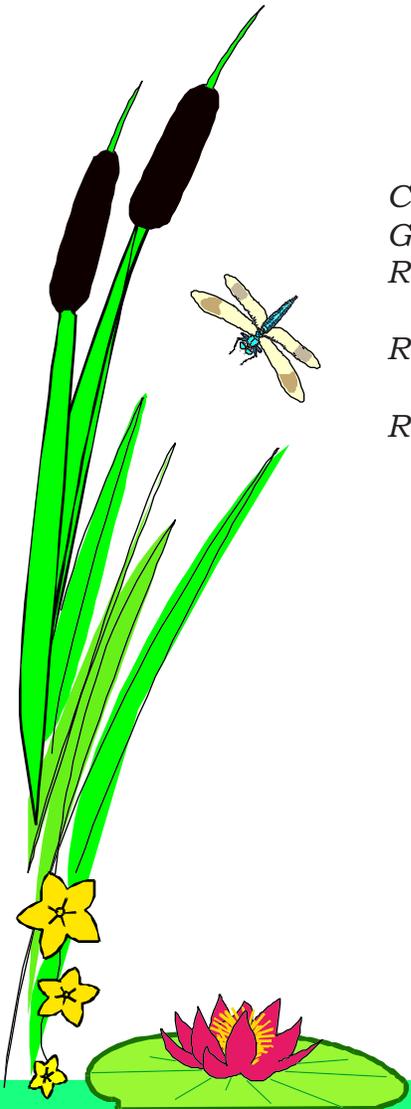


Appendix 3-3

Alternative Development Background

(Comparable to UCRB Appendix L)



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This appendix contains five segments which provide historical and chronological background on how the alternatives were developed. These segments are: Concepts for Alternatives, Goals for Alternatives, Rationale for Alternative 5, Rationale for Alternative 7 and Rule Sets.

Concepts for Alternatives

Introduction

This section summarizes the 59 comments received from the Eastside EIS Team's March 1, 1995 mailing. Conclusions and recommendations based on the comments are listed first, followed by a table summarizing each comment received. The representative quotes included in the table capture the essence of each comment. Also included is a summary of the concepts.

Conclusions

1. People tended to group the concepts in two general ways: those calling for restoration and preservation of habitats through reserves; and those favoring management to provide goods and services that benefit rural communities.
2. Of those who expressed a clear opinion, approximately 60 percent favored restoration and reserves, and 40 percent goods and services. However, many people believed ecosystem management could accommodate both of these goals.
3. Regardless of which end of this spectrum people were on, most people supported active rather than passive approaches, supported reducing the risk of large, high-intensity disturbances, and supported relying on public lands to achieve goals.
4. There was little support for Concepts Q, O, E, and R.

Recommendations

1. The central distinctions (active-passive and green-brown) appear to be understandable and make sense to people. These could serve as reasonable anchors for the range of alternatives.
2. Combinations of these four anchors should be considered; an active green/brown, for example.
3. The challenge is to develop "middle" alternatives that meet both green (presentation) and brown (production) goals.
4. Temporal and spatial combinations of concepts should be considered (such as active green in the short term where needed, followed by a longer-term strategy, which could be any combination of passive/active and green/brown).
5. Possible combinations of concepts:
B, G, P, N
D, H, J, K, M, N
A, C, I
6. Many of the statements people made could be treated as assumptions critical to an alternative; if you agree with the basic premise, the course of action is clear. We need to use assessment data should be used to decide which assumptions are valid and could serve as the basis for alternatives.

Concepts

- A Allow natural processes to function with minimum human intervention.
- B Intensively manage lands to provide steady flow of goods and services.
- C Manage with minimal human intervention; consumptive uses where surpluses exist.
- D Active management to restore historic ranges of variability.
- E No action (included Rangeland Health, INFISH, PACFISH, Eastside Screens, Northwest Forest Plan).
- F Fully fund and implement existing plans.
- G Produce commodities at 1985-1990 levels to support resource-dependent communities.
- H Provide system of core reserves and corridors (Wildland Project Report).
- I Natural areas with minimal intervention; designated commodity production areas (New Zealand system).
- J All lands managed as key watersheds; moderate and high hazard areas are priorities.
- K Preserve rare ecosystems, species, habitats and amenities on federal lands to minimize private land impacts.
- L Maximize full spectrum of recreational opportunities, with decisions made at local level.
- M Manage for non-commercial, personal uses and tribal interests, with lands restored to mid-1800s conditions.
- N Reduce risk of large, high intensity disturbances and restore pre-settlement vegetation patterns to provide range of uses and values.
- O Provide big game habitat to meet state strategic plans for big game populations.
- P Manage to address the interests of resource dependent communities, with mix of transition and tradition.
- Q Manage lands to meet goals in county comprehensive plans.
- R Pay for administrative costs with increased fees.

Table 1. Summary of comments from March 1, 1995 mailing.

ID #	Comment by	Likes	Dislikes	Suggested Combination	Summary Quote
2954	Harney County Soil & Water Conservation District	B, P			Public lands should be intensively managed to provide a steady flow of renewable natural resources and service from our public lands.
3052	Spokane Home Builders Association				Forest management plans must provide predictable levels of timber harvest so as to even out the wide swings in lumber prices that destabilize the home building industry.
2984	Cassia County (ID) Board of Commissioners	B, F, G, P, Q	A, C, D, E, H, I, J, K, L, M, N, O, R		Each use should be placed on a par with the others... to balance the competing needs of all the multiple uses on public lands.
2959	Oregon Department of Forestry	F, H, I, K, L, N	A, C, E, G, M, Q	J, M	When formulating alternatives, legal requirements should be as loosely interpreted as possible so as not to constrain decision space... Funding levels and the likelihood of funding should be outlined clearly. (Also emphasized need for impacted forests and stands to be returned to better functioning condition).
2938	Heppner, OR resident				Active management, adaptive management, and risk management... are some of the key components of ecosystem management.
2936	Eastside Ecosystem Coalition of Counties				Site-specifically manage and protect for long term ecosystem health, stable and reasonable supplies of timber... and other commodity production, reduction of large, high-intensity disturbances, done in full partnership with directly affected county, state, and tribal governments.
2932	Eugene, OR resident	A, H	B, C, D, E, F, G, I, J, K, L, M, N, O, P, Q, R		Unfortunately, we live in an era that coddles these short-sighted local interests, and a moderate proposal like the Native Forest Council's 'zero cut' is treated as wild-eyed fanaticism.
2925	Ochoco Lumber Company, Prineville, OR	B, D, F, G, P	A, O		We need.... predictable outputs from federal lands. Businesses, communities, and individuals need some stability of the resources that they are dependent on.
2892	Jackson Oil, Inc., Canyon City, OR	B, P			Public lands should be intensively managed to provide a steady flow of goods and services from public lands.
2895	Portland, OR resident and sociologist	M, E, F, Q		J, K, M	Since dying communities are a fact of life, it makes little sense to continue shoring up forest-dependent communities at the expense of using up the last remnants of bits and pieces of ecosystems.

2896	Tecton Laminates Corp., Hines, OR	B, G, P	B, G, P	Same as 2891
2919	Bellevue, WA resident			... Naturally occurring burns are important in the ecology of the forest and clearcuts can take their place.
2903	World Wildlife Fund		B, G, P, A	Determine whether existing natural areas are sufficient for maintaining viable populations of fish and wildlife... design mitigation to maintain or restore viable populations... determine how proposed management activities affect ecosystem integrity... provide alternatives to large-scale natural resource extraction activities that are consistent.
2891	Resident	B, P		Public lands should be intensively managed to provide a steady flow of goods and services.
2890	Portland, OR resident	D, N	D, N	Classify lands into categories: substantially undisturbed areas (A, H, I, K, O); substantially altered areas (B, G, N); historically used to maintain local economies (B, others); historically used mainly for outdoor recreation (L, O).
2877	Liberty Northwest Insurance Corp., Baker City, OR	B, P		Same as 2891
2876	John Day, OR resident	B, P		Same as 2891
2868	Malheur Timber Operators, Inc., John Day, OR	B, G, P		All other options ignore the current and future requirements of human population in the planning area.
2867	Mt. Vernon, OR resident	B, P		Same as 2891
2866	Resident	B, P		Same as 2891
2865	John Day, OR resident	B, P		Same as 2891
2864	Gibco Heavy Equipment Parts, John Day, OR	B, P		Same as 2891
2863	John Day, OR resident	B, P		Same as 2891
2889	Northwest Forestry Association			My concept: a prudent manager who utilizes managed risk and sound land management principles to balance and optimize a wide range of products and services... There is much about federal land management that 'ain't broke.'
2849	Timber Data Company, Eugene, OR			For no-action, use existing plans as amended, not interim direction; use several baselines for comparing alternatives--no-action, 4-5 year average outputs and conditions (pre-PACFISH and screens), 1994 outputs and conditions.

Table 1. Summary of comments from March 1, 1995 mailing (continued).

