk from management activities, especially risk to threatened, endangered, or proposed species habitats, and to riparian areas. It also emphasizes locating management activities in areas where short-term risk would be minimized.

Where ecosystems are in good condition, base-level management direction requires that they remain in good condition. Where the condition of ecosystems is not as good, the intent of base-level direction is to keep the conditions from deteriorating further until they can be restored either passively or actively.

Base-level direction is intended to be accomplished in an integrated fashion, because landscape dynamics, terrestrial habitats, aquatic habitats, and human components are inseparable. Rangeland, forestland, aquatic areas, riparian areas, and their associated species are intertwined, through spatial overlap, foodwebs, and the flows and cycles of energy, nutrients, and water, all functioning within the context of the desires and needs of society. Base-level direction addresses both short-term and long-term integrated needs by maintaining resource conditions. Where ecosystems are in good condition, base-level management direction requires that they remain in good condition. Where the condition of ecosystems is not as good, the intent of base-level direction is to keep the conditions from deteriorating further until they can be restored either passively or actively. The restoration-focused management direction is in a separate section, which follows the base-level direction section.

Management direction for threatened, endangered, and proposed species would apply to habitats used by those species. Generally, the intent for management of these areas is to protect the threatened, endangered, or proposed species habitats and to contribute to species recovery. See the Aquatic and Terrestrial Threatened, Endangered, or Proposed Species section for additional description of management intent.

Management direction for Riparian Conservation Areas (RCAs) is included under base-level direction because it applies to RCAs throughout the project area. RCA direction will replace direction for riparian areas in existing land use plans (including PACFISH and INFISH) and can not be superseded by less restrictive direction unless new information indicates a need for change and the appropriate NEPA amendment process and consultation is completed. See the Aquatic/Riparian/Hydrologic Component and RCA sections for additional description of management intent for RCAs.

Management for terrestrial source habitats is *conditional* base-level direction and would apply where these habitats exist. (See Appendix 5 in Volume 2 of the Supplemental Draft EIS for cover types that are terrestrial source habitats.) Unless otherwise specified, reference to terrestrial source habitats in this section is intended to encompass habitat for all 12 Terrestrial Families described in the *Source Habitats for Terrestrial Vertebrates of Focus* (Wisdom et al. 2000).

Landscape Dynamics Component

Description and Management Intent

Direction in this section focuses on landscape-level processes and functions. Landscapes are healthy when their components and processes are functioning properly, in the context of the desires and needs of society. Landscape considerations include succession/disturbance regimes (such as fire, flood, windthrow, insects, and disease) and processes (such as the flows and cycles of energy, nutrients, and water), and their dynamics. Succession/disturbance regimes that are in concert with the climate, landform, and biological and physical characteristics of the ecosystem provide for terrestrial and aquatic habitats, intact hydrologic processes, continuous and predictable flow of products, and continuous land uses. Direction for the landscape dynamics component provides the foundation for specific additional direction for aquatics, terrestrial wildlife and plants, and social-economic needs (including tribal rights and interests), and provides the thread that connects and integrates the individual components.

Ecosystem Processes and Functions

B-O7. Objective. Preserve future management options and prevent further declines in landscape processes and functions by maintaining and promoting (a) healthy, productive, and diverse plant and animal communities as appropriate to soil type, climate, and landform (terrestrial source habitats); and (b) ecological processes of nutrient cycling, energy flow, and the hydrologic cycle.

> ***Rationale:*** This objective provides the foundation for base-level direction that not only emphasizes native plant communities and animals, and their source habitats, but also the requirements of maintaining ecosystem processes, functions, and characteristics. The emphasis is on native animals and plants; however, at times non-native animals and plants are acceptable. For example, it is often necessary to use non-native species where native plant communities cannot be maintained or restored with current technology and knowledge, such as in low precipitation cheatgrass areas and for crested wheatgrass seedings.

B-O8. Objective. Management actions should sustain hydrologic processes characteristic of the geoclimatic settings. Hydrologic processes critical for healthy ecosystems include, but are not limited to, stream flows and sediment in channels.

> ***Rationale:*** Broad-scale geoclimatic settings influenced by time and disturbances produce landforms, soils, and vegetation with inherent variability in performance elements such as stream channel form, large wood, stream flow and sediment regimes. *Stream flow regimes* include timing, magnitude, duration, and spatial distribution of peak, high, and low flows. *Sediment regimes* include timing, volume, rate, and character of sediment input, storage, and transport. Characteristic stream flows (including floodplain inundation and water table elevation) and sediment regimes are essential to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing.

B-O9. Objective. Manage vegetation structure, stand density, species composition, patch size, pattern, and fuel loading and distribution to reduce the prevalence of uncharacteristically large and severe disturbances; and so the landscape succession/disturbance regimes and terrestrial

source habitats are resilient to natural disturbances such as wildfire, insects, disease. Priority should be given to whole hydrologic units if resources are available and if the landbase allows for it.

Rationale: Maintenance of vegetation characteristics and the biological crust component (particularly in the dry rangeland plant communities) that contribute to the resiliency of plant communities to disturbance is fundamental to a healthy ecosystem. *Vegetation structure* is the height, size, and age of vegetation. *Composition* is the percent of each species occurring on a site. Vegetation treatments may include prescribed fire and planning for appropriate wildfire suppression response. See also the rationale for B-O7.

B-G4. Guideline. Consider fragmenting large patches of shade-tolerant species that are outside the desired condition. Break up their continuity and decrease horizontal landscape homogeneity, consistent with landform, climate, and biological and physical characteristics of the ecosystem and natural disturbance regimes.

B-G5. Guideline. Consider matching vegetation patch sizes to local predicted disturbance regimes.

B-G6. Guideline. Consider using fire as a management tool within and across landscapes. Through prescribed fire plans use management actions that will reintroduce fire as a natural disturbance process and help achieve desired conditions, such as maintenance and/or restoration of source habitat(s) for terrestrial vertebrates.

Rationale: Fire is an important component of the succession/disturbance regime of the project area. Whenever possible, it should be used to repattern vegetation on the landscape to patches more consistent with the landform, climate, and biological and physical components of the ecosystem. There are places within the project area, however, where vegetation and fire regimes have changed so much since historical times, that fire without some type of preparatory activities would not move the ecosystem toward desired conditions, or may be detrimental to the ecosystem.

B-G7. Guideline. Consider "wildland fire use for resource benefit" (prescribed natural fire) as a means of managing extensive areas of juniper woodlands and insect- and/or disease-infested forests that have already lost their salvage value or are otherwise uneconomical to treat.

B-G8. Guideline. To the extent that fuel amounts, arrangements, and management objectives allow, conduct management-ignited prescribed fire activities at frequencies and intensities similar to the natural fire regime appropriate to the site.

B-G9. Guideline. Use available tools, such as fire behavior, fuel loading, duff composition, and tree mortality models, to determine where desired stand conditions can be attained with prescribed fire treatments or where stand conditions or other hazards require mechanical thinning prior to prescribed fire treatment. Where necessary, use thinning and/or mechanical fuel reduction in combination with prescribed fire.

B-G10. Guideline. Consider both managed fire and "wildland fire use for resource benefit" as management tools. "Wildland fire use for resource benefit" can be a more important tool after stands have been restored to a fire-resistant condition or are desired to be in a severe fire regime.

B-O10. Objective. Land uses such as livestock grazing (including the season, timing, frequency, duration, and intensity of livestock grazing pressure), and where applicable, timber harvest and recreation, should provide:

a. Adequate cover (live plants, plant litter, residue, and/or biological crusts) to promote infiltration, soil water storage, and maintain soil stability in upland areas;

b. Adequate cover and plant community structure in riparian-wetland areas to promote the attainment of proper functioning condition (BLM Technical Reports 1737-9 [USDI/BLM 1993] and 1737-11 [USDI/BLM 1994b]);

c. (1) Soil surface conditions that support infiltration; (2) soil subsurface conditions that ensure movement of soil water into the soil profile; and (3) the combination of soil surface and soil subsurface conditions in (1) and (2) which will ensure soil water storage;

d. As minimal an increase and spread of noxious weeds as possible, over and above the inherent increase and spread of noxious weeds by natural disturbances (such as wildfire);

e. Soil and vegetation conditions that provide opportunity for establishment of desirable (that is, native and desired non-native) plants; and maintenance of plant vigor for seed production, seed dispersal, and seedling survival of desired species;

f. Maintenance and restoration of water quality;

g. Maintenance and the opportunity for restoration of terrestrial source habitat (that is, cover type-structural stage combinations) patch size and density that are in synchronization with the succession and disturbance regimes governed by climate, landform, and soils; and

h. For reduction of the potential conflicts between domestic sheep and bighorn sheep.

Rationale: This objective is taken from *Healthy Rangelands Guidelines* (BLM 1997c), which the BLM currently is implementing. It is a comprehensive base-level objective, which is consistent with both the aquatics and terrestrial habitat portions of the ecosystem management strategy. The Healthy Rangelands guidelines that were used as the basis for this objective focused on livestock grazing management. However, most if not all land uses should provide for these functions and processes, if feasible. It is understood that in some cases (for example, copper mining or an off-road vehicle park) it would be impossible to provide for all these functions and processes while permitting the use. Therefore, tradeoffs must be expected for some land uses.

Bullet "a" is intended to interpret vascular plant material (live and dead) and biological crusts (that is, microbiotic crusts) together, as contributing to cover. Both vascular plant material and biological crusts contribute to infiltration, soil water storage, and soil stability, to various degrees on various soil types and soil textures. In addition, the degree of biological crust development and vascular plant production varies by soil type, soil texture, precipitation, and other factors.

Bullet "b" is intended to foster land uses that are compatible with riparian-wetland area improvement and that will provide for proper functioning condition (PFC) of both lotic (running water habitat such as rivers, streams, and springs) and lentic (standing water habitat such as lakes, ponds, seeps, bogs, and meadows) riparian areas. The intent is for PFC to be the *minimum threshold* for management of riparian-wetland areas, with the expectation of vegetation community succession beyond PFC to some desired plant community.

Bullet "c" is intended to foster land uses that avoid subsurface soil compaction slowing the movement of water in the soil profile.

Bullet "d" is intended to manage land uses so as to minimize the rate of noxious weed spread, given that the spread of noxious weed seed cannot be totally prevented where land uses and noxious weeds occur together. Subsequent weed control actions would help prevent the increase and spread of noxious weeds. Thus although land uses might contribute to noxious

weed increase and spread, the intent of this objective is to modify, not prohibit, land uses so noxious weed spread is minimized, and to recognize that land uses might need to be combined with weed control.

Bullet "e" is intended for land uses to not diminish the ability of plants to produce seed or vegetation sprouts (below that which is occurring because of recent climatic conditions). For soil conditions, the intent of this objective is (1) achievement of bullet "c", because soil surface conditions that support infiltration will provide opportunity for establishment of desirable plants; and (2) maintenance of biological crusts (see bullet "a"), because recent science findings are beginning to provide evidence that in some situations intact biological crusts can have a positive role in plant establishment.

Bullet "g" is not intended to assert that land uses should be used as a restoration tool to achieve certain terrestrial source habitats (that is, certain cover type-structural stage combinations). Rather, the objective is intended to permit land uses that do not prevent appropriate cover type-structural stage combinations from persisting in expected patch sizes and densities across and within landscapes. For example, livestock grazing management strategies could be promoted if they would not shift fire frequency, fire severity, and successional patterns to the point where grassland-shrubland cover types and structural stages would be affected by encroachment of woody species and increased density of woody species, or where ponderosa pine and mixed-conifer forest structural stages would be affected by increasing density of trees.

Bullet "h" is intended to reduce conflicts between domestic sheep and bighorn sheep. Such conflicts can have negative consequences for both wildlife and livestock. Numerous research studies and monitoring of bighorn sheep "die-offs" have indicated a high correlation between die-offs and contact between domestic sheep and bighorn sheep.

B-G11. Guideline. One means of reducing conflict between domestic and bighorn sheep is to phase out (close) individual livestock allotments as they become vacant within occupied habitat. Habitat is considered occupied if bighorn sheep are currently present, or if they would be expected to disperse into the area in the next 10 years.

B-S12. Standard. If livestock grazing management is a factor in causing an area to function "at risk", then that area shall be high priority to initiate changes to livestock grazing management.

Rationale: There is agreement among rangeland scientists that areas 'at risk' of crossing a threshold, and thus progressing to a lower (more degraded) successional state, should be prevented from crossing the threshold. Modifying livestock grazing management in these areas can prevent these areas from crossing a threshold to a more degraded state, thereby achieving improvement in rangeland condition and source habitats used by terrestrial rangeland vertebrates, such as sage grouse. Areas can be identified through processes such as landscape analyses, allotment management planning, or rangeland health rapid assessment process (USDI/BLM 1999).

B-G12. Guideline. On rangelands, consider locating water development, fencing, salt, and supplements on upland areas to keep domestic livestock from congregating in riparian areas.

B-G13. Guideline. Consider developing livestock waters, seedings, and other projects that concentrate livestock use in areas (1) that do not conflict with wintering wildlife, and (2) that will not be opening up new ground for livestock grazing that has not been used by livestock in the past.

B-G14. Guideline. Prior to making adjustments to livestock use as a result of conflicts with big game species, consider determining whether:

- There is dietary overlap.
- The area is in good or degraded range condition.
- The use is seasonally different.
- The livestock use is conditioning the forage for big game.
- The big game population is decreasing.
- The area is winter range.
- The area provides important fawning, calving, or lambing areas.

B-G15. Guideline. On dry shrublands, consider the following to maintain soil, biological crust, and vegetation health and productivity during drought periods:

- Spring/fall or winter grazing instead of spring/summer/fall.
- Shorter duration/lower intensity grazing.
- Avoidance of grazing during the growing season (when perennial grasses are actively growing, and during the more critical root-to-seed-ripe stage).
- Fewer head of livestock along with fewer days.
- Encourage greater flexibility in ranching operations to respond to changing range conditions.
- Incorporate more years of deferment or rest into grazing systems (for example, one year on and two years off, or two years on and two years off) to improve the rangeland's ability to handle dry conditions. (Traditional three-pasture systems that provide only one year of rest and two years of critical growing season grazing are not sufficient in some dry shrublands to maintain desirable resource conditions during drought conditions.)

B-G16. Guideline. During planning or other appropriate processes, consider leaving pastures or allotments vacant or open for use by livestock permittees or lessees who are affected by AUM reductions in their normal areas of use due to wildfire or measures to protect riparian areas or threatened, endangered, or proposed species.

B-G17. Guideline. The following techniques may be used to help control or rehabilitate cheatgrass-dominated ranges:

- Intensive early spring grazing in cases where soils, remnant native perennial plants, and biological crusts will not be adversely affected;
- Herbicides, especially in combination with burning or plowing.

Noxious Weeds

B-O11. Objective. Maintain noxious-weed-free plant communities (cover types) or restore plant communities with noxious weed infestations through use of broad-scale integrated weed management (IWM) strategy(ies).

Rationale: The rapid expansion of noxious weeds in the project area is one of the greatest threats to healthy native plant communities. Noxious weeds are reducing the value of these plant communities in several ways, including:

- decline in quality of aquatic-riparian and terrestrial habitats for wildlife;
- reduction of forage for grazing animals;
- potential increase in soil erosion;
- potential decline in water quality;
- reduction in biological diversity;
- negative impacts on or declines in native plant resources associated with the interests or reserved rights of American Indian tribes (see Native Plants section of Appendix 8 in Volume 2 of the Supplemental Draft EIS for a partial list of plants); and
- increase in the economic burden of maintaining the quality of recreation and wilderness areas. Uncoordinated efforts throughout the project area have been ineffective against noxious weeds. Noxious weed strategy(ies) need to be consistently implemented project-area wide to reduce the negative impacts of noxious weeds. This objective hinges on a project-area-wide integrated weed management strategy being developed by Forest Service regional and BLM state office staffs, through informing, coordinating with, and cooperating with other federal, tribal, and state officials. (See Glossary definition of Collaboration for a description of these terms.)

B-S13. Standard. Broad-scale integrated weed management (IWM) strategies shall incorporate these goals:

- Education and awareness
- Prevention of weed spread
- Detection, inventory, and mapping
- Planning
- Integrated methods of weed control
- Coordination with federal, state, and local agencies; tribal governments; and others, as appropriate
- Monitoring, evaluation, research, and technology transfer. (See Appendix 11 in Volume 2 of the Supplemental Draft EIS.)

Rationale: Uncoordinated weed control efforts throughout the project area have been ineffective against noxious weeds. Negative impacts attributable to noxious weeds can be reduced more rapidly if noxious weed strategy(ies) are consistently implemented project-area wide. This standard lists seven goals that form a consistent framework for IWM strategy(ies) to be implemented by the BLM and Forest Service. This standard amends existing BLM and Forest Service IWM strategies to incorporate the seven goals if they are not currently an emphasis of the strategies.

B-S14. Standard. A1 and A2 subwatersheds, and terrestrial source habitats in T watersheds (see Objective T-O1) have the highest broad-scale priority for implementing IWM strategy(ies). Management shall be focused on *preventing* noxious weed spread into and within A1, A2, and T areas, and *eradication* of existing infestations if possible. Existing and future noxious weed inventory information obtained within A1 and A2 subwatersheds, and source habitat within T watersheds shall be used, along with the Susceptibility of Vegetative Cover Types to Invasion by Noxious Weeds Index (see Tables 2-35 and 2-36 in Chapter 2 in the Supplemental Draft EIS), to first address cover types rated as High, then address cover types rated Moderate, and finally address cover types rated Low. In particular, goals "b" (prevention of weed spread), "c" (detec-

tion, inventory, and mapping), and "e" (integrated methods of weed control) from Standard B-S13 shall be incorporated.

The remaining base level areas have a lower broad-scale priority for maintaining noxious-weed-free plant communities (cover types) or restoring plant communities with noxious weed infestations.

Rationale: This standard focuses on using a science-based, noxious weed susceptibility index. This index, Susceptibility of Vegetation Cover Types to Invasion by Noxious Weeds, should be used to prioritize treatment for noxious weeds at a broad scale where prevention of weed spread; detection, inventory, and mapping; and integrated methods of weed control are implemented. However, broad-scale prioritization does not preclude noxious weed control efforts in other areas. For example, ongoing or future agreements with state, county, tribal, or local entities may shift some weed control funding to areas with local noxious weed concern that may have a higher priority than those identified at the broad scale.

B-G18. Guideline. Where possible, consider prioritizing weed management as follows:

- Prevent invasion of new invaders by limiting weed seed dispersal, minimizing soil disturbance, and properly managing desirable vegetation.
- Detect and eradicate new invaders.
- Target roadways, water courses, campgrounds, along trails and railways, and other high disturbance areas for a constant prevention and containment program.
- Emphasize control of large-scale infestations (limiting the spread of noxious weeds and reducing the infestation level).
- Focus initial efforts on small, manageable units with an understory of residual plants, and then focus on the remaining infestation. Start with the outside and work toward the center of the infestation.
- Consider using native, locally adapted species for rehabilitating weed-infested lands and bare ground.

B-G19. Guideline. While attempting to prevent the spread of noxious weeds into areas that are susceptible to invasion, consider rangeland vegetation cover types that are of high or moderate susceptibility to invasion. See Appendix 11 in Volume 2 of the Supplemental Draft EIS for a table that portrays the rangeland cover types in the project area and their susceptibility to invasion by noxious weeds.

B-G20. Guideline. Consider developing cooperative weed prevention programs with suppliers of sand, gravel, top soil, seed, hay, straw, ornamental plants, and any other materials that may transport seed and other reproductive plant parts of noxious weeds.

B-G21. Guideline. Consider developing control strategies targeted and tailored to specific noxious weeds. Consider combining cultural, physical, biological, and chemical methods into a single control strategy.

B-G22. Guideline. Because weeds are not adapted well to shade, consider retaining shade along roads by minimizing removal of trees and other roadside vegetation during construction, reconstruction, and maintenance, particularly on south aspects.

B-G23. Guideline. To minimize transport of weed seed by pack and saddle stock:

- Consider requiring pack and saddle stock to use only certified weed-free feed and straw bedding in designated areas. Where applicable in wilderness areas, this technique should be deferred to the Limits of Acceptable Change planning process. Encourage the use of weed-free feed in all areas. (Visitors to National Forest System lands are now required to use certified noxious-weed-free hay, straw, or mulch in Idaho and Montana);
- Consider requiring pack and saddle stock to be quarantined and fed only weed-free feed for 24 hours before traveling off roads. Before quarantine, tail and mane should be brushed out to remove any weed seed.

B-G24. Guideline. To minimize transport of weed seed to relatively weed-free areas that are at moderate to high susceptibility of invasion, consider controlling the timing of livestock movement from infested to non-infested areas, especially in range allotments that have both weed-infested and relatively weed-free areas that are at moderate to high susceptibility of invasion. Consider permitting livestock to graze weed-infested areas only when weeds are not flowering or producing seeds, or, if livestock are grazing weed-infested areas, consider moving them to a holding area for about 14 days before moving them to weed-free areas.

B-G25. Guideline. To ensure that fire suppression and rehabilitation efforts minimize weed spread, consider reseeding all disturbed soil in relatively weed-free areas that are at moderate to high susceptibility of invasion.

B-G26. Guideline. Consider using grazing management practices where feasible for wildfire control and to reduce the spread of targeted undesirable plants (such as cheatgrass, medusahead, and noxious weeds) while enhancing vigor and abundance of desirable native or seeded species.

B-O12. Objective. Inform and coordinate with affected federally recognized tribes on noxious weed control programs.

Rationale: Tribes affected by management actions in the project area share BLM and Forest Service concerns with the increasing trends and adverse impacts of noxious weed invasions. Tribes are generally supportive of noxious weed control actions and have increasing numbers of trained personnel in their own programs. Some tribes may be interested in assisting BLM and Forest Service noxious weed control actions, especially where a mutual benefit might be realized. *Informing* and *coordinating* are the minimum required collaborative approaches. Cooperating and consensus are desired, but not required. (See the Glossary definition of Collaboration for a description of these terms.)

B-S15. Standard. Planning and implementation of noxious weed control actions should consider effects on plant resources that are culturally significant to tribes (for example, timing of weed treatment and associated health considerations regarding harvest of affected plant species).

Rationale: Coordination with tribes, county agencies, and federal agencies will help to ensure plant resources and effects on these resources of tribal interest are considered and integrated into planning and implementation of noxious weed control actions. Furthermore, because these plants tend to be seasonal in nature, there are tribal health concerns regarding ingesting or gathering plants in areas where efforts are underway to control noxious weeds; coordination with affected tribes could result in design of actions so that timing or type of treatment mitigate these concerns.

Unstable and Potentially Unstable Lands

B-O13. Objective. On unstable or potentially unstable lands (outside RCAs), design management activities to not increase the natural frequency and distribution of landslides.

Rationale: Mass soil movement is part of a mountainous watershed's natural disturbance regime. Mass soil movement types and frequency of events are variable throughout the project area. Inputs of material from mass soil movements, such as coarse sediments and wood, can be beneficial to aquatic and riparian habitats. The management intent is to prevent above-natural rates in the frequency and distribution of landslides due to management activities by maintaining important hydrologic processes on unstable and potentially unstable lands. Important hydrologic processes include, but are not limited to, interception or concentration of surface or subsurface flow, infiltration rates, retention of wood, and evapo-transpiration rates.

B-S16. Standard. During site-specific project planning and NEPA analysis, land use plan-level maps of unstable and potentially unstable lands shall be refined and ground-truthed, if necessary, when proposed activities could potentially contribute to mass soil movement. If these maps have not been developed, site-specific identification and evaluation of unstable and potentially unstable lands shall be identified as part of project planning prior to conducting management activities. Management actions proposed on unstable and potentially unstable lands outside RCAs should be designed to retain hydrologic functions and processes that influence landslides and not increase the frequency and distribution of landslides.

Rationale: Proposed management activities (for example, road construction and vegetation removal) can disrupt hydrologic processes and accelerate the natural frequency and distribution of mass soil movements, thereby resulting in negative impacts on aquatic habitats. Identification of unstable and potentially unstable lands is necessary to properly develop and design proposed management activities on these lands.

B-S17. Standard. During land use plan revision, the dominant mass soil movement types within the administrative unit's planning area shall be identified and their effects on allowable sale quantity calculation addressed. Apply analytical methods to existing information to identify unstable and potentially unstable lands with regard to dominant mass soil movement types and the probability of failure. Management direction shall be stratified according to probability of failure to retain hydrologic functions and processes (for example, interception or concentration of surface or subsurface flow, infiltration rates, evapotranspiration rates) so that frequency and distribution of landslides are not increased due to management actions and so that management actions contribute to attaining aquatic and riparian objectives.

Rationale: The intent of this standard is to not increase the frequency and distribution of landslides. It is intended to direct how land use plan revision will address unstable and potentially unstable lands. It is not intended to take specific acres of unstable lands out of the timber base, but to facilitate adjustments to the allowable sale quantity to take into account their effect on management options.

Fire Management and Air Quality

B-O13a. Objective. Develop and maintain enhanced air quality predictive and monitoring capability for assessing the risks associated with prescribed and wildfire management decisions and for making more informed smoke management decisions.

B-O14. Objective. Protect, maintain, and/or improve air quality on Forest Service- and BLM-administered lands in the project area. Evaluate the long-term improvements in summer air quality compared with the short-term deteriorations to spring and fall air quality asoociated with prescribed burning. Manage these short- and long-term risks to air quality.

Rationale: The biggest danger to broad-scale air quality in the project area is from smoke generated by wildfire. In much of the interior Columbia River Basin, biomass production greatly exceeds decomposition rates. Years of wildfire suppression have led to unnaturally high accumulations of biomass. This biomass can be mechanically removed to prevent undue smoke from wildfires; however, it is generally costly and if not conducted with consideration of ecosystem functions and processes, then the biomass removal could eliminate needed nutrients from the site.

Land managers have little control over where, when, and how much smoke is put into the air during wildfires. Through prescribed fire, smoke levels can be better managed. For example, air quality can be somewhat diminished in the short term so that the likelihood of violating air quality standards in the long term are diminished.

B-O15. Objective. Use prescribed fire to reverse the declining trend in air quality.

Rationale: Through prescribed burning, overall air quality can be improved by: (1) moving some of the smoke to spring and fall when fuel and air conditions are cooler and more moist; (2) reducing the size of wildfires; (3) reducing the severity of wildfires; and (4) managing cumulative effects from prescribed fire smoke.

B-S18. Standard. Prior to the burning season, the risks and benefits to air quality of using prescribed fire shall be compared to risks and benefits of alternative methods of modifying vegetation, habitat, and fuels. If the vegetation to be treated with prescribed fire can be modified through an alternative method that on balance (considering cost, risks, and benefits) will achieve equivalent or better fuel load reduction and also provide other benefits not achievable with prescribed fire, the alternative method shall be used.

B-S19. Standard. Prior to the burning season, the existing air quality monitoring network shall be identified and described. Work with state air quality regulators to revise or expand an appropriate monitoring system to ensure that impacts of prescribed burning on air quality in local communities are predicted and measured. Use the monitoring system to measure the magnitude and extent of air quality impacts from representative prescribed and wildland fires and compare these observations with levels forecast by smoke management agencies and impacts predicted through planning.

B-O16. Objective. Decisions on management of wildfires and planned prescribed burns should be considered in the context of potential local and regional impacts on air quality, visibility, and haze, and should include impacts from other sources of particulate matter. Use regional organization(s) with requisite analytical and prediction capability and responsibilities for information gathering, intergovernmental coordination, issuance of burn advisories, and communication services to member organizations, interest groups, and the public.

Rationale: The intent is to preclude impacts from multiple sources that could collectively produce severe visibility problems and/or particulate levels that present health risks. This would include impacts from non-federal sources such as forest, rangeland, and agricultural burning.

Management of particulate emissions is complicated and crosses many jurisdictional boundaries. Although it may be difficult to develop, a basin-wide plan would provide a better means of air quality management and coordination than current plans do. Restoring fire to the ecosystem is a key part of sustainability of many parts of the project area. The Forest Service and BLM have considerable knowledge of wildland fires; therefore, administrative units should be active players in facilitating and developing a basin-wide plan.

B-S20. Standard. The Forest Service and BLM shall work with state and local smoke and air quality regulation agencies to coordinate smoke management within the project area. Existing organizations and relationships will form the foundation. Prior to any prescribed burning activities or decision to use wildland fire to achieve management objectives, coordinate with appropriate local, tribal, state, and adjacent state air quality management organizations as well as any multi-state or regional organization established pursuant to achieving Objective B-O16. If such coordination results in a determination that other burn activities are underway or planned in areas or at times that would likely intensify negative air quality impacts from the planned burn, additional mitigation measures shall be explored by informing, coordinating with, and cooperating with the other agencies/organizations to minimize such impacts to the extent practicable.

Rationale: *Informing, coordinating,* and *cooperating* are the minimum required collaborative approaches for this standard. Consensus is desired, but not required. (See the Glossary definition of Collaboration for a description of these terms.)

B-O17. Objective. Inform and coordinate with public and private landowners to increase safety in the urban-rural-wildland interface. Work together to reduce risk from natural disturbance by: reducing live and dead fuel loading, ladder fuels, and ignition sources; thinning forests to reduce tree density; creating single story structures; favoring shade-intolerant species; maintaining low risk of crown fires; and using prescribed fire to maintain low fuel levels.

Rationale: Protecting property and life is a high priority in urban-rural-wildland interface areas. Although floods, wind, and other disturbances must be considered, reducing risk of wildfires generally is the most important consideration. In areas that often contain mixed ownerships, safety can be improved with proper cooperation and action. *Informing* and *coordinating* are the minimum required collaborative approaches. Cooperating and consensus are desired, but not required. (See the Glossary definition of Collaboration for a description of these terms.)

B-O18. Objective. Incorporate wildland fire into existing planning processes and assessments, recognizing its essential role as an ecological process. Clearly defined fire management goals, objectives, and actions should be developed and updated in comprehensive fire management plans. Wildfire management strategies and suppression activities should minimize damage to long-term ecosystem function, and should emphasize protection, restoration, or maintenance of key habitats.

Rationale: Strategic watershed-scale fuel management and fire use planning, often integrating a variety of treatment methods, will cost-effectively reduce fuel hazards to acceptable levels and achieve both ecosystem health and resource benefits. Fire management programs and activities should be based upon protecting resources, minimizing costs, and achieving land management objectives. They must also be economically viable.

Sound risk management is a foundation for all fire management activities. Risks and uncertainties relating to fire management activities must be understood, analyzed, communicated, and managed as they relate to the cost/consequences of either doing or not doing an activity.

B-S21. Standard. Ecosystem-based fire management plans shall: (1) provide for firefighter and public safety; (2) promote the reintroduction of fire as a natural ecological process through use of various suppression strategies and prescribed fire; and (3) be integrated with fire management plans of adjacent administrative units, particularly with respect to smoke management.

Rationale: Having fire management plans in place will provide for restoration of fire in appropriate circumstances. The plans can provide direction to suppression teams. In areas rated as high or moderate risk for intense fire, crown fire, and/or urban-wildland-interface, it is particularly important that management plans include discussion of appropriate suppression actions to provide for safety and allow for natural ecological process.

Public health and environmental quality are important considerations in fire management plans and activities. Trade-offs will often exist. Short-term consequences may be acceptable to promote long-term gains and sustainability. Elements of fire management programs must be designed to promote healthy, sustainable environments. Both naturally occurring fuels and hazardous fuel accumulations resulting from resource management and land use activities must be addressed.

B-O19. Objective. Use fire to restore and/or sustain ecosystem health based on sound scientific principles and information and balanced with other societal goals, including public health and safety, air quality, and other specific environmental concerns.

Rationale: The relative success of fire suppression efforts of the past several decades has caused numerous unintended effects. Some of these include: build-up of fuels, increases in less-fire-resistant species, and more multi-story stands. These have led to changes in fire regimes from non-lethal to lethal and wildland fires that cause considerable damage to resources and considerable costs to suppress. The *Federal Wildland Fire Policy and Program Review* (USFS and BLM 1995) directs federal agencies to make numerous changes to reverse the adverse effects across vast areas.

B-G27. Guideline. Consider the use of non-fire treatments (for example, mechanical, chemical, biological, and manual methods) where wildland fire cannot be safely reintroduced because of hazardous fuel build-ups, particularly in urban-rural-wildland interface areas.

B-G28. Guideline. Consider conducting prescribed fires during the time of year when fires would have normally occurred if resulting effects match desired outcomes and fire can be controlled within a defined target area.

B-O20. Objective. Maintain preparedness planning and fire suppression programs to prevent unacceptable loss from fire.

Rationale: Integrating fire into land management is a continual, long-term process, not a one-time, immediate fix. It is not an end in itself but rather a means to a more healthy ecosystem. Agency commitment to sharing information internally and externally regarding fire and other ecological processes is needed. Adaptive and innovative fire and land manage-

ment is limited when agency employees and the public misunderstand or remain skeptical about the role of fire. The ecological and societal risks of using and excluding fire need to be better clarified and quantified to allow open and thorough discussions among managers and the public.

B-O21. Objective. Inform, coordinate with, and cooperate with affected partners when planning and implementing watershed-scale wildland fires across administrative boundaries to manage fuels, restore or maintain ecosystems, and obtain desired distribution of vegetation patches and patterns.

Rationale: Working with federal, state, tribal, and local agencies is essential to implement successful fire management programs. Increasing costs and smaller work forces require that public agencies pool their resources to successfully deal with increasing and more complex fire management tasks. Collaboration among federal agencies and between federal, state, tribal, and local governments, and private entities results in a mobile fire management work force available for public needs. *Informing*, *coordinating,* and *cooperating* are the minimum required collaborative approaches. Consensus is desired, but not required. (See the Glossary definition of Collaboration for a description of these terms.)

B-O22. Objective. Prescribed fire should be considered in designated wilderness areas where it has been determined that "wildland fire use for resource benefits" will not achieve desired rates of ecosystem maintenance or restoration.

Rationale: In some areas designated as wilderness, the number and acres of fires managed to achieve resource benefits will not be adequate to mitigate effects of insects, disease, or unplanned wildland fires; reduce crown fire potential; reduce fire and smoke risk to urban-rural-wildland interface; or protect important aquatic and terrestrial areas. In these cases, prescribed fire could be used to achieve resource benefits.

