Chapter 6
Functional Themes, Synthesis and Recommendations

6.0 Management Themes: Description and Background

6.0.1 Functional Theme Development and Use

In response to the summary of findings described in Chapter 4 and the historic and existing resource conditions displayed in Chapter 5, functional themes were developed for aquatics, vegetation, wildlife, recreation, and roads. The functional themes are prioritized according to their importance (need for action) and urgency (action timing). A higher priority was assigned to those areas where the action or theme was considered locally and/or regionally important and urgent.

Table 6.26 at the end of this chapter summarizes the functional themes, the subwatersheds where they apply, and their relative priority. The functional themes are prioritized within a given resource (vertically on Table 6.26), rather than between the resources (horizontally). Attempts were made to provide some consistency in theme priority assignments between resources. However, this was not always possible. Thus, a recreation theme with a "high" priority may not necessarily be more important in a given area than an aquatic theme priority of "medium" in the same area. On the other hand, an aquatic theme with a "high" priority in one area, is considerably more urgent and important than an aquatic theme with a "medium" priority in another area. In most cases, the functional resource themes or emphasis areas apply to one or more subwatersheds. Reconciliation of the varied priorities between resources for the same area is handled in the integration process presented in Chapter 7.

The terms and definitions associated with the functional themes are similar to those described in the Columbia River Basin Science Assessment (Quigley et al., 1996), where management emphases were assigned to forest and range clusters in the Columbia River Basin.

A functional resource theme applies to a specific resource and is developed independently from other resource needs and considerations. The reader should recognize that in some cases, implementing the functional recommendations designed to improve conditions for one resource, could conflict with the management objectives and needs of another resource. In spite of this potential conflict, the development of functional themes is a necessary step in the process. The all-important integration phase described in Chapter 7 would not be possible without first defining functional themes.

The themes used for the Slate Creek assessment are designed to either conserve or restore landscape elements, functions, and/or processes. Generally, a conserve theme is assigned to areas where existing conditions are ecologically sustainable. The objective is to perpetuate existing conditions and processes. A conserve theme does not always imply a hands off approach to management. A restore theme is applied where conditions are less than desirable and improvement is needed to achieve long term ecological stability and sustainability.

Once implemented, the recommended themes provide pathways or solutions for achieving a range of desirable and sustainable landscape conditions through time. In terms of future planning processes, the Slate Creek themes will be used to develop the ecological basis for purpose and need statements for future project planning

and analyses, prioritize the project implementation schedule and help set criteria for post-project monitoring and evaluation. The integrated themes will also be used to develop an ecological basis for Forest Plan revision or amendment.

Notwithstanding the subbasin themes, recommendations, and treatment objectives presented in this Chapter, it is important to emphasize that the entire Slate Creek watershed is Nez Perce Tribal ceded lands. As such, under Article 3 in the Nez Perce Treaty of 1855, tribal members are secured the rights of taking fish in all usual and accustomed places, erecting temporary buildings for curing, hunting and gathering and pasturing cattle and horses upon open and unclaimed land.

Functional thems development and use will also provide the BLM pathways that may be used for achieving a range of desireable landscape conditions. The appropriate findings and direction will provide good guidance and can be used for development of projects occurring on BLM managed lands in the Lower and Main Canyon.

6.0.2 Conflicting Functional Theme Objectives

The assigned functional themes for a subwatershed may not be compatible in all situations. Having several functional themes with differing objectives adds complexity to developing specific solutions for specific areas or projects.

When there is a conflict between the different functional themes (e.g. vegetation and aquatics), the integrated area theme (with the aid of site specific information) should provide sufficient guidance. Watershed-wide conditions must also be considered.

In many subwatersheds, aquatic conditions have been more altered than terrestrial conditions. Aquatic cumulative effects have reduced the capacity of Slate Creek and some of its tributaries to sustain healthy populations of native fish. Thus, the primary, underlying theme for the entire watershed is aquatic restoration even though some integrated themes for specific subwatersheds may highlight terrestrial treatment needs.

6.1 Functional Resource Synthesis and Theme Introduction

The following section will be subdivided into 3 separate resource areas: aquatics, vegetation and wildlife, and recreation. Under each resource area, a summary of findings (from Chapter 5), a synthesis of information from a functional perspective, and functional recommendations, including themes is described. Under each theme, the reader will find a table listing: 1) the subwatersheds where the themes apply, 2) the theme priority in the subwatershed, and 3) any possible conflicts with any other resource restoration needs in the subwatershed.

Following the table, there will be a section describing unique subwatershed elements or conditions relating to the theme that should be considered prior to treatment.

6.2 Aquatic Resources

6.2.1 Summary of Management Direction

The existing aquatic management direction and guidance for Slate Creek, included in the Forest Plan, Forest Plan Amendments (Pacfish), and ESA consultation documents, emphasize the value and priority of this watershed. Both in terms of the balance with other management objectives, and in terms of the aquatic priority with respect to other watersheds on the Nez Perce Forest, the aquatic resources in Slate Creek rank high.

BLM managed lands in the drainage are minimal, however, existing aquatic management direction and treatment priorities are similar to that mentioned above for the USFS managed lands.

6.2.2 Summary and Synthesis of Aquatic Findings

The findings or conclusions of Chapter 5 of this assessment, with respect to the aquatic

resources can be summarized by the following:

- The magnitude and timing of **soil erosion** have changed over pre-settlement conditions. The natural spikes in erosion rates following wildfire have been temporarily reduced, but rates due to human disturbances have increased. Erosion events continue to be heavily influenced by annual weather conditions. In the canyon breaklands, both surface and mass erosion rates show a net increase as a result of road construction and associated timber harvest. In the mid elevation rolling uplands, relatively short, but extensive episodes of surface erosion following infrequent large wildfires have been replaced by near continuous, chronic surface erosion from roads and mining disturbances.