ID #	Comment by	Likes	Dislikes	Suggested Combination	Summary Quote
2846	Coalition for Canyon Preservation, Hungry Horse, MT	K	Q, G, B, I, L, P		Alternative concept Q is unlawful, unconstitutional, and unreasonable on its face and must be appropriately eliminated from scoping and other EIS literature.
2834	Omak, WA resident	B, G, I, N, O, Q	A, C, D, E, F, H, J, K, M, P, R		We need to utilize our natural resources at a sustainable rate and manage them for the greatest possible flow. Without the lumber, cattle and mining industries our lives would not be the same.
2833	Boise Cascade		A, H, I, C		A narrow range of concepts has been developed... The challenge is to explore a wide range of management strategies that display our knowledge of the ecosystem... a continuum from light active management through intensive active management. Good ecosystem management can provide for many objectives.
2811	Richland, WA resident	H			We must swing the pendulum of relentless industrial abuse of our ecosystem towards restoring the environment we all depend on for life itself.
2810	Clayton, ID resident However,	A, C, H, J, K, L, M, O, R	N		Yes, some trees need to be harvested to provide wood products. some areas such as roadless areas need to be preserved as is to provide shelter for the natural animal inhabitants.
2809	Resident	C, D, I, N		C, D, I, N	A preferred alternative... will establish a healthy and fully functioning ecosystem, but will also allow for commodity extraction in a controlled manner... A transition period should be established to avoid fast radical changes in management.
2806	Libby, MT resident				I am absolutely opposed to the planning effort... I believe it is illegal... National Forest Management Plans must be amended or revised on a forest by forest basis, not one huge planning effort.
2805	Libby, MT resident		H, E		Your process is seriously flawed, patently illegal, and should be abolished.
2795	Roseburg, OR resident	B, C, F, H, J, K, L, N	A, E, G, I, M, O, P, Q, R		K is close to desirable except some areas should be harvested and thinned occasionally to typify natural fire of past history... Federal lands belong to all U.S. citizens.
2773	Libby, MT resident		C, D, H		The four (main) concepts presented were obviously developed to implement an alternative similar to Option 9. This is very disturbing... Credibility? This process has none.

2772	Friends of the Wild Swan, Swan Lake, MT	A, H	B, C, P, G, K, Q, R, D		The Forest Service and BLM have caused many of the problems that are occurring in our forests. There is no reason to believe that intensive management will fix them, especially when the Forest Service has continually refused to monitor its previous management and learn from it.
2769	Society Advocating Natural Ecosystems	Ranked concepts from most ideal (1) to most objectionable (18): A, H, K, J, M, I, N, O, L, D, C, R, F, P, E, B, Q, G			Nature and natural processes are far more effective and dependable than are bureaucratic tinkering or so-called 'active' management procedures.
2763	Valley, WA resident	G, I, J,	H, M	G, P, L K, L, N, O, P, R	Education is the key. The forests, grasses, and elements of the earth can be harvested without major damage. The creatures of the earth, water, and air can live amongst these harvesting activities.
2762	Concerned Friends of the Winema				Because the human species has placed itself in the role of 'manager' there is a moral--as well as selfish--duty to provide adequate and appropriate space for all our fellow species. We owe it to the seventh generation of managers to leave them something to manage.
2761	Raleigh, NC resident				What I sense is missing from your project is some decent summary presentations on the adequacy of the public lands for sustaining viable population of a range of indicator species (especially old growth indicators) assuming that these public lands will have to assume the major burden for these biodiversity maintenance goals.
2742	Wenatchee, WA resident	F, I, J, N			We should create a management plan that considers all capabilities for production on a sustainable basis... Demand for wood and grazing products will only increase.
2741	Leavenworth, WA resident	A, C, H, I, J, K, M	B, D, E, F, G, L, N, O, P, Q, R--no foreign investors	H	The multiple use approach has not worked well and is too often influenced by the resource extraction industry... Most Americans want preservation priorities.
2740	Tonasket, WA resident	A, H, C	B, G, Q, F, D, L, I, P		So it's still the same old wolf, now dressed in the sheep's clothing of 'ecosystem management'... I thought this whole ecosystem management process started because land managers realized they couldn't continue the same commodity emphasis without breaking environmental laws and trashing non-commodity resources, most of which have been pretty well trashed already.
2736	Moscow, ID resident	A, H, J, K	C, D, L, N, Q		The cost of restoring ecosystems to desired conditions is enormous and you're probably never going to get back anything near what you started with, especially in the eyes of an ecologist. Assess gaps and redundancies in protection afforded by existing natural areas. All ecosystem types should be represented within protected natural areas.

Table 1. Summary of comments from March 1, 1995 mailing (continued).

ID #	Comment by	Likes	Dislikes	Suggested Combination	Summary Quote
2732	Tacoma, WA resident	N, D, O (add problems of non-native plants)			Grassland health problems such as caused by numerous non-native aggressive plants are equally important as forest health problems.
2730	Mazama, WA resident	D, H			No management plan we come up with can work unless human populations return down to sustainable levels.
2729	Salmon, ID resident (USFS retired)			A, C, H, J, K, O (sentences from each to make new concept)	
2728	Ecosystem Equity Council	H			Adopt as a guiding principle that any alternative proposed must be based on sound scientifically credible criteria and let the chips fall where they may.
2711	Staten Island, NY resident	A			There is no need to interfere with the natural ecosystem. The funds can be used more wisely in other areas.
2719	WA resident	D			Timber communities are welfare communities.
2709	Kaniksu Bioregional Council, Sandpoint, ID	A, C, D, H, J, K, M (H strongly)			The primary concern of this project must be the restoration of the damaged ecosystems of the Columbia bioregion to a healthy state.
2704	Resident				I would like to see a concept that minimizes the economic benefits that just help a few people and maximizes improving ecosystem health; if economic benefits will result, they should be for many people.
2703	Small business owner	C	B, E, F, G, L, P, Q	C, H, K	Minimal human intervention, ecosystem preservation, biodiversity reservoirs, low-impact uses, no livestock grazing on FS land.
2691	Joseph, OR resident	E, N, P, H	A, B, F, G, C, D, I, J, K, L, M, O	D, E, H, N	The words 'intensive human management' scares hell out of me as the high impacts of the past have been described with similar words. A lot of soft touch management would make this a viable concept.
2681	Wenatchee Sportsmen's Association	F, I, J, N		F, I, J, N	The ecosystem should be used on a sustainable basis for all its capabilities.

2680	Richland, WA resident	H			The goal of ecosystem management must be to restore and then maintain ecosystems in a self sustaining condition with all its species intact and managed to pass such a healthy environment on to future generations.
2679	Seneca, OR resident				Make sure that alternatives are socially able to provide opportunities for all people, are capable of producing products simultaneously, and create a description of the type of landscape that will satisfy these needs on a sustainable basis.
2660	Pritchard Appraisal and Farm Financial Consulting, Wilbur, WA	I			We must 'farm' our high timber sites so we can retain larger acreage for other uses and still have the timber needed by society.
2431	BLM Lakeview District		A, I, M, D, J, K, L	E, F, B, G, H,	Combine some and drop others from detailed analysis to create shorte list.

Goals for Alternatives

Purpose

Goals are the foundation for developing alternatives because they describe what the EIS Teams want to accomplish. A set of goals common to all alternatives was developed because it was recognized that any ecosystem management strategy must simultaneously achieve a number of conditions and outcomes. This does not mean that alternatives will meet all goals equally; some will be more successful at meeting a goal than will others. However, all alternatives address the goals and meet them to some extent. The extent to which each goal is meant is part of the analysis of the consequences of the alternatives discussed in Chapter 4.

How Goals Were Developed

Seven preliminary goals were derived from the project charter, initial drafts of the Purpose and Need section of the Draft EIS, and public and agency issues identified through the scoping process. On April 30, 1995, this set of goals was mailed to people on the Eastside and Upper Basin mailing lists. Over 200 people responded, indicating a high level of interest. The seven preliminary goals and a summary of comments received on each are provided below (a more complete summary containing representative comments is available at the project office in Walla Walla).

Preliminary goals

1. Restore, sustain, or enhance the health of forest, rangeland, and aquatic ecosystems on lands administered by the Forest Service or the Bureau of Land Management.

People agreed this was essential, and pointed out that meeting this super-goal would result in the other goals being met, too. Nearly all comments requested definition of this goal's terms and more information about how, where, when, and by whom the goal would be met. Several people suggested combining the more-specific aspects of this goal (such as Goals 4 and 5) with this one. Several people commented on the exclusion of social and economic concerns from this goal. People had a problem with the word "enhance" in this context.

2. Enhance the resiliency of rural communities by providing commodities and amenities within the capability of the ecosystem to sustain these uses.

Most people agreed with the intent of helping rural communities, although a few people questioned whether this was an agency mandate. Many people suggested that economic diversity is the key to resiliency, rather than relying on outputs from public land management. People pointed out that economic benefits of public land management extend well beyond local residents and communities. Many asked for definitions of key terms such as "enhance, resiliency, commodities, amenities, and capability". People were concerned that this goal would mean continued exploitation of limited resources. As is the case with most of the goals, providing detail could address most comments.

3. Maintain the integrity of important places and provide an array of recreational and educational opportunities for people to experience nature.

There was widespread support for this goal, but equally widespread confusion over "important places." People wanted to know important to whom, for what reasons, and how these areas would be identified and protected.

4. Restore and sustain the function, composition, and processes of aquatic and riparian ecosystems so they can support viable populations of species dependent on them. Provide long-term direction that replaces PACFISH and the Inland Native Fish Strategy.