Road Management

Description and Management Intent

The road system on federally administered lands is extensive and diverse. New science information, particularly that generated by the ICBEMP Science Integration Team and Science Advisory Group, indicates that roads are significant modifiers of landscapes and ecological processes. At the same time, roads are needed for public access and tribal needs as well as for accomplishing many management objectives. The challenge is to design and maintain a road system that provides desired access but minimizes adverse road-related effects on other resources, such as water quality, fish, and wildlife.

A science-based roads analysis is a tool that can be used to systematically and objectively evaluate road networks and help describe road condition and risk. A roads analysis provides an integrated ecological, social, and economic approach to transportation planning, addressing existing and future roads including those that may be proposed in unroaded areas. ICBEMP road management direction incorporates roads analysis into the step-down process to provide information and context needed to effectively and efficiently reduce road-related adverse effects. Results of roads analyses include maps and narratives that display management opportunities and risks of existing roads to better address future needs, budgets, and environmental concerns. This information provides the support for road-related decisions and facilitates development of transportation plans such as Access and Travel Management Plans and other NEPA documents.

Roads Management Intent

The Need

Design and maintain a road system that provides desired access. Minimize adverse road-related effects.

Management Direction Related to Roads

Base Level
B-O23 B-O25 B-O27
B-O24 B-G29 B-S25
B-S22 B-O26 B-S26
B-S23 B-S24 B-O28

RCA Management
B-S31 B-S32

Restoration
R-O12 R-S3 R-G12
R-S2 R-G11 R-S5
R-O13 R-S4

T Watershed Management
T-S2 T-S3

A1 Subwatershed Management
A1-S2

A2 Subwatershed Management
A2-S2

Priorities

For areas that are designated for conservation or restoration of aquatic and terrestrial habitats, such as A1 subwatersheds, A2 subwatersheds, T watersheds, and riparian areas, the desire for road management is to reduce the negative effects of roads on aquatic and terrestrial resources. The direction in A1, A2, and T areas for the short term is for no new road construction unless needed to achieve aquatic or terrestrial objectives. Further, new roads should be located outside of RCAs unless effects on aquatic, riparian, and terrestrial resources would be greater by using alternative routes.

In other parts of the basin, the priority is to provide a system of roads to meet the social, economic and recreational needs of society, while progressing in a staged approach toward a smaller transportation system that can be effectively and efficiently maintained and managed into the future with minimal environmental impact and contributing to objectives for the aquatic, riparian, forest and rangeland ecosystems.

Process

Roads Analysis is intended to be a flexible tool, driven by road-related issues, which provides context and information to managers in order to assist them in assessing the risks and tradeoffs that come with land management decision-making (Gucinski and Furniss, in press). One such process (USFS 1999), is a six-step tool that may be incorporated at various scales in the step-down process (Subbasin Review, EAWS). Negative effects of road-associated factors on aquatic and terrestrial resources were described by Lee et al. (1997) and Wisdom et al. (2000). Decisions on roads should be made at the local level with involvement from interested and affected parties through the local Access and Travel Management Plan, other transportation plans, land and resource management plans, and project-level NEPA processes. These plans will identify long-term transportation needs, road maintenance practices, and reduce the risk to terrestrial and aquatic resources.

Decisions on roads should be made at the local level with involvement from interested and affected parties through the local Access and Travel Management Plan, other transportation plans, land and resource management plans, and project level NEPA processes.

ICBEMP road direction is intended to accomplish the following:

- Roads determined to be needed for public access, tribal rights, and resource management will be safe, promote efficient travel, and be improved where necessary to minimize adverse environmental effects;
- Roads that do not meet these needs will be closed or obliterated and ecological values restored;
- New road construction will be reduced from past levels. New roads into watersheds that are currently unroaded or have very few roads will be rare. New roads into such areas could occur following analysis that demonstrates that access is needed to prevent or address imminent environmental damage or provide for valid existing rights.

The biggest change to existing road systems is expected in areas that are highly roaded and have high road-related risks to resource values, where action has not already been taken to address the problem.

The overarching intent for roads management within the ICBEMP is to progress toward a smaller transportation system that can be maintained into the future with minimal environmental impact. In recognizing that this intent cannot be met instantaneously, the direction suggests a staged approach that concentrates short-term efforts on reducing road-related adverse effects, while determining the long-term road system needs and locations in a manner that maintains choices for future generations. Road management guidance in existing plans such as the *Grizzly Bear Recovery Plan* (USFWS 1993) and newer land use plans already moves in this direction.

Roads Analysis

B-O23. Objective. Determine the long-term road system that supports natural resource objectives, minimizes road-related risks and adverse effects from existing and future planned roads, and provides access to public lands.

> ***Rationale:*** The road system on federally administered lands is extensive and needs to be reconfigured. The intent of implementing roads direction is to have fewer miles of roads and to have these roads be of low impact in low-risk locations.

B-O24. Objective. During Subbasin Review and EAWS, characterize those landscape elements that contribute to or influence the hazards and risks associated with roads across the subbasin to provide context and facilitate prioritization for subsequent finer-scale roads analysis.

> ***Rationale:*** Subbasin Review can provide a broad discrimination of hazard and risk by identifying general relationships among hazards to aquatic and terrestrial systems and elements such as geology, slope position and angle, precipitation, drainage density, and intensity of road networks. This information can provide context and identify priorities and the appropriate geographic extent for subsequent roads analysis. Subbasin Review is not intended to provide detailed road maps or information but would rely more on GIS and physiographic information to help interpret detailed information. The Subbasin Review Guide provides guidance regarding characterization and prioritization of risks and opportunities for this mid-scale analysis.

B-S22. Standard. Roads analysis shall be incorporated into or conducted concurrently with the step-down process, and/or site-specific project analysis.

Rationale: Roads analysis is intended to be a flexible tool, driven by road-related issues, that provides context and information to managers in order to assist them in assessing the risks and tradeoffs that come with land management decision-making (Gucinski and Furniss, in press). It promotes a multi-scale approach for tailoring analysis techniques to individual situations, to assure that these issues are examined in context. The analysis should identify issues that address road relationships with aquatic and riparian resources, water quality, terrestrial wildlife, ecosystem function, economics, commodity production, access, minerals, range, recreation, and other resources.

The products from roads analysis would differ depending on scale. The objectives of roads analysis *at the watershed scale* are: (1) to provide context for site-specific design and (2) refine information about risks and hazards based on the description of landscape elements (such as locations, magnitudes, and frequencies). The objective of roads analysis *at the site-specific project scale* is to systematically collect information with regard to pending risks and hazards from existing and future roads to: (1) identify potential resource problems (channel elongation, generation of mass wasting, migration barriers); and (2) determine potential short- and long-term effects on values at risk (aquatic species and other beneficial uses), to provide an adequate evaluation for design and implementation of proposed activities. Field level inventory is expected prior to implementing road restoration or other road-related activities. In some cases, field level information may be desirable to address road risk and fill in data gaps identified through roads analyses conducted at the watershed scale.

B-S23. Standard. When conducting roads analysis, consult federally recognized tribes to address access to treaty resources and culturally significant areas.

B-O25. Objective. New road building should rarely occur in watersheds that are currently unroaded or have very few roads. New roads constructed in these areas could occur following roads analysis, step-down, and decision-making processes that determine future road needs in the larger watershed context. These analyses should weigh the relative habitat values of species potentially affected by roads, such as anadromous fish and wide-ranging carnivores, against the need to address large-scale environmental damage or public safety. (See also management direction for A1 and A2 aquatic subwatersheds regarding new road building.)

B-G29. Guideline. In watersheds that have few or no roads and where there is a high risk to resource values from uncharacteristic fires, consider using existing roads and other methods of transportation to manage fuels.

Access and Travel Management Plans

B-O26. Objective. In the development or revision of Access and Travel Management Plans, ensure the public (including appropriate state, county, and tribal entities) is involved and that access to public lands is retained to the extent possible consistent with maintaining or achieving objectives and standards designed to address terrestrial, wildlife, aquatic, and riparian issues.

Rationale: While roads have been shown to be detrimental to terrestrial, aquatic, and riparian resources, they also represent a substantial investment in transportation capability that generates very high use values for the public, existing rights of way, and access value to land management agencies. A major cause of terrestrial species mortality, disturbance, and

habitat loss is related directly to human access. Stresses caused by access to wintering areas also have been demonstrated to cause problems for a number of species. These adverse effects would be reduced by implementation of actions to reduce the risk of wildlife displacement and mortality associated with human access (such as location and timing of seasonal and permanent closures) through road management decisions in Access and Travel Management Plans or other transportation plans.

B-S24. Standard. Access and Travel Management Plans or other transportation plans shall be developed or revised within the next 10 years to address risks identified in a roads analysis.

Rationale: The intent of this standard is for decisions on management of roads to be made at the local level with involvement from interested and affected parties (including local, county, and tribal entities) through the local Access and Travel Management Plan processes. The intent is for these plans to identify long-term transportation needs, road maintenance practices, and reduce the risks to terrestrial and aquatic resources.

Road Construction and Reconstruction

B-O27. Objective. To ensure attainment of aquatic, terrestrial, and riparian objectives, prevent or minimize adverse effects from road and landing construction and reconstruction.

B-S25. Standard. New roads and other transportation facilities should be located outside of RCAs unless effects of other alternatives are greater to aquatic, riparian, water quality, and/or terrestrial resources, as supported/determined by the appropriate analysis and decision-making process, including, when necessary, ESA (Endangered Species Act) consultation. When crossing RCAs with roads, site-specific prescriptive measures shall be used to mitigate adverse effects.

Rationale: Roads create negative effects within riparian areas including sedimentation, habitat destruction, and increased human use. The intent of this standard is to prevent and reverse these adverse effects. However, it is recognized that at times it may be preferable to cross an RCA with a road rather than affect upland areas by building a more damaging road in order to avoid a stream crossing.

B-S26. Standard. Construction of new and reconstruction of existing road crossings of streams and rivers that currently or historically supported native fish species shall maintain and restore fish passage, fish spawning, and channel stability. Exceptions may be warranted where improving or restoring native fish passage may allow the introduction of exotic, non-native fish species.

Rationale: Activities that improve native fish passage for connectivity may affect channel stability by eliminating migration barriers, which may also allow undesirable expansion of non-native fish populations. Information from a roads analysis or step-down process should identify improvement and restoration alternatives where stream channel integrity may be negatively impacted and/or where increased distribution of exotic fish species would result in adverse interactions with native fish.

B-O28. Objective. Avoid disruption of hydrologic flow paths and processes by locating, designing, and conducting road construction and reconstruction to avoid unstable and potentially unstable lands.

Terrestrial Source Habitats

Description and Management Intent

The objectives, standards, and guidelines in this section are aimed at changing declining trends in terrestrial habitats on lands administered by the Forest Service or BLM in the project area. The intent of this section is to maintain many of the important vegetation characteristics, such as species composition, vegetation structure, snags, and coarse woody debris, which various terrestrial species need to survive and reproduce.

Direction is intended to be applied to source habitats for 12 aggregates of terrestrial birds, mammals, and reptiles called "families" in *Source Habitats for Terrestrial Vertebrates of Focus* (Wisdom et al. 2000), unless otherwise specified. Source habitats are those characteristics of vegetation that contribute to a species' population maintenance or growth over time and within an area. These source habitats are described using the dominant vegetation cover type and the structural stage, various combinations of which make up the source habitats for the 12 Terrestrial

Spatial Prioritization of Terrestrial Restoration and Conservation Opportunities During the Step-down Process

Spatial prioritization (identifying specific areas on the ground that are important) of restoration and conservation opportunities is an important component of the step-down process. Spatial prioritization is necessary to facilitate achievement of ICBEMP objectives with limited resources. The following characterizations can be used to identify spatial priority of terrestrial restoration and conservation opportunities.

Watersheds or subwatersheds can generally be characterized in three conditions. These conditions are described in the following paragraphs.

Condition 1: In these areas, the amount and distribution of source habitats, and the associated disturbance processes that maintain these habitats, have undergone relatively little change since the historical period. From a broad-scale perspective certain source habitats have declined substantially in geographic extent from the historical to current period. However, in certain watersheds or subwatersheds, those same source habitats closely resemble historical vegetation conditions and functions. These are Condition 1 areas, and have been identified as T watersheds in this EIS. These areas would be managed with a short-term conservation emphasis to maintain current conditions and a long-term restoration emphasis to facilitate species persistence and to expand the geographic extent and connectivity of source habitats (see T watershed management direction). Given that vegetation processes in these areas appear to be functioning in a sustainable manner, changes in current management are generally not necessary. However, activities may be needed to maintain these sustainable conditions. These areas would be of a high priority for actions that would maintain the current conditions. For example, in areas of dry forest PVG where fire suppression is necessary to protect other values, an active prescribed fire

Spatial Prioritization of Terrestrial Restoration and Conservation Opportunities During the Step-down Process (Continued)

program may be necessary to maintain sustainability. In another case on a rangeland area susceptible to exotic weed invasion, an active integrated weed management strategy (that is, preventing an increase in activities that may introduce exotic species) may be necessary to maintain sustainability.

Condition 2: In these areas, the amount of source habitats that have declined substantially in geographic extent from the historical to current period at the broad scale has remained neutral or increased within the local area, but the distribution, quality, or sustainability of these source habitats has changed moderately from historical conditions. The extent of vegetation communities will often closely resemble historical vegetation amounts at a watershed or subwatershed scale. However, the current distribution of vegetation communities will vary from that produced by historical disturbance regimes, or other factors such as roads will have degraded the quality of habitats, reducing their usefulness. These areas could be prioritized to restore habitat quality through repatterning to achieve expected vegetative community distribution and to reduce factors that are adversely affecting habitat usefulness. For example, restoration efforts could focus on reestablishing expected disturbance regimes to achieve repatterning of vegetative communities. In another case the density of roads could be reduced to increase the usefulness of habitats. From a terrestrial species standpoint, these areas could be of a high priority for restoration actions where the quality or distribution of habitat is of greater concern than the amount of habitat.

Condition 3: In these areas, the amount of source habitats that have declined substantially in geographic extent from the historical to current period at the broad scale has also declined locally, and disturbance processes are not functioning as would be expected from a historical perspective. Vegetation would largely be characterized by remnant, isolated patches, and habitat quality has been substantially degraded by various factors (such as roads and human disturbances). These areas could be prioritized to restore habitat abundance and quality. Reduction of the factors which adversely affect habitat usefulness would be of a lesser priority until expected vegetation and disturbance regimes are re-established. In some cases these areas may have transitioned to a point where expected vegetation and processes have changed and restoration may not be possible with current technology. Restoration actions would focus on areas with continued opportunity for success. For example restoration efforts could focus on reestablishing expected vegetation and disturbance regimes to achieve repatterning of vegetative communities where changes in physical processes do not limit the potential for success. From a terrestrial species standpoint these areas could be of a high priority for restoration actions where the amount and quality or distribution of habitat is of greatest concern.

A broad-scale estimate of these conditions, summarized at the scale of the watershed, is contained in *A Habitat Network for Terrestrial Wildlife* (Wisdom et al. 2000a) This report describes current habitat conditions for Families 1, 2, 4, 11, and 12, which are the focus of broad-scale habitat management and direction in the EIS process. Estimates of these conditions were based on the analysis of broad-scale data and are expected to have some error at the scale of individual watersheds. However, this broad-scale characterization could provide a starting point for local prioritization of conservation and restoration activities.

Families and provide the range of vegetation conditions required by these species for cover, food, reproduction, and other needs. Terrestrial Families 1, 2, 3, and 4 depend mostly on forested source habitats; Terrestrial Families 10, 11, and 12 use mostly rangeland source habitats; and Terrestrial Families 5, 6, 7, 8, and 9 are associated with a combination of forest and rangeland source habitats. The habitats of species affiliated with Terrestrial Families 1, 2, 4, 11, and 12 have been determined by Wisdom et al. (2000) to have declined in geographic extent from historical to current periods within most RAC/PAC areas more substantially than have habitats of the other families.

The management intent is also to preserve options for these source habitats in the short term so they can possibly be restored in the long term. This fits into the overall risk management strategy to conserve and expand, in the short term, the source habitats that have shown the greatest decline. The long-term goal is to have a sustainable mix of habitats that are patterned to be consistent with the landform, climate, biological, and physical characteristics of the ecosystem, and that provide for a network of source habitats to meet terrestrial species needs.

Forest Composition and Structure

B-O29. Objective. Increase the abundance of shade-intolerant species, such as western white pine, ponderosa pine, and western larch, in the moist and dry forest potential vegetation groups (PVGs), and whitebark pine in the cold forest PVG. Increase the extent of these species in pure stands, and in mixed stands where it is ecologically appropriate. Favor retention of emergent large trees, especially in roaded and/or harvested areas. Create stands with stocking levels and fuel loads that are more resilient to wildfire, insects, and disease. Blister-rust-resistant western white pine and whitebark pine planting stock should be used when possible.

> ***Rationale:*** In some areas in the dry forest PVG, ponderosa pine is not endemic (native to a certain region), and Douglas-fir fills its niche as the shade-intolerant species. In these areas, it is desirable to restore or increase the abundance of Douglas-fir in patches that are consistent with the landform, climate, biological, and physical characteristics of the ecosystem.
>
> Shade-intolerant species are important from an ecological perspective because they are resilient to the predominant fire regime. To prevent further declines of forest ecosystem processes and functions, timber harvest should be done for stewardship reasons and be consistent with ICBEMP objectives such as: reducing risk of severe fire behavior, reducing risk of severe fire effects, promoting shade-intolerant tree species, promoting scarce terrestrial habitats, and increasing the forest's resiliency to disturbance. Clearcutting is appropriate when done for ecological reasons, such as the need to regenerate species (for example, western white pine and western larch), or to meet other objectives such as creating scarce habitat.
>
> Scattered snags or emergent trees are important to many wildlife species that use forest stand-initiation structural stages. *Emergent trees* are those with crowns reaching above the predominant crown layer, providing structural diversity. Large trees are also important to many wildlife species, and adaptation of these trees to frequent low intensity fire regimes has important ecological ramifications. The size of a "large tree" is relative; it depends on species, structural stage, predominant disturbance regime, and site productivity.

B-S27. Standard. Maintain and/or restore large shade-intolerant trees and snags in densities that are consistent with the range of historical conditions. Large shade-intolerant trees and snags, especially ponderosa pine and western larch, should be retained where they are needed to meet historical levels and if their retention does not violate safety standards or preclude attainment of overall resource objectives.

Rationale: *Large trees* is a relative term dependent on species and site. Large trees are a future source of large snags, and large snags are a future source of coarse woody debris, another important habitat component for many species. It is important to have present and future sources of large trees and snags at adequate levels though time. Larger snags are generally better than smaller snags because they last longer. Large trees and/or snags are essential habitat components for many species in Terrestrial Families 1, 2, 7, 8, and 9 (Wisdom et al. 2000). In timber harvest areas, it may be necessary to avoid specific areas or modify harvest practices to maintain safety standards and to retain these trees.

B-G30. Guideline. Management tools such as thinning and prescribed fire may be used to make forests dominated by shade-intolerant species more resilient to fire, insects, and disease. Favor large trees by giving them growing space on at least two or three sides and removing nearby fuel ladders.

B-G31. Guideline. Regeneration harvest may be used to regenerate western white pine where seed sources exist, and large openings can be created in the forest for planting. Scattered large residual trees and snags could be left in these openings to make them more valuable to wildlife species that depend on these habitat features.

B-G32. Guideline. Prescribed and managed wildland fire may be used to assist regeneration in healthy whitebark pine stands. Where the stand is infested with blister rust, blister-rust-resistant planting stock could be used.

B-G33. Guideline. Look for opportunities to use natural regeneration where the species, seed source, seedbed, and moisture conditions are all favorable. Rely on natural regeneration following stand-replacing wildfire if a seed source of the desired species exists.

Rationale: Shade-tolerant trees in forests that have regenerated from natural seeding have adapted to site conditions and local climate over thousands of years. The genetics to perpetuate those characteristics are found in the seeds produced by the shade-tolerant trees. If that seed source is lost, so is its genetic diversity.

Achieving successful natural regeneration requires that: the overstory trees of the desired species are capable of producing viable seed, a mineral soil seedbed is available for germination, there is adequate water and light, and lack of competition to allow the seedlings to survive.

B-G34. Guideline. Consider controlling livestock grazing in forests where planted or naturally regenerated seedlings are vulnerable to browsing or trampling.

Rationale: Although livestock grazing can have beneficial effects on tree seedlings through reductions in vegetation competition, germinants and small seedlings are often trampled and/or browsed by livestock. The result is that trees and important native herbs and shrubs can be killed, and growth can be slowed or misshapen. Terrestrial vertebrates that depend on the stand-initiation stage of forest development depend on a rich supply of native herbs and shrubs for nesting and foraging. Livestock grazing can reduce the availability of these resources.

B-G35. Guideline. Consider using a combination of harvesting, mechanical treatments, and/or prescribed fire to modify forest composition to dominance by shade-intolerant species (such as ponderosa pine, western larch, Douglas-fir).

B-G36. Guideline. Where true firs are infected, consider reducing susceptibility of stands to annosus root disease by: lowering the number of entries into stands, shortening rotations, decreasing wounding during harvest, or manipulating species mixtures by changing to ponderosa pine, western larch, or Douglas-fir.

B-G37. Guideline. Consider reducing the susceptibility of stands to laminated root rot by avoiding shelterwood cuts which favor regeneration of susceptible shade-tolerant species or by switching to species that are more resistant to root rot, such as western redcedar, pines, and larch, where appropriate.

B-G38. Guideline. Consider reducing the susceptibility of stands to Armillaria root disease by: using thinning, harvesting, and/or prescribed fire to increase vigor; pre-commercial thinning sites of moderately low productivity that are infected; or planting shade-intolerant species such as larch, pine, and hardwoods in infected areas. Minimize subsequent entry in moist forest PVG stands.

B-G39. Guideline. Removal of root-infected stumps on some highly specialized sites can be considered to achieve plan objectives. Minimize soil damage and reforest with shade-intolerant species that are most likely to tolerate the pathogen.

B-O30. Objective. In the short term, maintain and prevent loss of old forest in dry and moist forest potential vegetation groups (PVGs). Maintain old forest in patch sizes that are consistent with the landform, climate, and biological and physical conditions of the ecosystem. Where appropriate, change the stand structure from multi- to single-story. Identify single story and multi-story old forest stands in the interior ponderosa pine, Pacific ponderosa pine, and Sierra Nevada mixed conifer cover types. Where appropriate, change the stand structure from multi- to single story. Identify multi-story old forest stands in the Douglas-fir, western larch, western white pine, aspen, and cottonwood-willow cover types. Take steps to prevent the loss of these relatively scarce habitats from natural or human-caused disturbances. Actively manage to promote their long-term sustainability and to preclude uncharacteristically severe wildfire through activities such as prescribed fire, stewardship thinning, and/or other vegetation/biomass management techniques.

Because the identification of old forest depends on regional location within the project area, physical attributes of the site (such as climate and geology), tree species, and site productivity (such as soils, aspect, slope, water), and because old forest is defined using a number of variables (see Rationale), BLM and Forest Service managers should identify old forests using minimum characteristics developed by Greene et al. (1992) for lands within the Forest Service Northern Region (Idaho north of the Salmon River and Montana), Hamilton (1993) for lands in the Intermountain Region (Idaho south of the Salmon River), and USDA Forest Service (1993) for lands in the Pacific Northwest Region (Washington and Oregon).

Promote emergent and large trees, snags, and coarse woody debris levels that can be sustained through repeated prescribed fire activities that will be needed to restore and maintain the stands. Use appropriate vegetation management techniques to protect large trees from disturbances (such as fire, insects, or disease) which could convert old forests to an early or mid seral stage.

> ***Rationale:*** Old forest is defined primarily using such variables as: (1) number of trees per acre of a minimum diameter at breast height (DBH), (2) minimum stand age, (3) basal area, (4) tree decadence, (5) snag levels, (6) downed wood levels, among others. The result is that the characteristics of old forest will be different among forests, for example, between

ponderosa pine and lodgepole pine forests. See Appendix 17a (in Volume 2 of the Supplemental Draft EIS) and 17b (available at www.icbemp.gov or by calling 208.334.1770) for definitions of old forest as established by each of the three Forest service regions (Northern, Intermountain, and Pacific Northwest) that make up the ICBEMP project area. These three sets of criteria for old-growth ecosystems will be used as guidance by Forest Service and BLM personnel at the forest, district, and field office levels during implementation of the ICBEMP management direction.

Overall, the project area has shown a great reduction in single story and multi-story old ponderosa pine forest as well as other old forest types from historical to current periods (Hann, Jones, Karl, et al. 1997, Wisdom et al. 2000). Terrestrial species dependent on these habitats have been forced to use other structural stages in cover types that have expanded over the same time interval-for example, multi-story interior Douglas-fir. Therefore, even though some multi-story interior Douglas-fir forests currently exist where they did not grow historically, they should be perpetuated in the short term or longer to minimize the risk to the terrestrial species that depend on these forests. Managing short-term risk to these species is part of the terrestrial strategy.

In the short term, land managers should strive to promote old forest conditions and protect old forests from both natural and human-caused disturbances (such as wildfire and harvest) because old forests and their associated species are in such short supply. As the amount of old forest increases through time to desired levels consistent with natural disturbance regimes, the locations of old forest can begin to change over time. Further, amounts of old forest can vary over time within desired limits, as some patches of old forest are burned, harvested, or otherwise disturbed while some patches of mid-seral forest mature, develop old forest conditions. In the long term, the location of old forest patches is not static; areas move in and out of having old forest characteristics, especially in cold and moist forest PVGs where a high proportion of the fire regime consists of stand-replacing fire.

Preventing the loss of old forest might include a "wildland fire use for resource benefit," prescribed fire, removal of ladder fuels and smaller competing trees, wildfire suppression, and conversion of some multi-story stands to single story structure.

Old forest aspen is an important cover type for terrestrial species. However, when aspen stands become decadent (old), they tend to lose their ability to regenerate well. Therefore, maintaining aspen on the landscape requires a cyclical and timely disturbance so that it can be regenerated before it gets too old to be sustained.

Snags, Coarse Woody Debris

B-O31. Objective. Maintain and/or recruit adequate numbers, species, and sizes of snags and levels of downed wood to meet the needs of wildlife, invertebrates, fungi, bryophytes, saprophytes, lichens, other organisms, long-term soil productivity, nutrient cycling, carbon cycles, and other ecosystem processes. Consider the natural variability in number and size of snags and downed logs across landscapes, through time, and in the context of biomass levels under which soils and species evolved. Manage for snag species appropriate to the site.

Rationale: Snags and downed logs are important components of forest and woodland ecosystems. They provide essential habitat for wildlife, invertebrates, fungi, bryophytes, saprophytes (plants that derive nourishment from dead or decaying organic matter), lichens, and other organisms. They store carbon and nutrients and provide site improvement following extreme disturbance. Snags and coarse woody debris are closely tied, because

snags are a future sources of downed logs and coarse woody debris, which recycle nutrients and provide habitat for both plants and animals. Large diameter snags are especially valuable to a wide array of species because they offer greater surface area, more opportunity for cavities, and greater longevity. Hann, Jones, Karl, et al. (1997) found that snag and coarse woody debris levels have declined in roaded and harvested areas. Providing for the appropriate species of snags in a stand, in addition to the appropriate numbers and sizes of snags, is necessary to maintain the value of the stand for wildlife. Shade-intolerant snag species have declined substantially in geographic extent from historical to current periods and are key to providing for species in Terrestrial Families 1 and 2.

Snags usually are not distributed evenly on a natural landscape. The number and pattern of snags should vary across the landscape based on site classification (potential vegetation type), successional stage, and disturbance history. In general, more productive sites such as north slopes, moist sites, and riparian areas should support more snags; the least productive sites should support the fewest snags. Very early successional stages, soon after a disturbance, should have highest number of snags on site, followed by late seral stages. Because many wildlife species find groups of snags more useful than evenly distributed snags on the landscape, there should be groups as well as single snags.

Coarse woody debris is important to a wide variety of wildlife species, invertebrates, and microorganisms as a habitat and food source. In addition, coarse wood is essential to long-term soil productivity and several ecosystem processes. It provides soils with a source of carbon and nutrients, and sometimes provides a reservoir for water. Size and amount of coarse woody debris cannot be expected to be evenly distributed across landscapes. It varies with topographical features, climate, slope, aspect, habitat type, successional stage, management practices, and many other factors. Amount of coarse woody debris is an important factor in wildland fire intensity and severity, so levels are intended to be consistent with the predominant fire regime and prescribed fire objectives.

B-S28. Standard. Maintain and/or recruit snag and coarse woody debris numbers, species, and sizes within the desired range for a RAC/PAC area as established in Standard B-S29 or for a watershed through the process in Standard B-S30. If it is not possible to estimate snag numbers or coarse woody debris levels within a watershed, then leave or recruit the number of snags and levels of coarse woody debris indicated by the desired range. If current snag numbers or coarse woody debris levels are estimated to be less than the desired range for a watershed, then leave or recruit appropriate amounts of snags and coarse woody debris to move toward the established range.

Rationale: When estimates show that current numbers and sizes of snags or levels of coarse woody debris in a watershed are above or below the desired range, based on use of a process described in Standard B-S30 or on the tables from Standard B-S29, there is an opportunity to move toward the desired range (1) whenever vegetation management activities are undertaken, and (2) as a separate restoration activity aimed at restoring old forest structure in watersheds where EAWS indicates that stands with old forest characteristics are below desired levels. The needed precision of the estimates varies with the scale of the analysis, with less precise estimates needed for an EAWS than for site-specific NEPA analysis.

B-S29. Standard. Prior to completing the process described in Standard B-S30, the tables in Appendix 12 (in Volume 2 of the Supplemental Draft EIS) shall be used to determine snag numbers and coarse woody debris levels whenever vegetation management is done. If adequate numbers of snags greater than 21 inches diameter at breast height are not available prior to

vegetation management activities to meet the levels indicated in Appendix 12, then a mix of the largest snags available shall be substituted.

Rationale: The tables in Appendix 12 were developed to assure that appropriate numbers of snags and levels of coarse woody debris would be maintained while standards that are more appropriate for local conditions are developed or verified.

B-S30. Standard. Within five years, administrative units or groups of units (national forests/ BLM districts) shall modify default numbers shown on the tables in Appendix 12 (in Volume 2 of the Supplemental Draft EIS) to determine (1) numbers and sizes of snags and (2) coarse woody debris levels appropriate for local conditions. In making these determinations, units shall use the snag analysis and coarse woody debris processes described in Appendix 12, or they shall use or develop a similar process appropriate for local conditions. If local units use or develop a new process, it must have a scientific basis, using information from the literature and/or studies on historical conditions to determine snag sizes and average numbers. When using any of these processes, administrative units shall inform appropriate agencies, governments, or groups. If administrative units currently have standards that were developed using a process they believe meets the intent of this standard, then they need only verify its basis on current science to continue its use.

Rationale: This standard assures that all administrative units will have snag and coarse woody debris standards appropriate for local conditions within five years. *Coordinating*, *cooperating*, and *consensus* are desired collaborative approaches when developing appropriate snag numbers, but *informing* other agencies is the minimum approach required. (See the Glossary definition of Collaboration for a description of these terms.)

B-G40. Guideline. Consider leaving or recruiting additional snag numbers and coarse woody debris levels in areas that have been burned.

B-G41. Guideline. Consider estimating large snag densities as part of EAWS. Where densities are below the established, desired ranges, initiate management activities to increase snag levels through snag recruitment.

Rangelands Composition and Structure

B-O32. Objective. Upland rangelands must first be in proper functioning condition to allow for restoration of desired conditions. Areas in proper functioning condition should be prevented from becoming non-functioning. This can be done by addressing the *biological needs* as indicated by vegetation composition, diversity, structure, cover, vigor, and recruitment, and the *physical needs* as indicated by erosional flow patterns, soil movement, litter, soil crusting, and compaction.

Rationale: Proper functioning condition of upland rangelands is reached when the biological and physical components display the characteristics of a dynamic, diverse, healthy ecosytem that is able to withstand natural disturbance events. Once the components are in place then the mix of plant species composition and structural characteristics (seral conditions) can be managed to meet various ICBEMP objectives.

B-O33. Objective. [Terrestrial Families 11 &12] Manage species composition (diversity), structure and age class, cover, density, and surface litter on native rangeland plant communities, appropriate to soil type, climate, and landform, to maintain the following source habitats (rangeland cover types): big sagebrush, low sagebrush, mountain big sagebrush, salt desert shrub, fescue-bunchgrass, wheatgrass-bunchgrass, and antelope bitterbrush-bluebunch wheatgrass.

Rationale: With natural and human-caused disturbances, the task of rangeland health maintenance—in particular, maintaining existing native rangeland communities—is challenging. Providing the historical mix of species composition, structure, and cover is necessary to meet source habitat needs for the many terrestrial species that rely on rangelands during all or part of their life cycle.

Significant loss of rangeland species habitat has occurred from conifer encroachment into grassland areas, primarily because of altered fire regimes in the dry forest and grassland PVGs in the ecotone. (An ecotone is a transition between adjacent environments, such as the boundary between a forest and a meadow.) Historically these grassland areas were savannahs containing widely dispersed trees. Maintaining existing grassland areas and restoring grassland areas by reducing tree densities is necessary to improve outcomes for some grassland associated species.

B-O34. Objective. Rangelands seeded with mixtures should function to maintain life form diversity, forage production, terrestrial species habitat, nutrient cycling, energy flow, and hydrologic cycle.

Rationale: Some seedings, such as older crested wheatgrass seedings, are essentially monocultures specifically used for forage production or to reduce livestock grazing pressure on native rangelands. The intent of this objective is for seedings to meet certain minimum functional and process needs to meet overall ecosystem health, provide habitat for terrestrial species, and maintain healthy source habitats at larger scales.

B-O35. Objective. ***Combined with B-O34.***

B-O36. Objective. Exotic plant communities, other than seedings, should meet minimum requirements of soil stability and maintenance of existing native plants. Rehabilitate these plant communities to perennial communities of diverse composition and structure when feasible, cost-effective methods are developed.

Rationale: It is the intent of this objective to rehabilitate exotic plant communities, such as cheatgrass, back to the perennial plant communities that occupied these sites prior to human disturbances. However, it is realized that this task could be a challenge because poor soils and low precipitation in some areas make rehabilitation difficult or impossible. Until technology and cost-effective measures are developed, exotic plant communities should be managed to provide basic soil stability needs and to protect remnant perennial plant species.