- Physical **channel processes** (including streams, riparian areas, wetlands, and floodplains) have been altered in developed areas of the watershed, but natural stream processes still predominate in many tributary streams. Natural processes are dominant in Upper Main Slate, Deadhorse, Van Buren, upper Boulder, upper Little Boulder, and several tributaries of main Slate Creek. Much of the lower mainstem of Slate Creek, and shorter sections of streams elsewhere, have been directly impacted by road encroachment. Mining and grazing have extensively affected channel processes in upper Little Slate Creek and many tributaries.

- Current **water yield** is somewhat reduced through much of the watershed, relative to conditions early in the 20th century. This is probably the result of effective fire suppression since about 1935. The reduction in overall water yield has been partially counterbalanced by timber harvest and the compaction and water routing effects of roads. Sediment yield has generally increased, relative to presettlement conditions (see soil erosion summary above).

- **Water temperatures** have increased in developed areas of the watershed, but the magnitude of this increase is not known. Streams meet water temperature criteria during most of the year and along much of their length, but the criteria are exceeded periodically. These high temperature levels are due to both natural conditions and human disturbances.

- Slate Creek has **high inherent habitat potential** for aquatic species, uniquely valuable within the context of the Lower Salmon subbasin. This potential is based on both the occurrence of limited landtype associations (low relief and high elevation landtypes) and the size of the watershed, with the corresponding size of the mainstem river.

- Aquatic **habitat condition** in Slate Creek is believed to be reduced to varying degrees from historic levels, through changes in natural disturbance and hydrologic processes, and direct effects on channel morphology. The change in sediment regimes in landscapes which were highly dependent on large infrequent disturbances, but are now more closely associated with small to moderate frequent disturbances is thought to be the greatest upland process departure. Historic mining and grazing activities, along with streamside roads, are thought to be the greatest direct impact on stream channels, through riparian and floodplain alterations, channel simplification, and loss of large wood.

- The **distribution of fish** species assessed is relatively consistent with historic distributions. The historic occurrence of native fish in Upper Main Slate Creek is unknown, but may represent a reduction in species distribution as a result of extirpation by introduced brook trout.

- The **abundance of fish** is thought to be significantly reduced from historic levels, although the data to describe the extent of this reduction is not available. Spring chinook and steelhead trout populations had experienced the greatest decline, along with the migratory components of westslope cutthroat trout and bull trout.

- The **genetic integrity of fish populations** is thought to be reduced as a result of fish stocking, though no genetic analysis has been completed. The genetic makeup of the spring chinook and steelhead

trout populations are likely to include genetic material from stocked fish. The genetic makeup of the redband trout (residualized steelhead) is unknown, but may contain the original genetic material of this species, particularly those fish in Little Slate. The bull trout in Slate Creek are thought to have high genetic integrity, with no hybridization with brook trout, due to their separation in the watershed.

- The **connectivity between fish populations** is thought to have been somewhat reduced from changes in habitat and reductions in migratory life history components, although the most significant restrictions to fish movement in the watershed are natural. The reduction in habitat conditions, especially large pool habitat associated with logjams, in mainstem Slate Creek is the principal habitat change. The likely reductions in the numbers of migratory westslope cutthroat trout and bull trout represent a loss of population connectivity, although the extent of this reduction is unknown.

- The **extinction risk for the aquatic species** in Slate Creek is relatively high. This risk is thought to be the greatest for spring chinook, based primarily on downstream factors, but with some contribution from risk factors in the watershed. Steelhead trout are at high risk (although less than spring chinook), again due primarily to downstream factors with contribution from risk factors in the watershed. Westslope cutthroat trout and bull trout are thought to have a moderate risk of extinction, due primarily to the loss of the migratory life history component. The limited extent and number of bull trout populations increase the risk of extinction for this species. The redband population has a relatively low risk of extinction due to the strength of this population and its wide distribution.

6.2.3 Recommended Aquatic Management Direction

Aquatic Strategy and Priorities

While the aquatic processes and conditions in Slate Creek have been altered from historic, the watershed processes, aquatic habitat conditions, and fish populations are still relatively intact in portions of the watershed. The combination of the inherent potential and value of the watershed, the varying range of conditions, the relatively high natural resilience of many areas, and the feasibility of restoring the aquatic processes and conditions makes Slate Creek a unique opportunity for restoration of aquatic resources. The size of the restoration task is large, and some aspects are complex. However, these issues do not diminish the priority for aquatic restoration in this watershed, but increase the need for an organized, focused, and sustained effort to be successful.

The recommended approach to aquatic resource conservation and restoration includes the following list of approaches, listed by priority:

- Conserve existing aquatic integrity
- Secure existing aquatic strongholds
- Remove/ reduce press disturbances
- Reduce risks to aquatic resources
- Restore aquatic processes
- Restore aquatic conditions

While there is overlap between these components, in general they can be used to organize and focus the aquatic management in Slate Creek. There are two additional considerations that need to be integrated with these restoration components. Restoration efforts in the watershed should proceed in a general top to bottom direction, as a way to avoid impacting previous work from upstream efforts. Additionally, restoration efforts should be prioritized based on the aquatic themes presented in section 6.2.4. These themes recommend a set of restoration priorities that should be consistent with the restoration schedule.

The first priority of aquatic resource management in Slate Creek should be to conserve the existing aquatic values, particularly the parts of the aquatic ecosystem that have high integrity. This conservation should include the aquatic components of processes, habitat conditions, and species. This approach should be applied to both the subwatersheds

that have high integrity, along with other aquatic components throughout the watershed. This first aspect of the strategy is simply "don't make things worse". This will require careful planning and implementation of management activities, including those designed to achieve other objectives, that have the potential to impact the aquatic ecosystem. While it is recognized that there are risks associated with the current condition and future efforts to restore the watershed, given the current status of the aquatic resources, there needs to be careful consideration of the short-term costs necessary to achieve long-term benefits. This focus should not be misinterpreted to mean that nothing should happen, or that any activity represents a serious threat. The recommendation is that short-term impacts to the existing aquatic values be considered and minimized to the extent reasonable. What is considered reasonable will vary given the aquatic resources at risk.