Many people said this seemed like a subset of Goal 1. PACFISH didn't appear to have wide support, and several people thought the last sentence was more of a bureaucratic statement than a resource goal. People who supported the goal proposed several ways of meeting it. People who opposed the goal said there is already more habitat than fish. Many requested definitions of terms such as viable populations.

5. Provide an array of habitats, well-distributed across the landscape, that support biodiversity and viable populations of plant and animal species. Work toward recovery of species that are listed as threatened or endangered, and prevent the need for future listings.

Again, many requested definitions of terms like "biodiversity, well-distributed, and viable populations." The issue of active versus passive management surfaced here; many people said that nature knows best. People opposed to the goal commented that extinction is natural, people should come first (or be considered equally), or that we already have enough habitat. People favoring the goal emphasized protecting habitat for all species, providing adequate linkage of habitats, and minimizing land use practices that have negative impacts. Many people commented on the last sentence; people support the idea of preventing the impacts of listing and not letting species go to the brink; some stated that you still may have to list species.

6. Provide natural resource management that meets treaty obligations for American Indian tribes.

Fewer people commented on this goal. Many people believed in balancing these obligations with others, for example, if treaties required conditions that were not sustainable. Several commented that ecosystem management should meet the needs of all people. Others firmly believed that treaty obligations should be met.

7. Implement ecosystem management in an open, cooperative, responsive atmosphere to involve agencies, groups, and individuals in monitoring and addressing resource issues on public lands—issues that often span administrative and ownership boundaries.

There was widespread support for this goal; people were glad to see it. This support was accompanied by a healthy skepticism of the agencies' ability and commitment to carry it out. People wanted the details of how we'd accomplish this goal, to make sure a balanced, representative range of viewpoints was included. Many voiced concern that we not spend all our time talking about resource issues ~ things need to happen on the ground; one person said, "Yes, but talk is cheap ~ we need sound action." Several people suggested dropping the last phrase; a key aspect of alternatives is their assumptions and treatment regarding private lands.

In summary, the most frequent comments were requests for definition, clarification, and additional detail about when, where, and how the goal would be met. It was clear that people needed more information before they could really evaluate the goals. They requested definitions of terms used and examples that clearly showed what the goal was designed to accomplish, and how. They wanted to see data showing what the Basin's ecosystem problems are, to better provide a context for interpreting goals. They wanted details, not broad statements that are difficult to interpret, could have many meanings, and sound like statements from other plans.

Many people added general comments about the goals, and suggested wording changes to make the goals more specific and understandable. Some offered ideas for new ones, including a goal for public education about ecosystems, human impacts, and sustainability. Another common theme was recognizing our responsibility to future generations. Several people also wanted to see a goal that would reflect the role of private lands in ecosystem management. In general, many of the proposed goals were more-specific subsets of the existing goals.

Final Goals

Public comments were used to revise the goals, resulting in a set of five goals used as one of the main tools in developing alternative ecosystem management strategies for the Draft EIS.

The goal regarding implementation of ecosystem management in an open, cooperative atmosphere was determined to be an implementation strategy necessary for goals to be met successfully. It therefore made sense not to include this as a separate goal. It remains a critical component of ecosystem management that will be addressed in the alternatives.

The final goals, listed below, include more-detailed descriptions of why each is a goal and how it relates to the other goals. The descriptions also incorporate elements of the preliminary goals that were changed or dropped. The goals are not numbered by priority.

Goal 1: *Sustain and where necessary restore the health of forest, rangeland, aquatic, and riparian ecosystems.*

Healthy ecosystems are necessary to provide long-term benefits for humans and all of the other species that inhabit and depend on the forests, waters, and grasslands of the project area. The affected environment chapter documents existing problems with the health and resiliency of natural resource systems in the project area.

Current management often is contradictory to ecological processes because it focuses on mitigating effects on ecological processes rather than providing for them. For example, native grasslands have declined in the project area and will continue to decline, primarily due to additional invasion of exotic species such as cheatgrass. Natural processes create a mosaic of habitat conditions that support diversity, while current management tends to simplify this mosaic, resulting in a loss of diversity. Achieving long-term ecosystem health requires maintaining evolutionary and ecological processes such as nutrient cycling. This also requires adopting a much longer time-frame and broader geographic scale than typically used in making resource management decisions.

Goal 2: *Provide a predictable, sustained flow of economic benefits within the capability of the ecosystem.*

Sustaining and restoring the health of natural resource systems is viewed as the key to providing sustainable social and economic benefits desired by current populations while maintaining options for future generations. Many industries, communities, and people and their families have come to expect management of public lands to provide opportunities for employment and income. Predictability is important because it provides at least short-term stability while also providing lead time for people and industries to adapt to changes over the long-term. Sustainability is important because history has taught us that boom-and-bust cycles of natural resource development are socially and economically disruptive. Providing economic opportunities within the capability of the ecosystem is designed to prevent this cycle while ensuring continued availability of resources for the future.

The effects of public land management on the economy of small, rural communities is especially important. Providing a diversity of economic opportunities lessens the risk associated with becoming dependent on a single type of good or service resulting from public land management. Ecosystem management should facilitate the process of community change so that externally-induced fluctuations in demand for various ecosystem outputs can be absorbed without causing unwarranted structural shifts in community components. Resiliency, or the ability to adapt to change, is a key to community health and vitality. When present, it provides the capacity for humans to change their behaviors, economic relationships, and social institutions to maintain economic vitality and minimize social stress.

Goal 3: *Provide diverse recreational and educational opportunities within the capability of the ecosystem.*

Recreational opportunities contribute significantly to the project area residents' quality of life, as well as to the lives of people who visit the project area. These opportunities benefit people and society in many ways, from the personal benefits experienced directly by an individual engaging in a particular recreation activity to the many social and community benefits. People who do not interact with the environment on-site also obtain benefits from a natural resource base. Recreation, tourism, and related industries are among the fastest growing economic sectors in the project area, supplementing other sectors and helping to diversify local economies.

State projections suggest that day use activities, trail use, camping and sightseeing will all continue to be popular throughout the four main states of the project area. In the future, the project area is expected to continue to have substantially greater amounts of available recreation resources than the nation as a whole. The greatest area of comparative advantage for the interior basin appears to be the undeveloped and partially developed land settings that provide opportunities for primitive and semi-primitive experiences.

Goal 4: *Contribute to recovery and delisting of threatened and endangered species.*

Many species closely associated with grasslands and upland shrublands have experienced significant declines and will continue to do so under current management. Species dependent on old forest structure have declined as their habitat has diminished; if this trend is to be reversed, federal lands will have to provide a greater share of habitat. Diverse habitats, connected and well-distributed across the landscape, will be necessary to meet this goal.

The composition, distribution, and status of fishes in the project area also is very different from historical patterns. Some taxa are extinct and many others extirpated from large portions of their former range, and introduction of exotic species is in many cases irreversible. However, the core for rebuilding and maintaining functioning aquatic systems based on native species remains. The contribution of Forest Service and BLM-administered lands to recovery and delisting of species is typically only a small part of the total contribution, but is nonetheless an essential component.

Goal 5: *Manage natural resources consistent with treaty and trust responsibilities to American Indian tribes.*

The intense interest of the Indian population in the northern intermontane region is based on their long-term cultural attachment to the land. Although Indian societies in the region differ in many ways, they hold a common belief about their relationship to the land and water. The extent to which other goals are met contributes greatly to meeting this one. For example, habitat necessary to support viable populations is a prerequisite to harvestability. Disturbance regimes appropriate for biophysical settings will increase the abundance and distribution of plants and animals important to tribes. The length of attachment to the land and the totality of landscape importance has contributed a strong sense of place. Recognition of the sense of place in ecosystem management will allow federal agencies to better fulfill trust responsibilities.

Rationale for Alternative 5

Mapping Process for Regional Priority Areas

To allocate natural resource priorities under this alternative, Ecological Reporting Units (ERUs) were assigned to one or more regional management priorities. In keeping with the theme of this alternative, whole ERUs, or portions thereof, were assigned to a resource management strategy, based on a general understanding of the relative production efficiencies of one area to another. In other words, a comparative advantage approach was used to make resource allocation choices for Forest Service and BLM managed lands within the project area.

In the context of this alternative, priority areas were established, based on multiple use at a regional level, as opposed to multiple use applied at the local level. This requires a prioritization strategy, in essence, that follows the philosophy “everything somewhere, but not everything everywhere”.

In order to gain an understanding of resource priorities that might be considered for each ERU, a “matrix” of resource values and ERUs was created. The EIS Team members each listed the five (5) highest priority ERUs for twelve (12) specific resource criteria. The distribution of these highest value ERUs was tallied, and are show on Table 2 (in one case, 6 priorities were made; in 3 cases, less than 5 priority areas were listed).

Table 2. Areas of Management Priority for Regional Efficiency

	ERUs												
	1	2	3	4	5	6	7	8	9	10	11	12	13
AQUATICS													
strong population with 2 or more salmonids	√					√	√		√				√
narrow endemic species			√	√	√					√			
watersheds with high genetic integrity					√	√							√
aquatic integrity	√	√				√			√				√
RANGE													
human demand and investment in range				√	√					√	√		√
MINERALS													
metallic locatables				√			√	√	√	√			√
phosphate									√		√	√	
TIMBER													
high values			√		√	√	√						√
WILDLIFE													
nongame, native, biodiversity, centers of endemism	√		√	√			√						√
predator/prey relations, threatened and endangered species concerns					√	√		√		√		√	
RECREATION (willingness to pay values)													
primitive/semi-primitive	√					√	√	√					√
roaded natural		√			√		√	√		√			√

Results were then summarized by general resource category (such as wildlife, aquatic, timber, grazing, and recreation emphasis), and EIS Team discussions took place to resolve perceived conflicts in resource uses, or if unable to do this, to map out portions of ERUs into subsets of ERUs. The result of this effort is the Mapping Zones.