Aquatic/Riparian/Hydrologic Component

Description and Management Intent: Overall

The overall intent of base level aquatic/riparian/hydrologic direction is to prevent degradation to and improve conditions of aquatic and riparian habitat. This should provide habitat conditions on Forest Service- and BLM-administered lands to sustain aquatic and terrestrial species and provide water of sufficient quality to support beneficial uses.

In the base level section, management objectives and standards are provided for riparian conservation areas (RCAs), riparian influence areas, watershed condition indicators, and water quality. Additional base-level direction for aquatic/riparian/hydrologic resources is found in the Landscape Dynamics and Terrestrial and Aquatic Species sections. Additional direction for A1 and A2 subwatersheds and aquatic and hydrologic restoration follows later in this chapter.

Riparian Conservation Areas (RCAs)

Description and Management Intent

The primary management emphasis of riparian conservation areas (RCAs) is to maintain, conserve (protect), and/or restore aquatic and riparian-dependent terrestrial resources. Proper ecological function in RCAs is crucial to maintaining aquatic ecosystems and riparian-dependent resources. RCAs are intended to do the following:

- Help maintain and restore riparian structures and functions;
- Benefit fish and riparian-dependent resources;
- Enhance conservation of organisms dependent on the transition zone between upslope and the stream; and
- Improve connectivity of travel and dispersal corridors for terrestrial animals and plants, and aquatic organisms.

Management activities (such as silvicultural treatments, livestock grazing, and road construction) within or affecting RCAs that would not maintain fully functioning conditions and processes or lead to improved conditions and processes would not meet the intent of ICBEMP standards and objectives. These activities either would not be implemented or would be modified.

The management focus of the RCA management direction is to achieve ICBEMP objectives over the long term and to avoid short-term impacts that could reduce the riparian area's ability to achieve objectives over the long term. Some impacts that only last for days or weeks may occur from activities that are deemed desirable and consistent with objectives (for example, road maintenance or culvert replacement); however, not all risks from these types of impacts are categorically acceptable. To the extent possible, the land managers must decide the level and type of risk that will be acceptable, within the context of information generated through the step-down process. For example, when Subbasin Review and EAWS are completed prior to designing site-specific activities, the knowledge gained should enhance understanding of risks at various scales and provide a broader context and stronger informational support for management activities that carry risk.

RCA Management Direction

The following objectives and standards apply to management activities and land uses within riparian conservation areas on Forest Service- or BLM-administered land with one exception. Road construction/reconstruction direction within RCAs is provided in the Road Management section under both the Base Level and Restoration management direction. The RCA management objectives were designed to be assessed at a watershed or larger scale and not at a site scale. However, in the absence of subbasin and/or watershed scale context, projects/activities will need to be evaluated as to their consistency with and contribution to these objectives within the limited context of the project/activity. In the absence of subbasin and/or watershed scale context, the project/activity must be evaluated against the objectives using WCIs or the NMFS/USFWS matrix of pathways and indicators (see Appendix 9 in the Final EIS). This should neither stop emergency actions that would attain management objectives, nor impede restoration actions that need to occur (such as road obliteration or culvert replacement). Short-term risks may be taken in these circumstances, but these actions should not prevent attainment of objectives over the long term. The ideal situation is for Subbasin Review and/or EAWS to precede the design of management activities within RCAs. This would facilitate a risk management strategy that would allow site-specific NEPA analysis to evaluate consistency with objec-

tives within a larger context. This larger context for risk assessment would help identify temporal and spatial (placement on the ground) opportunities to enhance conservation and restoration, as well as identifying where short-term risks may be taken to achieve long-term management objectives.

B-O37. Objective. Maintain the physical integrity of fully functional aquatic ecosystems, including shorelines, banks, and bottom configurations. Improve aquatic ecosystems (through restoration and/or passive ["hands-off"] management of natural recovery processes) that are not fully functional.

B-O38. Objective. Maintain fully functional riparian and wetland vegetation and improve (through restoration and/or passive ["hands-off"] management of natural recovery processes) riparian and wetland vegetation that is not fully functional to:

- Provide an amount and distribution of woody debris sufficient to sustain physical and biological complexity characteristic of natural aquatic and riparian ecosystems;
- Provide adequate summer and winter thermal regulation within riparian and aquatic zones;
- Help achieve rates of surface erosion, bank erosion, and channel migration characteristic of those under which plant communities developed; and
- Provide appropriate amounts and distributions of source habitats for riparian- or wetland-dependent species.

Rationale: Adequate amounts of healthy riparian and wetland vegetation are critical to fully functioning aquatic, riparian and wetland systems, which are necessary for riparian- and wetland-dependent species (listed in Appendix 6 in Volume 2 of the Supplemental Draft EIS). Types of riparian and wetland vegetation are a reflection of site factors, such as soils. Some examples of cover types and structural stages important to riparian species are: cottonwood-willow/stand-initiation, shrub wetlands/open herbland, shrub wetlands/closed herbland, shrub wetland/open low-medium shrub, and shrub wetland/closed tall shrub. Some important environmental conditions related to riparian-dependent species include: maintenance and recruitment of large snags (see Objective B-O31 and Standards B-S28 through B-S30), mitigation of roads and road-associated effects (see Standards B-S22 through B-S26), mitigation of human-associated activities (see Objective B-O48 and Standards B-S31 through B-S38), mitigation of livestock and associated impacts on native understory vegetation (see Objective B-O10 and Standards B-S31 and B-S32), restoration of hydrologic conditions to support large cottonwood/willow tree habitat (see Objectives B-O8 and R-O8), and restoration of riparian vegetation communities, such as riparian shrubs (see Objective R-O24).

Past alterations to vegetation on Forest Service- and BLM-administered lands within the project area have resulted in riparian habitat conditions that are less than optimal for aquatic and riparian-dependent species. Although the broad-scale data used for the ICBEMP are not detailed enough to quantify changes in riparian and wetland vegetation from the historical to current period, it is known that riparian ecosystem function, determined by the amount and type of vegetation cover, has decreased in most subbasins.

The intent of this objective is to ensure that adequate amounts of riparian and wetland vegetation are sustained or increased in the long term, basin-wide, and that further habitat degradation does not occur. In order to determine appropriate amounts of habitat, it may be necessary to assess riparian and wetland habitat and species requirements, comparing current to potential conditions. This determination should be made during EAWS or site-specific NEPA analysis.

B-S31. Standard. New management activities (subject to valid existing rights; see Standard B-S34) within or affecting RCAs shall be conducted only if they are consistent with the RCA management objectives of maintaining fully functional aquatic/riparian conditions and processes, and improving conditions and processes (through either active or passive measures) that are not fully functional.

Watershed condition indicators (WCIs), or NMFS/USFWS matrices of pathway and indicators if WCIs are not developed yet, shall be linked to objectives and used to guide development and evaluate proposed activities consistent with RCA management objectives. The WCIs or matrices shall be used as a suite of indicators. Each indicator will have value ranges defining functioning, functioning at risk, and non-functioning conditions. See the management intent and direction for WCIs for further detail.

Rationale: *New management activities* include actions that require NEPA decision documents. Activities include, but are not limited to, hydropower projects, silvicultural practices, road and trail construction, fuel storage, herbicide and pesticide application, and recreation facilities.

B-G42. Guideline. ***Deleted.***

B-S32. Standard. Existing land uses, facilities, and actions within or affecting RCAs shall be modified, discontinued, or relocated if they are not maintaining fully functional aquatic/riparian conditions and processes, or improving conditions and process (through either active or passive measures) that are not fully functional.

Watershed condition indicators (WCIs), or NMFS/USFWS matrices of pathway and indicators if WCIs are not developed yet, shall be linked to objectives and used to guide development and evaluate existing land uses, facilities, and actions within or affecting RCAs consistent with RCA management objectives. The WCIs or matrices shall be used as a suite of indicators. Each indicator will have value ranges defining functioning, functioning at risk, and non-functioning conditions. See the management intent and direction for WCIs for further detail.

Rationale: *Existing land uses, facilities, and actions* include but are not limited to: livestock grazing, existing dispersed and developed recreation facilities and practices, and road and trail maintenance, including sidecasting.

B-S33. Standard. During licensing or relicensing of hydroelectric projects, terms and conditions that achieve aquatic and RCA management objectives over the new license term shall be submitted to the Federal Energy Regulatory Commission, where appropriate.

Rationale: See Section 4[e] of the Federal Power Act for a description of the Forest Service and BLM's authority and responsibility to provide terms and conditions to the Federal Energy Regulatory Commission. Relicensing of hydropower projects should be consistent with this standard so long as on- and off-site mitigation, restoration, and enhancement are conducted to meet RCA management objectives.

B-S34. Standard. For those management activities conducted pursuant to valid existing rights that may pose risks to achievement of RCA management objectives, existing authorities shall be used to mitigate and/or require, to the extent authorized, design features that would contribute to the maintenance of banks, shorelines, bottom configurations, amount and distribution of woody debris, thermal regulation, characteristic erosion rates, and amount and distribution of source habitats.

Rationale: Valid existing rights may limit land management agency discretion in some cases, such as in certain situations under the mining laws. This standard requires the use of existing authorities to minimize impacts of uses conducted pursuant to valid existing rights. For example, where lands are not withdrawn from mining or where valid mining claims exist in withdrawn areas, agencies may impose reasonable conditions on mining activities that are necessary to protect public resources.

B-S35. Standard. Management activities and land uses in RCAs shall be implemented to attain proper functioning condition (BLM Technical Report 1737-9 [USDI/BLM 1993] and 1737-11 [USDI/BLM 1994]) as a first step to move habitat conditions of streams, riparian areas, lakes, and ponds toward achieving aquatic and RCA management objectives.

Rationale: Management practices such as grazing, recreation, fuels management and other forms of vegetation management are expected to be designed to provide for the health, form, and function of riparian systems.

Determining proper functioning condition (PFC) is an interdisciplinary process. Attainment of PFC assures that stream and riparian areas function well and are on an improving trend. Until PFC is attained, management priorities and options focus on reaching this threshold over time. The desired condition, supported by watershed condition indicators (WCIs), lies between PFC and biological potential.

Standards B-S36, B-S37, B-S38 are activity-based (as opposed to outcome-based as in Standards B-S31 through B-S35) standards that were developed specifically for wildfire suppression because wildfire suppression generally occurs under emergency situations.

B-S36. Standard. Fire suppression strategies, practices, and actions in RCAs shall be designed to attain RCA management objectives, and to minimize disturbances of riparian ground cover and vegetation. Minimum impact suppression techniques (MIST) shall be used within RCAs unless safety to human life or property is an issue.

Rationale: Fire suppression strategies should recognize the role of fire in ecosystem function and identify those instances where fire suppression could perpetuate or be damaging to long-term ecosystem function or aquatic and riparian resources.

B-S37. Standard. Incident bases, camps, helibases, staging areas, helispots, and other centers for incident activities shall be located outside of RCAs. If the only suitable location for such activities is within an RCA, an exemption may be granted following a review and recommendation by a resource advisor. The advisor should prescribe the location, use conditions, and rehabilitation requirements, with avoidance of adverse effects to terrestrial, aquatic, and riparian resources a primary goal. An interdisciplinary team shall be used to predetermine incident base, dipping, and helibase locations during pre-suppression planning.

B-S38. Standard. Avoid delivery of chemical retardant, foam, or additives to, or discharge of gray water into, surface waters. An exception may be warranted in situations where overriding immediate safety imperatives exist, or, following a review and recommendation by a resource advisor, when the action agency determines an escaped fire would cause more long-term damage to fish habitats than chemical delivery to surface waters.

RCA Delineation

To meet aquatic and riparian objectives, riparian conservation areas need to be delineated considering ecological and geomorphic factors, which vary across the project area. Delineation of ecologically appropriate RCAs requires fine-scale application of appropriate criteria using a two-tier approach.

The **first tier** involves identification of ecological and geomorphic delineation criteria. This is done by applying an agreed upon protocol either through an EAWS or a programmatic planning analysis, whichever is the appropriate scale. This analysis is intended to provide the context needed to understand riparian area interactions and processes.

The **second tier** applies the criteria (or interim criteria) from the first tier analysis to specific areas on the ground in conjunction with proposed management activities.

Conceptually, the **first tier** analysis results in identification of ecologically appropriate RCA criteria by using existing information to characterize the extent, conditions, and trends of riparian areas within the analysis area by applying an agreed upon protocol. This analysis identifies dominant physical and biological features in the watershed that influence the riparian network, and addresses important biophysical functions and processes. The issues associated with the riparian system, including past, current, and potential future management emphases, are used to ascertain the rigor and depth of analysis needed. The resulting information is synthesized and interpreted using a process in which potential criteria are examined and selected or eliminated based on their appropriateness to meet the overall intent of aquatic and riparian management objectives at the finer scale.

For example: The characterization may identify that the geographic extent of riparian areas has declined in portions of the analysis area; therefore the extent of existing riparian vegetation may not be a suitable criterion for identifying RCAs. Another issue might suggest there are important breeding and dispersal corridors for a riparian-dependent species; this could be an important criterion for identifying RCAs at finer scales. Summarizing the physical conditions of the analysis area may stratify valley bottom and stream type combinations into different classes with inherent channel stability and sideslope erosion properties.

The overall intent of the first tier analysis is to document relationships between key riparian processes and functions and ecological and/or geomorphic factors (such as shade and site potential tree height), which should help to appropriately identify RCAs. The Forest Service and BLM would inform, coordinate with, and cooperate with intergovernmental partners when developing ecologically appropriate RCA delineation criteria as described in Standard B-S40. Interim criteria would be used to delineate RCAs as described in Standard B-S39 until the first tier analysis has been completed.

The **second tier** applies the RCA criteria (or interim criteria) to specific areas on the ground while designing and planning proposed management actions. The intent is that the associated site-specific NEPA analysis and decision would disclose how the criteria would be used to delineate RCAs on the ground and the degree to which they provide for riparian processes and functions and contribute to meeting aquatic and riparian management objectives. Any necessary, site-specific refinements of the criteria would also be documented in the NEPA analysis and decision document.

RCA criteria decisions will be subject to ESA consultation if they have the potential to affect listed species or their habitat. On-the-ground delineation of RCAs would be conducted by land

management personnel with expertise or training in the identified riparian functions and processes and local site conditions.

B-S39. Standard. Prior to conducting or completing EAWS or programmatic planning processes, including land use plan revision, the following interim RCA criteria shall apply:

Rangeland perennial and intermittent streams.
Interim RCAs consist of the stream channel and the area on either side of the stream extending from the edges of the active channel to the extent of the floodprone width (Rosgen 1994).

Forested perennial streams; and intermittent streams that support fish spawning and rearing.
Interim RCAs consist of the stream channel and the area on either side of the stream extending from the edges of the active channel to the top of the inner gorge, or to the outer edges of the floodprone width, or to the outer edges of riparian vegetation, or to a distance equal to the height of two site-potential trees, whichever is greatest.

Forested intermittent streams that do not support fish.
Interim RCAs consist of the stream and the area on either side of the stream extending from the edges of the active channel to the top of the inner gorge, or to the outer edges of riparian vegetation, or to a distance equal to the height of one site-potential tree, whichever is greatest.

Ponds, lakes, reservoirs, and wetlands.
Interim RCAs consist of the body of water or wetland and the area from the edge of the wetland, pond, or lake to the outer edges of riparian vegetation, or to the extent of seasonally saturated soil, or to a distance equal to the height of one site-potential tree, whichever is greatest.

B-S40. Standard. During EAWS or through the appropriate programmatic planning processes (including land use plan amendment or revision) using an agreed upon protocol, interim RCA criteria shall be replaced with ecologically appropriate criteria that are consistent with the RCA management intent and the attainment of RCA management objectives.

These criteria shall be *identified* using scientific information in combination with local knowledge and information on riparian processes and functions, resource values, and risks (first tier). Rationale for identifying final RCA delineation criteria shall be presented through the appropriate NEPA decision-making process.

Application of criteria to delineate RCAs shall occur during project-level planning or implementation for management activities that could affect attainment of RCA objectives (second tier).

In the RCA delineation process, the Forest Service and the BLM shall inform, coordinate with, and cooperate with intergovernmental partners. When the delineation may affect listed species, the appropriate vehicle for collaboration with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service is the Endangered Species Act (ESA) consultation process.

> ***Rationale:*** The intent is to replace or modify broad-scale interim RCA delineation criteria with locally defined criteria that would be consistent with the attainment of broad-scale RCA objectives. Field units must revise the broad-scale interim RCA criteria either when they conduct EAWS or through appropriate programmatic planning processes, including land use plan revision. Although EAWS is not a decision process, it would provide information for ecologically appropriate criteria that would support site-specific NEPA decisions on RCA delineation. Administrative units should consider relevant scientific and local information, riparian processes and functions, resource values, risk, and source habitat for ripar-

ian-associated species when defining RCA characteristics. *Informing, coordinating,* and *cooperating* are the minimum required collaborative approaches for this standard. Consensus is desired, but not required. (See the Glossary definition of Collaboration for a description of these terms.)

B-S41. Standard. During land use plan revision, RCAs shall not be included in the suitable timber base used to calculate the allowable sale quantity.

Sediment Delivery Influence Area

Description and Management Intent

The primary management intent of the sediment delivery influence area is to limit sediment entry and overland flow from management actions into the RCA. For example, when designing prescribed fire projects within the influence area, prescriptions should be designed to retain sufficient duff and ground cover to minimize soil movement.

B-S42. Standard. When management activities are conducted within the sediment delivery influence area, ground disturbance shall be minimized and sufficient ground cover shall be retained to limit soil movement into the RCA to allow attainment of RCA objectives.

Rationale: The *Assessment of Ecosystem Components* (Quigley and Arbelbide 1997)identified hillslope steepness as an important biophysical principle which should be considered as part of a riparian management strategy. As side slopes adjacent to streams steepen, the likelihood of disturbance resulting in discernible instream effects increases. Other factors such as soil characteristics and ground cover also influence sediment delivery. Standard B-S42 addresses this principle and uses relationships developed in the *Assessment of Ecosystem Components*. To implement this standard, field units can use either the relationship displayed in Figure 1, Appendix 9 (in Volume 2 of the Supplemental Draft EIS), or locally developed sediment delivery relationships to identify the sediment delivery influence area.

Watershed Condition Indicators (WCIs)

Description and Management Intent

Watershed condition indicators (WCI) are an integrated suite of aquatic (including a biological component), riparian (including riparian-associated terrestrial species), and hydrologic (including uplands) condition measures that are intended to be used at the watershed scale. They are intended to serve two primary purposes:

1. To assist in effectiveness monitoring as measurable indicators of how effective management actions are in attaining broad-scale ICBEMP aquatic/riparian/hydrologic objectives. This purpose is discussed further in the Monitoring Framework (Appendix 10 in Volume 2 of the Supplemental Draft EIS and in the Final EIS).
2. To indicate the current condition of a watershed and to help land managers design projects and make judgements about the appropriateness of management activities with respect to aquatic/riparian/hydrologic objectives. This purpose is discussed in the following paragraphs and the accompanying management direction.

WCIs provide context and decision support to determine whether combined actions would contribute to attainment of objectives at subwatershed and larger scales. The WCIs, including interim NMFS/USFWS matrix (see Appendix 9 in the Final EIS), should be used as a suite of

integrated indicators. They should not be used individually as fixed targets toward which to manage or as specific thresholds from which to make "go/no go" project implementation decisions. However, they should be used to help design appropriate management actions or alter or mitigate proposed activities to move watersheds toward desired conditions. If certain indicators highlight a concern in a watershed, then NEPA analysis should disclose how proposed management actions would be designed to alleviate the concerns, and/or why the proposed action is needed to achieve aquatic/riparian/hydrologic objectives.

The WCIs are being developed by an interagency team. Until the WCIs are developed, the intent is to use the NMFS/USFWS matrix of pathways and indicators (as refined locally) as interim indicators to evaluate project consistency with aquatic, riparian, and hydrologic objectives.

B-O39. Objective. Evaluate the effects of management on aquatic (including a biological component), riparian (including riparian-associated terrestrial species), and hydrologic (including uplands) condition through Watershed Condition Indicators (WCIs). For aquatic and hydrologic conditions use the NMFS/USFWS matrix of pathways and indicators (see Appendix 9 in the Final EIS) as interim indicators until WCIs are ready for implementation. For terrestrial riparian species, until specific WCIs are developed, consider current levels and changes in quantity, quality, and distribution of: emergent wetland vegetation, wetland or riparian vegetation (grass, herbs, shrubs, and coniferous and deciduous trees), and wetland and riparian snags and downed wood; the composition of communities in terms of native and non-native vegetation; and the presence of roads and human disturbance.

B-S43. Standard. Watershed condition indicators (WCIs) shall be refined at the watershed scale to illustrate the variability of watershed condition among watersheds or subwatersheds within a broader context. An interdisciplinary team of local experts shall establish this environmental baseline and evaluate the effectiveness of the aquatic/riparian/hydrologic component of the ICBEMP ecosystem management strategy over time.

The WCIs, in combination with other assessments and cumulative effects analyses, including NEPA, EAWS (where available), and Subbasin Review, shall be used to determine if proposed activities are consistent with and/or contribute toward achievement of the aquatic, riparian, and hydrologic objectives. Each step of the process, including any assumptions developed, shall be documented to illustrate how the intent of the broad-scale direction will be met at finer scales.

> ***Rationale:*** WCIs are intended to be applied at the watershed scale and can provide context for site-specific NEPA analysis and decisions. Site-specific NEPA analysis (including required cumulative effects analysis) and decisions will address how use of the WCIs has influenced project design and implementation strategy.

B-S44. Standard. Until WCIs are implemented, the "matrix of pathways and indicators" (see Appendix 9 in the Final EIS) as refined by local administrative units and interagency partners shall be used in combination with cumulative effects analysis, NEPA, EAWS (where available), or Subbasin Review, to help establish an environmental baseline of aquatic resource and watershed conditions. Effects of actions shall be evaluated against this baseline to determine consistency with aquatic, riparian, and hydrologic objectives in the ICBEMP ecosystem management strategy. Actions which could negatively affect fundamental physical and ecological processes within a watershed in the long term (more than 10 years) shall be redesigned to be consistent with the aquatic, riparian, and hydrologic objectives.

Rationale: Interim indicators are intended to be applied at the watershed scale and can provide context for site-specific NEPA analysis and decisions. Site-specific NEPA analysis (including required cumulative effects analysis) and decisions will address how use of the interim indicators has influenced project design and implementation strategy.

B-G43. Guideline. As part of the suite of WCIs, consider including qualitative and quantitative watershed disturbance indicators (natural and management) for uplands and riparian areas to provide early indication of potential watershed cumulative effects and potential restoration opportunities.

Water Quality and Hydrologic Processes

Description and Management Intent

The Clean Water Act mandates the Bureau of Land Management (BLM) and the Forest Service, as federal land management agencies, to protect and restore the quality of public waters under their jurisdictions. Although the Environmental Protection Agency (EPA) has ultimate responsibility for administering the Clean Water Act, states and tribes have primary responsibility for implementing many of its provisions. Water quality standards are mostly established by states and tribes, and approved by the EPA, to ensure beneficial uses are supported. Federal land management agencies are designated by the states to assist in Clean Water Act implementation.

Federal land management agency obligation under the Clean Water Act is to protect and maintain water quality where it meets or exceeds EPA-established or EPA-approved state and tribal water quality standards. This obligation includes compliance with state anti-degradation, High Quality Waters, and Outstanding Resource Waters policies. The application of Best Management Practices (BMPs) including land allocations, prescriptions, mitigation measures, and planning requirements, is the primary mechanism (section 319) to achieve this obligation.

Water bodies having impaired water quality are in part identified on the respective states' 303(d) lists. A protocol for addressing restoration and maintenance of 303(d) waters on BLM- and Forest Service-administered lands was developed collaboratively and adopted for the area included in the ICBEMP project area (Forest Service and BLM 1999). Application of this 303(d) protocol or an alternate analytical process agreed to by the interagency partners provides reasonable assurance that listed and threatened waters, as well as waterbodies not meeting water quality standards, will be addressed in a consistent manner at an appropriate scale and level of technical rigor.

B-O40. Objective. Maintain water quality and hydrologic processes necessary to support beneficial uses, including healthy riparian, aquatic, and wetland ecosystems. Water quality and hydrologic processes should be within the range of variability that is representative of the inherent capability of the watershed area.

Rationale: The processes that determine water quality condition are not static but vary within a stream system through space and time. Ranges of conditions are difficult to define because the variation is influenced by many factors, including climate, natural and human-caused disturbances within the watershed, and the natural capability determined by the specific geomorphic characteristics of the stream and surrounding watershed. The intent is to manage the watershed toward water quality frequencies and distributions that fully support beneficial uses and that are more consistent with natural patterns characteristic of geomorphically similar watershed areas. Until these ranges are determined and water quality standards are modified to reflect these ranges, existing water quality standards are the minimum legal limit for water quality.

B-S45. Standard. The application of the 303(d) protocol or an alternate analytical process agreed to by the interagency partners at a watershed or subbasin scale shall be scheduled as part of Forest Service and BLM annual planning processes, and shall be implemented to assure that all 303(d)-listed water bodies in a watershed and/or subbasin that are affected by activities on Forest Service- and BLM-administered lands are addressed in a timely manner. The schedule shall consider states' and/or tribes' priority lists and schedules for total maximum daily load (TMDL) development, results of Subbasin Review, and/or EAWS where available, and schedules and restoration plans resulting from implementation of the *Clean Water Action Plan* (CWAP; EPA, USDA et al. 1998).

Rationale: The Forest Service and BLM's goal is to address all listed 303(d) water bodies within a five-year period. To realize this goal, it will be necessary to systematically schedule and apply the protocol to an entire drainage (either watershed or subbasin scale). States have developed TMDL priorities and schedules on a watershed or subbasin scale while providing flexibility to complete smaller-scale TMDLs on portions of the watershed or subbasin within the schedule for the watershed or subbasin. The purpose of this standard is to assure that restoration of 303(d)-listed water bodies on Forest Service- and BLM-administered lands is considered in a broader context than provided by a site-specific scale. It also should assure that appropriate coordination and collaboration occurs with other efforts to restore water quality on all lands within an entire drainage. The application of the protocol or an alternate analytical process agreed to by the interagency partners in this context would provide key information to states and tribes for incorporation into the development of the overall TMDL for an entire drainage.

The protocol includes three key components: goals, strategy, and decision framework. The goal for addressing 303(d) waterbodies states a five-year time line (approximately the year 2005) while accommodating state and tribal schedules for development of TMDLs and Clean Water Action Plan implementation (Unified Assessments and Restoration Strategies). The intent of this goal is to be proactive in restoring 303(d)-listed waterbodies on Forest Service- and BLM-administered lands as well as to collaborate with other ongoing efforts to restore water quality on all lands. It also provides information for the federal portion of the TMDL to states and tribes for incorporation into the development of the overall TMDL that includes all ownerships. Although TMDLs and clean water action plan implementation are generally planned for a subbasin, portions of the plans will be specific to smaller areas within the subbasin, such as a watershed or stream reach, to allow flexibility to proceed with appropriate activities.

The 303(d) protocol provides a consistent approach for addressing Clean Water Act responsibilities on Forest Service- and BLM-administered lands. Application of the protocol provides assurance that federal management activities in 303(d) listed water bodies will contribute to the maintenance or restoration of water quality. The decision framework is a four-step process that may result in development of a water quality restoration plan. The assessment supports development of a water quality restoration plan and is independent of scale, but guidance is provided to assist in selection of the scale(s) most likely to effectively develop an appropriate solution. It provides the mechanism to proceed with federal land management in listed water bodies prior to state approval or development of a TMDL. Results from application of the protocol will also support state development of TMDLs. Also, there may be instances when federal land management agencies have opportunities or need to proceed with water quality restoration activities in subbasins under time frames that are ahead of 303(d) priorities, state TMDL schedules, or priorities identified in State Unified Watershed Assessments. Under these circumstances the resulting water quality restoration plan would include the appropriate elements to facilitate future analyses and planning processes.

B-S46. Standard. Apply the 303(d) protocol or an alternate analytical process agreed to by the interagency partners where any new, existing, or ongoing land management activity has the potential to affect the parameter(s) for which the waterbody was listed, or where water quality standards are not being met because of land management activities on BLM- or Forest Service-administered lands. Any resulting water quality restoration plans shall be implemented as part of or prior to proceeding with the activity.

Rationale: Application of the protocol or an agreed upon alternate analytical process for all impaired waters on Forest Service- and BLM-administered lands will take several years to complete. In the interim, using the protocol or an agreed upon alternate analytical process on a project-driven basis will provide assurance that new activities, or any existing activity where new information shows water quality is adversely affected, will contribute to the restoration of water quality.

This standard is also intended to prevent further degradation where water quality is currently not meeting EPA-established or EPA-approved state or tribal water quality standards and to restore water quality to support beneficial uses. Proactively maintaining and/or restoring water quality should prevent listing and will facilitate restoration of water quality in a timely and efficient manner, in the long term.

B-O41. Objective. In subbasins (or within smaller watershed areas) with mixed ownership, use the 303(d) protocol or an alternate analytical process agreed to by the interagency partners on federal lands. Inform, coordinate with, and cooperate with non-federal landowners, watershed councils, state agencies, tribes, the Natural Resource Conservation Service, and other interested parties, providing them an opportunity to use the agreed upon process to address water quality problems. Strive to develop water quality restoration plans that apply to an entire watershed or subbasin.

Rationale: To best address and restore water quality where listed water bodies encompass mixed ownership, development of water quality restoration plans should be a collaborative effort among interested parties. Federal agencies should be a party to development of any water quality restoration plans or programs that restore impaired water bodies where federally administered lands are involved. Unified efforts to address water quality on a total watershed basis are also consistent with goals and objectives specified in the Clean Water Action Plan. *Informing, coordinating,* and *cooperating* are the minimum required collaborative approaches for this objective. Consensus is desired, but not required. (See the Glossary definition of Collaboration for a description of these terms.)

B-O42. Objective. Use existing Memoranda of Understanding (MOUs) with state water quality agencies to develop partnerships that include other federal, state, county, and tribal organizations, watershed councils, private citizens, and non-federal land owners, to maximize the benefits of existing efforts for water quality protection and restoration. Also see Objective R-O33 under Restoration Direction.

Rationale: Other federal and state agencies, tribes, counties, and interested stakeholders have developed or are in the process of developing water quality restoration plans. Many of these efforts are striving to accomplish similar outcomes, and the greatest benefits and returns on investments can be obtained where mutual priorities or opportunities can provide a pool of resources to more effectively implement management activities.

Terrestrial and Aquatic Species

Viability and Harvestability

Description and Management Intent

The following section contains management direction for three specific areas for terrestrial and aquatic species habitats. Additional management direction that relates to species habitats is also found in other sections.

1. Providing for conservation of basin-wide species of concern;
2. Providing quality habitat to support harvestability, which is important to both tribes and states; and
3. Providing for terrestrial and aquatic species habitats which are not addressed by source habitats or with other direction (such as species with special habitat needs).

One intent of the direction in this section is to consider and provide well-connected networks of habitat for productive and diverse populations and communities of terrestrial and aquatic species during planning for management actions. The intent is not for management actions to optimize or maximize habitat for a particular species or group of species (although it doesn't prohibit doing so). It is neither necessary nor practicable to consider every species during every analysis. Rather, those species or groups of species whose habitat may be substantially affected by a proposed activity should be considered. (*Substantially affected* means having greater than a "slight effect," and, more often, affects the productivity or distribution of a population or community.)

Another intent of this section is to provide habitat capable of supporting harvestable resources. Harvestability is a combination of animal or plant availability and access to harvest them. An issue common to the four states in the project area is harvestability of fish and game species, such as trout, elk, and mule deer. Hunting, fishing or viewing these and other species is important to many people in the project area. The BLM and Forest Service, while not directly responsible for management of species populations, are responsible for the habitat upon which these species depend, and the agencies' management actions can influence harvestability.

One of the primary issues common to nearly all 22 potentially affected tribes is harvestability of important aquatic and terrestrial species, such as salmon, mule deer, and camas (see Chapter 2 of the Supplemental Draft EIS for more detail). These species, besides being associated with a number of the tribes' off-reservation reserved treaty rights, are integral to the culture of many of the tribes within the project area. At issue is the availability of sufficient numbers of these species (aquatic, animal, and plant) for contribution to the tribes' culture and reserved rights, where they exist.

For some species associated with the rights and interests of tribes, sufficient habitat is or can be made available for harvestable populations in 10 to 15 years. However, in the case of anadromous fish, habitat accounts for only a portion of one of four factors related to recovery and harvestability. The other factors (harvest, hydropower, habitat on lands not administered by the Forest Service or BLM, and hatcheries) are outside the scope of the EIS and outside the authority of the Forest Service and BLM decision makers. Therefore, the intent is to maintain or restore quality habitat on Forest Service- and BLM-administered lands. This habitat will be available to support species to progress toward harvestability in 50 years. Addressing other

limiting factors which influence recovery and harvestability, such as effects of hydropower systems, could shorten the time frame for achieving this objective. Chapter 4 describes the ability of each alternative to address viability of anadromous fish and establish the trend toward meeting the management intent of harvestability over time. Progress toward achieving this intent will be measured through monitoring.

Direction to address this management intent is provided throughout the management strategy and direction specifically to address harvestability is in this section. Each of the affected tribes has unique rights, interests, and opportunities which can best be discussed at finer scales with land managers, rather than at the broad scale. Therefore, the following management direction focuses on the expected outcome of implementation, rather than prescribing specific actions.

B-O43. Objective. Provide habitat capable of: (1) supporting viable populations of plant and animal species, (2) contributing to recovery of listed species, and (3) supporting productive and diverse plant and animal populations and communities to meet social needs.

Rationale: Consideration of plant and animal species habitat (for example, riparian areas and wetlands; alpine; and upland forest, shrub, and grasslands) is important in design and evaluation of management actions. Important elements include: amount, quality, and distribution of these habitats including their fragmentation, juxtaposition to other habitats, and connectedness; influence of human disturbance and roads; and ecosystem processes that shape habitat.