The second focus of aquatic resource management should be to secure the existing aquatic strongholds, those large parts of the watershed that are relatively intact, through focused restoration efforts. This part of the aquatic management strategy is area based, and applies the Van Buren, Deadhorse, Boulder, and Upper Main Slate subwatersheds, in order of priority. All of these areas have restoration needs and opportunities that should improve existing conditions or reduce future risks. These strongholds play an important role as source areas, of both conditions and species, for the rest of the watershed. The restoration needs in these relatively intact parts of the watershed should be a very high priority.

The next piece of the aquatic restoration strategy should focus on removing or reducing the press disturbances, or departures, in the watershed. This component would focus on restoring processes and function, thereby increasing the resilience of the aquatic components to respond to both human and natural disturbance events. An example of the type of semi-permanent alteration that should be addressed is the channel morphology/ water elevation changes in Little Slate, near the mouth of Van Buren. The conversion of these 'C' channels to 'G' channels has significantly altered the stream process in these reaches. Restoration of this channel process contributes to both on-site aquatic habitat and downstream sediment levels due to bank erosion, while also increasing the resilience of this reach to respond to floods. Some press disturbances will not be removed. To the extent that they can, these impacts should be reduced. Streamside roads that are going to be kept are an example of this type of impact that should be a high priority for mitigation, if needed, through upgrade of the facility. In many cases, these press disturbances are associated with direct affects on streams and in the streamside area. Important areas for focusing this effort include the Little Slate subwatershed, and the streamside area along mainstem Slate Creek.

The next priority for aquatic restoration should be the reduction in risks that have the potential to further degrade aquatic process or condition. Roads on landslide prone terrain, particularly stream-crossing areas, are an example of this type of restoration component. Brook trout are another type of risk. While current fuel levels and canopy closure means an increased risk of large fire, this component is discussed in the next focus on the restoration of processes. Where risks to aquatic resources are high, restoration should be focused on eliminating or reducing these risks where reasonable.

The fourth aspect of the aquatic restoration strategy should be the restoration of aquatic processes, where they have been altered. This component includes elements such as the departures in sediment regimes, water yield, and fire regimes. This component represents a large portion of the work in aquatic restoration, and the greatest potential to cause short-term impacts on the aquatic resource. Having secured the stronghold areas, where processes are relatively intact, and increased the resilience of the aquatic environment through the reduction in press disturbances, the aquatic

system will be better prepared for the possible short-term effects associated with this restoration focus. Short-term impacts still need to be an important consideration in planning and implementing these restoration efforts. It is expected that this aquatic restoration competent has the greatest compatibility with terrestrial restoration needs, such as the fire regime. This effort will be more of a system-wide approach in parts of the watershed, as opposed to the more site-specific efforts discussed above.

The last component of the aquatic restoration strategy should be the restoration of aquatic conditions, where it can be determined that there are significant benefits to be gained at little cost. The application of this component should be in cases where press disturbances can not be removed or significantly reduced, or where the time necessary for a process based approach to improve conditions will result in significant negative short-term consequences. Activities associated with this restoration component include activities such as the placement of large woody debris in streams. This approach to restoration is an important tool to be used sparingly in unique circumstances.

One key factor that should be considered under any restoration scenario is to minimize the short-term risks while preparing the aquatic environment to better respond to the human and natural disturbances that will occur in the watershed.

Aquatic Management Direction

Existing aquatic management direction recognizes the aquatic values and priorities of Slate Creek. Under existing consultation guidance, Slate Creek is a priority watershed for spring chinook and steelhead trout, and a special emphasis area for bull trout. Under the Nez Perce Forest Plan, fish/ water quality objectives are assigned to specific subwatersheds (see Table 1.11). Based on this assessment, the following changes in these specific fish/ water quality objectives are recommended: The Van Buren subwatershed should be assigned a 100% objective. This objective allows for no measurable degradation of aquatic habitat condition. Given the unique value of this subwatershed, this objective would be appropriate. It is recommended that the Deadhorse and Turnbull Creek subwatersheds be assigned a 90% objective. This objective allows for some degradation, but places a high priority on the aquatic resources in these areas. Given the current condition and contribution of the Deadhorse subwatershed, along with the species present, this objective is consistent with the recommended management in this area. The bull trout presence and inherent potential in Turnbull Creek are the basis of the recommendation that the objective for this subwatershed be raised to 90%.

Aquatic Inventory and Monitoring

The following are recommended aquatic inventory and monitoring activities in the Slate Creek watershed.

- Monitor sediment dynamics to determine trend in fine sediment and bedload stability. Long-term sample sites should be established in mainstem Slate and Little Slate to determine effectiveness of restoration activities. Bedload stability in lower Upper Main should be monitored.

- Water temperatures in Slate Creek should be monitored to determine the effectiveness of restoration efforts, principally in Little Slate Creek.

- In cooperation with IDF&G, increase understanding of the bull trout populations and life history components in Slate Creek through continued inventory and monitoring of that species. Focus areas include fluvial life history component, Little Slate, and upper Deadhorse.

- Monitor westslope cutthroat trout and brook trout interaction in Boulder Creek to determine trend in interspecies competition. Recommend establishment of long-term population sampling sites where relative species composition can be monitored.

- Monitor brook trout populations in Slate Creek to determine extension of range, or establishment of new local populations.

Important locations to monitor include Little Slate, and mainstem Slate Creek.