Regional priorities were not necessarily limited to singular uses, especially where multiple priorities are believed to exist compatibly. While some ERUs have such highly-valued resources, it is the conflicts in the allocation, or uses, of these resources that makes the need to have a prioritization strategy developed.

In order to resolve broad-scale resource-use conflicts where they are believed to presently exist, whole ERUs are mapped into separate regions (priority areas). Where resolution of conflicting or incompatible resource uses (read: prioritization) can be described in narrative, it is so done through articulation of objectives, standards, and guidelines. An example of this occurs in Mapping Zone 4 (essentially ERU 3, Upper Klamath), where timber management is emphasized in forested vegetation, and wildlife management is emphasized in the large wetlands and shrub-steppe environments. Throughout, adherence to key watershed direction for protection of aquatic environments is required.

In the previous example, conflicting resource emphases can generally be minimized by narrative description, as the timber and wildlife emphases areas typically occur in separate environments. Other competing resource uses are attempted to be resolved by mapping, as they occur in the same environments and cannot be resolved through a narrative format.

The following mapping zones and descriptions describe in general terms the Regional Priority management approach.

Mapping Zone 1: North of upper Yakima 4th-field HUC (ERU 1)

Emphasis: Aquatic, wildlife, unroaded recreation.

- ◆ Compatibilities: all emphases appear to be generally compatible.
- ◆ Conflicts: assumed to be minor.

General Thoughts

- ◆ FEMAT applies most everywhere, plus Chewack drainage is included as a Key Watershed with FEMAT-like standards and guidelines.
- ◆ Assume no new road-building in presently unroaded areas. Road restoration and closure a high priority to meet watershed/aquatic objectives.
- ◆ Present roaded recreation infrastructure (roads, campgrounds, etc.) maintained, except where conflicts with watershed/aquatic/wildlife objectives. Where conflicts, infrastructure modified or eliminated to meet watershed/aquatic/wildlife objectives.
- ◆ Wildlife issues and concerns are: spotted owl areas, forest carnivores, large blocks of connected upper montane, biodiversity, and endemism.
- ◆ Timber management priorities: Forest health (1) urban/wildland interface; (2) meeting wildlife, recreation, and aquatic objectives; (3) forest health in currently roaded areas.

Mapping Zone 2. Yakima drainage and south (ERU 1)

Emphasis: Aquatics, wildlife, roaded recreation.

- ◆ Compatibilities: these emphases are generally compatible.
- ◆ Conflicts: potential for conflicts with roads and aquatics.

General Thoughts

- ◆ Present roaded recreation infrastructure (roads, campgrounds, etc.) maintained, except where conflicts with watershed/aquatic objectives. Where conflicts, infrastructure modified or eliminated to meet watershed/aquatic/wildlife objectives ~ but maintain overall recreation opportunities.
- ◆ FEMAT applies most everywhere. May modify existing FEMAT Key Watersheds (for example, Cle Elum). Possibly add other Key Watersheds (Indian Creek) with FEMAT standards and guidelines.
- ◆ Wildlife concerns are spotted owl areas, forest carnivore requirements (large, connected blocks of upper montane), biodiversity, and endemism.
- ◆ Timber management considerations: Forest health priority (1) urban/wildland interface; (2) meeting wildlife, recreation, and aquatic objectives; (3) forest health in currently roaded areas. May be more opportunities for forest health treatment because of greater existing road densities and compatibility with roaded recreation ~ but needs to be compatible with wildlife/aquatic objectives.
- ◆ Possible entry into roadless areas outside Key Watersheds to meet recreation demand, as long as compatible with aquatic/wildlife objectives.

Mapping Zone 3. Southern Cascades (ERU 2)

Emphasis: Roaded (natural) recreation.

- ◆ Compatibilities: aquatics and associated wildlife.
- ◆ Conflicts: potential conflicts between roads and aquatics; conflicts with owls; Note also the occurrence of the high fire, urban-interface, protection zone.

General Thoughts

- ◆ Roaded recreation emphasis with Key Watersheds (Metolius, Upper Deschutes, 5th-field watersheds with threatened, endangered, or candidate species). Alternative 3-type standards and guidelines, but with provisions for recreation opportunities, including river-based recreation.
- ◆ Present roaded recreation infrastructure (roads, campgrounds, etc.) maintained, except where conflicts with watershed/aquatic objectives. Where conflicts, infrastructure modified or eliminated to meet watershed/aquatic objectives ~ but maintain overall recreation opportunities. Recreational fishing opportunities will be emphasized.
- ◆ Timber considerations: Forest health priority (1) urban/wildland interface; (2) meeting recreation, and aquatic objectives; (3) forest health in currently roaded areas. May be more opportunities for forest health treatment because of greater existing road densities and compatibility with roaded recreation ~ must be compatible with aquatic objectives.
- ◆ Not a wildlife priority area, but assumed compatible with aquatic needs.

Mapping Zone 4. Upper Klamath (ERU 3)

Emphasis: Timber and aquatics in forested environment. Wildlife emphasis associated with large wetlands and shrub-steppe.

- ◆ Conflicts: Timber emphasis is generally not considered conflicting with wildlife, as the highly-valued habitat is shrub-steppe (for example, not forestland types). Potential for aquatics conflicts resolved through key watershed and current riparian standards and guidelines in Alternatives 3 and 4.

General Thoughts

- ◆ Aquatics/wildlife protected with Key Watersheds and Riparian Management Objectives (RMOs, Alternative 3). In timber priority areas outside of Key Watersheds, perhaps minimal RMOs. This area is typically flat, roaded, dry forest potential vegetation types.

Mapping Zone 5. Blue Mountains (ERU 6)

Emphasis: Timber emphasis in currently roaded areas; Aquatics emphasis in currently unroaded (and low-roaded) areas.

- ◆ Compatibilities: Wildlife is not a primary management priority, but is assumed to be compatible with aquatic needs.
- ◆ Conflicts: this ERU has the potential for **major conflicts** in priority.

General Thoughts

- ◆ Timber management and forest restoration in currently roaded areas, but with riparian protection similar to Alternative 3. This would require strategic planning for restoration and road maintenance work.
- ◆ Aquatics management emphasis in currently unroaded, and specific low-roaded areas (e.g., North Fork John Day requires special protection; large Key Watersheds are associated with the John Day, Imnaha river systems).
- ◆ Range priority is assumed within the Malheur/Silvies river systems.

Mapping Zone 6. Upper Klamath, Columbia Basin (ERUs 3, 4, 5; includes the small southwestern portion of ERU 5, Ft. Rock Ranger District, Ochoco National Forest, Prineville District BLM).

Emphasis: Timber/grazing.

- ◆ Conflicts: Livestock grazing and wildlife habitat degradation potential, particularly in native shrub-steppe environment.

General Thoughts

- ◆ Minimal riparian standards and guides
- ◆ Lake Abert Key Watershed

Mapping Zone 7. Northern Great Basin (ERU 4)

Emphasis: Grazing, wildlife, mining, aquatics.

- ◆ Conflicts: Wildlife priority and livestock grazing, especially in the native shrubland and grassland communities where candidate species exist (such as, sage grouse, sharp-tailed grouse, pygmy rabbit and others).

General Thoughts

- ◆ Range, with specific Aquatic/Wildlife protection of wetlands. Wildlife (shrub-steppe/wetland complexes)
- ◆ Aquatics (narrow endemics)
- ◆ Key Watersheds (Lake Alvard, Trout Creek) Minimal (proper functioning condition) outside Key Watersheds. Wildlife emphasis requires protection and restoration of native vegetation communities, especially regarding the conversion of shrub-steppe. Wetland complexes require protection from trampling and further degradation, as these fragile aquatic environments serve an important functions, including the role as critical stop-over for shorebirds.
- ◆ Mineral resource assessment (Box et al.1995) identifies southeast part of area as favorable for occurrence of several deposit types of gold and silver deposits. If found and developed, mines will probably be bulk-minable open pits and ore processing may require heap-leaching.

Mapping Zone 8. Columbia Basin (ERU 5)

Emphasis: Wildlife in selected areas (Near Hanford/Yakima firing range).

General Thoughts

- ◆ Key Watersheds: Umatilla, Walla Walla, Willow
- ◆ This area is primarily a wildlife priority area, although very little of it exists on Forest Service/BLM-managed lands. Although outside of Forest Service/BLM management, there are important isolated pockets of shrub-steppe on the Hanford Reservation and the Yakima Firing Range, with associated wildlife species that are declining, but not much opportunity for management, as most of this area is in agricultural uses.

Mapping Zone 9. Western and central portion of Northern Glaciated Mountains (ERU 7)

Emphasis: Timber, roaded recreation, mining, wildlife (caribou, grizzly).

- ◆ Compatibilities: timing of operations and effective road closures would allow for possibly conflicting resource values to be somewhat compatible.
- ◆ Conflicts: not much conflict envisioned.