Rare plant communities and habitat for plants, animals, and fishes of concern (that is, endemic, rare, or disjunct species, and species that occur at the edge of their ranges) should be considered during appropriate step-down processes (programmatic planning processes, Subbasin Review, EAWS, and/or site-specific NEPA analysis). Species and communities of concern vary over time and by area. Managers should determine the appropriate and reasonable analysis levels by which to address them, given the risks and opportunities to affect their habitat.

B-G44. Guideline. Consider developing an interim species response matrix that includes documented (from literature searches) responses of the species to management activities or natural phenomena. Consider using this information to determine management activities for which mitigation measures should be recommended or are needed.

B-O44. Objective. Maintain and restore aquatic and terrestrial habitat quality and quantity to support harvestable plants, fisheries, and aquatic and terrestrial species.

Rationale: The Forest Service and BLM manage habitats that are important to many species. Through management actions, habitat for harvestable plant and animal species can be either positively or negatively affected. It is important that potential effects on habitat to support harvestable levels of plants and animals be evaluated during planning processes.

Harvestability is a combination of animal or plant availability and access to harvest them. Managing human access is one of the more effective tools that the Forest Service and BLM have to protect a species and its habitat. However, this tool must be used carefully when considering harvestability of a species. Restrictions on access may protect a species and its habitat but may also reduce harvestability by making animals or plants harder to take or gather.

Management of animal species populations is often the responsibility of other agencies (such as states or tribes) whose management actions can have substantial effects on species populations. For these species, the Forest Service and BLM can provide habitat, but they have less control over a species' population response to that habitat. Management of plant species populations is more commonly the responsibility of the Forest Service and BLM, which have a greater opportunity to positively influence harvestability of these species.

Habitat condition trends for terrestrial and aquatic species can be measured, for the most part, in terms of habitat condition on lands administered by the Forest Service and BLM. Land use plans generally include habitat condition indicators for important aquatic and terrestrial species (such as fishes, elk, deer). Habitat condition also is the best measure of Forest Service and BLM ability to maintain or restore harvestability for most plants including widely distributed plant species such as huckleberries and mushrooms. For some very rare species (such as plants restricted to only a few sites), it may be necessary to measure actual population numbers to prevent overharvest.

B-S47. Standard. During EAWS or Subbasin Review, or prior to project implementation, federally recognized tribes shall be consulted to: (1) invite participation, (2) solicit data and information useful in the analysis/review, (3) identify if resources or species of significance to the tribe(s) are present, (4) characterize these resources or species using available information, (5) solicit tribally identified priorities and possible management and monitoring opportunities or indicators, and (6) use this information to provide context for finer-scale analysis as well as to inform planning and decision-making processes.

Rationale: Land management agencies are responsible for the habitats upon which resources and species important to the tribes depend. In order to provide habitat capable of providing harvestable resources or species, the managers must understand what and where these resources are and how they relate and contribute to the ecosystem and landscape dynamics. As managers of their own land and natural resources, American Indian tribes may have data, information, or expertise that could be useful in informing agency planning and decision-making processes.

B-O45. Objective. Recognize native plant communities as traditional resources that are important to tribes and as an essential component to treaty-reserved gathering rights.

B-S48. Standard. Affected tribes shall be consulted and invited to participate in identifying opportunities to restore and maintain native plant communities that are of interest to tribes. Where tribal interest is indicated, cooperative programs for restoration and/or maintenance of these species shall be established.

B-S49. Standard. As part of site-specific NEPA analysis, affected federally recognized tribes shall be consulted to: (1) identify resources or species important to tribal rights and/or interests, (2) assess effects of the proposed action(s) on these resources and/or species, and (3) if it is determined that the project may negatively affect the continued harvestability of these resources or species of significance to tribes, then mitigate accordingly.

Rationale: Land management agencies are responsible for the habitats upon which resources and species important to the tribes depend. In order to provide habitats capable of supporting harvestable resources or species, agencies must understand what and where these resources are and how they might be affected by proposed management actions.

See Appendix 10 (in Volume 2 of the Supplemental Draft EIS and in Volume 1 of the Final EIS) and the Subbasin Review Guide (available at www.icbemp.gov) for implementation guidance on tribal collaboration and examples/possible questions to help focus discussions. Also, a list of culturally significant plant species is included in Appendix 8 (in Volume 2 of the Supplemental Draft EIS). This list is meant to serve as a starting point for collaborative discussion with tribes, because the species listed may not occur in all areas or be used by all tribes. See also the scientific assessment of big game species as they relate to tribes (Lehmkuhl and Kie 1999).

B-O46. Objective. Special habitat components or features that contribute to the viability of species should be maintained and, where needed, restored. These features include but are not limited to caves, mines, cliffs, talus, or burrows.

Rationale: The specific habitats or elements described here were identified in the *Assessment of Ecosystem Components* (Quigley and Arbelbide 1997) and in *Source Habitats for Terrestrial Species of Focus* (Wisdom et al. 2000) as critical to long-term conservation of a variety of species. For species list, see Appendix 6 in Volume 2 of the Supplemental Draft EIS.

B-G45. Guideline. Consider managing human access and minimizing potential disturbances to protect caves, old mines, old buildings, bridges, and other sites being used by bats.

B-S50. Standard. When planning management activities, determine if there could be adverse effects on special habitat features (for example, caves, mines, cliffs, talus, or burrows). Discuss and minimize or mitigate effects.

Rationale: The assumption is that the special habitat features mentioned in this standard warrant protection because disturbance factors, cost, and safety considerations often preclude determining presence of species (such as bats in roosts or hibernacula) that use these features. Protective measures for these sites must include consideration of effects from vegetation management, access management, and human disturbance. The specific habitats or elements were identified in the *Source Habitats for Terrestrial Vertebrates of Focus* (Wisdom et al. 2000, Table 2 in Volume 3 of Appendix 1) as critical to long-term conservation of a variety of species. This information can be used in evaluating effects during Subbasin Review, EAWS, and site-specific NEPA analysis.

Other special habitat components, such as snags, coarse woody debris, and riparian shrubs, are covered under other objectives and/or standards. This standard is intended to address those special habitat components without other specific direction.

B-S51. Standard. The risks and opportunities associated with conservation of rare plant communities and habitat for plant, animal, and fish species of concern shall be addressed through the appropriate step-down processes (programmatic planning processes, Subbasin Review, EAWS, or site-specific NEPA analysis). (See Appendix 6 in Volume 2 of the Supplemental Draft EIS for the list of species.)

Rationale: Species of concern can be identified from many sources during the appropriate step-down processes. Examples include: species listed under the Endangered Species Act, Forest Service and BLM sensitive species lists, species ranked as G1-G3 or nonvascular plants ranked as S1-S3 by the network of State Natural Heritage programs, broad-scale species listed in Volume 1, Table 1 of Wisdom et al. (2000), species listed in Table 2 in Croft et al. (1997), and plant communities ranked G1-G3 by the network of State Natural Heritage programs.

Not all the species need to be considered in any one step-down process. The appropriate and reasonable scope and scale of analysis will depend on the species of concern and the magnitude of risks and opportunities to affect their habitat. This determination may be based on existing habitat data and professional knowledge of the species.

Species listed under the ESA or classified as sensitive species through Forest Service or BLM processes will continue to be addressed through established agency policy.

B-G46. Guideline. Local administrative units are encouraged to develop a list of plant, animal, and fish species of concern and rare plant communities that are likely to occur within the unit.

B-S52. Standard. For projects or activities that include application of insecticides or rodenticides, potential effects on non-target species shall be evaluated and either minimized or mitigated.

Rationale: Insecticides and rodenticides can affect non-target species through bioaccumulation of the pesticide or direct mortality. Adverse affects on non-target species can seriously reduce the overall benefits from use of insecticides or rodenticides.

B-O47. Objective. Improve the conservation and recovery of vascular and non-vascular plant species of concern that have wide distribution by developing conservation strategies (see the list of species in Appendix 6 in Volume 2 of the Supplemental Draft EIS). The priority for development of the conservation strategies should be based on broad-scale risk. Inform, coordinate with, and cooperate with affected partners when developing conservation strategies, since they include the entire range of a species, which can cross administrative boundaries.

Rationale: Conservation strategies for species of concern should be developed by a group of local experts for each region in which the species occurs. This will aid conservation and recovery of these widely distributed species. A species of concern has a wide distribution if it occurs in more than one RAC/PAC area and/or in two or more administrative units, and is listed as threatened or endangered, classified as sensitive species by the Forest Service or BLM, or ranked as G1-G3 (S1-S3 for nonvascular plants) by the network of State Natural Heritage programs. Currently there are approximately 113 species which meet this definition (see Appendix 6); therefore, it is anticipated that it will take some time to develop strategies for all these species. Two considerations for setting priorities for development of conservation strategies should be:

1. species that are at most risk; and
2. species that occur on the greatest number of administrative units. Regularly monitoring the State Natural Heritage program databases for changes in species' rankings will assist in prioritization.

Informing, *coordinating*, and *cooperating* are the minimum required collaborative approaches for this objective. Consensus is desired, but not required. (See the Glossary definition of Collaboration for a description of these terms.)

B-O48. Objective. Reduce the negative effects of human disturbance on species through assessment of risks and opportunities in the appropriate step-down process (programmatic planning processes, Subbasin Review, EAWS, or site-specific NEPA analysis).

Rationale: Disturbance by humans can have adverse affects on a wide range of species (Wisdom et al. 2000). Some disturbance is inevitable and acceptable with human use of BLM- and Forest Service-administered lands. However, there are often ways to reduce

disturbance of species and continue to allow people to use these lands. The potential to reduce human disturbance while providing for appropriate human use should be evaluated during the step-down processes. If opportunities are identified through Subbasin Review or EAWS, then they should be considered in site-specific NEPA for implementation. (NOTE: Also see Road Management Objectives, Standards, and Guidelines earlier in Base-level Direction.)

Wide-ranging Carnivores

Description and Management Intent

The intent of this section is to provide broad-scale management direction for wide-ranging carnivores (lynx, wolverine, grizzly bear, and gray wolf). These species are considered wide-ranging because their territories cover great distances (often more than 50 miles). Populations of these species have been reduced from historical levels. Three of the species, gray wolf, grizzly bear, and lynx have been listed under the Endangered Species Act. Deterrents to the recovery of these species include human disturbance (including roads), and loss or isolation of habitat.

Areas containing moderate to high abundance of source habitat for wide-ranging carnivores and low road densities were identified by the Science Advisory Group in *Source Habitats for Terrestrial Vertebrates of Focus* (Wisdom et al., 2000; see Map 2-11b in Chapter 2 of the Final EIS). These areas are important because they presumably would have the highest potential to support persistent populations. They could serve as "building blocks" from which an overall network of habitats for wide-ranging carnivores could be developed.

B-O49. Objective. Cooperate with federal, state, local, and other organizations at a multi-regional scale (Greater Yellowstone Area to/across Canadian border, Oregon Cascades to Eagle Cap to Hells Canyon to Central Idaho, north Cascades to north Idaho to/across Canadian border, Cascades to/across Canadian border) across multiple jurisdiction boundaries to develop broad-scale connectivity/linkages of wide-ranging carnivore habitat.

Rationale: Habitat for wide-ranging carnivores cross multiple jurisdictional boundaries throughout the project area. Isolation of these habitats limits increases in species populations. Ensuring that wide-ranging carnivore habitats are linked across multi-jurisdictional boundaries can help prevent this isolation from occurring. The areas shown on Map 2-11b can be used as building blocks from which to build connectivity. Wisdom et. al (2000) contains a synthesis of carnivore habitat needs, consideration of this information will aid in developing these linkages.

Providing such habitat connectivity requires multi-jurisdictional coordination. Forest Service and BLM managers shall take the lead in facilitating efforts to provide for broad-scale connectivity of habitat for wide-ranging carnivores. This should include identifying the factors causing habitat isolation and coordinating actions to reverse the trend. Progress toward establishing broad-scale connectivity should be evident in ten years. For example, the Interagency Grizzly Bear Committee recently sponsored a workshop reviewing the state of knowledge on linkage zones and a second workshop to identify linkage zones. The Committee plans to consider the next step in facilitating identification and management of linkage zones at its winter 2001 meeting.

B-O50. Objective. Minimize isolation of wide-ranging carnivore populations at the local level using existing planning processes and coordinating across administrative boundaries.

Rationale: Objective B-O49 addresses habitat connectivity at the broad scale. It is also important to address connectivity at finer scales. Stepping down broad-scale direction

through coordination at subbasin and finer scales will complement efforts made under Objective B-O49.

B-S53. Standard. As part of Subbasin Review, identify and map important wide-ranging carnivore areas, and existing and potential linkages for wide-ranging carnivores.

Rationale: Areas important to wide-ranging carnivores at subbasin and finer scales can be identified through habitat characteristics, documented sightings, and professional judgement. *Information in Source Habitats for Terrestrial Vertebrates of Focus* (Wisdom et al. 2000) will be helpful in identifying these areas. See Map 2-11b in Chapter 2 of the Final EIS for areas with high abundance of source habitat for wide-ranging carnivores and low road densities, mapped at the broad scale.

B-O51. Objective. Minimize or mitigate negative effects on wide-ranging carnivores and their prey during the design, development, and management of recreation facilities and other management activities, including snowmobile areas and trails.

B-S54. Standard. When planning for site-specific activities within areas identified as important to wide-ranging carnivores, documentation in NEPA analyses (EAs or EISs) shall include the predicted effects of these activities on source habitat for these carnivores and their prey species at the subbasin level.

Aquatic and Terrestrial Threatened, Endangered, Proposed Species

Description and Management Intent

The Forest Service and BLM have legal responsibilities and policy requirements to provide habitat for threatened, endangered, and proposed species. Meeting these responsibilities requires maintenance of high quality habitat and restoration of degraded habitats necessary for the recovery of these species. These areas include both occupied habitat and designated critical habitat for federally listed threatened, endangered, or proposed species within the ICBEMP project area. The management intent is to protect and restore habitats for listed or proposed species and to contribute to recovery. Table 2-24 (in Chapter 2 of the Supplemental Draft EIS) and Appendix 6 (in Volume 2 of the Supplemental Draft EIS) show a current list of threatened, endangered, proposed, and candidate species in the project area.

Since a large portion of the project area is occupied by listed or proposed species or is designated critical habitat, and since a large portion of the project area is in need of terrestrial habitat restoration, watershed restoration, and restoration of succession/disturbance regimes, potential conflicts may exist between short-term protection of listed or proposed species habitats and long-term recovery and resiliency of ecosystems that they inhabit. The hierarchical step-down analysis direction presented in the Step-Down section should aid land managers in strategically identifying risk and opportunities for conservation and restoration of listed species habitats while implementing adopted recovery plans and meeting resource objectives and legal requirements. The Forest Service and BLM will continue to consult with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (NMFS) on decisions that may affect listed species or their habitat.

Acceptable levels and types of risk should be determined at an appropriate level through the step-down process and are intended to be consistent with aquatic and riparian objectives, and base level, A1, A2, T and restoration direction. Long-term negative effects are unacceptable. Risky, experimental actions would be an exception in listed and proposed species habitats and would be limited in scope and intensity. If any proposed activity were determined to have

potential negative impacts on listed or proposed species or their habitat, Ecosystem Analysis at the Watershed Scale (EAWS) would be required to further provide context for agency decisions (see Standard B-S5). If, after incorporation of EAWS information into site-specific activity planning, the effect on listed or proposed species and their habitats would still be adverse in the short-term, then NEPA and consultation documents would describe the short-term risk and hazard (including measures to mitigate the risk and hazard) and long-term benefits of the activity, including a discussion of why other alternatives would not provide for long-term recovery of the listed or proposed species.

The following management direction for listed and proposed species would take precedence over all other ICBEMP direction (see the Hierarchy of Management Direction section, earlier in this document).

B-O52. Objective. Contribute to recovery of federally listed or proposed species (or subspecies or populations) across their ranges by maintaining and restoring habitat quality, quantity, and effectiveness.

B-O53. Objective. Balance the need for restorative actions to address long-term threats to listed and proposed species with the short-term need to protect listed and proposed species and their habitats.

Rationale: Improving the sustainability of a species' habitat is advantageous for its long-term recovery. This can involve repatterning vegetation to cover types and structural stages that are more consistent with the landform, climate, biological and physical characteristics of the ecosystem. At times, efforts to improve sustainability of habitat may pose a short-term risk to individual members of a listed species or their habitat. It is important to balance the short-term risk to individuals or the potential loss of habitat and measures to mitigate these factors against the long-term benefits to the species as a whole. Generally, if an action is determined to have a "may affect, but not likely to adversely affect" determination, then the risk is acceptable. In some cases, an action may be acceptable if it is determined to have a short-term "may affect, likely to adversely affect" where the adverse effects are limited to the short-term loss of individuals or their habitat. In these cases, through consultation with the U.S. Fish and Wildlife Service or NMFS it may be determined that the action is not likely to jeopardize the species in the short term, and that the action may actually benefit the species in the long term.

B-S55. Standard. Relevant management activities shall be designed and implemented to be consistent with adopted recovery plans, conservation strategies, and other appropriate reports.

Rationale: Some federally listed species have approved recovery plans (see Table 1 in Appendix 6 in Volume 2 of the Supplemental Draft EIS). These recovery plans identify specific recovery actions, some of which are oriented toward improving watershed and habitat condition. An *adopted recovery plan* is one for which a recovery strategy has been developed, approved, signed, and appropriately integrated into land use plans by the Forest Service or BLM. A conservation strategy or other appropriate report will be considered adopted when a decision document is signed and appropriately integrated into land use plans by the appropriate Forest Service or BLM official.

Relevant signifies that this standard would not apply to management activities that would not affect a listed species that has an adopted recovery plan or conservation strategy. An example of management activities is recommended recovery tasks for Forest Service- and BLM-administered lands identified in recovery plans. *Other appropriate reports* (such as the

Interagency Grizzly Bear Guidelines [Interagency Grizzly Bear Committee 1986] or Habitat Conservation Plans) include Forest Service or BLM direction that addresses conservation of a listed species.

B-O54. Objective. Consult with and seek the participation of affected American Indian tribes, to the extent practicable, when actions planned under the Endangered Species Act have the potential to adversely affect tribal trust resources, the exercise of tribal rights, or Indian land. Implement the associated Joint Secretarial Order 3206 (USDI and USDC 1997).

Social-Economic-Tribal Component

Description and Management Intent: Overall

The socio-economic-tribal component of the ecosystem management strategy is designed to support the economic and social needs of people, cultures, and communities of the interior Columbia Basin, and to provide for levels of products and services from lands administered by the Forest Service and BLM that are sustainable, within ecosystem capabilities, and are predictable, to the degree predictability is controllable by the agencies. There are many factors that affect the predictability of product and service levels provided from agency lands. Some are within the control or influence of the land managers. Others, such as economic market factors (supply, demand, price), catastrophic natural events, funding levels, and legislative changes in policy or direction, are generally not often under the control of the land managers. These external factors can affect the actual levels of products and services provided from public lands, compared to the levels that were predicted.

Reservation communities are also some of the most economically depressed areas in the United States (U.S. Department of Labor, American Indian Labor Force, January 1991). Tribes and tribal communities depend on Forest Service- and BLM-administered lands for economic, cultural, subsistence, religious, and treaty purposes. The culture, as well as the rights and interests of American Indian people, are rooted in these lands, which are their traditional homelands. Tribal teachings are based upon understanding the relationship between themselves as a people, and the land and its resources. While these values cannot be quantified in an economic context, tribal economic participation is an important consideration in the management of these lands. Major areas of focus for this component include the following:

1. Recognition that Forest Service- and BLM-administered land will continue to be managed in accordance with the management direction in land use plans developed locally, through a public process, unless specifically superseded by ICBEMP direction.
2. Identification of areas or communities thought most economically affected by changing land uses on Forest Service- and BLM-administered lands.
3. Management direction that emphasizes the production of commercial products or services from Forest Service- or BLM-administered lands within the scope of achieving project ecological goals, especially in defined tribal areas and areas considered economically affected by changing land uses on Forest Service- and BLM-administered lands.
4. Methods to enable local and tribal communities to benefit from jobs generated by ecosystem restoration and other land management activities on Forest Service- and BLM-administered lands.
5. Methods for the Forest Service and BLM to contribute to local and tribal economic adjustment and development efforts.
6. Recognition that success in achieving the social and ecological goals of ecosystem management depends on effective collaboration.

7. Recognition that roads will be managed to reduce negative environmental effects, and that access provided by a well-managed road system delivers many benefits to society.
8. Suggestions for new policy and/or legislative initiatives can help the Forest Service, BLM, and other agencies be more responsive to the social and economic needs of tribal and rural communities.

Objectives, standards, and guidelines found in other base-level management sections related to landscape dynamics, terrestrial, and aquatic/riparian/hydrologic resources have direct or indirect relevance to the breadth of social, economic, and tribal concerns and interests. Such direction is intended to be part of the socio-economic-tribal component of the proposed decision. Direction found in this section is specific to the support of communities and tribes through products, services, contracts, and particular tribal aspects not addressed in other sections.

Products and Services from Public Lands

Description and Management Intent

The following objective was developed to encourage and support peoples' use of public land resources within the capacity of ecosystems to provide these products and services at a sustainable level, and consistent with other ecological and restoration goals. The intent is to support economic activity for local and tribal communities, particularly those that are isolated and economically specialized. This is intended to help maintain their viability as they move toward achieving their long-range goals of economic development and broader economic diversification.

B-O55. Objective. Derive social and economic benefits, promote commercial activity, and foster demand for labor and capital formation through producing, in accordance with land use plan allocations and management direction, a variety of goods and services from Forest Service- and BLM-administered lands that are sustainable within ecosystem capabilities and predictable to the degree controllable by the agencies.

Rationale: Goods and services, both market (priced) and non-market (not priced) can be used to generate economic activity and fulfill social and cultural needs. This objective shows an intent to continue to supply a mix of economic benefits, including commodity products, as part of achieving ecological goals. Where land use plans are not superseded by the ICBEMP direction, local units would be able to continue to implement the management direction in their plans with regard to production of goods and services. Many factors affect the predictability of product and service levels provided from agency lands. Some are within the control or influence of the land managers. Others, such as economic market factors (supply, demand, price), catastrophic natural events, funding levels, and legislative changes in policy or direction, are generally not often under the control of the land managers. These external factors can affect the actual levels of products and services provided from public lands, compared to the levels that were predicted.

Support Economic and Social Needs of Communities and Cultures

Description and Management Intent

The following objectives and standards are designed to promote agency support for, and collaboration with, local and tribal communities when developing methods to support their social and economic needs. The intent is to integrate the needs of local and tribal communities more thoroughly into agency decision-making and management activities. Methods may range from making agency contracts as accessible as possible to the local workforce to a greater coordination and streamlining of agency planning efforts.

B-O56. Objective. Design contracts for services and sale of products from Forest Service- and BLM-administered lands to local firms and individuals as permitted by existing authorities to be accessible and attractive as possible and where it will help achieve management objectives. Design product sales and service contracts to promote local participation of vendors and purchasers by offering sales and contracts that are diverse in size, type, term length, and seasonal distribution.

Rationale: Local workforce participation in management activities on nearby Forest Service- and BLM-administered lands is important to many rural community economies. In addition to providing local jobs and income, such participation supports traditional occupations and cultures, and gives communities a stronger sense of involvement with neighboring Forest Service- and BLM-administered lands.

B-G47. Guideline. To the extent possible coordinate project design with local communities and tribal governments that promote local participation, partnerships, expansion and retention of local skilled workforce and effective implementation across ownerships. Consider applying information learned from Stewardship End Result Contracting Demonstration Projects (Section 347, Fiscal Year 1999 Appropriations Bill), which authorized contracts with private individuals and entities to perform services in exchange for the market value of commercial forest products. Services may include: (1) road and trail maintenance or obliteration to restore or maintain water quality, soil productivity, habitat for wildlife and fisheries, or other resource values; (2) setting prescribed fires to improve the composition, structure, condition, and/or health of stands or to improve wildlife habitat; (3) non-commercial harvest of trees or other activities to promote healthy forest stands, reduce fire hazards, or achieve other non-commercial objectives; (5) watershed restoration and maintenance; (6) restoration and maintenance of wildlife and fish habitat; and (7) control of noxious and exotic weeds and reestablishing native plant species.

Rationale: The stewardship contracting authority provides an opportunity to showcase what can happen when the Forest Service and BLM are able to combine procurement and timber sale contracts. If this approach is used, the agencies may be able to offset restoration costs with the value of forest products harvested.

B-S56. Standard. Projects and contracts administered by the Forest Service or BLM shall use the authorities and requirements that provide for greater participation of tribal businesses/entities both on and off-reservation.

Rationale: See the Self Governance Act of 1994; Indian set-aside and other minority business requirements for the Small Business Association; the Indian Education and Self Determination Act of 1975, as amended (PL 93-638); Public Law 94-148, Buy Indian Act, Rural Community Assistance Act, and other applicable portions of the Farm Bill; and other laws as discussed in Appendix 8 (in Volume 2 of the Supplemental Draft EIS).

B-O57. Objective. Cooperate with federally recognized tribes and tribal communities in their efforts to enhance reservation economies. Promote the economic participation of the local workforce in management activities on Forest Service- and BLM-administered lands where opportunities exist to provide for the rights and interests of tribes.

Rationale: Reservation communities are some of the most economically depressed communities in the nation regarding employment and income levels. The tribal communities listed in Table 3-3, later in this document, are where tribal offices are located and tend to have the greatest concentration of tribal members.

Tribes depend on Forest Service- and BLM-administered lands for employment opportunities (such as contracted services or firefighting), subsistence, religious and cultural activities, and to exercise their treaty rights. The federal/tribal trust relationship denotes a unique federal responsibility to tribes that is different from other governmental entities or the general public.

B-O58. Objective. When promoting the economic participation of the local workforce in management activities, place the highest priority on activities in nearby rural communities or geographic areas that are less economically diverse and more economically associated with goods and services from Forest Service- and BLM-administered lands. The ICBEMP refers to these places as "Areas of Economic Specialization" (see Map 2-33, in Chapter 2 of the Supplemental Draft EIS).

Rationale: The intent of this objective is to help sustain communities during transition from economically specialized to more diversified economies. It is not intended to discourage or mask the need for economic diversification or other economic development efforts in economically specialized areas. The objective stems from the recognition that few economic options are available in these areas, that BLM and Forest Service actions may be able to contribute to community vitality, and the belief that the continued existence and vitality of these areas is in the public interest. For more information on how Areas of Economic Specialization were measured, see the *Economic and Social Conditions of Communities* (ICBEMP 1998) and Appendix 15, available at www.icbemp.gov or by calling 208.334.1770.

B-O59. Objective. Increase intergovernmental coordination with federal, state, county, and tribal governments, and Resource Advisory Committees/Provincial Advisory Councils, in planning, implementation, and monitoring.

Rationale: In addition to contributing to better informed decision making, collaboration is expected to contribute to more predictable implementation of land use plans by fostering support of decisions. Improved collaboration can improve predictability by increasing the level of public support for, and understanding of, management strategies and activities.

B-S57. Standard. Within two years after the ICBEMP Record of Decision is signed, national forests and BLM districts (individually or in groups) shall initiate a memorandum of understanding (MOU) or equivalent document with appropriate state, county, and tribal elected officials describing how to provide advice and recommendations to Forest Service and BLM managers.

Rationale: A formal written agreement is expected to improve the collaborative process by specifying the terms of participation. Specifying a time period for initiating the formal agreement recognizes the importance of the collaborative process to Forest Service and BLM managers and partners. It is intended that the MOU or equivalent document would cover a geographic subregion that makes sense, such as a RAC/PAC area.

B-O60. Objective. Develop mutual learning opportunities through technology transfer and training opportunities to enhance the effectiveness of tribal involvement in Forest Service and BLM programs.

Rationale: There are many mutual learning opportunities which would assist the land management agencies in implementing agency work or programs. For example: using Interagency Personnel Agreements or offering Forest Service/BLM training to tribal people (such as federal contracting procedures/processes, how to apply for federal employment, and prescribed fire techniques/protocol); sending BLM and Forest Service employees to tribal

training (such as consultation processes/protocol, tribal organization/structure, Tribal Employment Rights Office requirements and information, and treaty seminars).

B-O61. Objective. Support federally recognized tribes' and tribal communities' subsistence needs to the greatest extent practicable. Fishing, hunting, and gathering, which all contribute to a tribe's subsistence needs, may also be reserved rights under treaty or executive order. By working with the tribes to be responsive to these social-economic considerations, the local managers can also meet agency legal obligations under federal law, policy, treaty, or executive order.

Rationale: Many federally recognized tribes have off-reservation rights and/or interests and subsistence needs which depend on the resources and lands administered by the Forest Service and BLM and which are different from other governmental entities or the general public.

B-S58. Standard. When conducting or contracting work within the exterior boundaries of a federally recognized tribe's reservation, work cooperatively with the respective Tribal Employment Rights Office (TERO) and ensure knowledge of and compliance with TERO requirements.

Rationale: Each tribe has a Tribal Employment Rights Office (see Appendix 8 in Volume 2 of Supplemental Draft EIS), which should be contacted whenever the Forest Service or Bureau of Land Management is considering conducting work within the exterior boundaries of federally recognized tribe's reservation. For example, the BLM administers lands which lie within the exterior boundaries of the Nez Perce Reservation. If the BLM contracts work on these lands, they must comply with the appropriate Nez Perce TERO requirements for hiring, contracting, etc. Another example is wildland fire fighting on a reservation. The TERO may require contracts with tribally owned companies for equipment, catering services, or other needs, and the agencies should work cooperatively with tribes to fight fires within and across boundaries.

B-O62. Objective. In planning and programming, minimize fluctuations in federal land management programs and activities to promote a more predictable operating environment for forest and rangeland related businesses.

Rationale: Reducing uncertainty improves the business climate, supports greater economic vitality, and encourages financial investments in forest- and rangeland-related services that contribute to achieving management objectives. This objective reinforces that consistency in the size and regularity of land management programs and activities is important for achieving ecosystem management goals. However, additional factors outside the manager's control, such as funding levels, lawsuits and appeals, or changing conditions on or affecting nearby lands under other ownerships, also affect the predictability of the operating environment for and the outputs derived from forest and rangeland management programs.

B-O63. Objective. Foster compatibility of land uses and management strategies with local economic development goals through informing, coordinating with, and cooperating with local agencies.

Rationale: Many communities have already begun the process of identifying their strengths, weaknesses, and visions of what they want to be in the future. It is desirable for the Forest Service and BLM to support these goals within the context of applicable management direction. *Informing, coordinating,* and *cooperating* are the minimum required collaborative approaches for this objective. Consensus is desired, but not required. (See the Glossary definition of Collaboration for a description of these terms.)

B-O64. Objective. While designing management activities, make commodity products available for purchase, to the extent possible: (1) to support economic activity important to rural and tribal communities and local governments, (2) to maximize regional market efficiencies, and (3) to achieve management objectives in an efficient and cost effective way. See also Objective R-O35 in the Restoration management direction section.

Rationale: The commercial use of Forest Service- and BLM-administered land and resources can provide social, economic, and cultural benefits to society that are compatible with an ecosystem management emphasis.

B-O65. Objective. Facilitate participation of Forest Service and BLM employees in community activities to the extent allowable under law and regulation. Enable federal employees to contribute leadership, planning, economic development, and other skills through involvement in their local communities.

Rationale: The federal workforce is an important source of income and human capital in many communities. It is especially important to maintain or increase the participation of federal employees in community activities when communities are experiencing the effects of rapid change to their economic institutions. This can be facilitated through flexible work schedules, for example.

B-O66. Objective. Minimize public costs of participating in Forest Service and BLM analysis and planning processes by reasonable means, such as consolidation and coordination of plans and projects within and among administrative units.

Rationale: Federal efforts to implement ecosystem-based management and collaborative stewardship can lead to an increased time and financial burden on the public to participate in an increasing number of analysis, planning, and monitoring events. A concerted effort is needed to minimize this cost of participation.

B-O67. Objective. Develop information necessary to assess effects of management actions on minority populations, low income populations, and civil rights during step-down (Subbasin Review, EAWS, or site-specific NEPA) analyses.

Rationale: The broad-scale nature of the ICBEMP EIS precluded identifying specific impacts on particular minority and low-income populations. This objective highlights and reinforces the requirements to evaluate environmental justice (Executive Order 12898) and civil rights impacts (Forest Service Manual 1730 and Forest Service Handbook 1909.15, Chapter 10.15). During step-down analyses, necessary information about local and subregional low income and minority populations and their current and historical relationships to the land should be collected, along with assessments of potential impacts from Forest Service and BLM policies on these populations. This process would meet the requirements for assessing environmental justice and civil rights effects that could be discussed only in general terms in this the ICBEMP EIS.

Federal Trust Responsibility and Tribal Rights and Interests

Description and Management Intent

Twenty-two American Indian tribes may be affected by the decisions made through the ICBEMP. The U.S. government has a trust responsibility to these federally recognized tribes. Additionally, these tribes have off-reservation interests within the Columbia Basin, and some have off-reservation rights reserved through treaty or executive order language (see Appendix 8

in Volume 2 of the Supplemental Draft EIS). The Forest Service and BLM are required to manage the lands under their stewardship with full consideration of the federal trust responsibility and tribal rights and interests, particularly reserved rights where they exist. While the proposed decision does not attempt to define the legal obligations of the BLM and Forest Service under the federal trust responsibility, the management direction relative to tribal governments reflects a commitment, whether as a legal obligation or a matter of policy, to address tribal concerns and interests.

Further, direction reflects consideration of federal legal responsibilities to both tribes and American Indian people as expressed through treaty language, federal laws (such as Civil Rights Act, NEPA, National Historic Preservation Act, and Native American Graves Protection and Repatriation Act), executive orders, and federal court judgements. Consultation with 22 tribal governments potentially affected by the ICBEMP decision identified a wide variety of concerns and several key issues which are held in common by those tribal governments.

Objectives and standards are found throughout this document that are responsive to tribal issues, such as restoration of succession/disturbance regimes, habitat restoration, economics, monitoring, and other topics.

Management direction is aimed at achieving the following results in future Forest Service and BLM planning, policy, and decision-making:

1. As with other governments, a collaborative and on-going consultation process characterizes agency-tribal relations.
2. Improved government-to-government relations rely on effective collaboration and consultation, as well as agency ability to recognize common interest, to translate these sometimes different cultural values into agency ecosystem management goals and objectives, and to seek to diminish management procedural barriers.
3. Agencies' customary assessment and management actions consider and strive to respond to tribal rights and/or interests, especially with regard to off-reservation treaty rights.
4. Analysis and subsequent management decisions, including restoration activities and priorities, reflect consideration of the federal trust responsibility to affected federally recognized tribes.
5. Forest Service and BLM personnel recognize that indigenous, subsistence-based traditions and the rights and interests of tribes often support ecosystem management goals and can be founded upon a shared commitment to action.