- In cooperation with IDF&G, determine the impact of fishing activities along mainstem Slate Creek on juvenile steelhead and spring chinook, and fluvial bull trout. Recommend a sample creel census be initially conducted to determine the need for any additional study.

Other Management Direction

This assessment makes it clear that there are other high priority management needs in the Slate Creek watershed, in addition to aquatic management. Vegetation restoration and the importance of this watershed for recreational use are two of the most important. It is important to recognize the relationships between these priorities, and when these management needs are either complimentary or conflicting.

The vegetation recommendations, and management themes, are interrelated with the aquatic recommendations. Because both are focused on the restoration of natural disturbance regimes and patterns, the goals of the management recommendations are very similar. The principle difference, and area of potential conflict, is related to the trajectory, and corresponding risks, associated with achieving the goals. In essence, the aquatic and terrestrial ecosystems are out of synch. The common objective is to realign these two ecosystems, to the extent possible, so that the human and natural disturbances affect these two components similarly. The complexity of the interrelationship is based in the approach to getting to the point where these two ecosystems are aligned. In general, the issue has to do with the balance between short and long-term risks, costs, and benefits.

The restoration of bunchgrass and whitebark pine communities represent little risk or cost to the aquatic resources, if implemented reasonably. The areas recommended for the restoration of whitebark pine include areas of high aquatic integrity where aquatic conservation is important. As recommended, treatments should be located in ridgetop locations, and the construction of new roads should be avoided, to ensure that the implementation of this vegetation theme is complimentary with the aquatic theme recommendations.

The restoration of the ponderosa pine community has a high potential cost to the aquatic resources in mainstem Slate Creek, while addressing the potential risks associated with the effects of large fires. The greatest risk is associated with the construction of roads on sensitive landtypes. The recommended strategy, discussed above, is to increase the resilience of the habitats and species, by addressing the press disturbances in the watershed, prior to implementing extensive efforts of ponderosa pine restoration across the breaklands. The strategy is to increase the resilience of the aquatic ecosystem prior to creating large pulse disturbances.

The restoration of vegetation dynamics is focused primarily on the low relief landtype associations, where the infrequent, large scale disturbance regime has been replaced by frequent, small disturbances evenly spread across the landscape. The road system established to accomplish this approach has had the greatest impact on the aquatic resource. The implementation of this vegetation theme has the greatest possible benefit to aquatic resources, principally from the adjustment in the transportation system, while also presenting the greatest possible risk to these same resources. The complex balance that must be achieved to be successful in the integration of these two management themes will be the implementation of sufficient vegetation treatment within an area to justify the removal of large amounts of the transportation system, while not creating large impacts on the aquatic resources. This concern will be the greatest at the beginning of implementing this vegetation theme, when the remainder of the area is still being effected by the press type disturbance from historic activities. Intensive efforts, including areas outside the area of vegetation treatment, to remove or reduce press disturbances on the aquatic environment, are recommended to compensate for the effects in the area of

vegetation and road treatment. These efforts will need to be conducted in a manner to avoid large short-term impacts as well. The implementation of this vegetation theme, along with the associated road theme, has the greatest potential to contribute to long-term aquatic objectives. It will require careful planning and implementation to minimize the short-term impacts of this approach.

The recommended wildlife management themes are complimentary to the aquatic objectives, with only the produce early-seral habitat theme resulting in possible risks to aquatic objectives. This risk has been identified and discussed with respect to the corresponding vegetation themes, restore whitebark pine and restore vegetation dynamics. The recommendations and precautions recommended for these vegetation themes need to be implemented in association with the wildlife management theme of produce early-seral habitat to ensure compatibility with the aquatic objectives in these areas.

The recreation themes present both risk and opportunity to aquatic objectives. Recreation facilities and use, including roads and trails, have the potential to cause impacts to aquatic resources. In Slate Creek, they currently do. With expected increased use levels, the potential for future impacts is higher. However, recreation facilities and activities can be situated and conducted to minimize this impact. Through careful design, maintenance, and monitoring, the impact of recreational use on aquatic resources can be small. The recommended theme of upgrading trail and road recreation is intended to address the current situation where there are impacts on the aquatic resources. By doing so, these themes are complimentary to the aquatic objectives. Implementation of these restoration efforts need to be a priority. Additionally, there will be the need for continued design, maintenance, and operation of recreation facilities to ensure that these management objectives remain complimentary.

The recommended management priorities for resources other than aquatic are often complimentary with aquatic objectives. The greatest challenge will be to design and implement these recommendations with minimal short-term risk to the aquatic resources.

6.2.4 Aquatic Themes

The aquatic management themes are organized into two general groups, 1) Conserve aquatic processes, and 2) Restore Aquatic Processes. The conserve theme is recommended for areas that are believed to have aquatic processes and conditions within the range and frequency of natural processes and conditions. These are areas considered to be in 'good condition'. The restore theme is recommended for areas where the processes and conditions are not within the natural range and/ or frequency of natural processes and conditions. These are areas where the aquatic processes and conditions are considered to be altered by human activity or extreme natural events. The priorities established within each of these general groups is based on the importance of the area for conservation and recovery of at-risk aquatic species and key human uses. The full range of aquatic themes are presented here, all of which may not be assigned to subwatersheds in Slate Creek.

Theme: Conserve Aquatic Processes (Cap)

This theme is recommended for areas where the aquatic processes and conditions are believed to be within the natural range and frequency of occurrence. These are areas with high integrity, that are considered good condition habitat. There may be areas within these subwatersheds that don't meet this criterion. These are discussed in the specific subwatershed descriptions in unique elements and conditions. The aquatic management theme recommended for these areas is to maintain the current functional aquatic processes, and the resultant conditions. In general, active measures would not be required to conserve these processes, but would require management of risks associated with other management objectives. Regardless of the priority, all basic standards, guidelines, and legal requirements apply to all areas.