General Thoughts

- ◆ West of Okanogan river corridor, Timber, Minerals, Roded Recreation emphasis note: East of Okanogan river corridor, Mining and Timber priority in roaded recreation areas; Aquatics, Wildlife, Dispersed Recreation in unroaded areas.
- ◆ Possible Key Watersheds tied to wildlife in Selkirk. Otherwise minimal riparian standards and guidelines except where possibly more stringent to meet recreation requirements.
- ◆ Area contains Republic District, historically one of largest gold producers in Northwest. Historically, most mining has been underground. Current exploration efforts are for low-grade, bulk minable deposits which may require cyanide heap-leach beneficiation.
- ◆ Area straddling Idaho-Montana border is favorable for several mineral deposit types, including strata-bound copper-silver deposits which contain abundant sulfides (high acid-rock drainage potential).
Exploration for lead-zinc deposits in northeast Washington may continue.

Mapping Zone 10. South Fork Flathead (ERU 7)

Emphasis: Aquatics, dispersed recreation.

- ◆ Compatibilities: Aquatics and dispersed recreation with wildlife.

General Thoughts

- ◆ Large Key Watershed type management. (Note: S. Fork Flathead river; major emphasis on fish).

Mapping Zone 11. Lower Clark Fork (ERU 8)

Emphasis: Wildlife/minerals /primitive recreation.

- ◆ Conflicts: most conflicts here expected to remain in Coeur d'Alene basin; fairly high primitive recreation values throughout.

General Thoughts

- ◆ Wildlife emphasis is a priority for management, with the exception of mining projects. Wildlife concerns include large blocks of upper montane for forest carnivores, and a full compliment of predator/prey relationships.
- ◆ Moderate RMOs, possible Key Watersheds.
- ◆ Key watershed primarily located outside likely-to-be-mined areas. Coeur d'Alene drainage is world-class silver producer with associated lead-zinc minerals and historic tailings disposal.

Mapping Zone 12. Upper Clark Fork (ERU 9)

Emphasis: Aquatic/recreation/minerals.

General Thoughts

- ◆ Large Key Watersheds with Alternative 3 standards and guidelines, with special consideration for recreation, and mining. Mining restrictions for aquatic resources. Butte district is a world-class copper producer. Recent exploration has increased reserves. Area has had significant exploration and production of other metals as well. Clarks Fork river to junction with Flathead is listed 'as of concern for metals' under section 303(d) of Clean Water Act by EPA. Area has been a phosphate producer from underground mines.
- ◆ Wildlife concerns are for forest carnivore needs of connectivity with Glacier National Park, also representing a full compliment of predator/prey relationships.

Mapping Zone 13. Central Idaho Mountains (ERU 13)

Emphasis: Aquatics, dispersed recreation, with mining.

- ◆ Compatibilities: Aquatics, dispersed recreation, and wildlife believed compatible.
- ◆ Conflicts: expect major conflicts within this ERU, as all major resource experiences are of very high value.

General Thoughts

- ◆ Large Key Watersheds
- ◆ Note on ERU 13: This is a 3-way split of this area ~ Aquatics and Dispersed Recreation in center of ERU; Timber and Wildlife priority (not overlapping) in western portion; Range emphasis in southeastern portion.

- ◆ Gold and silver have been produced from several types of deposits scattered throughout the zone. Boise Basin has been major gold producer. Future gold and silver exploration will be for large, open-pittable deposit types. Cobalt and copper deposits are present in eastern part of area and may become important resource, depending on economic markets.

Mapping Zone 14. Payette/Weiser (ERU 13 (B))

Emphasis: Timber, wildlife (shrub/steppe/grassland), with mining, roaded recreation.

General Thoughts

- ◆ Potential key watershed, otherwise minimal riparian standards
- ◆ Local small gold production. Future exploration likely to be limited.

Mapping Zone 15. Owhyee Uplands (ERU 10)

Emphasis: Grazing, wildlife, mining.

- ◆ Conflicts: Shrub-steppe component for wildlife may be somewhat incompatible with livestock grazing.

General Thoughts

- ◆ Wetland complex important for wildlife values.
- ◆ Few Key Watersheds (Jarbridge, Wood River)
- ◆ Perhaps specific guidelines for Jarbridge and Wood River
- ◆ Tie Key Watersheds with wildlife
- ◆ Similar potential for mineral resources as mapping zone 7 and northern Nevada (outside project area). Future minerals activity will be for gold and silver deposits of several types which will be exploited by open pit bulk mines. Cyanide or other leaching techniques may be required.

Mapping Zone 16. Upper Snake (ERU 11, Blast Zone)

Emphasis: Grazing.

General Thoughts

- ◆ Some phosphate mining
- ◆ Minimal (proper functioning condition) riparian requirements
- ◆ Key Watersheds (Little Lost)

Mapping Zone 17. Snake Headwaters (ERU 12)

Emphasis: Wildlife, biodiversity, aquatics, recreation, phosphate production.

General Thoughts

- ◆ Similar to Mapping Zones 12 and 10
- ◆ Idaho is nations third largest phosphate producer- area is world class phosphate producer. Currently 7 major active open pit mines. At current production rate (5 million metric tons/year), known ore reserves represents 200 years of mining and production.

Rationale for Alternative 7

Mapping Process for Reserve Areas

Alternative 7 was designed to provide large islands of biodiversity that will be conserved in their present state. Natural processes, such as insects and diseases and fire, will be allowed without interference by humans. Alternative 7 was developed after review of current scientific thinking for design of reserve systems, including authors such as Reed Noss, Peter Morrison, the Wilderness Society, the Columbia River Bioregion Campaign and others.

Initially two types of reserve system designs were considered; small reserves scattered within a matrix, similar to that used by the Northwest Forest Plan, and large-scale reserves similar to that proposed by Reed Noss. In the end, a combination of both of these proposals was used to design the alternative. A system of large reserves was chosen to provide a biosystem that was large enough to absorb large scale disturbances typical of those in the Interior Columbia Basin Ecosystem Management Project Area. In addition, standards were included for the area outside of reserves to conserve old tree habitat areas. Although these areas are not referred to as part of the reserve system itself and are not presently mapped, they are intended to provide a network of old tree habitat between the reserves themselves.

Large Scale Reserve Areas

The reserve system proposed in Alternative 7 was built using the GIS mapping data from the *Scientific Assessment*. Various GIS data layers were used to identify important features to be included in the system. Items that were identified for inclusion were a minimum of 20 percent of each potential vegetation type (PVG) in the entire project area (calculated on all ownerships, but mapped on BLM- and Forest Service-administered lands only), centers of biodiversity and species rarity and endemism, core habitat areas for large forest carnivores, northern spotted owl habitat on the crest of the Cascade Range, strongholds of salmonid species, areas of high aquatic integrity, areas of narrowly distributed endemic fish species, and areas of important fringe populations of salmonid species.

The base used to begin the process was a GIS map of all current natural areas and wilderness study areas on BLM- and Forest Service-administered lands. Using GIS maps of the items discussed above, in addition to maps showing road densities, fire information, areas of urban interface and others, existing natural areas and wilderness study areas were blocked together to provide large areas of reserve habitat. Due to the large nature of reserve areas, high and lower quality habitat was included rather than trying to exclude lower quality areas, which would result in 'holes' in the reserve. In addition as the reserves were mapped, it was discovered that adding some lower elevation potential vegetation groups increased others beyond the goal of 20 percent. To further minimize 'holes' in the system, these areas were kept in the reserve. For that reason, 44 percent of the cold forest within the project area is enclosed in reserves and 55 percent of the alpine potential vegetation group is included (See Table 3).

Review of the percentages of potential vegetation groups after initial mapping led to adjustments. It was discovered that the preferred percentages for some potential vegetation groups were not going to be met. The dry grass potential vegetation group is generally located on other ownerships within the project area, and therefore has a low percentage in reserves. The dry grass group administered by BLM or Forest Service is scattered and difficult to incorporate into a large reserve system, although 43 percent was assigned to reserves. Riparian shrub has a similar situation with 57 percent of that available assigned to the reserve system, while only 8 percent of the project area is represented. Finally riparian woodland and woodland show lower percentages than

desired, but that may be reflected in the scale of resolution. At this resolution used for the *Scientific Assessment* (smallest area evaluated was 1 kilometer, or 250 acres), riparian woodland and woodland present as inclusions within other potential vegetation groups would increase the percentage, although once again most of the available vegetation group is located on other ownerships.

Table 3 shows the final acreage of each potential vegetation group that are within reserves, what percent that is of the total available on BLM- and Forest Service-administered lands, and the total of those vegetation groups available in the project area. These acreages may vary when the reserve system is implemented and actual on-the-ground locations are mapped. Some adjustments may be made by local units based on fine scale criteria that was not addressed in this EIS.

Table 3. Acres of Potential Vegetation Groups Within Reserves.