Some American Indian communities within the project area exist outside reservation boundaries; some of these communities are formally administered by a federally recognized tribe, while others are not. Nothing addressed in this direction is intended to supersede or negate those legal and/or policy requirements applicable to the Forest Service and BLM.

B-O68. Objective. Establish and/or maintain a government-to-government relationship with federally recognized tribes. Consult and collaborate with affected tribes when developing and/or implementing land management decisions, actions, and/or policies that may affect the rights and interests of tribes, and/or the socio-economic well-being of tribal people. Consultation should be substantive and seek to understand and be responsive to tribal rights, concerns, and interests. Engage in cooperative activities where shared goals and mutual commitment exist.

Rationale: Federal law and policy require the BLM and Forest Service to consult with federally recognized American Indian tribes on land management actions and policies

affecting the tribe(s). Because the exercise of treaty rights and tribal culture and practices are so integrally tied to lands now administered by the BLM and Forest Service, it is intended that consultation reflect the governmental status of the tribe and consideration of the respective treaty, where it exists. Collaborative efforts are substantive when: opportunities for involvement are commensurate with the governmental status of tribes, there is an agency focus on being responsive, the subsequent decisions/outcomes reflect shared agreement or mutually identified mitigation, and agency documentation discloses how tribal concerns and issues were solicited and addressed.

B-S59. Standard. Contact with tribes shall be initiated to develop a mutually acceptable protocol for government-to-government consultation. This should ensure opportunities for effective tribal participation in decision-making, protect rights, and include provisions for a dispute resolution process in cases of conflicts between agency and tribal positions.

B-S60. Standard. During site-specific NEPA analysis, affected tribes shall be consulted and activities shall be assessed for potential effects on tribal cultural resources. Assessments shall include traditional cultural properties and plant species of special interest to tribes. Assessments should identify and characterize tribal interests, which shall be accounted for in the decision and in implementation. Mutually acceptable procedures between tribes and agencies should be employed. Prior to proceeding with management activities, documentation shall be provided that substantive consultation on tribal interests has occurred, including any necessary mitigation.

Rationale: A list of culturally significant plant species is included in Appendix 8 (in Volume 2 of the Supplemental Draft EIS). This list is meant to serve as a starting point for collaborative discussion with the tribes, since the species listed may not occur in all areas of the project area or may not be used by all tribes.

B-S61. Standard. Initiate agreements with tribal governments specifying repatriation procedures in conformance with Native American Graves Protection and Repatriation Act (NAGPRA) and consultation procedures regarding federal compliance with NAGPRA, National Historic Preservation Act, and Archaeological Resource Protection Act.

B-S62. Standard. Where tribes regulate hunting, fishing, gathering and grazing activities of tribal members, acknowledge and be aware of tribal management efforts and work cooperatively with tribes and states.

B-S63. Standard. Affected American Indian tribes shall be consulted on any land ownership adjustments (exchange, consolidation, and/or disposal) of Forest Service- or BLM-administered lands. This consultation should occur prior to any public scoping announcement and before any lands/parcels have been formally agreed upon for inclusion in a proposal or action. Tribes should also be considered as a possible partner for land tenure adjustment opportunities, particularly when such lands are within their ceded lands/territories.

Rationale: Standard fair market appraisals typically do not consider treaty values. If public lands are to be exchanged, sold, or otherwise disposed of, then tribes need to be made aware of the resources involved and the effect of the land adjustment, if any, on the exercise of their tribal rights and interests.

B-O69. Objective. Improve understanding and incorporate into federal land management how places are valued by American Indians. (See Chapter 2 in the Supplemental Draft EIS discussion of cultural place attachment.)

Rationale: Different place attachment distinctions are recognized by traditional American Indian communities and tribes compared to those recognized by the general public. These differences in place attachments are in part based on: (1) the greater length of time native cultures have spent in the project area; (2) the greater degree place attachments have been integrated into their culture systems of religion, economy, politics, and social / kinship; and (3) cultural values, histories, and relationships to land, which vary from mainstem American culture and are typically not understood by the general public. Some cultural place information may be inappropriate for public dissemination because of its sacred or proprietary nature. This can be addressed by developing a separate section in place assessments for American Indian groups.

B-S64. Standard. When conducting Subbasin Review and/or EAWS, tribal participation shall be solicited and affected American Indian tribes shall be informed and coorindinated with to identify resources and places of value. This assessment should provide for tribal participation and be commensurate with the analysis conducted to consider resources and places identified by other intergovernmental entities at this scale.

Rationale: *Informing* and *coordinating* with tribes are the minimum required collaborative approaches for this standard. Cooperation and consensus are desired, but not required. (See the Glossary definition of Collaboration for a description of these terms.)

B-O70. Objective. Solicit the contribution of tribal tradition-based knowledge and expertise when collaborating with affected tribes. Use this knowledge to inform Forest Service and BLM planning and decision-making processes.

Rationale: Tribes may have unique knowledge and expertise gained through generations of oral history and cultural teachings, which can contribute to agency understanding of resource values, the history of a place, and the uses that are occurring or have occurred over time. This tradition-based knowledge can be critical to the agencies' understanding of, and response to, the rights and interests of federally recognized tribes, and can contribute to the agencies' ability to meet their trust responsibility. It may be appropriate to compensate or contract with an affected tribe for their knowledge or expertise.

Management Direction—Restoration

Description and Management Intent: Overall

Restoration needs are diverse, intensive, and widespread in the interior Columbia Basin. In the landscape dynamics context, individual ecosystem components (such as aquatic and riparian areas, rangelands, or forestlands) and succession/disturbance regimes are in need of restoration. Although restoration of individual components will contribute to long-term needs, restoration of any one component will be less effective in the long term if the other components are not also in good health and if succession/disturbance regimes are not intact.

Restoration management direction is intended to be applied wherever restoration activities occur—whether based on locally identified, broad-scale functional (one resource), or broad-scale integrated restoration priorities. It is also intended that the restoration management direction would apply whether existing funds or additional funds are used to implement the activities. It is expected that the ICBEMP restoration management direction would change existing local restoration priorities. Development of the restoration management strategy is described more fully in Appendix 15, available at www.icbemp.gov or by calling 208.334.1770.

Restoration should be accomplished in an integrated fashion to benefit aquatic and terrestrial species, forest health, rangeland health, and watershed health, as well as for economic, tribal, and other needs of society.

Locally Identified Priorities: Restoration will proceed in areas that are locally identified as priorities for restoration, as is the case currently. ICBEMP restoration direction focuses on broad-scale issues that cross more than one administrative unit, yet are applicable within individual administrative units where the appropriate conditions are found.

Broad-scale Functional Restoration Priorities: Six maps in the Supplemental Draft EIS portray various components of the Interior Columbia Basin and its ecosystems, including landscape (Map 3-2), aquatic (Map 3-3), water quality (Map 3-4), old forest/rangeland habitat (Map 3-5), economic (Map 3-6), and tribal (Map 3-7). They were developed to assist administrative units by providing broad-scale context during Subbasin Review to assist in stepping-down broad-scale recommendations for restoration priorities to prioritize local restoration activities. This is done by highlighting those subbasins that have numerous functional (single resource) restoration priorities and good opportunity for restoration to be achieved through Forest Service and BLM management actions. These maps are also intended to provide information for Forest Service regional and BLM state offices in order to influence budget planning.

Broad-scale High Restoration Priority Subbasins: Subbasins that are identified as broad-scale high restoration priority are shown on Map 3-8 in the Final EIS. This map was derived from the broad-scale functional restoration priority maps (Maps 3-2 through 3-7 in the Supplemental Draft EIS). The intent for the high restoration priority subbasins is to concentrate restoration efforts (such as aquatic, water quality, vegetation management, reestablishing fire), and to make restoration activities more effective and efficient. Identification of these subbasins was based on: risk to aquatic and terrestrial species and their habitats from natural disturbances; opportunity to reduce those risks, improve habitats, provide the appropriate mix of habitats, and restore succession/disturbance regimes; ability to provide connectivity for and expand scarce aquatic and terrestrial habitats; hydrologic processes; economic value to human communities; and ability to restore other biophysical and/or social needs where opportunities exist. These priorities were determined from a broad-scale perspective to identify multiple restoration opportunities that would also be responsive to variable funding levels. Additional aquatic priority subbasins were included to expand and improve extent, condition, and connectivity of aquatic habitat.

However local restoration priorities are set, management direction related to succession/disturbance regimes and other aspects of landscape restoration is intended to provide the foundation for other restoration activity. Therefore, landscape restoration management direction is presented first. Terrestrial source habitat restoration management direction follows, focusing on the vegetation cover types and structural stages that have declined substantially in geographic extent from the historical to the current period. (NOTE: unless otherwise specified, source habitat discussions refer to all 12 Terrestrial Families.) Water quality restoration and aquatic habitat needs are addressed next. Direction related to social and economic considerations, including tribal aspects, is provided to highlight areas where restoration activities would have a direct influence on human community economic and social needs.

Restoration in all cases is intended to be consistent with direction for aquatic (A1 or A2) subwatersheds; terrestrial (T) watersheds; riparian areas; threatened, endangered, and proposed species habitat; and other base-level direction. Some federally listed species have adopted

recovery plans, which identify specific recovery actions, some of which are oriented toward improving habitat condition on Forest Service- and BLM-administered lands. Consistent with Standard B-S55, restoration management activities are intended to be consistent with these adopted recovery plans where applicable.

The outcomes projected in the effects analysis in Chapter 4 of the ICBEMP EIS are a reflection of budget allocations consistent with the priorities highlighted in the proposed decision. The current budgets associated with programs within the project area that would be directed by this decision would be allocated to the highest identified priorities, irrespective of administrative (either Forest Service or BLM, Region or State, Forest or District) boundaries and would be focused on ecosystem conditions and desired change in or maintenance of those conditions. Thus the intent is for Forest Service and BLM managers to formulate and distribute budgets to the priority areas first, within the constraints of law and national direction. Budget allocations apply to current funding as well as new funding that might be made available to implement the ROD or special restoration funding provided through special initiatives. It is recognized that this is fundamentally different than budget allocations that have occurred historically within the project area.

Landscape Restoration

Description and Management Intent

Restoration of landscape succession/disturbance regimes is the foundation of the strategy to manage long-term risk to aquatic and terrestrial species. The intent of landscape restoration direction is to repattern vegetation patches and succession/disturbance regimes and to restore watersheds and streams to a condition more consistent with landform, climate, and biological and physical characteristics of the ecosystem. Such restored ecosystems would be more resilient to disturbances, more predictable, and would provide the range of habitats needed by aquatic and terrestrial species. This risk management strategy would conserve scarce habitats in the short term while expanding these habitats through restoration in the long term.

Landscapes are healthy when their intertwined components and processes are functioning properly, in the context of the desires and needs of society. Individual components and processes are woven together by the thread of succession/disturbance regimes (such as fire, flood, windthrow, insects, and disease) and processes (such as the flows and cycles of energy, nutrients, and water). Intact succession/ disturbance regimes provide for terrestrial and aquatic habitats, intact hydrologic processes, and the continuous and predictable flow of products and land uses. These landscape considerations and their dynamics are the cornerstones of landscape health.

Ecosystem Processes and Functions

R-O1. Objective. Consolidate and coordinate restoration activities to the extent possible where multiple needs can be addressed relative to aquatic health, riparian processes and functions, forest health, rangeland health, recovery and redistribution of source habitats, water quality, recovery of succession/disturbance regimes, and socio-economic and tribal needs. Look for situations where there are multiple benefits—that is, where the landscape components can be restored for the benefit of short- and long-term landscape health, diversity, and species viability, and where economically specialized and/or isolated communities can be provided economic and employment opportunities.

> ***Rationale:*** Although much of the project area is in need of restoration, budgets preclude completing all of it in the near future. Concentrating efforts in localized areas (subbasins),

rather than spreading scarce resources thinly across the project area, would be most cost effective and have the greatest positive impact. The timing of restoration activities (for example, first using existing roads to restore the uplands then removing the roads after the upland restoration is complete) makes efficient use of existing features. Coordinating restoration efforts as they are being designed and planned would save time and money in the end. Prioritizing restoration where it is needed and where it has the potential to benefit communities would ensure that both facets of the Need statement (in Chapter 1 of the Final EIS) were addressed.

R-O2. Objective. Restore vegetation patches, patterns, structure, and species composition to be more consistent with the landform, climate, and biological and physical characteristics of the ecosystem, and to provide source habitat for terrestrial species. Manage disturbances to make vegetation patterns more consistent with their expected location on the landscape.

Rationale: Restoring the following potential vegetation groups to be consistent with the landform, climate, and biological and physical characteristics of the area would establish source habitats where they have declined historically:

In *dry forests*, ridges, terraces, and plains typically supported late seral single story stands of shade-intolerant species. In some places in dry forests of the project area, Douglas-fir acts like the shade-intolerant species. Where this occurs, this objective would apply to Douglas-fir. On easterly, westerly, and southerly slopes, there typically would be predominantly late seral single story forests of shade-intolerant trees mixed with small, early seral and mid seral patches. North slopes, draws, and riparian zones typically supported a mixture of shade-tolerant and shade-intolerant species in either early, mid, or late seral stage and multi-story old-forest structure (Hann, Jones, Karl, et al. 1997). Frequent low intensity fire is an important ecological maintenance process in dry forest.

In *moist forests*, it is desirable to restore benches, terraces, or ridges first because there is likely to be the most restoration potential there. These areas have the greatest departure (change) from natural conditions of the moist forest and therefore have the greatest need of restoration. Once restored, they can be maintained relatively easily. The goal is to remove many of the shade-tolerant trees and fuel ladders and give growing space to the larger trees, especially western white pine, western larch, and ponderosa pine. The result should be a single story structure which could be maintained through future burning and/or thinning. Creation of openings in forests will be needed to get white pine or larch back onto the landscape. On mountain slopes, it is appropriate to let much of the moist forest remain in a multi-story old forest structure with a larger component of shade-tolerant species. The patch and pattern should fit the landscape and the historical disturbance regime.

In *cold forests*, much of the landscape has become more homogenous because of either large fires or lack of fire. Timber harvest, prescribed fire, and "wildland fire use for resource benefit" (previously referred to as prescribed natural fire) create patches and patterns that are more consistent with landform, climate, and biological and physical characteristics of the ecosystem. However, it is intended that appropriate proportions of the landscape be kept in early, mid, and late seral stages.

Most of the *dry grass* loss to date has been through conversions to agricultural cropland and pastureland, and to urban development; however, the rate of these conversions has slowed substantially since most of the farmable lands already have been converted. Currently the biggest concerns in the dry grass potential vegetation group are conifer encroachment and exotic plant invasions. Restoration efforts in the dry grass group are intended to focus on

bringing fire back into the system, to reduce conifer encroachment, and to reduce or eliminate the spread of noxious weeds and other exotic plants. However, caution must be exercised when bringing fire back into the system since fire may enhance the opportunity for noxious weed establishment; noxious weed control measures may need to be part of any fire treatment.

Most of the *dry shrub* loss was a result of agriculture and urban development, similar to dry grass. Currently, the invasion of exotic plants is the most significant concern. Restoration efforts are intended to be tied to reducing and eliminating the spread of noxious weeds and implementing livestock grazing systems that are conducive to improving dry shrub conditions.

C*ool shrub* loss also was due to agricultural and urban development. Currently the encroachment of Douglas-fir and juniper is the most significant concern. Restoration efforts are intended to be tied to controlling these species and returning the historical fire regime to the cool shrub potential vegetation group.

In *riparian herbland, shrubland, and woodland* areas, much of the area has been altered by activities such as excessive grazing pressure, road construction, and/or timber harvest. Initially, the highest priority is restoration of riparian habitat, processes, functions, and connectivity. Restoration efforts are intended to focus on increasing diversity and improving structure of riparian vegetation, banks and bank stability, width and depth ratios, limiting or managing the impacts of noxious weeds, improper livestock grazing, roads, and timber practices. Restoration efforts in riparian areas are designed to provide minimum risk to riparian and aquatic values in comparison to restoration efforts in other areas.

R-G1. Guideline. Consider giving priority to restoring whole hydrologic units if resources are available and if the land base provides the opportunity. Consider completing restoration treatments within five years. Avoid reentry for a duration that approximates the time interval between natural disturbance events.

R-G2. Guideline. To promote development of late seral single layer ponderosa pine, consider using thinning, harvesting, and/or prescribed fire on existing mid seral forest structural stages. Stand structure, condition, composition, density, fuel loading and arrangement, and litter and duff depth may be matched to the desired fire regime. The success of sustaining shade-intolerant tree species would depend on recurring disturbance.

R-G3. Guideline. Consider using the existing road network for access to do restoration activities before removing roads in watersheds where vegetation restoration is a priority.

R-O3. Objective. Individual or collective upland restoration management actions that alter the vegetation composition (such as prescribed burning, weed control, thinning, and seedings) should:

a. Retain or promote infiltration, permeability, and soil moisture storage;

b. Minimize soil loss and sediment delivery that is in excess of natural disturbance processes;

c. Maintain or restore nutrient cycling and energy flow;

d. Maintain and restore water quality;

e. Minimize the increase and spread of noxious weeds, above the inherent increase and spread of noxious weeds by natural disturbances (such as wildfire);

f. At the subbasin scale (or groups of subbasins), contribute to the diversity (distribution and abundance) of (1) native plant cover types and structural stages (source habitats); and (2) native plant and animal species and, if natives cannot be restored, (3) desired non-native plant and animal species;

g. Support the conservation of threatened, endangered, proposed, candidate, and sensitive species through source habitat restoration; and

h. Be followed up with land use management that maintains the restored conditions.

Rationale: This objective is adapted from the standards for rangeland health and guidelines for livestock grazing management (Healthy Rangelands Initiative), which are currently being implemented by the BLM. It has been modified to apply to both forested lands and rangelands. It is a comprehensive, basin-wide objective, which is consistent with both the aquatic and terrestrial habitat portions of the ecosystem management strategy. "Individual or collective upland restoration management actions" is meant to accommodate situations where more than one management action, in sequence, might be required to accomplish restoration. For example, herbicide weed control followed by seeding, or prescribed burning followed by weed control.

Bullets "a-c": Changes have taken place in soils, biomass storage, energy flows, and net primary productivity because of changes in succession/disturbance regimes and vegetation structure and composition. In order to restore and maintain soil productivity and nutrient cycling, and to have sustainable vegetation growth and vigor, soils need to continue to develop under conditions similar to those with which they originated.

Bullet "e": In some instances, upland restoration actions, such as prescribed burning, can encourage noxious weed spread. Subsequent weed control would help prevent or minimize the increase and spread of noxious weeds. Therefore, although prescribed burning in itself might contribute to noxious weed increase and spread, the intent of this objective is not to prohibit prescribed burning if it is combined with subsequent weed control.

Bullet "f" is written to focus on both plant community (cover type-structural stage combination) diversity and species diversity. The intent is for upland restoration to perpetuate the existence and development of native plant cover types and structural stages (terrestrial source habitats), and native and desired non-native species, minimizing their loss across and within landscapes. The intent is not to conduct upland restoration management actions to achieve as much diversity as possible regardless of climate, landform, soils, and succession-disturbance regimes; such an approach could lead to undesirable fragmentation of native plant cover types and structural stages due to reductions in patch size. Bullet "f" focuses diversity at the scales of subbasin or groups of subbasins, which is consistent with the broad-scale nature of ICBEMP, the broad-scale vegetation data developed through the ICBEMP, and fostering connectivity of plant and animal habitats across the project area. The expectation is that each administrative unit will manage cover type and structural stage diversity at watershed, subwatershed, and finer scales, resulting in diversity at the scale of subbasin or groups of subbasins.

Bullet "h" is intended to prevent "backsliding" of resource conditions after improvements from restoration. For example, if excessive historical livestock grazing pressure contributed to the increased density of western juniper, prompting the need for upland restoration (such as prescribed burning), then the intent is that livestock grazing management following the burn would be consistent with maintaining the new desired conditions as a result of the prescribed burning. (In other words, grazing should not increase the density of juniper in the future.)

R-G4. Guideline. Consider areas used by species such as sage grouse, sharp-tailed grouse, and mountain quail as a high priority for conversion of exotic monocultures to native shrublands. Especially consider such areas in the Upper Snake and Lower Snake Resource Advisory Council (RAC) areas (see Map 1-1 in the Final EIS).

R-G5. Guideline. Consider the following when seeding altered sagebrush steppe and other areas:

- Soils and precipitation;
- Availability of local native seed;
- Ability of seeded species to compete with exotic annuals;
- Long-term success of seeded species meeting objectives;
- Risk of failure;
- Meeting biodiversity and wildlife needs;
- Not creating monocultures;
- Fragmentation and patch-size issues;
- Planting and regeneration of shrub species.

R-G6. Guideline. Consider laying out vegetation manipulation projects over a large enough area so that livestock and wildlife use will not be concentrated in one area.

R-O4. Objective. Use an integrated mix of restoration activities to repattern succession/disturbance regimes and achieve sustainable landscape conditions. Prioritize and use management activities appropriate for the management emphasis of an area (such as wilderness-type areas, aquatic A1 and A2 subwatersheds, terrestrial T watersheds, and high restoration priority subbasins), and placement on the landscape (such as within the dry forest or cool shrub potential vegetation group), during the appropriate step-down process (programmatic planning, Subbasin Review, EAWS, or site-specific NEPA analysis).

> ***Rationale:*** Restoration activities include: silviculture, rangeland management, noxious weed control, reduction of adverse road effects, prescribed fire, and aquatic/hydrologic restoration. To reduce further fragmentation of the landscape, opportunities and priorities for vegetation management should be applied to entire hydrologic units in context with the appropriate scale of analysis, if resources are available and if the landbase provides the opportunity. The most effective types and mix of restoration activities will vary depending on the emphasis or priority of an area, which depends on the management intent and management direction. For example, restoration activities in an A2 subwatershed would probably focus on aquatic/hydrologic restoration and reduction of adverse road effects, whereas restoration in low and mid-elevation old forest might include silivicultural techniques and prescribed fire to accelerate the old forest characteristics of the area. Appendix 14 (in Volume 2 of the Supplemental Draft EIS) describes the types of activities that could be most effective in areas with different emphases or priorities, including wilderness-type areas, A1 and A2 subwatersheds, T watersheds, urban-rural-wildland interface areas, and high restoration priority subbasins.

R-O5. Objective. Reduce the risk from wildland fire in urban-rural-wildland interface areas. Where there is risk to human life and property from wildfire, reduce heavy fuel levels, flash fuels, ladder fuels, and connectivity among crowns in the dominant vegetation layer.

Rationale: There are urban-rural-wildland interface areas at moderate and/or high risk from wildfire in all the RAC/PAC areas. A priority in these areas is fuels reduction through prescribed fire, silviculture, livestock grazing, and other methods of vegetation management, either alone or in combination (for instance, thinning or brush control prior to prescribed burning). Fuels reduction should decrease the likelihood for loss of life or damage to property from wildfires.

R-O6. Objective. Restore hydrologic processes characteristic of the geoclimatic settings through management actions that resemble effects of natural disturbance processes. Hydrologic processes critical for healthy ecosystems include, but are not limited to, stream flows and sediment in channels.

Rationale: Broad-scale geoclimatic settings influenced by time and disturbances produce landforms, soils, and vegetation with inherent variability in performance elements such as stream channel form, large wood, stream flow and sediment regimes. *Stream flow regimes* include timing, magnitude, duration, and spatial distribution of peak, high, and low flows. *Sediment regimes* include timing, volume, rate, and character of sediment input, storage, and transport. Characteristic stream flows (including floodplain inundation and water table elevation) and sediment regimes are essential to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing.

R-G7. Guideline. Consider the spatial and temporal role of natural disturbances within uplands and riparian areas when planning restoration of hydrologic processes. Consider vegetation management practices that are compatible with the spatial and temporal disturbance processes and patterns to restore hydrologic processes that are representative of the geoclimatic setting.

R-O7. Objective. Restore and maintain stream flow regimes to retain characteristic sediment, nutrient, and wood routing needed to create desirable riparian, aquatic, and wetland habitats. Flow regimes include timing, magnitude, duration, and spatial distribution of peak, high, and low flows.

R-O8. Objective. Restore and maintain the timing, variability, and duration of floodplain inundation and water table elevation.

R-O9. Objective. Provide distribution, diversity, and complexity of watershed and landscape-scale processes to restore and maintain aquatic and riparian systems and species, populations, and communities.

Native Plants and Biological Crust

R-O10. Objective. Restore the native grass, forb, and shrub composition within the sagebrush and shrub steppe cover types (source habitat for Terrestrial Family 11). Reclaim areas from cheatgrass monocultures in these cover types and slow the spread of non-native species.

Rationale: Native plant abundance, frequency, and vigor in the big sagebrush cover type have changed significantly from historical times on federal lands because of the invasion of annual grasses, especially cheatgrass, and other exotic plants. Restoration of ground cover, diversity, and site productivity is critical to the health of the rangeland ecosystem. Some cover types (big sagebrush, salt desert shrub) when under stress or disturbed by drought, fire, excessive grazing pressure, or other factors provide the opportunity and place for these invasive exotic plants to become established. Once established, biodiversity is diminished

and wildfire frequency increases, which reduces the structure and quality of habitat for sagebrush-dependent and other terrestrial species. Winter ranges for species such as deer, elk, and sage grouse are typically in lower elevation areas, normally in big sagebrush or salt desert shrub cover types. Restoration of the structure and quality of habitat in these cover types is critical to the persistence of wildlife species that depend on them.

R-S1. Standard. Native species or cultivars shall be used for seedings and plantings unless native species are not capable, available, or cost effective in maintaining or achieving Objective R-O10.

Rationale: The intent of this standard is to require the use of native plants or cultivars whenever the need arises for seeding or planting to meet Objective R-O10. However, it is understood that circumstances may make this requirement infeasible. These circumstances include: areas where planting native species is not feasible or will not achieve the objective (for example, low precipitation areas such as salt desert shrub or possibly areas of exotic plant infestations); when native seeds or seedlings are not in sufficient quantities to achieve the objective; or when the cost of native seed or seedling purchase is more than the funding available for the activity.

R-G8. Guideline. Consider emphasizing native seeds or seedings that can be obtained from local genetic stock to prevent the introduction of genetic material which may not be adapted or appropriate for local conditions.

R-O11. Objective. Manage land uses and reduce the extent of exotic plant invasions to allow for restoration of biological crust (microbiotic crust) development where potential for biological crust development is high. Focus priority within the salt desert shrub cover type, Wyoming big sagebrush portion of the big sagebrush cover type, and low sage cover type (source habitats for Terrestrial Families 11 and 12) where site-specific features such as soil texture, vascular plant cover, and precipitation pinpoint high potential for biological crust development.

Rationale: Biological crust development in the salt desert shrub cover type, Wyoming big sagebrush portion of the big sagebrush cover type, and low sage cover type (which have been altered by recreational activities, excessive livestock grazing pressure, or exotic undesirable plant invasions) can be integral to restoration of rangeland health and restoration of terrestrial source habitats for species such as pygmy rabbit, sage grouse, and mule deer. Biological crusts play many ecological roles, particularly on low precipitation sites with limited vascular plant cover where there is high potential for biological crust development. Some of these roles include: (1) protection of soil surfaces from erosion from wind and water (soil stability), (2) nutrient cycling, (3) facilitating native perennial species establishment, and (4) hindering establishment of exotic undesirable species such as cheatgrass and medusahead (Hann, Jones, Karl et al. 1997; Wisdom et al. 2000).

High potential for biological crust development exists within the salt desert shrub cover type, drier portions of the big sagebrush cover type (such as Wyoming big sagebrush), and the low sage cover type. However, a site-specific evaluation of potential biological crust development should be performed because the degree of biological crust development within these and other cover types depends on factors such as soil texture, amount of vascular plant cover, precipitation, and other factors.

An existing, draft biological crust evaluation developed by the Idaho BLM State Office (Kaltenecker, Rosentreter, and Pellant 1999; see Appendix 13 in Volume 2 of the Supplemental Draft EIS) may be used at site-specific scales to pinpoint (1) where there is high

potential for biological crust development within these three cover types and other cover types, and (2) under what conditions biological crust development is affected by land uses (such as livestock grazing and recreation). It is expected that this or a similar evaluation method would be conducted during existing rangeland assessments such as rangeland health assessments (meeting Healthy Rangelands standards and guides). However, assessments could also be conducted during field work for allotment or geographic area evaluations, or during any other anticipated field surveys or assessments. It is not the intent of this objective to require administrative units to assess rangelands solely to determine the potential for biological crusts.

R-G9. Guideline. Consider modifying season of use to avoid trampling of biological crusts in the dry season in areas where biological crusts exceed 10 percent of the potential ground cover.

R-G10. Guideline. Consider defining and scheduling spring and fall grazing at the fine scale to reflect actual soil moisture conditions to avoid disturbance of biological crust when soils are extremely dry.

Road Restoration

Description and Management Intent

Roads significantly modify landscapes and ecological processes; at the same time, roads facilitate public access and accomplishment of many land stewardship objectives. When planning and implementing restoration activities, managers need to: (a) consider the role roads play in facilitating public access and resource management; and (b) address the impacts of existing roads and road-related effects.

The intent of ICBEMP road restoration direction is to reduce road-related adverse effects through a variety of techniques including reconstruction, managing use-levels/closures, and obliteration. The direction acknowledges that road risk and road effects are not determined solely by road density but vary substantially depending on road location, design, and condition. A science-based analytical tool (roads analysis) has been developed to help managers distinguish variability. Roads analysis also can be used to systematically and objectively evaluate road networks for restoration of road-related adverse effects. ICBEMP road restoration direction intends that science-based roads analysis and Subbasin Review be used to provide information and context needed to effectively and efficiently reduce road-related adverse effects.

The overarching intent for roads management within the project area is to progress, in a staged approach, toward a smaller transportation system that can be effectively and efficiently maintained into the future with minimal environmental impact. Restoration priorities should focus primarily in areas where reduction of adverse effects and benefits to resources could be maximized, as identified through a roads analysis. Generally, most issues surrounding road condition, risk, and management opportunity for restoration are more complex on forested lands than on rangelands.

R-O12. Objective. Restore terrestrial, riparian, and aquatic habitats where adverse effects or pending risks to these habitats from roads can be quickly reduced and benefits to species dependent on those habitats can be maximized.

R-S2. Standard. A science-based roads analysis shall be used at multiple scales and incorporated into the appropriate step-down and decision-making processes to systematically

and hierarchically evaluate existing road system needs and to establish priorities for road restoration activities.

Rationale: A roads analysis is intended to identify a balance between (a) the retention of a safe, efficient road system to meet public demands, land stewardship, and tribal needs; and (b) the identification of those roads no longer needed and reduction of adverse effects and potential adverse effects on clean water, aquatic/riparian and terrestrial species habitats, native vegetation, and other natural resources. The intent is that a roads analysis will be a component of the step-down process and will support Forest Service or BLM land use plan revision, Access and Travel Management Plans and other transportation plans, water quality restoration plans, and site-specific activity planning. The results of a roads analysis completed under Standard B-S22 will meet the needs of this standard (R-S2).

R-O13. Objective. Progressively reduce road-related adverse effects on watershed integrity, soil productivity, and aquatic/riparian and terrestrial species and their habitats in a staged approach throughout the life of this plan (10-15 years). Priorities shall be established in part by information and recommendations from Subbasin Review and roads analysis.

Rationale: Road access is needed for resource management, meeting tribal needs, and public use. Tribes, property owners with lands surrounded by Forest Service- or BLM-administration land, and others may have legal rights to road access to and through agency-administered lands. However, the *Assessment of Ecosystem Components* (Quigley and Arbelbide 1997) identified roads as a major impact on a multitude of physical and biological processes. For example: roads are a primary pathway for the spread of noxious weeds; roadways are prone to erosion and can cause increased sedimentation, adversely affecting hydrologic or sediment regimes and aquatic habitat; road access increases human-wildlife conflicts; and roads fragment terrestrial habitat. In recognizing adverse effects of road systems, there is a need to intentionally and progressively restore some areas through road management practices that reduce adverse effects.

R-S3. Standard. ***Deleted.***

R-G11. Guideline. Consider using the following techniques to reduce adverse effects on aquatic/riparian and terrestrial species and their habitats as feasible:

1. Reconstructing road and drainage features that: do not meet design criteria or operation and maintenance standards; have been shown to be less effective for controlling sediment delivery; prevent attainment of terrestrial, aquatic, or riparian objectives; or do not protect watersheds from increased sedimentation and peak flows.
2. Prioritizing reconstruction based on current and potential damage to terrestrial, aquatic, or riparian resources; ecological value of the resources affected; and feasibility of options such as helicopter logging and road relocation out of riparian conservation areas.
3. Closing and stabilizing or obliterating and stabilizing roads not needed for future management activities. These actions should be prioritized based on current and potential damage to terrestrial, aquatic, and riparian resources and ecological value of the resources affected.

R-S4. Standard. Information from a roads analysis shall be used when designing projects to reduce road-related adverse effects on aquatic/riparian and terrestrial species and their habitats.

Rationale: Some roads provide benefits, such as providing access. Trade-offs must be realized along with the benefits. The intent of this standard is to prioritize road restoration activities based on risks and budgets; so that the most significant effects can be reduced first. The intent is not to reduce all road-related effects, which would be unrealistic.

R-G12. Guideline. Consider including the following techniques when planning and implementing activities to reduce road-related adverse effects and/or accomplish road restoration: obliteration, permanent closures, seasonal closure, road improvements (upgrade culverts, grade, surfacing, design changes), relocation of roads or road segments, and noxious weed control and management.

R-S5. Standard. Restoration activities in areas where existing culverts and other crossings do not provide for fish passage or connectivity, or that pose a substantial risk to riparian conditions, shall be prioritized through roads analysis and the step-down process. During construction or reconstruction of roads in association with restoration-related activities, new or existing culverts, bridges, and other stream crossings shall be designed or improved to accommodate a 100-year flood event, including associated bedload and debris.