Conserve Aquatic Processes: Very High Priority - This theme is recommended for areas that are critically important to the conservation of aquatic species at risk. These areas are the foundation of existing species viability and future source areas for the rebuilding of restored habitats. Management activities that have the potential to degrade the aquatic function or condition of these areas should not be undertaken.

Conserve Aquatic Processes: High Priority - This theme is recommended for areas that are very important to the conservation of aquatic species at risk and/ or water from these areas is used for important human beneficial uses. These areas are generally occupied by at-risk species (although frequently at low numbers), with moderate to high habitat potential. If these areas are not currently occupied, they are considered good opportunities for re-establishment. Only management activities that pose little risk to degrade the aquatic function or condition of these areas should be undertaken.

Conserve Aquatic Processes: Moderate Priority - This theme is recommended for areas that are important to the conservation of aquatic species at risk and existing water quality, but less so than those areas with a high or very high priority. These are areas that are either not occupied by aquatic species at risk, or these species are present in very low numbers. Additionally, these are areas with low to moderate potential to support the species. These areas do not contain suitable spawning habitat or quality rearing habitat (or the area is inaccessible due to natural barriers) and use by these species may be limited to summer low flow rearing. In this case, these areas do not provide unique or high quality rearing habitat. Generally these areas are critical contributing areas to downstream occupied habitat. Management activities in these areas should not have the potential to degrade hydrologic/ aquatic function, or translate effects downstream that may adversely effect occupied habitat. These are areas where the aquatic management objectives need to be balanced with the other management objectives for the area.

Conserve Aquatic Processes: Low Priority - This theme is recommended for areas that are not considered important for conservation of aquatic species at risk. These areas are not occupied by aquatic species at risk, and they are not critical contributing areas to habitats occupied by aquatic species at risk, with the exception of large mainstem rivers with rearing and migration habitat only. When these areas are contributing to downstream occupied habitat, including mainstem rearing and migration habitat, this theme is recommended for those areas that are not sensitive to disturbance, will not result in downstream effects, or have little to no capability to effect these downstream areas. These are areas where other management objectives and actions should take priority.

Table 6.10 - Conserve Aquatic Processes

Applicable Subwatersheds	Priority	Possible Conflicts
Van Buren	Very High	Whitebark restoration, early-seral wildlife habitat production
Deadhorse	High	Vegetation restoration, early-seral wildlife habitat production
Boulder	High	Vegetation restoration, early-seral wildlife habitat production
Upper Main Slate	High	Vegetation restoration, early-seral wildlife habitat production

Unique Elements or Conditions Related to this Theme: The Van Buren subwatershed supports a strong population of bull trout, uniquely important within the context of Slate Creek and the Lower Salmon subbasin. The priority to conserve this integrity is very high. While most of this subwatershed has aquatic processes and

conditions with high integrity, there is a high priority for restoration activities in the lower subwatershed to secure this area as a stronghold for bull trout, and to improve the connectivity for bull trout between this subwatershed and the rest of Slate Creek (see Map 23).

The Deadhorse subwatershed supports steelhead and bull trout. Most of the subwatershed has aquatic processes and conditions with high integrity that contribute to the downstream aquatic habitat in Deadhorse, lower Little Slate, and Slate Creek. Water temperature is one important aspect of this contribution (see Figures 5.16 through 5.19 in Chapter 5). Conservation of this area is considered a high priority. Lower Deadhorse has restoration needs that are a high priority to secure the aquatic integrity of this subwatershed.

Boulder Creek supports an important population of westslope cutthroat trout, along with nonnative brook trout. The aquatic integrity for most of this subwatershed is high. Boulder Creek is an important contributor to downstream aquatic conditions in Little Slate and Slate Creek. The priority to conserve this integrity is high. The lower portion of Boulder Creek has restoration needs that are important to the local westslope cutthroat population as well as downstream areas.

Upper Main Slate supports a steelhead/redband population in the lower end, with most of the subwatershed occupied by brook trout. The aquatic processes and conditions in most of this subwatershed have high integrity, and are an important element in defining the generally favorable aquatic conditions in Slate Creek. Consequently, the priority to conserve this integrity is high. The lower portion of Upper Main Slate shows signs of instability, thought to be a result of natural events. The lower portion of this subwatershed has restoration needs of a high priority, given the sensitivity of this landscape, the current condition of the stream, and the contribution of this area to downstream conditions.

Theme: Restore Aquatic Processes (Rap)
This theme is recommended for areas where the processes and conditions are not within the natural aquatic range or frequencies. These are areas where the natural regimes (e.g. sediment, water yield, temperature, or riparian areas) have been altered. These areas are considered to have moderate to low integrity. There may be portions of the subwatersheds where processes and conditions do not meet this criteria. The aquatic management theme recommended for these areas is to restore the aquatic processes and resultant conditions. The priority for this restoration is based on the value of these areas to aquatic species at risk or key human uses.

Restore Aquatic Processes: Very High Priority - This theme is recommended for areas that are critically important to both the stabilization of existing populations of aquatic species at risk and the recovery of these species. These are areas considered to be critical to species metapopulation function, and the resilience of the metapopulation to disturbance, both natural and human. A lack of restoration in these areas is likely to result in further loss of viability for the species considered. These are areas with a high to very high potential to support the species.

These areas are currently occupied by strong populations, or the existing populations are considered the best opportunities for rebuilding populations to stable levels. These areas are also critical for recovery of the species. They are considered the best opportunities for future source areas for refounding populations. The balance of management actions in the subbasin needs to include this restoration as a top priority if aquatic species at risk are to be conserved. Restoration in these areas should not be evenly balanced with other actions that have the potential to degrade or retard the recovery of these areas. Integrated management actions in these

areas need to be heavily weighted toward aquatic restoration. The objective for these watersheds should be restoration at the fastest possible rate.