Potential Vegetation Group	Acres in Reserves	Acres on BLM/FS-Administered Lands	Percent of BLM/FS in Reserve	Total Acres in Project Area	Percent of Project Area in Reserve
Alpine	121,000	183,000	66	221,000	55
Cold Forest	6,194,000	12,376,000	50	14,176,000	44
Cool Shrub	2,810,000	7,336,000	38	12,810,000	22
Dry Forest	5,467,000	14,362,000	38	26,687,000	20
Dry Grass	1,046,000	2,431,000	43	12,339,000	8
Dry Shrub	7,054,000	20,639,000	34	24,323,000	29
Moist Forest	8,306,000	16,552,000	50	26,086,000	32
Riparian Shrub	190,000	334,000	57	2,400,000	8
Riparian Woodland	121,000	1,023,000	12	3,407,000	4
Woodland	89,000	412,000	22	4,379,000	2

Abbreviations: BLM = Bureau of Land Management / FS = Forest Service

Management Between Reserve Areas

To provide pockets of habitat and enhance connectivity between large reserve areas, standards were included in the alternative to conserve old tree habitat that currently exists on BLM- or Forest Service- administered lands within the project area. These islands of old tree habitat would remain until other areas became available to replace them.

As part of the aquatic strategy for this alternative, all roadless areas greater than 1,000 acres will continue to be managed as roadless in the areas between reserve areas. In addition all natural areas and wilderness study areas that did not become part of the base reserve system would remain in place.

Rule Sets

Development of Forest and Range Clusters, and Their Relationship to the Alternatives

The Science Integration Team was asked by the EIS Team, based on their science findings, to identify the following:

1. Those places (on public lands) within the project area where ecological integrity is high, medium, and low.
2. Those places where there are opportunities to improve (restore) ecological integrity.
3. Those places where there are opportunities to produce commodities with a low risk to ecological integrity.

What the Science Team Did

Based on what they learned about past and present conditions, the Science Integration Team rated areas as having high, medium, and low ecological integrity for the following: forestlands, rangelands, forestland hydrology, rangeland hydrology, and aquatics. The ratings were mapped for areas of approximately 800,000 to one million acres, or the size of river basins. There are 164 of these areas in the project area.

The following characteristics were used in determining the ratings:

Forestland	Tree stocking levels consistent with long-term disturbances typical for certain forest types; the amount and distribution of exotic species; the amount of snags and downed woody material; disruptions to the hydrologic regimes; the absence or presence of wildfire and its effect on the composition and patterns of forest types; and changes in fire severity and frequency from historical (pre-1900s) to the present. (See Map 2-45.)
Rangeland	Historical overgrazing; disruptions to the hydrologic regimes; expansion of exotic species; changes in fire severity and frequency; increases in bare soils; and expansion of woodlands into rangelands. (See Map 2-46.)
Forestland Hydrology Functions	Functioning of biogeochemical cycles; surface and sub-hydrology: surface flows; sediment and erosion hazards; and presence of riparian vegetation. (See Map 2-44.)
Rangeland Hydrologic Functions	Functioning of biogeochemical cycles; stream bank hydrology: stability; and resiliency to riparian disturbances. (See Map 2-44.)
Aquatic	Native fish diversity; presence of high quality, connected fish habitat; full complement of fish life histories; and current condition of fish populations. (See Map 2-36.)

Developing Story Lines

The five integrity ratings were integrated and combined into two ratings, one for forestlands and the other for rangelands. Further, the ratings for the 164 river basins were grouped into categories with similar characteristics or story lines. These groupings are referred to as “clusters.” (See Maps 2-47 and 2-48.) Both the forestlands and rangelands have six groupings or clusters. General characteristics of the six clusters for the forestlands and rangelands are found in the following tables. The forest and range clusters were useful to the EIS Team in prioritizing where management activities would occur across the landscape. Public opinion helped shape the EIS alternatives, which have different ways of addressing the Purpose and Need statement in Chapter 1.

How Ecosystem Integrity Was Used in the Development of Alternatives

Story lines developed through the process of identifying ecosystem integrity were used to help construct the alternatives. The story lines, or forest and rangeland clusters of watersheds with similar conditions, described three parameters. First, those places within the project area on lands managed by the Forest Service or Bureau of Land Management were rated for ecological integrity as either high, medium, or low. Second, the story lines or clusters reflect opportunities to improve ecologic integrity. Third, clusters are identified where multiple-use benefits can be produced with low ecological risks.

Based on the conditions of the forest and range clusters and the themes of the alternatives, management emphasis was assigned to the clusters by alternative. This included the priorities described in Chapter 1: conserve, restore or produce (C,R,P). Expected activities were then identified. These are described in the Ruleset in the accompanying pages. These activities, such as riparian restoration, timber harvest, and prescribed burning, were further defined in relation to expected levels of activity by alternatives. Using the No Action alternative as a base, other alternatives were compared for expected levels of activity by cluster. These levels were defined and assigned a rating of high, medium or low. Levels of activity (H,M,L) described percent of certain areas expected for treatment by decade.

After reviewing the activity levels, the EIS team reconfirmed management emphasis. Each forest and rangeland cluster was assigned a final rating of C, R, P, or combinations of these. These descriptions of management priorities and emphasis reflect the conditions of the clusters, the themes of the alternatives, and the expected activity levels. Final assignments of management emphasis were made by cluster by alternative.

Activity tables were then developed to reflect assumptions of how alternatives would be implemented. These tables were derived by taking the acres by cluster and multiplying them by the percent of those lands where activities were expected to occur as described in the H, M, or L ranking in the Ruleset.

Since these activity tables were developed by cluster by alternative, a simple way of displaying overall activities by alternative was developed. Ranges of activities for affected clusters were aggregated. The midpoint on these ranges were identified, and for analysis purposes, a variance of +/-15% from the midpoint was assumed.

Activity tables were developed to aid analysis, not to assign or allocate specific actions. Management emphasis (C,R,P) is carried forth by alternative, and objectives, standards, and guidelines would be applied with this emphasis as a basis for overall management expectations.

Rule Sets for Management Activity Levels by Cluster and Alternative

Table of Contents

SIT

- A. Developed individual integrity/departure ratings for forest, range, aquatic, and hydrologic layers based on individual 4th-field HUCs.
- B. As a result of individual integrity/departure layers, developed an integrated integrity layer for Forested lands and one for Rangelands resulting in combinations or “clusters” of 4th-field HUCs. This resulted in: 6 Forest clusters and 6 Range clusters.

EIS Team Tables

- 1F. Summary table** ~ key variables summarizing differences among **Forest** Clusters.
- 1R. Summary table** ~ key variables summarizing differences among **Range** Clusters.
- 2F. Activity level Assumptions** ~ used to equate H, M, L Activity levels to a “% of **forested** area treated” (calibrated to activity levels in Alternative 1 - No Action).
- 2R. Activity level Assumptions** ~ used to equate H, M, L Activity levels to a “% of **rangeland** area treated” (calibrated to activity levels in Alternative 1 - No Action).
- 3. Road “density class” calculations** ~ an intermediate step used to determine what magnitude of road closures would be required to effect a change between road density classes (note: this applies to both Forest and Range Clusters).
- 4F. Activity Levels** ~ applying H, M, L management activity levels to each **Forest** Cluster by Alternative (based on the theme of the Alternative and the condition and characteristics of the cluster).
- 4R. Activity Levels** ~ applying H, M, L management activity levels to each **Range** Cluster by Alternative (based on the theme of the Alternative and the condition and characteristics of the cluster).
- 5. Alternative 5 “Priority Management Areas”** ~ assigning a primary and secondary management priority of Timber, Livestock, Recreation, Aquatics, or Wildlife to each Forest and Range Cluster.
- 6F. Rule Sets** ~ a repeatable process used to combine the H, M, L activity levels (from table 2) into a “General Management Emphasis” (Conserve, Restore, Produce) for each **Forest** Cluster for each Alternative.
- 6R. Rule Sets** ~ a repeatable process used to combine the H, M, L activity levels (from table 2R) into a “General Management Emphasis” (Conserve, Restore, Produce) for each **Range** Cluster for each Alternative.
- 7F. Overall Management Strategy by Alternative** ~ a summarization of general management emphasis by **Forest** Cluster (used to generate Alternative maps).
- 7R. Overall Management Strategy by Alternative** ~ a summarization of general management emphasis by **Range** Cluster (used to generate Alternative maps).
- 8F. Conversion from “%” to “acres”** ~ used to convert from “% of **forested** area treated” (per decade) for H, M, L activity levels in Table 2 to “acres treated” (in thousands per decade) for H, M, L activity levels. (Used to generate the Management Activity tables in Chapter 3 of the DEIS.)
- 8R. Conversion from “%” to “acres”** ~ used to convert from “% of **rangeland** area treated” (per decade) for H, M, L activity levels in Table 2R to “acres treated” (in thousands per decade) for H, M, L activity levels. (Used to generate the Management Activity tables in Chapter 3 of the DEIS.)

Table 1F. Summary of Forest Clusters in the Project Area.

Variable	Forest Cluster (%)					
	1	2	3	4	5	6
BLM/Forest Service-administered land	80	86	40	58	50	35
Forestlands	83	81	70	88	53	48
Forested Vegetation Groups						
Dry Forest	16	37	35	18	81	51
Moist Forest	27	27	52	73	11	21
Cold Forest	57	36	13	9	8	28
Road Density Classes						
Low or none	85	62	32	20	22	36
Moderate or higher	15	38	68	80	78	64
Fire frequency change	37	60	66	51	60	60
Fire severity increase	36	50	57	47	35	36
High wildland/urban fire interface risk	0	17	6	1	29	10
Moderate wildland/urban fire interface risk	29	61	36	13	30	23
Forest Integrity						
Low	0	10	67	86	79	59
Moderate	0	43	33	10	21	17
High	100	47	0	4	0	24
Aquatic Integrity						
Low	5	0	8	54	52	87
Moderate	38	59	85	46	44	13
High	58	41	7	0	4	0
Hydrologic Integrity						
Low	0	4	47	12	39	76
Moderate	4	30	49	54	41	17
High	96	66	4	34	20	7
Composite Ecological Integrity						
Low	0	0	4	83	96	100
Moderate	0	3	96	17	4	0
High	100	97	0	0	0	0

Source: ICBEMP GIS data (converted to 1 Km² raster data).