Rationale: Structures posing a substantial risk are defined as those that do not meet operation maintenance criteria, or that have been shown to be less effective for controlling erosion, or that prevent attainment of aquatic and riparian objectives. The intent of this standard is to incorporate stream crossing upgrade priorities identified from a roads analysis into project implementation, based on available funding.

Terrestrial Source Habitat Restoration

Description and Management Intent

The management direction to repattern terrestrial habitats focuses on the vegetation cover types and structural stages that have declined substantially in geographic extent from the historical to current period within most RAC/PAC areas where they existed historically. Examples of such terrestrial habitats are interior ponderosa pine-old forest, single and multi-story, and big sagebrush-open low-medium shrub. The intent of the management direction is to increase the geographic extent and connectivity of these habitats to aid the long-term survival of species dependent on them. Increasing the geographic extent and connectivity of these source habitats would require reduction in geographic extent and connectivity of other source habitats, such as mid seral multi-story forests, that have expanded in geographic extent from the historical to current period. Management actions to repattern terrestrial habitats by increasing the geographic extent of source habitats that have declined substantially should, over time, provide a framework for well-connected networks of source habitat for terrestrial species.

This direction is intended to be followed wherever restoration occurs. Whenever possible, restoration management should be applied outside the source habitat(s) in T watersheds. This is intended to achieve the long-term management objective to facilitate persistence of the source habitats and augment their extent and connectivity. Unless otherwise specified, source habitat discussions in this section refer to all 12 Terrestrial Families as identified in Wisdom et al. (2000). See the Base Level Terrestrial Source Habitats Description and Management Intent for information on source habitats and the 12 Terrestrial Families.

General Terrestrial Habitat Restoration

R-O14. Objective. Restore terrestrial source habitats to provide for species needs. Increase the geographic extent of vegetation cover type-structural stages that have declined substantially

from the historical to the current period within most RAC/PAC areas in the project area, and repattern the vegetation patches so they are consistent with disturbance regimes and with the landform, climate, and biological and physical characteristics of the ecosystem.

Rationale: Changes have taken place in vegetation composition and structure, which have resulted in a scarcity of some habitats while others are over-represented. Habitats often are established where they are not resilient to disturbance or sustainable in the long term. By repatterning terrestrial habitats to be more consistent with the disturbance regime and other ecosystem characteristics, the habitats should be more resilient and sustainable. At the same time, repatterning will provide the habitats that terrestrial species are lacking.

R-G13. Guideline. Consider using prescribed fire for reducing woody species, such as ponderosa pine, juniper, Douglas-fir, and mountain big sagebrush, on sites where they are displacing the native understory vegetation and where perennial grasses are still present in adequate amounts to be conducive to fire.

R-O14a. Objective. When identifying restoration opportunities for terrestrial species, evaluate the information provided on Maps 3-5 and 2-11a (in the Supplemental Draft EIS), and the watershed characterizations described in *A Habitat Network for Terrestrial Wildlife in the Interior Columbia Basin* (Wisdom et al. 2000a) to aid in setting priorities which complement broad-scale objectives.

Old Forest/Rangeland Habitat Restoration Priorities

Broad-scale old forest/rangeland habitat restoration priorities (Map 3-5 in the Supplemental Draft EIS) and a subsidiary map used in its development (Map 2-11a, which was generated from maps in Wisdom et al. [2000]), were used to develop the broad-scale high restoration priority subbasins (Map 3-8) and to provide broad-scale context for finer scale terrestrial habitat restoration priorities and approaches. Some finer scale terrestrial habitat restoration priorities (for example, the restoration direction and management intent for T watersheds) are provided in this EIS because of the urgency to secure terrestrial source habitats in the short and long terms from threats to their geographic extent and condition. During Subbasin Review, the broad-scale old forest/rangeland habitat restoration priorities (see Map 3-5) and T watershed restoration priorities (Map 3-10) can be integrated to develop a mid-scale strategic approach to restore terrestrial source habitats. This is intended to help achieve a well-connected network of secure and productive habitats, which should ensure the long-term survival of populations or species. Map 3-5 and 2-11a can be found in the Supplemental Draft EIS. Maps 3-8 and 3-10 are at the end of this document.

R-O15. Objective. During Subbasin Review, use broad-scale old forest/rangeland habitat restoration priorities combined with the T watersheds to provide a broad-scale context when developing local long-term terrestrial habitat restoration priorities and approaches.

Rationale: Integrating the old forest/rangeland habitat restoration priorities (see Map 3-5 and Appendix 15, available at www.icbemp.gov or by calling 208.334.1770) with the T watersheds (see Map 3-10) would provide broad-scale context concerning the relative importance of terrestrial habitat restoration within one subbasin compared with its importance in the project area as a whole. Map 2-11a should be considered along with Map 3-5 because it gives mid-scale insight into the Terrestrial Families and their source habitats that have decreased the most (in geographic extent) on BLM- and Forest Service-administered lands. (Maps 3-5 and 2-11a can be found in the Supplemental Draft EIS and Appendix 15 can be found at www.icbemp.gov or by calling 208.334.1770.)

Forest Composition and Structure

R-O16. Objective. Increase the geographic extent of the forest cover types and/or structural stages listed in Table 3-1 where they are consistent with the landform, climate, and biological and physical characteristics of the ecosytem and where they have declined substantially in geographic extent from the historical to the current period within most RAC/PAC areas in the project area. In forestlands, the highest priority is in watersheds dominated by the dry forest potential vegetation group in areas with high fuel levels, high potential for crown fire, and high risk from insects and disease. Focus next on watersheds dominated by the moist forest PVG.

Rationale: Fire suppression and timber management practices have caused substantial changes in the geographic extent and connectivity of some forest cover types. The geographic extent of forest cover types in Table 3-1 (at the end of this document) has declined substantially since the historical period as a result of management actions. The intent of this objective is to increase the geographic extent and connectivity of these cover types through mostly active restoration activities. These activities include, but are not limited to, harvest, thinning, prescribed and managed wildland fire, and planting. The greatest departure (difference) from historical conditions has taken place in dry forest PVGs. Priority should be given to restoring whole hydrologic units if resources are available and if the land base provides the opportunity.

Aspen: Aspen is a declining cover type that is important to many wildlife species and is intended to be restored where it existed on the landscape. Vigorous aspen stands readily regenerate after disturbance events. In the absence of disturbance, aspen trees age and are replaced by other cover types, such as shade-tolerant conifers. Aspens that have aged to a stage of decadence do not regenerate well. Stands can be regenerated by fire and/or overstory removal if they have adequate vigor. Aspens may be planted where stands are too decadent to regenerate or where the clone has disappeared from the site. The key is to keep the stand recycling through application of periodic disturbances. It is intended that administrative units continue to produce enough aspen stands in the stand-initiation stage to ensure adequate future levels of a mix of age classes on the landscape.

Single story and multi-story old forest (low elevation): Of the cover type-structural stages used by wildlife species associated with low elevation old forest, the single story ponderosa pine has had the greatest net decline since historical times. Others that have declined substantially in geographic extent from the historical to the current period are the multi-story western larch, interior ponderosa pine, and cottonwood-willow. The terrestrial strategy in part manages long-term risk; for example, increasing the geographic extent of these late seral cover type-structural stages to levels closer to historical. The components of old forests that are most important to restore are the plentiful number and large size of snags and the elements important for connectivity of terrestrial species populations and for soil productivity. From a basin-wide perspective, the loss of large ponderosa pine trees is particularly significant. Other important old forest elements are stand-initiation patches and clumps of snags that are in decline.

Single story and multi-story old forest (mid-upper elevation): Of the cover type-structural stages used by species associated with mid-upper elevation old forest, single-story ponderosa pine, western larch, and whitebark pine have declined in geographic extent the most since historical times. Multi-story western larch, interior ponderosa, western white pine, and cottonwood-willow are also in decline (in geographic extent). Increasing the geographic extent of these late seral cover type-structural stages to levels closer to historical is one way to manage long-term risk of disturbance to terrestrial species and habitats. The most important components for Terrestrial Family 2 are old forest and snags, especially large snags. Loss

of riparian woodlands, declines in riparian condition, and reductions in downed logs and coarse woody debris also have reduced terrestrial species populations. Other contributing factors include loss of large trees, aspen, and cottonwood-willow woodlands; and reduced longevity of early seral forest.

Stand-initiation: The stand-initiation structural stage is important habitat for a number of terrestrial species. Across the basin, stand-initiation forest types have declined since historical times. The western white pine stand-initiation cover type-structural stage has declined significantly, especially in the Lower Clark Fork Ecological Reporting Unit (ERU; see Map 2-1, in Chapter 2 of the Supplemental Draft EIS). The geographic extent of other cover types in the stand-initiation structural stage did not consistently increase or decrease across any of the ERUs (this information was not assessed for RAC/PAC areas). Stand-initiation is often the shortest successional stage because of efficient regeneration efforts and rapid initial seedling growth. Continual recruitment of the stand-initiation stage is required to provide for the wildlife species that need this stage. It is desirable to increase the area of stand-initiation forest in subbasins where geographic extent of stand-initiation stage is less than desired. In other subbasins, disturbances may be managed so new openings in forest stands balance the amount of stand-initiation stage that matures into mid seral forest. Leaving large trees and snags in these openings, when possible, makes them more valuable to wildlife species that depend on a stand-initiation stage.

R-G14. Guideline. On sites dominated by ponderosa pine, Douglas-fir, and/or western larch, consider removing ladder fuels and reducing stand density to a level at which a fire cannot spread in the tree canopy consistent with landform, climate, and biological and physical characteristics of the ecosytem.

R-G15. Guideline. On sites where aspen is currently being replaced by conifers or where stem exclusion/closed canopy stages are declining in health, consider restoring seral stages dominated by aspen.

R-G16. Guideline. Consider restoring late seral structure in large blocks of habitat that are representative of the likely pattern that occurred with historical disturbance events.

R-O17. Objective. Increase the geographic extent of interior ponderosa pine cover type in the stem exclusion closed canopy structural stage in the following RAC/PAC areas: Yakima, Eastern Washington-Cascades, Eastern Washington, Deschutes, Southeast Oregon, Klamath, Upper Columbia/Salmon-Clearwater, John Day, Butte, Upper Snake, and Lower Snake where it is consistent with the landform, climate, and biological and physical characteristics of the ecosystem. Do this by converting from shade-tolerant cover types where they have taken over interior ponderosa pine stands and decreasing the geographic extent of managed young multi-story interior ponderosa pine in all RAC/PAC areas except the Lower Snake River, Upper Snake, and Klamath RACs.

Rationale: The ponderosa pine cover type has declined throughout the interior Columbia River Basin (Hann, Jones, Karl, et al. 1997, Wisdom et al. 2000). Some of the largest declines have taken place in the stem exclusion closed canopy structural stage, except in the Lower Snake and Upper Snake RAC areas where ponderosa pine is a small component, and the Butte RAC area where the stem exclusion closed canopy structural stage has expanded since historical times. On the other hand, the managed young multi-story ponderosa pine forests, which did not exist until modern times, have become prevalent in all RAC/PAC areas except the Lower Snake River, Upper Snake, and Klamath RACs. Activities that change the managed young multi-story ponderosa pine forests to characteristics of stem exclusion closed canopy are appropriate where it is consistent with the landform, climate,

and biological and physical characteristics of the ecosystem. Where these ponderosa pine forests have been converted to shade-tolerant species, it may be necessary to bring ponderosa pine back to the site through a stand-initiation stage.

The ponderosa pine stem exclusion closed canopy structural stage can be maintained through thinning and prescribed burning. However, it should not be maintained at any cost. The intent of this objective is that as this structural stage matures, it will develop old-forest characteristics and the structural stage will change to old forest single-story with lesser old forest multi-story.

This cover type-structural stage is used by Terrestrial Family 6 (forests, woodlands, and montane shrubs) and Terrestrial Family 7 (forest, woodlands, and sagebrush). It is one of two cover type-structural stages used by the seven Terrestrial Families which have shown a decline at the broad scale.

R-O18. Objective. In the moist forests of the Butte, Upper Columbia-Salmon Clearwater and Eastern Washington RAC/PACs increase the geographic extent of western white pine. Expand this cover type in the old forest multi-story, stem exclusion closed canopy, understory reinitiation, and stand-initiation structural stages (source habitat for Terrestrial Family 2). Continue to plant blister-rust-resistant stock and reduce competition to increase the abundance, genetic diversity, and distribution of these species.

Rationale: The western white pine cover type has declined 95 percent from historical to current periods because of timber harvest, wildfire suppression, and white pine blister rust. In the Butte, Upper Columbia/Salmon-Clearwater and Eastern Washington RACs, loss of western white pine has had a tremendous impact on the ecology of forest ecosystems, disturbance regimes, and wildlife species that use those habitats (Hann, Jones, Karl, et al. 1997; Wisdom et al. 2000). These cover type-structural stages are used by Terrestrial Family 2 (old forest all elevation), Terrestrial Family 3 (forest mosaic), Terrestrial Family 5 (forest and rangeland mosaic), Terrestrial Family 6 (forests, woodlands, and montane shrubs), Terrestrial Family 7 (forest, woodlands, and sagebrush), and Terrestrial Family 8 (rangeland and early and late seral forest).

R-G17. Guideline. To increase the overall abundance, diversity, and distribution of western white pine, or to restore its dominance where fire regimes would have encouraged it, consider a variety of techniques such as:

- Selecting and testing new candidate rust-resistant trees, and cautiously using lower levels of rust-resistance trees;
- Reducing mortality of infected pine through intermediate treatments such as pruning and canker excision;
- Minimizing selection pressure on fungus by conservative use of highly rust-resistant pine stock;
- Monitoring for new races of rust;
- Reducing competition and promoting more open stands which are less conducive to rust and spread; and
- Protecting existing stands.

R-O19. Objective. In cold forests, increase the geographic extent of whitebark pine where it is adapted (source habitat for Terrestrial Family 2). Plant blister rust resistant stock where available and reduce competition to increase the abundance, genetic diversity, and distribution of these species.

Rationale: Whitebark pine is an important component of some cold forest ecosystems in the project area and is a vital food source for several wildlife species. Whitebark pine has declined substantially from historical times because of wildfire suppression and white pine blister rust (Hann, Jones, Karl, et al. 1997; Wisdom et al. 2000). This decline has had a negative impact on cold forest ecosystems, disturbance regimes, and the wildlife species that use cold forest habitat.

R-G18. Guideline. Consider the following techniques to reestablish whitebark pine and subalpine larch to desired ranges of abundance and distribution:

- Collecting seed from blister rust-resistant stock, and either sowing seeds or planting seedlings;
- Making grafts of resistant phenotypes and plants;
- Cross-breeding several blister rust-resistant trees;
- Artificially inoculating seedlings from rust-resistant or cross-bred stock;
- Increasing effectiveness of pruning and excising cankers in areas with moderate hazard;
- Monitoring for new races of blister rust;
- Reducing competition;
- Protecting existing stands.

R-O20. Objective. In dry forest potential vegetation groups, create open stands where the natural disturbance regime maintained open forests of Douglas-fir, ponderosa pine, western larch, or juniper, which will improve source habitat for Terrestrial Families 1, 2, and 4.

Rationale: Open stands should be more resilient to wildfire, insects, and disease and should help to restore hydrologic systems. Restoration actions may include prescribed and managed wildland fire, thinning, and harvest where these forests have dense, closed canopy conditions.

Rangelands Composition and Structure

R-O21. Objective. Increase the geographic extent and connectivity of rangeland cover types and structural stages (terrestrial source habitats) that have declined substantially in geographic extent from the historical to the current period (see column 1 in Table 3-2 at the end of this document) on sites where they can be sustained by the combination of landform, climate, and biological and physical characteristics. To achieve this, focus restoration management actions on decreasing the geographic extent of vegetation cover types and structural stages listed in column 2 of Table 3-2. These vegetation types have increased in geographic extent since the historical period and have contributed to declines in the source habitats that have decreased substantially since the historical period. Broad-scale priority RAC/PAC areas are identified in Table 3-2 for these restoration management actions.

Rationale: The Landscape Dynamics chapter (Hann, Jones, Karl, et al. 1997) of the *Assessment of Ecosystem Components* (Quigley and Arbelbide 1997) and Wisdom et al. (2000) provided information to identify cover types and structural stages of terrestrial source habitats that declined substantially in geographic extent from the historical to the current period in the project area. Hann, Jones, Karl et al. (1997) also identified the most important changes from one cover type to another cover type that contributed to these declines. The decline in geographic extent of these cover types and structural stages was caused, in part, by increases in geographic extent of other cover types and structural stages. These changes can be caused by past management actions and land uses, such as fire suppression, excessive livestock grazing pressure, introduction and spread of exotic plants, and urban and agricultural development. Such actions and land uses have led to the decline, and in some cases listing, of terrestrial species by reducing the available habitat necessary for maintaining their life cycles. Priority should be given to restoring whole hydrologic units, if resources are available and if the land base provides the opportunity.

Actions necessary to reduce the geographic extent and connectivity of cover types and structural stages listed in column 2 of Table 3-2 include but are not limited to: prescribed and wildland fire management; mechanical treatments (roto-mowing, thinning, harvest); weed control (chemical, mechanical, biological, and cultural); rehabilitation seedings. Follow-up management includes modifications in: livestock grazing (season, timing, duration, frequency, intensity), fire management (reintroduce fire to some areas, suppress fire in other areas), and recreation management (all-terrain and other vehicles, people, and their recreation animals) to reduce the spread of weeds and disturbance to ecosystems.

R-G19. Guideline. Consider identification and delineation for management of juniper: (1) where it is encroaching but where native understory has not yet declined; (2) where it has encroached and is so dense that native understory has declined; and (3) where it is so dense that all native understory vegetation has been displaced.

R-G20. Guideline. To reduce juniper seedlings and trees, consider implementing prescribed fire on sites where existing fuel levels are adequate to create flame lengths sufficient to kill juniper. Examples include: areas with more than one large juniper tree per acre capable of producing seed; or in dry shrub, dry grass, or cool shrub plant communities with juniper seedlings in the understory.

R-G21. Guideline. On sites where juniper density has increased to the point where understory native vegetation is declining or nearly all understory vegetation has been lost, consider a harvest (cutting or chaining) strategy that leaves slash on site. Consider saving large older trees.

Rationale: This should improve surface soil conditions and permit easier establishment and recovery of native or desired exotic understory vegetation, and to prevent excessive nutrient removal from these sites.

R-G22. Guideline. On sites where juniper is not dense enough to reduce understory vegetation, consider enhancing plant and animal diversity by producing a western juniper-shrub-grassland type mosaic. Consider management that promotes western juniper stands characterized by understory vascular and nonvascular vegetation diversity appropriate to the site.

R-O22. Objective. Increase the prevalence of Wyoming sagebrush in those seeded areas (for example, crested wheatgrass seedings) that are lacking in structure and are large enough to influence or decrease the connectivity of sagebrush within a subbasin scale. Achieve this by

interseeding big sagebrush into these seedings, preferably during times (weather conditions) that are most conducive to sagebrush seeding establishment. Priority areas for this objective are the Southeastern Oregon, Upper Snake, and Lower Snake RAC areas (source habitat for Terrestrial Families 11 and 12.)

Rationale: Sagebrush cover types have declined more than any other cover type in the basin. Exotic forbs-annual grass cover types have replaced thousand of acres of the Wyoming big sagebrush cover type. In addition, agricultural and urban development have displaced the big sagebrush cover type (*Landscape Dynamics* chapter [Hann, Jones, Karl, et al. 1997] of the *Assessment of Ecosystem Components*). In some cases, past rehabilitation efforts of rangeland areas have produced large areas of crested wheatgrass seedings. Some of these areas are lacking in structure and diversity, causing large disruptions in sagebrush cover type connectivity. One intent of this objective is to restore cover types that resemble structurally the big sagebrush cover type. This will increase patch size of the sagebrush cover types which will improve habitat conditions, provide source habitat for Terrestrial Families 11 and 12 (such as sage grouse, pygmy rabbit, and sage sparrow), and provide forage for livestock and other animals.

It is not the intent of this objective to add sagebrush to every crested wheatgrass seeding in the basin. Some seedings are of such small size that at the mid or broad scale they do not seriously affect connectivity of sagebrush cover types. This objective is focused on the larger seedings where sagebrush is lacking and where connectivity of sagebrush cover types is seriously affected. Deciding which seedings and how much sagebrush is needed should be determined during the subbasin or finer scale review processes.

Sagebrush must be seeded during favorable weather or climatic conditions to be successful. Therefore, multiple seeding attempts, over a period of several years, may be needed to achieve this objective.

Aquatic-Riparian-Hydrologic Restoration

Description and Management Intent

Aquatic/riparian/hydrologic restoration direction refers to the reestablishment of watershed functions, processes, and structures, including natural diversity. The management intent of the ICBEMP watershed restoration direction is to recognize the variability of natural systems while: (1) securing existing habitats that support the strongest populations of wide-ranging aquatic species (such as in A1 and A2 subwatersheds) and the highest native diversity and integrity; (2) extending favorable conditions into adjacent watersheds to create a larger or more contiguous network of suitable and productive habitats; and (3) restoring hydrologic processes to ensure favorable water quality conditions for aquatic, riparian, and municipal uses. Aquatic, riparian, and hydrologic restoration use passive and/or active approaches, to move toward objectives.

An important item to consider in the restoration and expansion of productive aquatic habitats and water quality is the spatial (placement on the ground) and temporal (through time) context of historical and current disturbance regimes. Historically, major disturbance regimes influenced the pattern and productivity of aquatic habitats within the project area. Past land management has changed disturbance regimes, leading to simplified aquatic habitats and declines in water quality in the project area. Geologic and climatic setting and changes in disturbance regimes present both opportunity and risk to land managers attempting to restore aquatic habitats and changed hydrologic processes.

The following restoration direction provides linkages to other restoration strategies that may be contained in federal, state, and tribal water quality restoration priorities; and in state and tribal aquatic species restoration plans (such as the Montana Bull Trout Plan).

Restoration management direction is presented in two subsections: aquatic/riparian restoration objectives, priorities, and issues; and water quality and hydrologic processes restoration. In most instances, there is a link among disrupted hydrologic processes, degraded water quality, and non-productive aquatic habitat. Therefore, the overall intent is to integrate both restoration needs (aquatic/riparian and hydrologic/water quality) to complement achievement of objectives wherever possible.

General Aquatic/Riparian Restoration

The following objectives describe the general broad-scale intent of aquatic/riparian restoration within the project area. Attainment of these objectives will require decades. These objectives cannot be achieved in all areas because of physical (dams) and biological (exotic aquatic species) limitations.

R-O23. Objective. Restore connectivity within and among watersheds and networks of well-distributed high quality habitats that sustain populations of aquatic and riparian-dependent species.

> ***Rationale:*** Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, groundwater sources, and streams. Effective network connections result in well-dispersed, high quality habitats that provide chemically and physically unobstructed routes to areas that are critical for fulfilling life history requirements of aquatic and riparian-dependent species through space and time.

R-O24. Objective. Restore instream and riparian habitat of sufficient quality, patch size, and distribution to support healthy populations of native fish and riparian-dependent species.

> ***Rationale:*** It is critical to restore habitats that have been degraded to maintain riparian or wetland-dependent species. Emphasis should be placed on providing diversity in plant species and structure, such as shrubs and large trees, which occurred in the area historically.

R-S6. Standard. Proposed restoration activities shall be evaluated against measurable indicators to help determine consistency with RCA management objectives. Where there is concern with the proposed activity regarding any of the measurable indicators, NEPA analysis shall disclose how the activities would be modified or mitigated to alleviate the concern, or why the activity is needed to achieve RCA management objectives. (See the WCI direction in the Base Level section.)

Aquatic/Riparian Restoration Priorities

Broad-scale aquatic restoration priorities (see Map 3-3 in the Supplemental Draft EIS) were used to identify the broad-scale high restoration priority subbasins (see Map 3-8 at the end of this document) and to provide context for finer-scale restoration priorities and approaches. Some finer-scale restoration priorities (such as A2 subwatersheds) have been set because of the urgency to secure habitats in the short term to support attainment of long-term broad-scale restoration objectives (see General Aquatic/Riparian Restoration Objectives). During Subbasin Review, the broad-scale and A2 subwatershed (or other finer-scale) restoration priorities can be integrated to develop a mid-scale strategic approach to restoring aquatic/riparian resources,

extending favorable conditions outward from A1 and A2 subwatersheds into adjacent subwatersheds to create a larger or more contiguous network of connected productive habitats.

R-O25. Objective. Use broad-scale aquatic/riparian restoration priorities and the geographic extent of the A1/A2 subwatersheds during Subbasin Review to provide a broad-scale context when developing local long-term restoration priorities and approaches. As appropriate and in accordance with Appendix 18 (in the Final EIS), use the step-down process, such as Subbasin Review, to fine-tune A1/A2 subwatershed delineation to be consistent with the ICBEMP criteria and intent.

Rationale: Integrating the broad-scale aquatic/riparian priorities with the geographic extent of the A1/A2 subwatersheds would provide context concerning the relative importance of aquatic resources within a particular subbasin, compared to importance of those resources in the entire project area. This broad-scale context would help determine (a) the relative value of aquatic/riparian resources and contributions toward meeting broad-scale goals and objectives, and (b) whether aquatic conservation and restoration activities should receive high priority. This process would increase the likelihood of success of aquatic resource conservation and restoration actions.

The step-down process provides the opportunity to validate and, as necessary, refine A1/A2 locations using existing finer-scale information. Minor corrections of A1/A2 delineations using A1/A2 intent and delineation criteria (defined later in the proposed decision) would not constitute a new decision warranting plan amendment or associated NEPA analysis because it implements the direction to designate A1/A2 subwatersheds based on the criteria and management intent. The recent update of information on species' status and distribution should reduce the likelihood of substantial changes within a particular subbasin (that is, adding or removing several A1/A2 subwatersheds). If substantial shifts do occur, it may be necessary to analyze and disclose effects through the appropriate land use plan amendment and NEPA analysis procedures, and conduct any necessary ESA consultation procedures (see Appendix 18 in the Final EIS).

R-S7. Standard. In relation to the broad-scale aquatic/riparian restoration priorities shown in Map 3-3 (in the Supplemental Draft EIS), the following conceptual process shall be used during Subbasin Review to develop and identify a mid-scale strategic approach to aquatic/riparian restoration:

1. As discussed in Objective R-O26, the first consideration for restoration activities would be to secure A2 subwatersheds and if needed A1 subwatersheds, or to secure areas of high aquatic integrity or diversity if A1 or A2 subwatersheds are not present. In this instance, *securing* can mean either reducing threats within the subwatershed or reducing threats in adjacent subwatersheds that would prevent achievement of A2 or A1 subwatershed objectives.
2. The next logical aquatic/riparian restoration priority would be to consider subwatersheds or watersheds adjacent to A1 and A2 subwatersheds or areas of high aquatic integrity or diversity. These areas should have a high potential to respond biologically and physically to restoration actions and result in expansion of diverse habitats.
3. The next logical sequence for aquatic-riparian restoration would be subwatersheds or watersheds that support spawning and rearing habitat (depressed levels) for native aquatic species which remain connected to larger portions of the subbasin. These areas would provide future important diverse habitats for native aquatic species.

R-G23. Guideline. Consider designing aquatic/riparian restoration actions to influence temporal (through time) and spatial (placement on the ground) diversity of productive aquatic habitat and key aspects of structure and function, such as channel morphology and hydrologic and sediment regimes; riparian vegetation condition and complexity; aquatic habitat complexity; and channel structure (that is, wood and bank stability).

R-G24. Guideline. Consider focusing aquatic/riparian restoration where minimal investment can improve or secure the largest amount of productive habitat and diverse riparian- dependent species communities.

R-G25. Guideline. Consider conducting aquatic/riparian restoration first in areas where investments can provide economic and employment opportunities for local economically specialized and isolated and/or tribal communities.

R-G26. Guideline. When developing restoration strategies during Subbasin Review, consider identifying potential complementary opportunities that could occur over similar time frames and in similar areas and that could contribute toward attainment of multiple resource restoration objectives. For example, the need to restore forest conditions may coincide with the need to reduce adverse road effects on aquatic and riparian resources.

Likewise, consider identifying potential conflicting restoration needs, and use available information to recommend approaches to minimize conflict while allowing attainment of restoration objectives. For example, consider alternative approaches to reduce negative impacts, such as increased maintenance or relocation of problematic road segments, rather than obliterating or closing a road that has high social value but also causes negative effects on aquatic/riparian resources.

R-G27. Guideline. During the appropriate step-down process (programmatic planning, Subbasin Review, EAWS, or site-specific NEPA analysis), existing information, developed as part of the Snake River Chinook and Sockeye Salmon; Snake River and Upper Columbia River Steelhead; and Klamath River, Columbia River, and Jarbidge River Bull Trout Biological Opinions should be considered when developing restoration priorities.

R-O26. Objective. In the short term, the first consideration for aquatic/riparian restoration priorities would be to secure A2, and as needed, Al subwatersheds from internal or adjacent subwatershed risks. If A1 or A2 subwatersheds are not present, then the first consideration would be in areas of high aquatic integrity or diversity. Aquatic/riparian restoration efforts should focus on threatened or non-functioning watershed processes, addressing the causes while minimizing risks to functioning processes.

Rationale: A1 and A2 subwatersheds represent areas that support the strongest fish populations and highest native diversity and integrity. These subwatersheds serve as the foundation of a conservation strategy and a starting point for a restoration strategy. Strategically, securing these subwatersheds from internal or adjacent threats to watershed function and structure would enhance the short-term persistence of aquatic species and diversity and is necessary to ensure a source of individuals to colonize available habitats following natural recovery or restoration. The step-down process may reveal that the highest restoration priority may not be within A2 subwatersheds, but rather may be in adjacent subwatersheds whose condition poses a threat or represents a greater opportunity to expand productive aquatic habitats.

Specific Aquatic/Riparian Restoration Issues

R-O27. Objective. Strategically, forest health restoration activities generally should occur in upland settings before treatment occurs in riparian areas. Treatments proposed in Riparian Conservation Area should be consistent with RCA management objectives and standards.

Rationale: The delineation of ecologically appropriate RCAs and associated objectives and standards are presented in the Base Level, Aquatic/Riparian/Hydrologic Component section. The base-level management direction provides for the maintenance of functioning riparian conditions. Specific restoration treatments in RCAs may be necessary in some areas to restore function and connectivity among streams, floodplains, and riparian areas. For example, in some forested landscapes, thinning and prescribed fire may be necessary to encourage development of large trees. In other areas there may be a need to thin trees that have encroached into riparian zones, to encourage shrub growth. Experience and knowledge gained from treatment in upland settings could then be applied to RCAs where the primary emphasis is maintenance and restoration of riparian and aquatic functions. In these instances risks and trade-offs should be well understood.

R-G28. Guideline. Consider the location of natural disturbances through time within uplands and riparian areas in creating and maintaining high quality aquatic habitat. Consider management actions that would restore vegetation patches and patterns using practices that are compatible with disturbance processes that encourage attainment of aquatic/riparian/hydrologic management objectives.

R-O28. Objective. When identifying restoration opportunities, evaluate the distribution of non-native aquatic species and how restoration efforts may change their distribution.

Rationale: The introduction and widespread expansion of non-native aquatic species have contributed to the decline in native aquatic species. The intent of this objective is to identify restoration efforts that could further change the distribution of non-native aquatic species. For example: if removing a culvert that represents a migratory barrier to native fish could allow expansion of non-native species that are currently present below the barrier, then perhaps another action would be more appropriate.

R-O29. Objective. When proposed restoration actions could affect the distribution of non-native species, provide opportunities to states, tribes, or other federal partners to address non-native aquatic species issues under existing MOUs.

R-G29. Guideline. Consider working with federal, tribal, and state fish management agencies, and other entities to identify and reduce negative effects on aquatic resources associated with fish stocking, fish harvest, habitat manipulation, and poaching.

R-O30. Objective. Inform, coordinate with, and cooperate with other landowners when addressing similar aquatic/riparian restoration issues.

Rationale: Historically, many productive aquatic habitats existed in rivers downstream or adjacent to present BLM- or Forest Service-administered lands. Opportunities may exist to cooperatively address watershed restoration needs with adjacent landowners. The intent is to stimulate cooperative restoration activities, not to extend federal land management direction to adjacent ownerships. *Informing, coordinating,* and *cooperating* are the minimum

required collaborative approaches for this objective. Consensus is desired, but not required. (See the Glossary definition of Collaboration for a description of these terms.)

R-G30. Guideline. Consider cooperative aquatic/riparian restoration actions with adjacent landowners, particularly in low-elevation floodplain river systems.

R-G31. Guideline. When developing land acquisition and/or proposals, exchange, and conservation easements, consider the benefits to and effects on aquatic and riparian resources.

Water Quality and Hydrologic Process Restoration

Episodic climatic, geomorphic, and hydrologic processes determine the supply, storage, and transport of water, sediment, and wood, and shape many aspects of terrestrial and aquatic habitats. These dynamic processes display patterns across the landscape and through time of water, sediment, wood, and channel and valley characteristics throughout entire watershed networks. These patterns are best characterized in terms of frequencies of distributions. Effective restoration of hydrologic processes and water quality over the long term must provide for a full range of natural variabilty in these patterns and characteristics and must also account for their dynamic nature.

In addition, restoration must include in-channel, riparian, and upslope components to achieve sustainable intact watersheds and ecosystems. Restoration and maintenance of hydrologic processes and prevention of pollution are the primary steps to ensure water quality is at potential and will support beneficial uses of the water. Restoration of riparian vegetation, soils, and soil processes is particularly important for successful restoration of water quality because of the buffering soils provide to streams. Forest Service and BLM regulations and policies mandate good land stewardship; the Clean Water Act also mandates federal land management agencies to restore and protect the quality of public waters under their jurisdictions.

The mid scale (subbasin[s]) is needed to describe climatic and landscape processes which determine the types of hydrologic and water quality conditions that exist and can be expected. Mid-scale information can also help determine priorities for further analysis and general recommendations that would result in effective restoration strategies. Subbasins needing water quality restoration have been identified and prioritized on a state-by-state basis as part of Clean Water Action Plan (CWAP; EPA, USDA et al. 1998) implementation strategies. These strategies vary somewhat by scale, processes, and information, but they achieve an overall initial priority for CWAP restoration funding. The ICBEMP broad-scale restoration strategy provides a list of subbasins with restoration needs that incorporate 303(d) listed waterbodies and departure (change) of hydrologic processes from historical regimes (see Appendix 15, available at www.icbemp.gov or by calling 208.334.1770, and Map 3-4, in the Supplemental Draft EIS).