Restore Aquatic Processes: High Priority - This theme is recommended for areas that are very important to both species conservation and recovery. Areas where other human beneficial uses of water are being seriously affected may be placed in this category. These are areas of moderate to high species potential, that have the capability to support strong populations. These areas are critical to long term metapopulation function. These areas are generally occupied by the species being considered, although usually at low levels. These are important areas for aquatic restoration to proceed. Restoration of these areas will be important for stabilization of the species and the basis for recovery. The restoration of these areas may require significant effort and time, and needs to be a long term, focused effort. Restoration efforts in these areas should not be affected by other management actions that have the potential to degrade or retard recovery of aquatic processes. Other management actions should be designed to minimize the risk to the aquatic ecosystem, and the balance of these actions should be heavily weighted toward aquatic recovery. The rate of restoration in these areas should be accelerated through active restoration if possible, although it will not be practical to focus on all of these areas at once.

Restore Aquatic Processes: Moderate Priority - This theme is recommended for areas that are important for aquatic species recovery, but not critical. These are areas that have a moderate to low habitat potential for the species or are critical contributing areas to mainstem habitat. These areas are considered adjunct habitats in most cases where suitable habitat exists. These areas are either not currently occupied, or the population levels are very low. Where these areas are critical contributing areas, their restoration is important, although other higher priority areas may exist. Aquatic restoration in these areas should be balanced with other management objectives. These other management actions should not retard the natural recovery of these areas, and they should be integrated with restoration actions that provide for or accelerate restoration.

Restore Aquatic Processes: Low Priority - This theme refers to areas that are not considered important for conservation and recovery of aquatic species at risk. These areas are not occupied by at-risk fish species, and they are not critical contributing areas to habitats occupied by aquatic species at risk, with the exception of large mainstem rivers with rearing and migration habitat only. These areas do not contain suitable habitat or contain limited habitat with low capability. These are areas where other management objectives and actions should take priority. However, restoration activities should be pursued as opportunities arise in these areas.

Table 6.11 - Restore Aquatic Processes

Applicable Subwatersheds	Priority	Possible Conflicts
Little Slate	Very High	Vegetation restoration, early-seral wildlife habitat production, recreation facilities and use.
Main Slate	High	Vegetation restoration, recreation facilities and use.
North Fork	High	Vegetation restoration, grazing activities, recreation facilities and use.
Little Van Buren	High	Vegetation restoration
Lower Slate	High	N/A

Unique Elements or Conditions Related to this Theme: Little Slate is composed principally of highly weathered granitic soils, with sensitive, low gradient streams. The disturbance pattern and sediment regime in this subwatershed are the most altered from historic

conditions. This area supports important aquatic resources, including bull trout, and has a large influence on the condition of downstream areas that support other at-risk aquatic species. Restoration of this subwatershed is considered a very high priority.

Main Slate Canyon is composed principally of breakland landtypes with increased mass wasting risk. Slate Creek, which support important populations of spring chinook and steelhead, along with other migratory fish, is directly influenced by conditions in the tributaries and uplands in this subwatershed.

Most of this subwatershed has a moderate integrity rating due to past road and harvest activities and departure in the fire regime. Concentrations of roads on sensitive mass wasting landtypes and large nearstream departures are rated low integrity. Restoration of the aquatic processes in this subwatershed is a high priority. Given the magnitude and proximity of the restoration needs immediately adjacent to Slate Creek and lower Little Slate, this area has been assigned a very high priority for restoration (see Map 70).

North Fork Slate Creek supports important populations of aquatic species, steelhead in the lower portion, and a strong population of westslope cutthroat trout in the upper subwatershed. Most of this subwatershed has been assigned a moderate integrity rating, with areas of mass wasting sensitivity and roads assigned a low rank. Restoration of this subwatershed has been assigned a high priority. In the upper subwatershed, restoration is focused on nearstream and instream conditions, while in the lower subwatershed, this restoration is focused on tributary and upland processes.

Little Van Buren is composed principally of breakland landtypes, with the lower stream supporting a population of steelhead/ rainbow. The subwatershed has a moderate integrity rating due to the road and harvest activities in the upper subwatershed and the departure in fire regimes in the remainder. This subwatershed has been assigned a high priority for aquatic restoration due to its influence on Slate Creek.

Lower Slate Creek supports important at-risk aquatic species and provides the connection between Slate Creek and the Salmon River. The upland areas of this subwatershed are considered to have moderate integrity due to the changes in fire regimes and plant communities. The nearstream area is rated as low integrity due to the number and proximity of streamside activities and the condition of the areas upstream. Restoration of the uplands in this area is considered a high priority, with a very high priority assigned to the restoration of the nearstream areas in this subwatershed (see Map 70), due to its importance.

6.3 Vegetation

6.3.1 Summary of Management Direction

Management direction for the Lower Salmon Subbasin suggested in the Interior Columbia River Basin Science Assessment (Quigley et al. 1997) and the Northern Region Overview (USDA Forest Service, 1998) emphasizes restoration of dry forest through both timber harvest and fire use, and restoration of rangeland through control of invasive weeds and nonnative species. Fire use in fuels reduction and habitat restoration is promoted. The low elevation canyons of Slate Creek fit these perception, but the high elevation ridges and lodgepole pine forests around Florence have highly altered from historic conditions in other ways.