Table 1R. Summary of Range Clusters in the Project Area.

Variable	Range Cluster (%)					
	1	2	3	4	5	6
BLM/Forest Service-administered land	36	81	44	5	75	55
Rangelands	54	5	6	29	65	59
Rangeland Vegetation Groups						
Dry Rangeland	49	34	17	30	61	61
Cool Rangeland	34	8	8	3	27	11
Other	17	58	75	67	12	28
Road Density Classes						
Low or none	20	71	30	62	64	30
Moderate or higher	80	29	70	38	36	70
Cropland/pasture	9	3	14	56	5	17
<12" annual precipitation	23	1	2	51	33	38
Fire frequency change	37	51	67	17	24	17
Fire severity increase	18	47	49	13	16	9
High wildland/urban fire risk interface	32	7	12	0	6	8
Moderate wildland/urban fire risk interface	10	59	33	4	58	39
Change in juniper woodland	+12	0	0	0	0	0
Range Integrity						
Low	100	6	76	100	26	79
Moderate	0	37	15	0	50	21
High	0	57	9	0	24	0
Aquatic Integrity						
Low	39	4	43	84	37	79
Moderate	61	24	50	16	57	18
High	0	72	7	0	6	3
Hydrologic Integrity						
Low	34	6	49	100	7	44
Moderate	66	16	35	0	35	34
High	0	78	16	0	58	22
Composite Ecological Integrity						
Low	100	0	58	97	8	80
Moderate	0	3	32	3	63	20
High	0	97	10	0	29	0

Source: ICBEMP GIS data (converted to 1 Km² raster data).

Table 2F. Forest Cluster Activity Level Assumptions.

		Low	Moderate	High
Harvest (commercial) (% of all forested area treated/decade)	Alts 1,2,7 > Alts 3-6 >	0-4 5-9	0-5 8-10	4-8 9-11
Thin (pre-commercial) (% of all forested area treated/decade)		0-3	3-6	6-8
Decrease Road Density (% of native surface road miles reduced/decade)		0-25	25-50	50+ changes road density class
Watershed Restoration (% of all forested area treated/decade)		0-3	3-6	6-8
Prescribe Burning (% of all forested area treated/decade)		0-5	5-9	9-11
Prescribed Fire Plans (% of all forested area for which plans have been implemented)		0-20	20-40	40+

Harvest: All commercial harvest methods (e.g. single tree selection, group selection, shelterwood, seed tree, overstory removal, clearcut, and commercial thinning from above or below)

Thin: All pre-commercial thinnings used to alter forest structure, species composition, density, rate of growth, fuel ladders, fire behavior, etc.

Decrease Road Density: Permanent closure of primarily native surface roads.

Watershed Restoration: Includes increased road maintenance, improved road condition (surface and/or drainage), reduced road related erosion, road obliteration, road de-commissioning, increased coarse woody debris, riparian plantings, in-channel restoration, etc.

Prescribed Burning: Management ignited fire.

Prescribed Fire Plan: Allows natural ignition fires to burn when in prescription and/or identifies areas that require prescribed burning.

Table 2R. Range Cluster Activity Level Assumptions.

	Low	Moderate	High
Livestock Management (% of all rangeland with improved management)	0-6	6-12	12-20
Improve Rangelands (% of all rangeland treated/decade)	0-4	4-8	8-11
Decrease Road Density (% of native surface road miles reduced/decade)	0-25	25-50	50+ changes road density class
Riparian Restoration (% of all riparian areas treated/decade)	0-25	25-50	50-75
Prescribe Burning (% of all rangeland treated/decade)	0-3	3-6	6-9
Prescribed Fire Plan (% of all rangeland for which plans have been implemented)	0-20	20-40	40+

Livestock Management: A summation of livestock management variables that affect rangeland health, including grazing systems, changing riparian grazing management, season of use (length and timing), number of head, change of class, distribution, grazing deferment, and herding.

Improve Rangelands: Capital Investments: fencing, stockwater improvements, seedings, control of invasion or spread of exotics, and non-fire shrub and juniper control.

Decrease Road Density: Permanent closure of primarily native surface roads.

Riparian Restoration: Includes improving road condition (drainage and/or surface), riparian plantings, in-channel restoration, and riparian exclosures.

Prescribe Burning: Management ignited fire.

Prescribed Natural Fire: Allows natural ignition fires to burn when in prescription and/or identifies areas that require prescribed burning.

Table 3. Changing Road Density Class¹

Class	Density (miles/ sq. mile)	Mean Density	Multiplier (between classes)	Percent of roads that would have to be closed to drop one density class.
None	0 - 0.02	0.006	10	90
Very Low	0.02 - 0.1	0.06	7	80
Low	0.1 - 0.7	0.4	3	70
Moderate	0.7 - 1.7	1.2	2.5	60
High	1.7 - 4.7	3.2	2	50
Extreme	4.7+	6		

¹Calculations depicting the percent of road closures necessary to effect a change in road density class.

Table 4F. Activity Levels By Forest Cluster by Alternative.

Action	Alternative						
	1	2	3	4	5	6	7
Forest Cluster 1							
Harvest		L	L	L	L	L	L
Thin		L	L	L	L	L	L
Decrease road density		L	L	L	L	L	L
Watershed restoration		L	M	M	M	M	L
Prescribed burning		L	L	M	H	L	M
Prescribed fire plans		H	H	H	H	H	H
Alternative 5 Management Priority: Primitive Recreation/Aquatics							
Forest Cluster 2							
Harvest		M	L	L	L	L	L
Thin		L	L	L	M	L	M
Decrease road density		L	L	M	M	L	M
Watershed restoration		L	M	M	H	M	M
Prescribed burning		L	L	M	H	M	M
Prescribed fire plans		H	H	H	H	H	H
Alternative 5 Management Priority: Aquatics/Recreation							
Forest Cluster 3							
Harvest		H	M	M	M	M	L
Thin		M	L	M	H	H	M
Decrease road density		L	L	M	M	M	H
Watershed restoration		L	M	M	M	M	M
Prescribed burning		L	L	M	M	M	M
Prescribed fire plans		L	L	L	M	M	M
Alternative 5 Management Priority: Aquatics/Timber							
Forest Cluster 4							
Harvest		H	M	M	M	H	M
Thin		M	M	H	H	H	H
Decrease road density		L	L	M	M	L	M
Watershed restoration		L	L	L	M	L	M
Prescribed burning		L	L	L	M	L	M
Prescribed fire plans		L	L	L	M	L	M
Alternative 5 Management Priority: Timber/Wildlife							
Forest Cluster 5							
Harvest		H	L	M	M	M	L
Thin		M	M	H	H	H	H
Decrease road density		L	M	H	H	M	M
Watershed restoration		L	L	L	M	M	M
Prescribed burning		L	L	M	H	M	H
Prescribed fire plans		L	L	M	H	H	H
Alternative 5 Management Priority: Timber/Livestock							
Forest Cluster 6							
Harvest		M	L	L	L	M	L
Thin		L	L	H	H	M	H
Decrease road density		L	L	L	M	L	L
Watershed restoration		L	L	L	L	L	L
Prescribed burning		L	L	M	M	M	M
Prescribed fire plans		L	L	M	M	L	M
Alternative 5 Management Priority: Wildlife/Recreation							

Table 4R. Activity Levels by Range Cluster by Alternative.

Action	Alternative							
	1	2	3	4	5	6	7	
Range Cluster 1								
Livestock management		L	M	M	M	L	M	H
Improve rangelands		L	L	M	M	L	M	L
Decrease road density		L	L	L	H	M	M	M
Riparian restoration		L	L	L	M	L	M	L
Prescribed burning		L	L	M	H	M	H	M
Prescribed fire plans		L	L	M	H	H	H	H
Alternative 5 Management Priority: Livestock/Timber								
Range Cluster 2								
Livestock management		H	H	H	H	H	H	H
Improve rangelands		L	L	L	L	L	L	L
Decrease road density		L	L	L	L	L	L	L
Riparian restoration		L	L	L	M	L	M	L
Prescribed burning		L	L	M	H	M	M	L
Prescribed fire plans		H	H	H	H	H	H	H
Alternative 5 Management Priority: Recreation/Aquatics								
Range Cluster 3								
Livestock management		M	H	H	H	H	H	H
Improve rangelands		L	L	L	M	M	M	L
Decrease road density		L	L	L	M	L	L	M
Riparian restoration		L	M	M	M	L	L	L
Prescribed burning		L	L	M	H	M	M	L
Prescribed fire plans		L	L	M	H	M	H	H
Alternative 5 Management Priority: Recreation/Wildlife								
Range Cluster 4								
Livestock management		L	M	M	M	M	M	H
Improve rangelands		L	L	L	M	L	M	L
Decrease road density		L	L	M	M	L	M	M
Riparian restoration		L	L	L	M	M	M	M
Prescribed burning		L	L	M	M	L	L	L
Prescribed fire plans		L	L	L	M	L	M	M
Alternative 5 Management Priority: Wildlife								
Range Cluster 5								
Livestock management		L	M	M	H	M	H	H
Improve rangelands		L	L	M	M	L	L	L
Decrease road density		L	L	L	L	L	L	L
Riparian restoration		L	L	M	M	M	M	L
Prescribed burning		L	L	M	M	L	M	M
Prescribed fire plans		L	L	L	M	L	M	H
Alternative 5 Management Priority: Livestock/Recreation								
Range Cluster 6								
Livestock management		L	M	M	H	M	H	H
Improve rangelands		L	L	M	H	M	M	L
Decrease road density		L	L	L	M	L	M	M
Riparian restoration		L	L	M	M	M	M	M
Prescribed burning		L	L	L	L	L	L	L
Prescribed fire plans		L	L	L	L	L	L	M
Alternative 5 Management Priority: Livestock/Wildlife								

Table 5. Alternative 5 “Priority Management” Areas.