Additional direction on restoration of hydrologic processes and hydrologically driven disturbance regimes is located in the Landscape Restoration section.

R-O31. Objective. Restore water quality, water quantity, and hydrologic processes necessary to support healthy riparian, aquatic, and wetland ecosystems. These processes should be restored to be within the range of variability representative of the inherent capability of the watershed area.

Rationale: The processes that determine water quality, water quantity, and hydrologic condition vary within a stream system through space and time. Ranges of conditions are difficult to define because the variation is influenced by many things, including climate,

both natural and human-caused disturbances within the watershed, and the natural capability determined by the specific geomorphic characteristics of the stream and surrounding watershed. The intent is to restore these processes to frequencies and distributions that are consistent with natural patterns characteristic of geomorphically similar watershed areas.

R-G32. Guideline. When conducting EAWS, consider the context for setting hydrologic restoration priorities. Diagnose events of modified hydrologic processes leading to degraded watershed conditions and the causes, and evaluate various restoration techniques.

R-S8. Standard. State, county, developing total maximum daily load and tribal water quality restoration priorities (including the 303[d] list, state priorities and existing water quality restoration plans) shall be incorporated into step-down processes (programmatic planning, Subbasin Review, EAWS, and/or site-specific NEPA analysis).

Rationale: It is intended that Subbasin Reviews will be completed for the ICBEMP within seven years of signing of the ROD. States within the project area are developing TMDLs at the subbasin, watershed, and subwatershed scales. Much of the area within the project area will also have EAWS scheduled or completed during this timeframe. The intent of this standard is to coordinate and integrate broad-, mid-, and watershed-scale information with state and EPA information, at similar scales of analysis, to maximize cost-benefit and efficiency of restoration efforts.

R-S9. Standard. ***Deleted.*** (This standard was incorrectly shown as R-S79 on page 3-122 in the Supplemental Draft EIS.)

R-O32. Objective. Develop and implement water quality restoration plans for impaired water bodies on Forest Service- and BLM-administered lands by scheduling and implementing the 303(d) protocol or an alternate analytical process agreed to by the interagency partners at a scale and within time frames that complement state processes and schedules for total maximum daily load (TMDL) development and implementation.

Rationale: Each state has established schedules for development and implementation of TMDLs for waters that have been listed under Section 303(d) of the Clean Water Act. These schedules have been or will be accepted by the courts and/or EPA as satisfying Clean Water Act requirements for addressing such listed waters. The Forest Service and BLM would retain maximum decision flexibility by determining the extent to which activities on lands under their administration affect the listed waters and by developing specific plans that define how those impacts would be addressed to restore the waters. The intent is to take advantage of partnerships as Clean Water Action Plan (CWAP) implementation evolves and to accomplish restoration using a collaborative watershed-scale approach.

R-O33. Objective. Use existing Memoranda of Understanding (MOUs) with state water quality agencies to initiate partnerships with other federal, state, county, and tribal organizations, watershed councils, private citizens, and non-federal landowners, to maximize the benefits of existing water quality protection and restoration efforts. Implement restoration in an integrated manner, including cost sharing wherever possible. Also see Objective B-O41 under Base-level Direction.

Rationale: Several federal and state agencies, tribes, counties, and interested stakeholders within the project area have developed or are in the process of developing water quality

restoration plans. Many of these efforts are striving to accomplish similar outcomes. The greatest benefits and returns on investments can be obtained where mutual priorities or opportunities provide a pool of resources to more effectively implement restoration actions.

R-G33. Guideline. Consider cooperating with state water quality agencies when they monitor, review, and compare existing conditions to state water quality standards.

Rationale: State water quality agencies identify the status of water quality and the risk to beneficial uses of water during their monitoring, review, and determination.

Social-Economic-Tribal Component: Restoration

Description and Management Intent

The social-economic-tribal restoration component highlights areas where restoration activities directly influence human community economic, social, and cultural needs. This direction is linked to restoration direction provided in the landscape dynamics, terrestrial, and aquatic/riparian/hydrologic sections. The following direction relates to considerations for designing and implementing restoration activities to promote workforce participation, serve demands for commodity products at various levels, encourage intergovernmental collaboration, and consider tribal needs and interests.

R-O34. Objective. When promoting economic participation of the local workforce in restoration activities, give highest priority to nearby rural communities or geographic areas that are less economically diverse and more economically associated with outputs of goods and services from Forest Service- and BLM-administered lands. These places are referred to in this EIS as "Areas of Economic Specialization" (see Map 2-33, in Chapter 2 of the Supplemental Draft EIS). For restoration opportunities to assist isolated and economically specialized communities and tribal communities, see Maps 3-6 and 3-7 in the Supplemental Draft EIS, and Table 3-3 at the end of this document. See also Objective B-O58 in the Base-level Direction section.

Rationale: The intent of this objective is to help sustain communities during transition from economically specialized to more diversified economies. It is not intended to discourage or mask the need for economic diversification or other economic development efforts. The objective stems from the recognition that few economic options are available in these areas, that BLM and Forest Service actions may be able to contribute to community vitality, and the belief that the continued existence and vitality of these areas is in the public interest. Map 3-8 shows 15 subbasins for Alternative S2 that were identified as restoration priorities because they have high risk to aquatic and terrestrial species and habitats from natural disturbance, and good opportunity to reduce those risks through restoration activities, and because they provide employment and economic opportunities for isolated and economically specialized communities. For more information on how Areas of Economic Specialization were measured, see the *Economic and Social Conditions of Communities* report (ICBEMP 1998) and the Restoration Appendix (Appendix 15, available at www.icbemp.gov or by calling 208.334.1770).

R-O35. Objective. While designing management activities to meet restoration objectives, make commodity products available for purchase, to the extent possible: (1) to support economic activity important to rural and tribal communities and local governments; (2) to maximize regional market efficiencies; and (3) to achieve restoration objectives in an efficient and cost effective way. See also Objective B-O64 in the Base Level management direction section.

Rationale: The commercial use of Forest Service- and BLM-administered land resources can provide social, economic, and cultural benefits to society that are compatible with an ecosystem restoration management emphasis.

R-O36. Objective. Inform and coordinate with affected federally recognized tribes to identify restoration opportunities and possible cooperative restoration approaches or actions. Emphasize restoration activities on Forest Service- and BLM-administered lands in subbasins that are near or contain tribal communities which are less economically diverse and have greater need for economic stimulus (see Table 3-3 for a list of these tribal communities). See the broad-scale tribal restoration priority subbasins, shown on Map 3-7 in the Supplemental Draft EIS, and Objective B-O57 in the Base-level management direction section.

Rationale: This objective emphasizes identifying high restoration priority subbasins near isolated and economically specialized communities. Map 3-8 shows 11 subbasins that were identified as restoration priorities for Alternative S2 because they have high risk to aquatic and terrestrial species and habitats from natural disturbance, have good opportunity to reduce those risks through restoration activities, and provide employment and economic opportunities in tribal communities. There is also high likelihood that resources associated with the rights and interests of federally recognized tribes will be available in these areas. *Informing* and *coordinating* are the minimum required collaborative approaches for this objective. Cooperating and consensus are desired, but not required. (See the Glossary definition of Collaboration for a description of these terms.)

R-S10. Standard. When conducting Subbasin Review, EAWS, or applicable site-specific NEPA analysis, inform and coordinate with affected federally recognized tribes and solicit restoration opportunities identified by the tribes. When possible, accomplish restoration objectives that also address restoration of resource values that are important to federally recognized tribes.

Rationale: Consultation with the tribes may help identify ways to accomplish restoration objectives and at the same time enhance resource values for species of interest to tribes. For example, a tribe might directly benefit from cooperative restoration of a traditional camas-gathering area. In another case, shrubland restoration might provide an indirect benefit if forbs and shrubs of special interest to tribes could be targeted for inclusion in the seeding mixture. Collaborating with tribes during site-specific NEPA analysis is only required if the proposed action relates to resources of interest to the tribes. *Informing* and *coordinating* are the minimum required collaborative approaches for this objective. Cooperating and consensus are desired, but not required. (See the Glossary definition of Collaboration for a description of these terms.)

R-S11. Standard. Cooperate with tribal efforts regarding research and restoration of treaty/trust resources (for example, habitat re-establishment of salmon in Columbia River tributaries, mule deer in the Klamath Basin, and antelope in eastern Idaho). During EAWS, Subbasin Review, or site-specific NEPA analysis, specifically consider for protection and restoration treaty resources within a tribe's area of interest or ceded lands.

R-S12. Standard. Congruent with achieving restoration objectives, inform and coordinate with federally recognized tribes to design restoration actions that mitigate possible negative effects on resources of interest to tribes.

Rationale: Many ways exist to accommodate the rights and interests of tribes while still accomplishing resource management objectives. For example, the timing of agency actions can be a significant mechanism for accommodation, because many tribal uses are seasonal in nature. *Informing* and *coordinating* are the minimum required collaborative approaches for this standard. Cooperating and consensus are desired, but not required. (See the Glossary definition of Collaboration for a description of these terms.)

R-G34. Guideline. Consider historically occupied habitats in traditional use areas for restoration of resources/species of interest to tribes. Implementation guidance for Subbasin Review includes examples and possible questions that may help focus restoration discussions. Consider the list of culturally significant plant species (Appendix 8 in Volume 2 of the Supplemental Draft EIS) as a starting point for collaborative discussion with the tribes, as well as the *Big Game Species of Concern Assessment* as they relate to tribes (Lehmkuhl and Kie 1999).

Management Direction—Terrestrial T Watersheds

Description and Management Intent

Terrestrial T watersheds (5th-field hydrologic unit codes [HUCs]), shown on Map 3-10 at the end of this document, are one of the components of the terrestrial strategy. T watersheds alone do not constitute a network of habitats for terrestrial species. However, they are a critical piece of the overall strategy to maintain and restore networks of habitat for terrestrial species. These areas provide a system of watersheds that provide an anchor for the recovery and viability of wide-ranging terrestrial species.

To have been selected, T watersheds must meet the following criteria:

1. The watershed must contain source habitat for one or more of 5 "families" of terrestrial species (see sidebar in the Terrestrial Source Habitat Component section of the Base-level Direction), which are a subset of the 12 Terrestrial Families described in Wisdom et al. (2000). These five families represent groups of species associated with habitats that have declined substantially in geographic extent in the project area since historical times.
2. The watershed must have at least 5 percent BLM- and/or Forest Service-administered lands (although the overwhelming majority of watersheds selected contain more than 80 percent BLM- and/or Forest Service-administered lands).
3. The source habitats that have declined substantially in geographic extent since the historical period generally are functioning within the watershed with relatively little change compared to historical functions. In general, they would have intact functions and processes (such as plant succession), frequency and severity of disturbance (such as fire, grazing, insects, and disease), nutrient cycling, and energy flow that are characteristic for the area.
4. The pattern of source habitats within the watershed closely resembles historical vegetation patterns (that is, they have low departure, or change, from historical patterns) with certain habitat components intact (such as large snags, absence of exotic species, and low predicted road densities).

As used in the proposed decision, source habitats are the vegetation cover types and structural stages that contribute to stable species populations or population growth in a specified area and time. A species normally requires several source habitats to provide for stable populations or population growth. Each distinct vegetation cover type represents a complex of plant species

and groups with similar characteristics. Each cover type has one to several structural stages (that is, stages of structural development). Source habitats as used here support long-term population persistence (Wisdom et al. 2000).

While every acre of source habitat within T watersheds is not necessarily of highest quality, T source habitats can be considered the most sustainable through time compared to source habitats in other watersheds.

The two-fold (short term and long term) intent of management in T watersheds recognizes that source habitat(s) are not static and that preventing loss of source habitat relates to the whole watershed, not just to a site-specific area. The intents for management in T watersheds are as follows:

1. In the short term (10 years), T watershed direction has a conservation emphasis. Source habitats that have declined substantially in geographic extent from the historical to the current period in most of the RAC/PAC areas where they existed historically, and those with old-forest characteristics, should be maintained or secured. The short-term intent includes preventing further loss of geographic extent and decline in condition of source habitats that have declined substantially from the historical to the current period. This loss or decline could be caused either by land uses (for example, livestock grazing pressure that exceeds what the cover types can tolerate) or by management actions that collectively or individually would fragment source habitat(s) within and across landscapes and diminish the condition of source habitat(s). Restoration is focused primarily on securing the source habitat, by preventing invasion by noxious weeds, for example.
2. In the long term (more than 10 years), T watershed direction is intended to (a) recruit additional source habitats that have declined substantially in geographic extent from the historical to the current period, to increase their geographic extent and connectivity within the watershed where possible (that is, where they can be sustained by the combination of landform, climate, and biological and physical characteristics); and (b) repattern source habitats on the landscape where and when necessary (see explanation below). The short-term conservation-oriented focus takes precedence over the long-term restoration-oriented focus. Source habitats that have not declined substantially and/or non-source habitats (relative to the five Terrestrial Families) could be manipulated through management actions or natural succession to expand their geographic extent and connectivity and/or to repattern source habitats.

The expectation is that management action, such as weed control, thinning, prescribed burning, and altered livestock grazing management strategies, would be used as needed to maintain, secure, and restore source habitats. Although the patterns of source habitats in T watersheds are expected to be relatively similar to the historical vegetation patterns, in some cases source habitats would need to be repatterned. For example, restoration of source habitats might require conversion from one source habitat to another (such as from juniper-sagebrush-woodland to mountain big sagebrush-open low-medium shrub). Land uses, such as livestock grazing and timber harvest, would be allowed if they are consistent with the objectives and management intent for T watersheds.

Objectives and standards for T watersheds would apply only to the source habitat(s) listed in Objective T-O1 that occur within the watersheds. These objectives and standards take precedence over other ICBEMP direction except where inconsistent with threatened and endangered species and A1 subwatersheds direction. If there are other management conflicts, then direction

for T watersheds would be followed. Management direction in the Restoration and Base Level Sections would apply to T watersheds, but direction for source habitats in T watersheds would provide the context within which the Restoration and Base Level Management Direction must be implemented.

T watersheds were identified using broad-scale data. The use of these data to identify specific watersheds may introduce some level of error. (See Hemstrom et al. [2000] and Raphael et al. [2000] for discussion of errors associated with broad-scale data.) At the scale of individual watersheds, some of the T watersheds may not have the low level of fragmentation departure anticipated when identifying them for the T watershed direction. This means that when viewed on the ground, vegetation patterns in watersheds identified as T watersheds may not be similar to historical vegetation patterns.

T-O1. Objective. In the short term, maintain and secure terrestrial source habitats that have declined substantially in geographic extent from the historical to the current period and source habitats that have old-forest characteristics. In the long term, repattern source habitats where and when necessary by focusing on the entire set of source habitats (cover types and structural stages) listed within each of the five Terrestrial Families in Tables 3-4 to 3-8 (Terrestrial Families 1, 2, 4, 11, and 12; see tables at the end of this document). In the long term, facilitate the persistence and expand the geographic extent and connectivity of source habitats that have declined substantially where they can be sustained by the combination of landform, climate, and biological and physical characteristics. Prior to conducting management actions within the source habitats that have not declined substantially in geographic extent, evaluate the effects of the action on pertinent species within the five Terrestrial Families to minimize short-term risk to the continued persistence of the species.

> ***Rationale:*** The intent of this objective is described above in the Description and Management Intent section. Source habitats for the five Terrestrial Families are emphasized because the geographic extent of many of them have declined substantially in the project area between the historical and current period; additional source habitats that have declined substantially are also included for the remaining seven Terrestrial Families (see Table 3-9 at the end of this document). A critical premise of the intent of management direction for T watersheds is that short- and long-term conservation of source habitats that have declined substantially, and long-term restoration of the pattern of source habitats would help achieve long-term viability of terrestrial species. The T watersheds were identified with the purpose of being used as anchors of sustainable habitats for widely distributed terrestrial species populations in the short term, and in the long-term to create a well-distributed network of secure and productive habitats, to ensure the long-term survival of populations or species.

T-S1a. Standard. During Subbasin Review, T watersheds shall be validated using existing information based on the T watershed criteria. T watersheds identified using broad-scale data in the ICBEMP EIS that do not appear to meet the criteria when looking at finer-scale information shall be re-evaluated against the criteria during subsequent land use plan revision or amendment. Also during Subbasin Review, other watersheds in the subbasin shall be evaluated to determine if they meet the T watershed criteria. If so, then they, too, would be further evaluated during subsequent land use plan revision or amendment.

> ***Rationale:*** T watersheds were identified using broad-scale data. The use of these data to identify specific watersheds may introduce some level of error when looking at the finer

scale (see Hemstrom et al. [2000] and Raphael et al. [2000] for discussion of errors associated with broad-scale data.) At the scale of individual watersheds, some of the T watersheds may not have the low level of disturbance departure anticipated when identifying them for the T watershed direction. This means that when viewed on the ground, vegetation patterns in watersheds identified as T watersheds may not be similar to historical vegetation patterns. This standard is intended to use the step-down process to systematically address potential errors in the T watershed delineation process.

T-O2. Objective. Maintain habitats by permitting natural processes, including disturbance events, such as fire, to continue whenever these processes will contribute to sustainability of habitat.

Rationale: Disturbance processes, such as fire, can help maintain watershed qualities. Attempts to exclude these processes, such as with fire suppression, may have long-term detrimental consequences (for example, changes in vegetation and successional dynamics, and direct effects of fire suppression itself). "Wildland fire use for resource benefit" and prescribed fire both require extensive planning and documentation and must meet NEPA and agency requirements.

T-S1. Standard. Management activities and land uses (subject to valid existing rights, see Standard T-S2), individually or collectively, shall be consistent with achievement of Objectives T-O1 and T-O2.

Rationale: Example 1: There might be cases where a prescribed burn in source habitat might be necessary and desirable to maintain and secure it (for example, burning sagebrush to prevent invasion of western juniper). This might be an appropriate restoration management action in a T watershed; however, a possible consequence is that noxious weeds, such as medusahead, might invade after a prescribed burn if the prescribed burn made the site more susceptible to noxious weed invasion. The prescribed burn action could still be approved, but then another action, weed control, would have to be implemented.

Example 2: Where livestock grazing has not resulted in a loss of geographic extent or decline in the condition of source habitat, livestock grazing may continue as currently implemented. On the other hand, livestock grazing would have to be modified or eliminated where excessive livestock grazing pressure has contributed to a decline in source habitat (for example, livestock grazing that has caused increases in tree density in dry forest types, resulting in a loss of low elevation old forest source habitat [Terrestrial Family 1]).

T-S2. Standard. For land uses conducted pursuant to valid existing rights that pose short- and/or long-term risks to achievement of the T watershed source habitat objectives (T-O1 and T-O2), existing authorities shall be used to mitigate and/or require to the extent authorized design features that would minimize short-term impacts and permit long-term objective attainment.

Rationale: Valid existing rights may limit land management agency discretion in some cases, such as in certain situations under the mining laws. This standard requires the use of existing authorities to minimize the impacts of uses conducted pursuant to valid existing rights. For example, where lands are not withdrawn from mining, or where valid mining claims exist in withdrawn areas, agencies impose such reasonable conditions on mining activities as necessary to protect public resources.

T-S3. Standard. No new road construction shall be allowed in source habitats within T watersheds in the short term (10 years, subject to valid existing rights) unless needed to secure these areas from immediate adverse road effects or unless the activity is needed to achieve the T watershed objectives.

NOTE: See also:
B-O11 and B-S14 regarding noxious weeds in T watersheds.
B-S5 regarding EAWS in T watersheds.
B-S10 regarding accelerated learning in T watersheds.
R-O15 regarding Subbasin Review and restoration priorities in T watersheds.

Management Direction—Aquatic A1 and A2 Subwatersheds

Description and Management Intent—A1 and A2 Subwatersheds

Aquatic A1 and A2 subwatersheds are an important the component of the aquatic/riparian/hydrologic strategy. These areas provide a system of core subwatersheds (6th-field hydrologic unit codes [HUCs]) that are the anchor for recovery and viability of widely distributed native fishes. They are not intended to be static, long-term reserves, but rather dynamic locations which change in response to new information or changed conditions.

To the extent possible using broad-scale data, the A1/A2 subwatersheds were identified using the following criteria based on science findings and suggestions (*Scientific Assessment,* Volume III, pages 1360-1364) and interactions between the Science Advisory Group's aquatics scientists and another group of interagency aquatic biologists. These A1/A2 subwatersheds are shown on Map 3-11a. Fine tuning of the A1/A2 subwatersheds is anticipated as more accurate, finer-scale data is used during step-down analyses to determine if subwatersheds meet the criteria and intent of the A designations. The process for future changes and updates is described in Appendix 18 in the Final EIS.

The A1 and A2 subwatersheds have many similarities, but they also have a few differences. The similarities are described here; the differences between the A1 and A2 subwatersheds are described in the respective sections.

A1 and A2 subwatershed designations are based on the following criteria:

Listed species (bull trout, stream- and ocean-type chinook, and steelhead)

- Subwatersheds (6th-field HUC) must have at least 5 percent Forest Service- and/or BLM-administered lands;
- All subwatersheds (6th-field HUC) with strong populations (See the Glossary for the definition of strongholds.)
- All subwatersheds in the Snake River Basin that were identified by NMFS as important for anadromous fish (NOTE: During post-ROD fine-tuning as Recovery Plans are adopted, this criteria will be replaced with the following: "Population recovery units identified in approved recovery plans for listed anadromous fish by NMFS or bull trout by USFWS that meet the intent of the A system.")
- All subwatersheds outside the Snake River Basin (that is, Mid and Upper Columbia) identified in the *Scientific Assessment* as supporting wild, native populations of steelhead and

chinook salmon that have little or no influence from introduced non-indigenous stocks (See Map 4.22 in Volume III of the *Scientific Assessment* page 1219).

- Fringe populations for bull trout and ocean type chinook as identified in the *Scientific Assessment* (Volume III, page 1247)

Non listed Species (redband, westslope, Yellowstone)

- Subwatersheds (6th-field HUC) must have at least 25 percent Forest Service- and/or BLM-administered land.
- Fringe populations for westslope and redband as identified in the *Scientific Assessment* (Volume III, page 1247).
- All subwatersheds (6th-field HUC) with strong populations of redband trout or Yellowstone cutthroat trout (Note "strong" is quantifiable; see the Glossary for the definition.)
- All subwatersheds (6th-field HUC) with strong populations of westslope cutthroat trout and the presence of a threatened or endangered aquatic species. (See the Glossary for the definition of strongholds.)

Both A1 and A2 subwatersheds were delineated using broad-scale data. In recognition of the dynamic nature of the ecosystem, an agreed upon implementation process for post-ROD adjustments is described in Appendix 18.

Description and Management Intent—A1 Subwatersheds

The intent of management in A1 subwatersheds is to protect important fish populations by conserving and maintaining subwatershed and aquatic habitat conditions, processes, and functions. It is expected that these subwatersheds are currently near attainment of aquatics objectives. These areas are managed to ensure that subwatershed and habitat conditions are protected and maintained to facilitate and contribute to recovery of widely distributed salmonid fish species and other associated aquatic and riparian species. Management activities (for example, noxious weed treatments, prescribed fire and "wildland fire use for resource benefit", non-commercial thinning) within A1 subwatersheds should be designed to pose *very low risk* of sediment delivery and *very low risk* of adversely affecting the hydrologic regime and riparian areas. Activities could be initiated in A1 subwatersheds if appropriate and necessary to address substantial and apparent short-term risks to the aquatic and riparian system.

A1 subwatersheds differ from A2 subwatersheds in the status of the land. A1 subwatersheds have *at least 50 percent* congressionally designated wilderness or predicted road densities of none, very low, or low.

Management direction of A1 subwatersheds will take precedence over other management direction in the ICBEMP project area except where inconsistent with threatened and endangered species direction.

Objectives, Standards, and Guidelines—A1 Subwatersheds

A1-O1. Objective. Conserve current aquatic and riparian habitats that support important native fish population centers. This includes maintenance of hydrologic, riparian, and instream processes and functions; water quality; connectivity; and noxious weeds control.

A1-O2. Objective. Maintain habitats by permitting natural processes, including disturbance events such as fire, to continue whenever these processes will contribute to long-term sustainability of habitat and aquatic/riparian objectives.

Rationale: Disturbance processes, such as fire, can help maintain watershed qualities. Attempts to exclude these processes, such as with fire suppression, may have long-term detrimental consequences (for example, changes in vegetation and successional dynamics, and direct effects of fire suppression itself). "Wildland fire use for resource benefit" and prescribed fire both require extensive planning and documentation and must meet NEPA and agency requirements.

A1-S1. Standard. New management activities (subject to valid existing rights; see Standard A1-S4) in A1 subwatersheds shall be conducted only if they maintain or achieve A1 subwatershed and aquatic/riparian/hydrologic objectives and pose very low short-term risk to aquatic, hydrologic, and riparian area functions and processes. Watershed Condition Indicators (WCIs), or the NMFS/USFWS matrix of pathways and indicators (see Appendix 9 in the Final EIS) until WCIs are developed, shall be linked to objectives and used to guide development and evaluate proposed activities consistent with the aquatic, riparian, and hydrologic objectives (see Standard B-S43) and the specific intent of A1 subwatersheds. The WCIs (or matrix in the interim) shall be used as a suite of indicators. Each indicator will have value ranges defining functioning, functioning at risk, and non-functioning conditions. See the management intent, direction for WCIs, and Appendix 9 in the Final EIS for further detail.

A1-S2. Standard. No new road construction shall be allowed within A1 subwatersheds in the short term (10 years; subject to valid existing rights; see Standard A1-S4) while A2 subwatersheds and other areas are being restored.

A1-S3. Standard. Existing land uses, facilities, and actions within A1 subwatersheds shall be modified, discontinued, or relocated (subject to valid existing rights; see Standard A1-S4) if they prevent attainment of the A1 subwatershed and aquatic/riparian/hydrologic objectives. Watershed Condition Indicators (WCIs), or the NMFS/USFWS matrix of pathways and indicators (see Appendix 9 in the Final EIS) until WCIs are developed, shall be linked to objectives and used to guide development and evaluate existing land uses, facilities, and actions consistent with the aquatic/riparian/ hydrologic objectives (see Standard B-S43) and the specific intent of A1 subwatersheds. The WCIs (or matrix in the interim) shall be used as a suite of indicators. Each indicator will have value ranges defining functioning, functioning at risk, and non-functioning conditions. See the management intent, direction for WCIs, and Appendix 9 in the Final EIS for further detail.

A1-S4. Standard. For those management activities conducted pursuant to valid existing rights that may pose short and/or long term risks to achievement of the A1 subwatershed objective, use existing authorities to mitigate and/or require implementation/design features that would minimize short-term impacts and allow long-term objective attainment.

Rationale: Valid existing rights may limit land management agency discretion in some cases, such as in certain situations under the mining laws. This standard requires the use of existing authorities to minimize the impacts of uses conducted pursuant to valid existing rights. For example, where lands are not withdrawn from mining, or where valid mining claims exist in withdrawn areas, agencies impose such reasonable conditions on mining activities as necessary to protect public resources.

Description and Management Intent—A2 Subwatersheds

Active management is intended to take place within A2 subwatersheds to secure a network of connected habitats. However, management activities (for example, watershed restoration,

noxious weed treatments, prescribed and "wildland fire use for resource benefit" [previously referred to as prescribed natural fire], thinning) within A2 subwatersheds are intended to pose *low risk* of sediment delivery and *low risk* of adversely affecting the hydrologic regime and riparian areas. It is expected that higher levels of road management and watershed restoration would occur in A2 subwatersheds than in A1 subwatersheds. Since predicted road densities are moderate or higher in A2 subwatersheds, opportunities may exist to access and restore uncharacteristic vegetation patch and pattern while meeting the A2 subwatershed and aquatics objectives.

A2 subwatersheds differ from A1 subwatersheds in the status of the lands. A2 subwatersheds have *less than 50 percent* congressionally designated wilderness, and moderate, high, or extremely high predicted road densities.

Objectives, Standards, and Guidelines—A2 Subwatersheds

A2-O1. Objective. Restore habitats supporting important native fish population centers where they are not fully functional while minimizing disruption to fully functioning hydrologic processes. Address immediate risks to fully functioning hydrologic, riparian, and instream processes; water quality; and connectivity. Design activities to restore terrestrial habitats and succession/disturbance regimes (such as noxious weed control) to meet the management intent of A2 subwatersheds and to pose low short-term risk to aquatic habitats. Integrate the restoration activities as needed.

A2-O2. Objective. Maintain habitats by permitting natural processes including disturbance events such as fire to continue whenever these processes will pose low short-term risk and contribute to long-term sustainability of habitat and aquatic/riparian objectives.

> ***Rationale:*** Disturbance processes, such as fire, can help maintain watershed qualities. Attempts to exclude these processes, such as with fire suppression, may have long-term detrimental consequences (for example, changes in vegetation and successional dynamics, and direct effects of fire suppression itself). "Wildland fire use for resource benefit" and prescribed fire (as well as associated mechanical treatments preceding use of prescribed fire) require extensive planning and documentation and must meet NEPA and agency requirements.

A2-S1. Standard. New management activities (subject to valid existing rights; see Standard A2-S4) in A2 subwatersheds shall be conducted only if they achieve A2 subwatershed and aquatic/riparian/hydrologic objectives and pose low short-term risk to aquatic, hydrologic and riparian area functions and processes. Watershed Condition Indicators (WCIs), or the NMFS/USFWS matrix of pathways and indicators (see Appendix 9 in the Final EIS) until WCIs are developed, shall be linked to objectives and used to guide development and evaluate proposed activities consistent with the aquatic, riparian, and hydrologic objectives (see Standard B-S43) and the specific intent of A2 subwatersheds. The WCIs (or matrix in the interim) shall be used as a suite of indicators. Each indicator will have value ranges defining functioning, functioning at risk, and non-functioning conditions. See the management intent, direction for WCIs, and Appendix 9 in the Final EIS for further detail.

A2-S2. Standard. No new road construction shall be allowed within A2 subwatersheds in the short term (10 years; subject to valid existing rights; see Standard A2-S4) unless needed to secure these subwatersheds from immediate adverse road effects or unless the activity is needed to achieve the A2 subwatershed and aquatic objectives.

Rationale: The exception in this standard recognizes that construction may be necessary when a road that is causing unacceptable adverse effects has to be obliterated and relocated.

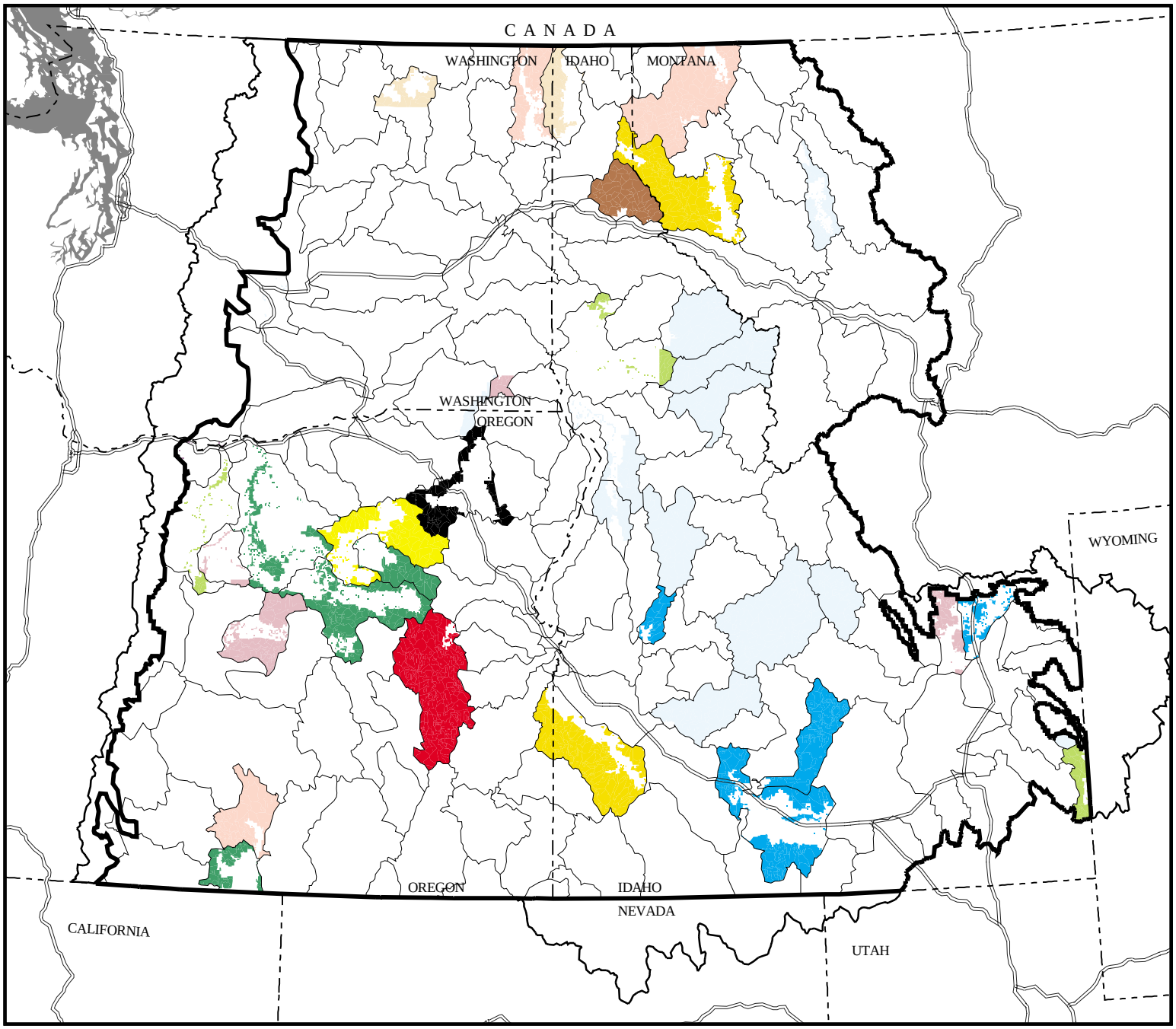
A2-S3. Standard. Existing land uses facilities and actions within A2 subwatersheds shall be modified, discontinued, or relocated (subject to valid existing rights; see Standard A2-S4) if they prevent attainment of A2 subwatershed and aquatic/riparian/hydrologic objectives. Watershed Condition Indicators (WCIs), or the NMFS/USFWS matrix of pathways and indicators (see Appendix 9 in the Final EIS) until WCIs are developed, shall be linked to objectives and used to guide development and evaluate existing land uses, facilities, and actions consistent with the aquatic, riparian, and hydrologic objectives (see Standard B-S43) and the specific intent of A2 subwatersheds. The WCIs (or matrix in the interim) would be used as a suite of indicators. Each indicator will have value ranges defining functioning, functioning at risk, and non-functioning conditions. See the management intent, direction for WCIs, and Appendix 9 in the Final EIS for further detail.