6.3.2 Summary and Synthesis of Vegetation Findings

Within the lower Salmon River subbasin, Slate Creek is most unique in the terrain and plant communities of the Florence Basin: extensive continuous lodgepole pine and spruce fir forest, with numerous meadow complexes underlain by organic soils. At a broader scale, this terrain and

vegetation is common in other subbasins, including the upper Salmon and South Fork Clearwater. Xeric and mixed conifer forests are well represented throughout the lower Salmon subbasin and Slate Creek contributes to their continuity. Subalpine and whitebark pine forests are much less common in the subbasin, and the ridges on the east and west sides of the Slate Creek watershed are important for the potential to support whitebark pine and montane meadow plant communities. The Nut Basin area facilitates genetic exchange of whitebark pine between the Gospel Hump wilderness and the Seven Devils area. The shrub and hardwood complexes along the bottom of lower Slate Creek are also uncommon and once were highly diverse and productive wildlife habitat. Bunchgrass communities at the lower end of the watershed are part of the extensive grassland in the Salmon River corridor. Limestone substrate may support uniquely adapted plant species or genotypes. Rare plants and unique plant assemblages are found within the Slate Creek watershed, in wetlands, high elevation ridges, and old lodgepole pine forest. Many plants are found in areas considered centers important to plant diversity.

Departures from presettlement composition, structure and process have occurred in all plant community settings.

At lowest elevations, exotic annual grasses and invasive weeds have become established on grassland habitats and in open pine forests on steep south facing slopes. This has resulted in loss of bunchgrass community structure, native plant diversity, and habitat for dependent wildlife populations. Lower Slate Canyon has been most highly affected. A significant portion of the watershed is highly susceptible to invasive weeds and there is a high risk of continued weed expansion. Yellow starthistle is established over about 600 acres. Other noxious weeds account for 400 acres. There is a very high need to control expansion of weed and nonnative plants in order to stabilize soils and nutrient cycling, maintain wildlife habitat, and maintain plant community and genetic diversity.

In dry forest habitat types, forest succession, fire suppression, and timber harvest have resulted in declines in large open-grown ponderosa pine and increases in dense stands of Douglas-fir. These changes have occurred most in Lower Main Slate, Main Slate Canyon, Little Van Buren and the low elevation portions of Deadwood and Upper Main Slate. On north aspects in the canyons, stand density has increased and multilayered stands have increased, putting the existing ponderosa pine at greater risk of lethal fire. Age class diversity has decreased with absence of fire, while potential for timber harvest will continue to be limited by landslide prone terrain unfavorable to extensive road construction. Old growth in the dry forest type is at lower levels than historically, and in more fragmented patches. There is a high need to reduce stand densities, reduce fuels, restore single story pine on dry sites and one to two story mixed conifer stands with pine and larch overstories on more moist low elevation sites.

In mid elevation rolling terrain, where forests were shaped by large severe fires at infrequent intervals, fire suppression and timber harvest have resulted in a uniform matrix of medium trees punctuated with small harvest openings. Aging lodgepole pine has become more susceptible to mountain pine beetle. Some lodgepole pine is being replaced by stands of mixed conifers and spruce-fir forest more susceptible to root disease and spruce budworm. Little Slate Creek, Boulder, Van Buren, and Upper Main slate Creek have been most affected. Although few stands are outside their typical disturbance interval, the landscape as a whole is moving to old age classes. There is a moderate need to restore long interval, mixed and lethal vegetation disturbance dynamics in this landscape to better reflect the size of fire disturbance, provide large patches of snags, maintain larger contiguous undisturbed patches, and sustain lodgepole pine and larch in the landscape.

In high elevation settings, whitebark pine has declined seriously from blister rust, fire exclusion and mountain pine beetle. The absence of mixed and stand replacing fire has resulted in little opportunity for whitebark pine to regenerate, so there is no area in which natural selection can operate. Upper elevation areas of Little Van Buren, Deadwood, Van Buren, Boulder and Upper Main Slate Creek have been affected. Maintaining existing whitebark pine seed sources and creating sites for regeneration of whitebark pine would favor development of rust resistance and persistence of whitebark pine in the landscape. This is a very high need given the perilous status of whitebark pine in the subbasin and the watershed.

In some of the settings where rare plants occur, habitat conditions have declined. Historic community structure and/ or native plant composition have been altered within portions of suitable habitat.

6.3.3 Recommended Vegetation and Fire Management Direction

Recommendations for changes in management direction are applicable to both the watershed and broader scales, including the Forest Plan. They reflect recurrent findings of changed condition and ecological process in this and other watersheds. They are designed to increase the likelihood of sustaining or restoring terrestrial ecosystem composition, structure, and process to levels more closely resembling the historical conditions. Recommendations at the landscape scale may still need to be amended in practice to address requirements of particular sensitive species.

Landscape Composition

Base objectives for landscape composition and structure, and the appropriate scale, frequency and kind of alteration on patterns of historic landscape composition and disturbance regimes suited to terrain setting and habitat type group. Vegetation response units are useful stratifications for compiling information and implementing this strategy. Earlier strategies for forest regulation were based on optimizing fiber production, not designed to sustain species, habitats, and ecological process. Vegetation composition and structure should be assessed at the 5th code watershed scale at a minimum, not 6th code or individual VRU delineations. Reference ranges of landscape composition and structure by VRU are being compiled as Planning Unit Assessments and watershed assessments are completed. The ranges described in Chapter 5, Section 5.2.2 may be used, but should be considered subject to further refinement as more information becomes available.

Old Growth

Adopt North Idaho Old Growth standards (Green et al. 1992) as standards for defining old growth types by habitat type group and amend the current Plan. The existing Forest Plan standards do not recognize the important differences in attributes, patch size, terrain setting, and disturbance dynamics of the different types of old forest that can occur in north central Idaho.

Consider for adoption, after further assessment and peer review, the old growth guidelines proposed in the South Fork Landscape Assessment Appendix F (USDA Forest Service, 1997) and amend the Forest Plan. Guidelines should address proportion of old growth as percent of each VRU, use North Idaho Old Growth standards as defining criteria, and address patch size, location, stability over time in the landscape, and appropriate disturbance regimes for maintenance or renewal.