	Primary Priority	Secondary Priority
Forest Cluster		
1	Primitive Recreation	Aquatics
2	Aquatics	Recreation
3	Aquatics	Timber
4	Timber	Wildlife
5	Timber	Livestock
6	Wildlife	Recreation
Range Cluster		
1	Livestock	Timber
2	Recreation	Aquatics
3	Recreation	Wildlife
4	Wildlife	-----
5	Livestock	Recreation
6	Livestock	Wildlife

Table 6F. RULE SET - Process for combining Activity Levels into a “General Management Emphasis” for Forest Clusters.

The following describes how “general management emphases” were established for the Forest clusters for each alternative based on the activity levels.

Management Emphasis (general emphasis applied to the “Cluster/Alternative theme” combination)

- C Conserve
- C-R Conserve/Restore
- R Restore
- R-P Restore/Produce
- P Produce
- P-C Produce/Conserve

The management emphasis was assigned by the level of production (harvest) and restoration (thin, road density reduction, watershed restoration, prescribed burning) activities.

Management Emphasis	Harvest Level	Restoration Activities
C	Low	1 or less restoration activity > or = Mod
C-R	Low	2 restoration activities > or = Mod
R	Low or Mod	3 or more restoration activities > or = Mod
R-P	Mod or High	2 restoration activities > or = Mod
P	High	1 or less restoration activity > or = Mod
P-C	Mod	1 or less restoration activity > or = Mod

Table 6R. RULE SET - Process for Combining Activity Levels into a “General Management Emphasis” for Range Clusters.

The following describes how “general management emphases” were established for the Range Clusters for each alternative based on the activity levels.

Management Emphasis (general emphasis applied to the “Cluster/Alternative theme” combination)

- C Conserve
- C-R Conserve/Restore
- R Restore
- R-P Restore/Produce
- P Produce
- P-C Produce/Conserve

The management emphasis was assigned by the level of livestock management and restoration (rangeland improvements, road density reduction, riparian restoration, prescribed burning) activities.

Management Emphasis	Level of Livestock Mgmt.	Restoration Activities
C	High	1 or less restoration activity > or = Mod
C-R	High	2 restoration activities > or = Mod
R	Mod or High	3 or more restoration activities > or = Mod
R-P	Low or Mod	2 restoration activities > or = Mod
P	Low	1 or less restoration activity > or = Mod
P-C	Mod	1 or less restoration activity > or = Mod

Table 7F. Overall Management Strategy by Alternative. (Summarization of General Management Emphasis by Forest Cluster)

Forest Cluster	Alternative						
	1	2	3	4	5	6	7
1	C	C	C-R	C-R	C	C-R	C
2	P-C	C	R	R	C-R	R	C
3	P	P-C	R	R	R	R	C-R
4	P	P-C	R-P	R	P	R	C-R
5	P	C-R	R	R	R	R	C-R
6	P-C	C	C-R	R	R-P	C-R	C

Table 7R. Overall Management Strategy by Alternative. (Summarization of General Management Emphasis by Range Cluster)

Forest Cluster	Alternative						
	1	2	3	4	5	6	7
1	P	P-C	R-P	R	R-P	R	C-R
2	C	C	C	C-R	C	C-R	C
3	P-C	C	C-R	R	C-R	C-R	C
4	P	P-C	R-P	R	P-C	R	C-R
5	P	P-C	R	R	P-C	C-R	C
6	P	P-C	R-P	R	R-P	R	C-R

Table 8F. Management Activity Levels in Forest Clusters, in Acres.

Harvest

Alternatives 1, 2 & 7

Forest Acres (x 1,000)	Forest Cluster	Acres (in the first decade)		
		Low 0-4%	Moderate 4-8%	High 8-10%
		<i>in thousands</i>		
5,156	1	0 - 200	200 - 400	400 - 500
10,724	2	0 - 450	450 - 850	850 - 1,050
3,955	3	0 - 150	150 - 300	300 - 400
9,296	4	0 - 350	350 - 750	750 - 950
7,560	5	0 - 300	300 - 600	600 - 750
2,687	6	0 - 100	100 - 200	200 - 250

Alternatives 3, 4, 5, & 6

Forest Acres (x 1,000)	Forest Cluster	Acres (in the first decade)		
		Low 0-5%	Moderate 5-9%	High 9-11%
		<i>in thousands</i>		
5,156	1	0 - 250	250 - 450	450 - 550
10,724	2	0 - 550	550 - 950	950 - 1200
3,955	3	0 - 200	200 - 350	350 - 450
9,296	4	0 - 450	450 - 850	850 - 1000
7,560	5	0 - 400	400 - 700	700 - 850
2,687	6	0 - 150	150 - 250	250 - 300

Thin

Forest Acres (x 1,000)	Forest Cluster	Acres (in the first decade)		
		Low 0-3%	Moderate 3-6%	High 6-8%
		<i>in thousands</i>		
5,156	1	0 - 150	150 - 300	300 - 400
10,724	2	0 - 300	300 - 650	650 - 850
3,955	3	0 - 100	100 - 250	250 - 300
9,296	4	0 - 300	300 - 550	550 - 750
7,560	5	0 - 250	250 - 450	450 - 600
2,687	6	0 - 100	100 - 150	150 - 200

Prescribed Burning

Forest Acres (x 1,000)	Forest Cluster	Acres (in the first decade)		
		Low 0-5%	Moderate 5-9%	High 9-11
		<i>in thousands</i>		
5,156	1	0 - 250	250 - 450	450 - 550
10,724	2	0 - 550	550 - 950	950 - 1,200
3,955	3	0 - 200	200 - 350	350 - 450
9,296	4	0 - 450	450 - 850	850 - 1,000
7,560	5	0 - 400	400 - 700	700 - 850
2,687	6	0 - 150	150 - 250	250 - 300

Table 8F. Management Activity Levels in Forest Clusters (continued).

Watershed Restoration

Forest Acres (x 1,000)	Forest Cluster	Acres (in the first decade)		
		Low 0-3%	Moderate 3-6%	High 6-8%
		<i>in thousands</i>		
5,156	1	0 - 150	150 - 300	300 - 400
10,724	2	0 - 300	300 - 650	650 - 850
3,955	3	0 - 100	100 - 250	250 - 300
9,296	4	0 - 300	300 - 550	550 - 750
7,560	5	0 - 250	250 - 450	450 - 600
2,687	6	0 - 100	100 - 150	150 - 200

Table 8R. Management Activity Levels in Range Clusters, in Acres.

Livestock Management

Range Acres (x 1,000)	Range Cluster	Acres (in the first decade)		
		Low 0-6%	Moderate 6-12%	High 12-20%
		<i>in thousands</i>		
1,632	1	0 - 100	100 - 195	
103	2	0 - 6	6 - 12	12 - 20
107	3	0 - 6	6 - 12	12 - 20
32	4	0 - 2	2 - 4	
13,367	5	0 - 800	800 - 1600	1600 - 2670
14,640	6	0 - 880	880 - 1760	1760 - 2925

Improve Rangelands

Range Acres (x 1,000)	Range Cluster	Acres (in the first decade)		
		Low 0-4%	Moderate 4-8%	High 8-11%
		<i>in thousands</i>		
1,632	1	0 - 65	65 - 130	130 - 180
103	2	0 - 5	5 - 10	
107	3	0 - 5	5 - 10	
32	4	0 - 5		
13,367	5	0 - 535	535 - 1070	1070 - 1470
14,640	6	0 - 585	585 - 1170	1170 - 1610

Table 8R. Management Activity Levels in Range Clusters (continued).

Prescribed Burning

Range Acres (x 1,000)	Range Cluster	Acres (in the first decade)		
		Low 0-3%	Moderate 3-6%	High 6-9%
			<i>in thousands</i>	
1,632	1	0 - 50	50 - 100	100 - 150
103	2	0 - 5	5 - 10	
107	3	0 - 5	5 - 10	
32	4	0 - 5		
13,367	5	0 - 400	400 - 800	
14,640	6	0 - 440	440 - 880	

Riparian Restoration

Range Cluster	Acres (in the first decade)			
	Low 0-25%	Moderate 25-50%	High 50-75%	
			<i>in thousands</i>	
1	0 - 10	10 - 20		
2	0 - 1			
3	0 - 1			
4	0 - 1			
5	0 - 65	65 - 135		
6	0 - 75	75 - 145		