A2-S4. Standard. For those management activities conducted pursuant to valid existing rights that may pose risk to achieving the A2 subwatershed and aquatic/riparian/hydrologic objectives, existing authorities shall be used to mitigate and/or require to the extent authorized implementation/design features that would minimize short-term impacts and allow long-term attainment of objectives.

Rationale: Valid existing rights may limit land management agency discretion in some cases, such as in certain situations under the mining laws. This standard requires the use of existing authorities to minimize the impacts of uses conducted pursuant to valid existing rights. For example, where lands are not withdrawn from mining, or where valid mining claims exist in withdrawn areas, agencies impose such reasonable conditions on mining activities as necessary to protect public resources.

NOTE: See also:

B-O11 and B-S14 regarding noxious weeds in A2 subwatersheds.
R-O25 and associated guidelines regarding Subbasin Review and the A1/A2 network.
R-O26 regarding restoration priorities.
B-S10 regarding accelerated learning in A1/A2 subwatersheds.



Map 3-8. Broad-scale High Restoration Priority Subbasins: Alternative S2

BLM- and Forest Service-Administered Lands Only

INTERIOR COLUMBIA
BASIN ECOSYSTEM
MANAGEMENT PROJECT

Final EIS
2000

50 0 50 100 150 miles
50 0 50 100 150 km

N

- *Biophysical,Economic,Tribal,Aquatic*
- *Biophysical,Economic,Tribal*
- *Biophysical,Economic,Aquatic*
- *Biophysical,Tribal,Aquatic*
- *Biophysical,Economic*
- *Biophysical,Tribal*
- *Biophysical,Aquatic*
- *Economic,Tribal*
- *Tribal,Aquatic*
- *Biophysical*
- *Economic*
- *Tribal*
- *Aquatic*
- *Subbasin Borders*
- *Major Roads*
- *Planning Area Border*

Table 3-1. Forest Source Habitats.[1]

Increase Geographic Extent and Connectivity of These Cover Types and/or Structural Stages	Structure	Broad-scale Priority Areas (ERUs)	Broad-scale Priority Areas (RAC/PACs)
Source Habitat for Terrestrial Families 1 and 2: Low elevation, single story and multi-story old forest and mature forest with old-forest characteristics.			
Interior ponderosa pine	Single story	Northern Cascades Southern Cascades Upper Klamath Northern Great Basin Columbia Plateau Blue Mountains Northern Glaciated Mnts Lower Clark Fork Upper Clark Fork Owyhee Uplands Central Idaho Mountains	Yakima PAC Eastern Washington-Cascades PAC Eastern Washington RAC Deschutes PAC Southeast Oregon RAC Klamath PAC Upper Columbia-Salmon Clearwater RAC John Day RAC Butte RAC Upper Snake RAC Lower Snake RAC
Interior ponderosa pine	Multi-story	Northern Cascades Southern Cascades Northern Glaciated Mnts Lower Clark Fork Upper Clark Fork Central Idaho Mountains	Yakima PAC Eastern Washington-Cascades PAC Eastern Washington RAC Deschutes PAC Butte RAC Upper Columbia-Salmon Clearwater RAC Lower Snake RAC
Western larch	Multi-story	Northern Cascades Southern Cascades Blue Mountains Northern Glaciated Mnts Lower Clark Fork Upper Clark Fork	Yakima PAC Eastern Washington-Cascades PAC Eastern Washington RAC Descutes PAC John Day RAC Butte RAC Upper Columbia-Salmon Clearwater RAC
Aspen and cottonwood-willow cover type–structural stages	Multi-story	All ERUs	All RACs and PACs
Source Habitat for Terrestrial Family 2: Mid to upper elevation, single story and multi-story old forest and mature forest with old-forest characteristics			
Interior ponderosa pine	Single story	Northern Cascades Southern Cascades Upper Klamath Northern Great Basin Columbia Plateau Blue Mountains Northern Glaciated Mnts Lower Clark Fork Upper Clark Fork Owyhee Uplands Central Idaho Mountains	Yakima PAC Eastern Washington-Cascades PAC Eastern Washington RAC Deschutes PAC Southeast Oregon RAC Klamath PAC Upper Columbia-Salmon Clearwater RAC John Day RAC Butte RAC Upper Snake RAC Lower Snake RAC
Whitebark pine	Single story	Northern Cascades Southern Cascades	Yakima PAC Eastern Washington-Cascades PAC

Table 3-1. Forest Source Habitats. (continued)

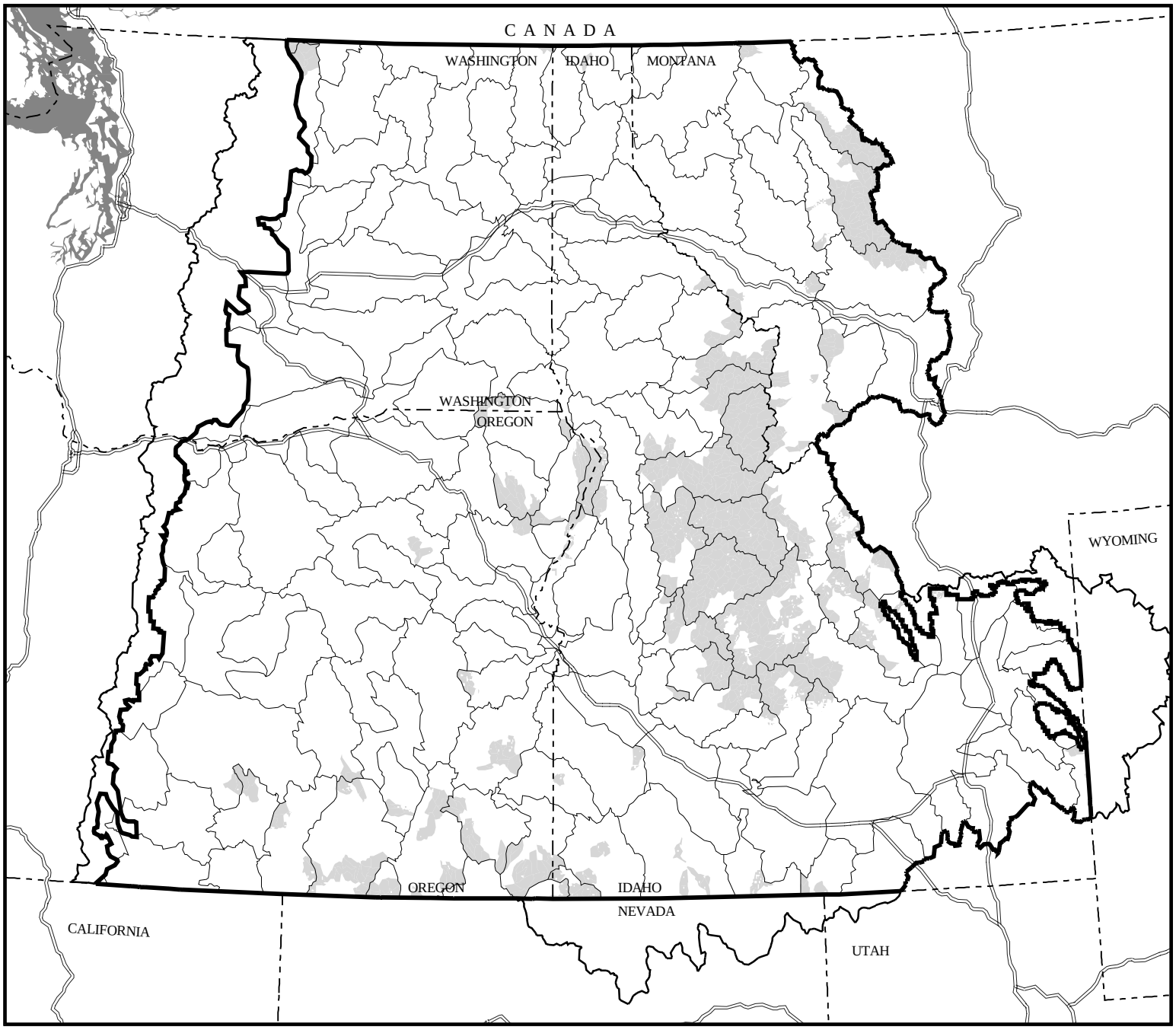
Increase Geographic Extent and Connectivity of These Cover Types and/or Structural Stages	Structure	Broad-scale Priority Areas (ERUs)	Broad-scale Priority Areas (RAC/PACs)
		Upper Klamath Northern Great Basin Blue Mountains Northern Glaciated Mnts Lower Clark Fork Upper Clark Fork Owyhee Uplands Snake Headwaters Central Idaho Mountains	Eastern Washington RAC Deschutes PAC Southeast Oregon RAC Klamath PAC John Day RAC Upper Columbia-Salmon Clearwater RAC Butte RAC Upper Snake RAC Lower Snake RAC
Interior ponderosa pine	Multi-story	Northern Cascades Southern Cascades Northern Glaciated Mnts Lower Clark Fork Upper Clark Fork Central Idaho Mountains	Yakima PAC Eastern Washington-Cascades PAC Eastern Washington RAC Deschutes PAC Butte RAC Upper Columbia-Salmon Clearwater RAC Lower Snake RAC
Western larch	Multi-story	Northern Cascades Southern Cascades Blue Mountains Northern Glaciated Mnts Lower Clark Fork Upper Clark Fork	Yakima PAC Eastern Washington-Cascades PAC Eastern Washington RAC Deschutes PAC John Day RAC Butte RAC Upper Columbia-Salmon Clearwater RAC
Aspen and Cottonwood-willow cover type-structural stages	Multi-story	All ERUs	All RAC/PACs
Western White pine	Stand-initiation	Northern Glaciated Mtns Lower Clark Fork	Butte RAC Upper Columbia-Salmon Clearwater RAC Easterm Washington RAC
Source Habitat for Terrestrial Families 2 and 4:			
Interior ponderosa pine	Stand-initiation	Northern Cascades Southern Cascades Northern Great Basin Columbia Plateau Blue Mountains Northern Glaciated Mts Lower Clark Fork Upper Clark Fork Owyhee Uplands Central Idaho Mountains	Yakima PAC Eastern Washington-Cascades PAC Eastern Washington RAC Deschutes PAC Southeast Oregon RAC Klamath PAC Upper Columbia-Salmon Clearwater RAC John Day RAC Butte RAC Upper Snake RAC Lower Snake RAC
Douglas-fir	Stand-initiation	Southern Cascades Upper Klamath Lower Clark Fork	Yakima PAC Deschutes PAC Southeast Oregon RAC

Table 3-1. Forest Source Habitats. (continued)

Increase Geographic Extent and Connectivity of These Cover Types and/or Structural Stages	Structure	Broad-scale Priority Areas (ERUs)	Broad-scale Priority Areas (RAC/PACs)
		Upper Clark Fork Central Idaho Mountains	Klamah PAC Butte RAC Upper Columbia-Salmon Clearwater RAC Lower Snake RAC
Western larch	Stand-initiation	Northern Cascades Northern Glaciated Mtns Lower Clark Fork Upper Clark Fork	Yakima PAC Eastern Washington-Cascades PAC Eastern Washington RAC Butte RAC Upper Columbia-Salmon Clearwater RAC
Lodgepole pine	Stand-initiation	Northern Great Basin Columbia Plateau Upper Klamath Northern Great Basin Northern Glaciated Mtns Lower Clark Fork Upper Clark Fork	Soultheast Oregon RAC Eastern Washington RAC Deschutes PAC Yakima PAC Upper Columbia-Salmon Clearwater RAC John Day RAC Klamath PAC Butte RAC Upper Columbia-Salmon Clearwater RAC
Source Habitat for Terrestrial Families 1, 2, and 4:			
Aspen	Old forest; multi-story, unmanaged young forest; managed young forest; understory reinitiation; stem exclusion closed canopy; stand initiation	All ERUs	All RACs and PACs

[1] These are the source habitats (vegetation types that have declined substantially in geographic extent from the historical to current periods for Family 1: Low elevation old forest, Family 2: All elevation old forest, and Family 4: Early-seral forest and in the Ecological Reporting Units and RAC/PAC areas where they have declined (Wisdom et. al 2000a). Objective R-O16 directs managers to increase the extent of these vegetation types.

Source: Hann, Jones, Karl, et al. 1997; Wisdom et al. 2000.



50 0 50 100 150 miles

50 0 50 100 150 km

N

Terrestrial (T) Watersheds

Subbasin Borders

Major Roads

Planning Area Border

Map 3-10. Terrestrial (T) Watersheds: Alternatives S2 and S3

BLM- and Forest Service-Administered Lands Only

INTERIOR COLUMBIA BASIN ECOSYSTEM MANAGEMENT PROJECT

Final EIS
2000

Table 3-2. Rangeland Source Habitats.[1]

Increase geographic extent & connectivity of these cover types/structural stages	Decrease geographic extent and connectivity of these cover types/structural stages	In what situations	Broad-scale Priority Areas (RAC/PAC)
Source Habitat for Terrestrial Families 5,8,10,12: Fescue-bunchgrass (open herbland and closed herbland structural stages)	Exotic Forbs-Annual Grass	Where exotic undesirable plants have invaded and established into the fescue-bunchgrass cover type	All RAC/PACs
	Interior Ponderosa Pine Interior Douglas-Fir	Where ponderosa pine, Douglas-fir, and/or other trees associated with the interior ponderosa pine and Interior Douglas-fir cover types have encroached into the fescue-bunchgrass cover type and have increased in density, attributable singly or to the combination of fire suppression and excessive livestock grazing pressure.	Butte RAC
	Interior Ponderosa Pine Mixed-Conifer Woodlands	Where ponderosa pine, lodgepole pine, Douglas-fir, white fir, and/or other coniferous trees associated with the interior ponderosa pine and mixed-conifer woodlands cover types have encroached into the fescue-bunchgrass cover type and have increased in density, attributable singly or to the combination of fire suppression and excessive livestock grazing pressure	Klamath PAC
Source Habitat for Terrestrial Families 3,5,8,10,12: Wheatgrass Bunchgrass (open herbland and closed herbland structural stages)[2]	Exotic Forbs-Annual Grass	Where exotic undesirable plants have invaded and established into the wheatgrass bunchgrass cover type	All RAC/PACs
	Mountain Big Sagebrush Big Sagebrush	Where mountain big sagebrush, big sagebrush, and/or other shrubs associated with the mountain big sagebrush and big sagebrush cover types have encroached into the wheatgrass bunchgrass cover type and have increased in abundance, attributable singly or to the combination of fire suppression and excessive livestock grazing pressure	Lower Snake RAC Upper Snake RAC Upper Columbia-Salmon Clearwater - R4 RAC
Source Habitat for Terrestrial Families 5,7,8,10,11,12: Mountain Big Sagebrush (especially the open low-medium shrub structural stage)	Juniper/Sagebrush[3]	Where juniper (primarily western juniper) have encroached into the mountain big sagebrush cover type and have increased in density, attributable singly or to the combination of fire suppression and excessive livestock grazing pressure[4]	Yakima PAC E. Washington-Cascades PAC E. Washington RAC Southeastern Oregon RAC Klamath PAC Deschutes PAC Upper Columbia-Salmon Clearwater - R4 RAC John Day RAC Upper Snake RAC Lower Snake RAC
	Exotic Forbs-Annual Grass	Where exotic undesirable plants have invaded and established into the mountain big sagebrush cover type	Southeastern Oregon RAC Lower Snake RAC
	Interior Douglas-Fir	Where Douglas-fir and/or other trees associated with the Interior Douglas-fir cover type have encroached into the mountain big sagebrush cover type and have	Upper Snake RAC

		increased in density, attributable singly or to the combination of fire suppression and excessive livestock grazing pressure	
Source Habitat for Terrestrial Families 5,7,8,10,11,12: Low Sage (open low-medium shrub structural stage)	Juniper/Sagebrush	Where juniper (primarily western juniper) have encroached into the low sage cover type and have increased in density, attributable singly or to the combination of fire suppression and excessive livestock grazing pressure[4]	Klamath PAC
Source Habitat for Terrestrial Families 5,7,8,10,11,12: Big Sagebrush (closed herbland, open low-medium shrub, and closed low-medium shrub structural stages)	Exotic Forbs-Annual Grass	Where exotic undesirable plants have invaded and established into the big sagebrush cover type	Yakima PAC E.Washington-Cascades PAC E. Washington RAC Southeastern Oregon RAC Klamath PAC Deschutes PAC Upper Columbia-Salmon Clearwater - R4 RAC John Day RAC Upper Snake RAC Lower Snake RAC
Source Habitat for Terrestrial Families 3,5,7,10,11: Antelope Bitterbrush-Bluebunch Wheatgrass	Exotic Forbs-Annual Grass	Where exotic undesirable plants have invaded and established into the antelope bitterbrush-bluebunch wheatgrass cover type	E. Washington-Cascades PAC Yakima PAC E. Washington RAC John Day RAC Deschutes PAC Southeastern Oregon RAC Lower Snake RAC
Source Habitat for Terrestrial Families 5,7,10,11: Salt Desert Shrub	Exotic Forbs-Annual Grass[5]	Where exotic undesirable plants, especially cheatgrass, have invaded and established into the salt desert shrub cover type	Southeastern Oregon RAC Lower Snake RAC

[1] The rangeland source habitats in this table includes herblands, shrublands, woodlands.

[2] Although seedings of crested wheatgrass and other exotic grasses typically done on rangelands for rehabilitation after wildfire are included in the wheatgrass bunchgrass cover type (Hann, Jones, Karl et al. 1997 and Wisdom et al. in press), the intent of objective R-O21 is to focus on increasing the geographic extent and connectivity of the native bunchgrass species (such as bluebunch wheatgrass, Sandberg bluegrass, and Basin wildrye) within the wheatgrass bunchgrass cover type.

[3] The intent of objective R-O21 is not to reduce the geographic extent and connectivity of "old juniper woodlands" dominated by trees older than 150 years, that would typically be classified as the juniper woodlands cover type. The juniper woodlands cover type, in contrast to the juniper-sagebrush cover type, typically has an old tree component. The juniper woodlands cover type generally represents sites where juniper species are confined to rocky surfaces or ridges, with well-drained, shallow soils that produce relatively little understory herbaceous vegetation and have not burned frequently. The juniper-sagebrush cover type generally represents sites where juniper has expanded its range into herblands and/or shrublands, attributable singly or to the combination of fire suppression, excessive livestock grazing pressure, and climate (Karl and Leonard 1996; Hann, Jones, Karl et al. 1997).

[4] The intent of objective R-O21 is to reduce juniper by burning or appropriate harvest or cutting methods, before the increasing density of juniper begins to reduce the species diversity within the mountain big sagebrush or low sage cover type. This may require taking action before diversity problems are detected through monitoring. The risk is that waiting too long to start juniper control may allow deterioration of the understory to the point that natural regeneration of the original cover type may not be possible. Such delays may end up costing thousands of dollars to control invading exotic plants and to reestablish the native plant community. The focus should be on decreasing geographic extent and connectivity of juniper-sagebrush cover type where active fire suppression and/or livestock grazing have contributed to its expansion, rather than on juniper-sagebrush cover type that has expanded, or is expanding, solely because of climate.

[5] Rehabilitation in the salt desert shrub cover type is difficult to achieve currently. In most cases, the aridity of this cover type precludes reestablishment of desirable native species with current technology. It is the intent of objective R-O21 to concentrate on exotic and noxious plant control, with the hope that natural processes will allow reestablishment of the salt desert shrub plant species, until such time that technological improvements increase the success rate of rehabilitation efforts.

Table 3-4. Terrestrial Family 1 — Old Forest, Low Elevation Source Habitat.

Cover Type	Structural Stage
Interior ponderosa pine[1]	Old forest, single and multi-story[1] Managed young multi-story Unmanaged young multi-story
Interior Douglas-fir	Old forest, multi-story
Western larch[1]	Old forest, multi-story[1]
Aspen[1]	Old forest, multi-story[1]
Cottonwood-willow[1]	Old forest, multi-story[1] Managed young multi-story Unmanaged young multi-story
Sierra Nevada mixed-conifer[1]	Old forest, single story Old forest, multi-story[1]
Pacific ponderosa pine[1]	Old forest, single story Old forest, multi-story[1]
Oregon white oak	Woodland[1]

[1] Source habitats that have declined substantially in geographic extent from the historical to the current period.

Table 3-5. Terrestrial Family 2 — Old Forest, Broad Elevation Source Habitat.

Cover Type	Structural Stage
Whitebark pine[1]	Old forest, single story Old forest, multi-story[1] Unmanaged young multi-story[1] Understory reinitiation[1]
Whitebark pine-alpine larch[1]	Understory reinitiation[1] Unmanaged young multi-story[1] Old forest, multi-story[1]
Engelmann spruce-subalpine fir[1]	Old forest, multi-story[1] Unmanaged young multi-story[1] Stand initiation Understory reinitiation
Interior Douglas-fir	Old forest, single and multi-story Stand initiation Understory reinitiation Unmanaged young multi-story
Western larch[1]	Old forest, single story[1] Old forest, multi-story[1] Stand initiation[1] Understory reinitiation Unmanaged young multi-story[1]
Lodgepole pine[1]	Unmanaged young multi-story Managed young multi-story Stand initiation[1] Understory reinitiation Old forest, single story[1] Old forest, multi-story
Aspen[1]	Old forest, multi-story[1] Understory reinitiation[1] Stand initiation Unmanaged young multi-story
Grand fir-white fir	Old forest, single and multi-story Stand initiation Understory reinitiation Unmanaged young multi-story
Western white pine[1]	Old forest, multi-story[1] Old forest, single story Understory reinitiation[1] Stand initiation[1] Unmanaged young multi-story
Interior ponderosa pine[1]	Old forest, single and multi-story[1] Stand initiation[1] Stem exclusion open canopy Understory reinitiation Unmanaged young multi-story

Table 3-5. Terrestrial Family 2 — Old Forest, Broad Elevation Source Habitat. (continued)

Cover Type	Structural Stage
Cottonwood-willow[1]	Old forest, multi-story[1] Stand initiation[1] Unmanaged young multi-story
Mixed-conifer woodlands[1]	Woodland[1]
Mountain hemlock[1]	Stand initiation Understory reinitiation Unmanaged young multi-story Old forest, single story Old forest, multi-story[1]
Pacific silver fir-mountain hemlock	Stand initiation Understory reinitiation Unmanaged young multi-story Old forest, multi-story
Western redcedar-western hemlock[1]	Stand initiation Understory reinitiation Unmanaged young multi-story[1] Old forest, single and multi-story
Red fir	Stand initiation Understory reinitiation Unmanaged young multi-story Old forest, multi-story
Sierra Nevada mixed-conifer[1]	Stand initiation Understory reinitiation[1] Unmanaged young multi-story Old forest, single story Old forest, multi-story[1]
Pacific ponderosa pine[1]	Stand initiation Understory reinitiation Unmanaged young multi-story Old forest, single story Old forest, multi-story[1]
Limber pine	Woodland
Shrub or herb-tree regen	Closed herbland Open low-medium shrub Closed low-medium shrub
Chokecherry-serviceberry-rose[1]	Open low-medium shrub Closed low-medium shrub[1] Open tall shrub

[1] Source habitats that have declined substantially in geographic extent from the historical to the current period.

Table 3-6. Terrestrial Family 4 — Early-seral Forest Source Habitat.

Cover Type	Structural Stage
Interior ponderosa pine[1]	Stand initiation[1]
Interior Douglas-fir	Stand initiation
Western larch[1]	Stand initiation[1]
Aspen	Stand initiation
Cottonwood - willow[1]	Stand initiation[1]
Engelmann spruce-subalpine fir	Stand initiation
Lodgepole pine[1]	Stand initiation[1]
Grand fir-white fir	Stand initiation
Chokecherry-serviceberry-rose[1]	Open low-medium shrub Closed low-medium shrub[1] Open tall shrub

[1] Source habitats that have declined substantially in geographic extent from the historical to the current period.

Table 3-7. Terrestrial Family 11 - Sagebrush Source Habitat.

Cover Type	**Structural Stage**
Mountain big sagebrush[1]	Open low-medium shrub[1] Closed low-medium shrub
Big sagebrush[1]	Closed herbland[1] Open low-medium shrub[1] Closed low-medium shrub[1]
Low sage	Open low-medium shrub Closed low-medium shrub
Salt desert shrub	Open low-medium shrub Closed low-medium shrub
Antelope bitterbrush-bluebunch wheatgrass[1]	Closed low-medium shrub[1]
Juniper woodlands	Woodland
Juniper-sagebrush	Woodland
Mixed-conifer woodlands[1]	Woodland[1]
Herbaceous wetlands	Open herbland Closed herbland
Chokecherry-serviceberry-rose[1]	Open low-medium shrub Closed low-medium shrub[1] Open tall shrub
Mountain mahogany[1]	Open low-medium shrub[1] Closed low-medium shrub

[1] Source habitats that have declined substantially in geographic extent from the historical to the current period.

Table 3-8. Terrestrial Family 12 - Grassland and Open-canopied Sagebrush Source Habitat.

Cover Type	Structural Stage
Mountain big sagebrush[1]	Open low-medium shrub[1]
Big sagebrush[1]	Closed herbland[1] Open low-medium shrub[1]
Low sage	Open low-medium shrub
Fescue-bunchgrass[1]	Open herbland[1] Closed herbland[1]
Wheatgrass bunchgrass[1]	Open herbland[1] Closed herbland[1]
Shrub wetlands[1]	Open low-medium shrub[1] Closed low-medium shrub Closed tall shrub[1] Open herbland Closed herbland
Herbaceous wetlands	Open herbland Closed herbland
Native forb	Open herbland Closed herbland
Chokecherry-serviceberry-rose[1]	Open low-medium shrub Closed low-medium shrub[1] Open tall shrub

[1] Source habitats that have declined substantially in geographic extent from the historical to the current period.

Table 3-9. Terrestrial Families 3, 5, 6, 7, 8, 9, and 10.

Cover Type	Structural Stage
Western white pine[1]	Stem exclusion closed canopy[1]
Interior ponderosa pine[1]	Stem exclusion closed canopy[1]
Alpine tundra[1]	Closed low-medium shrub[1]
Whitebark pine-alpine larch[1]	Stand initiation[1] Stem exclusion open canopy[1] Managed young multi-story[1]
Whitebark pine[1]	Stand initiation[1] Stem exclusion open canopy[1]
Interior Douglas-fir[1]	Stem exclusion open canopy[1]
Sierra Nevada mixed-conifer[1]	Stem exclusion open canopy[1]
Pacific ponderosa pine[1]	Stem exclusion open canopy[1]
Cottonwood-willow[1]	Understory reinitiation[1]

[1] Source habitats that have declined substantially in geographic extent from the historical to the current period.

Definitions

The *12* ***"families"*** represent aggregates of 91 broad-based terrestrial vertebrate "species of focus." These 91 species were placed into 40 groups based on their source habitat uses. The groups were later combined into the 12 Terrestrial Families, again based on habitat requirements. The original 91 species were selected based on whether: (a) their habitats might require further assessment and management at broad spatial scales within the basin, (b) their population size is known or suspected to be declining (could be related to habitat decline or not), and (c) their habitats can be estimated reliably using a large mapping unit (247 acres or 100 hectares) and broad-scale methods of spatial analysis. Habitats of five of those Families have been determined by Wisdom et al. (2000) to be most in decline compared to historical levels (see Terrestrial Families 1, 2, 4, 11, and 12 box on the following page).

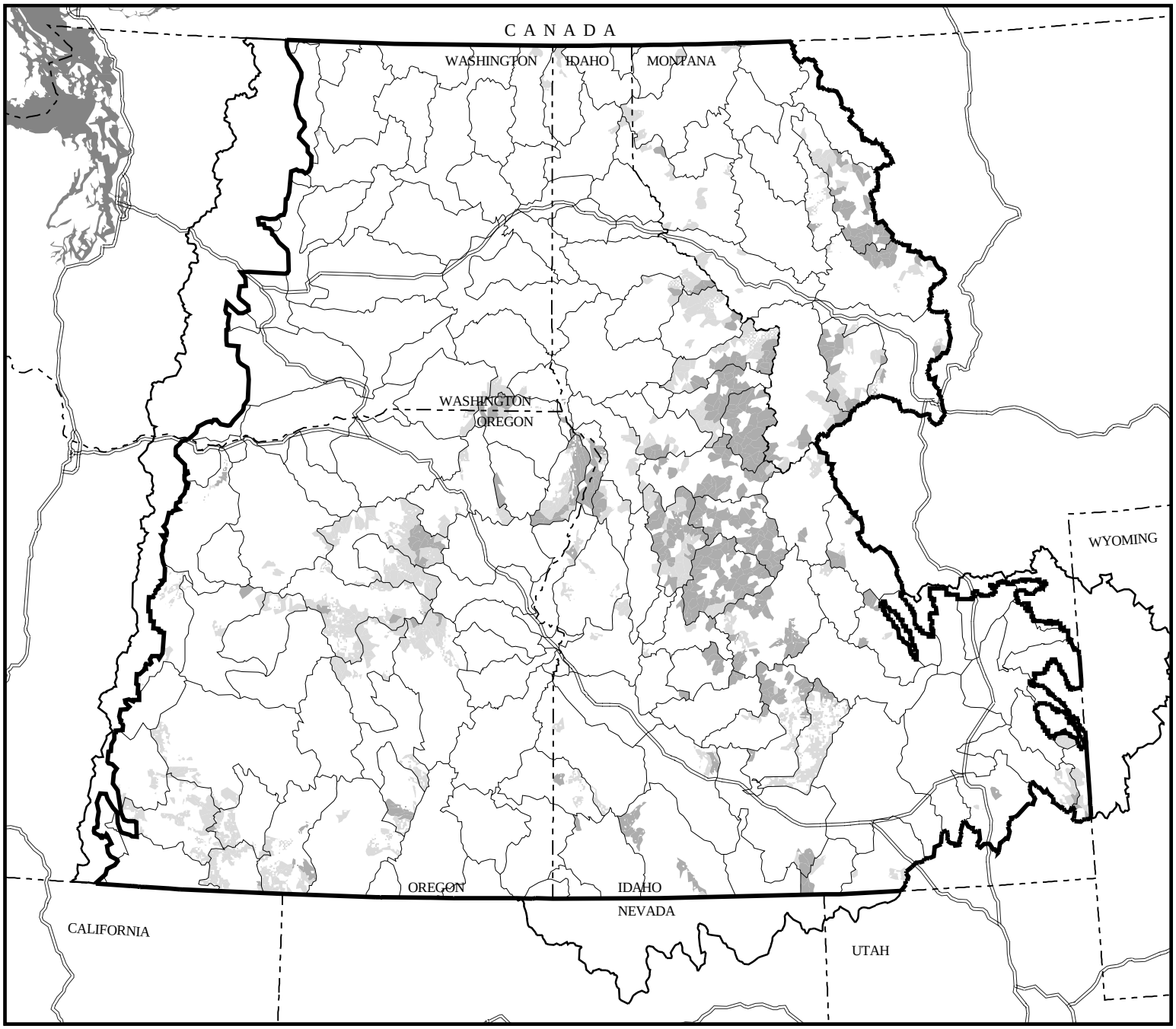
Source habitats are those characteristics of vegetation that support long-term species persistence; characteristics of vegetation that contribute to stable or positive population growth for a species in a specified area and time. These source habitats are described using the dominant vegetation cover type and the structural stage. There are 157 cover type and structural stage combinations in the ICBEMP that can be estimated reliably at the 247-acre (100-hectare) patch scale. Various combinations of these cover type–structural stages make up the source habitats for the 12 Terrestrial Families, and provide the range of vegetation conditions required by these species for food, reproduction, and other needs.

— from *Source Habitats for Terrestrial Vertebrates* (Wisdom et al. 2000).

Terrestrial Families 1, 2, 4, 11, and 12

Terrestrial Families 1, 2, 4, 11, and 12 represent groups of species associated with habitats that have been determined by Wisdom et al. (2000) to have declined substantially in geographic extent in the project area compared to historical amounts. The five families, source habitats, and associated species are:

1. Terrestrial Family 1 (old forest, low elevation source habitat) includes white-headed woodpecker, white-breasted nuthatch, pygmy nuthatch, Lewis woodpecker (migrant population), and western gray squirrel.
2. Terrestrial Family 2 (old forest, broad elevation source habitat) includes blue grouse (winter), northern goshawk (summer), flammulated owl, American marten, fisher, Vaux's swift, Williamson's sapsucker, pileated woodpecker, Hammond's flycatcher, chestnut-backed chickadee, brown creeper, winter wren, golden-crowned kinglet, varied thrush, silver-haired bat, hoary bat, boreal owl, great gray owl, black-backed woodpecker, olive-sided flycatcher, three-toed woodpecker, white-winged crossbill, woodland caribou, and northern flying squirrel.
3. Terrestrial Family 4 (early seral forest source habitat) includes the lazuli bunting.
4. Terrestrial Family 11 (sagebrush source habitat) includes sage grouse (summer), sage grouse (winter), sage thrasher, Brewer's sparrow, sage sparrow, lark bunting, pygmy rabbit, sagebrush vole, black-throated sparrow, kit fox, and loggerhead shrike.
5. Terrestrial Family 12 (grassland and open-canopied sagebrush source habitat) includes Columbian sharp-tailed grouse (summer), clay-colored sparrow, grasshopper sparrow, and Idaho ground squirrel.



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50 0 50 100 150 km

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A1 Subwatersheds
A2 Subwatersheds
Subbasin Borders
Major Roads
Planning Area Border

Map 3-11a.
Aquatics (A1 and A2) Subwatersheds: Alternative S2

BLM- and Forest Service-Administered Lands Only

INTERIOR COLUMBIA
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2000