Snags and Down Wood

Snag occurrence, distribution, kind and setting have been highly altered from natural disturbance regimes. It is recommended that the Forest assess historic snag occurrence, patch size, density, and tree size range by VRU, and develop snag guidelines suited to habitat type group and natural disturbance regime. Landscape and stand process models may also be used to investigate patterns of snag recruitment and longevity. In the interim, it is recommended that the Forest adopt snag guidelines as proposed in the South Fork Landscape Assessment, Appendix D (USDA Forest Service, 1997) and amend the Forest Plan.

Fire Management

This assessment has documented the high degree of departure in vegetation composition, structure, or disturbance process from presettlement regimes. This has implications for sustainability of wildlife species and habitats, plant communities, and risk to ecosystem stability and resiliency. In many areas, harvest or other mechanical vegetation treatment will not be available because of poor access or low economic values of the timber resource. It is recommended that the Forest develop and adopt plans for increased use of wildland fire to accomplish vegetation and fuels management objectives in areas where additional road construction is not recommended and/ or timber values are low.

In the Slate Creek watershed there are several areas where fire may be the most cost effective and environmentally appropriate vegetation management tool. Map 36 displays preliminary recommendations for areas where increased use of prescribed or naturally ignited fire, sometimes in combination with mechanical treatments, is recommended.

The critical role of fire in perpetuating whitebark pine at high elevations suggests that enhanced use of naturally ignited fire in the Gospel-Hump wilderness is indicated. Adjacent high elevation roadless lands are also key to whitebark pine restoration and are not accessible by road. Upper Boulder Creek, Upper Van Buren, upper Little Van Buren and upper Deadhorse Creek are areas where management ignited fire could reduce the continuity of fuels in the landscape, provide early seral forage and dead and down wood for dependent species, and provide regeneration sites for whitebark pine. Timber values are low and watershed restoration would be compromised by road construction in the near future.

The role of fire is equally critical at low elevations in maintaining ponderosa pine parklands. Many areas of the low elevation canyon are not accessible by road or not economically favorable for helicopter logging. Some slopes are prone to landslides and debris torrents, and many have high sediment hazard from road construction. Use of fire, with mechanical harvest as feasible, to maintain or restore these communities and reduce fuel loads is merited. These areas, primarily in Main Slate Canyon and North Fork Slate Creek, are potentially suited for use of management ignited or naturally ignited fire, pending further analysis.

6.3.4 Vegetation Themes

The vegetation management themes are derived for each subwatershed or forest type within a subwatershed based on historic process and current condition. Themes are organized into two general groups: 1) Restore, and 2) Conserve. The Restore theme is recommended for areas where natural processes or patterns are outside the historical range, and where continued traditional management approaches threaten loss of habitats, communities or populations.

Implementing the restoration theme can include some production of early seral habitat if that condition is suited to the setting and current condition. The Conserve theme is recommended for areas that are believed to have terrestrial processes and conditions within the range and frequency of natural processes and conditions. These are areas considered to be in "good condition."

Implementing the conservation theme may require introduction of some disturbance (fire or timber harvest) to maintain conditions within the natural range. The priorities established within each of these general groups is based on the degree of departure from historic ranges and the consequent risk of loss.

Theme: Restore Bunchgrass Communities (Rbc)

Restore bunchgrass and mesic shrubland communities and disturbance regimes, to sustain or recover some component of native perennials including bluebunch wheatgrass or Idaho fescue, stabilize soils, and reduce risk of invasion by weeds and nonnative species. This theme is suited to VRU 12, understories under open forest

canopies of VRU 3, and occasional rocky ridges on VRU 4. About 983 acres of lands under Forest Service management are identified in this assessment as suited for such restoration.

Disturbance activities and restoration strategies in these areas should be integrated with exotic plant and invasive weed management, and or native plant seed supply. Repeated burning in disturbed grasslands should be evaluated to assess potential benefits of fuel reduction compared to expansion of non native species. Treatment to reintroduce perennials or reduce non natives may be needed before fire restoration is appropriate. Areas may need protection from grazing and off-highway vehicles to achieve the restoration theme, contain spread of weeds and favor recovery of native perennials. The frequency of disturbance and diversity of disturbance size are highly compatible with Roads Theme 2: Maintain the core road system and reduce road-related adverse effects throughout. Weed control will be an important maintenance cost associated with roads in these settings.

On 2,706 acres of lands in other ownerships, opportunities for cooperative efforts to inventory and treat weed populations and support recovery of stable native and desirable nonnative grasslands are recommended as part of this theme.

Priority - Restoring bunchgrass communities is considered a very high priority when compared to other vegetation treatments in the watershed. See Map 45, Vegetation Treatment 12.

Table 6.12 - Restore Bunchgrass Communities

Applicable Subwatersheds	Priority	Possible Conflicts
Lower Main	Very High	Complex land ownership and objectives
Main	Very High	Fire restoration

Unique Elements or Conditions Related to this Theme: *None that are notable.*

Theme: Restore Ponderosa Pine (Rpp)
Restore high and moderate frequency, low and mixed severity terrestrial disturbance regimes, to recover open and two story stands. This theme is suited to VRUs 3 and 4 (see treatments 6, 7, 15, and 17 on Map 45). Treatment should occur on about 3,371 acres of dry habitats (Treatment 6), and 7342 acres of more moist habitats (Treatment 7), where frequent mixed severity fire was prevalent. Disturbance activities in subwatersheds can appropriately occur as often as every 5 to 30 years. The frequency of disturbance and diversity of disturbance size are highly compatible with Roads Theme 2: Maintain the core road system and reduce road-related adverse effects throughout. See Map 74. Prescribed fire is also highly suited to this theme.

On south aspects, ridges, and other dry sites, harvest or fire treatments favor recovery and maintenance of open stands of medium to large ponderosa pine, with less Douglas-fir, and minor western larch and grand fir. Patches vary in size from a few acres to several hundred acres. Treat weeds and use harvest, fire, grazing, and seeding to recover native bunchgrasses. On north aspects, dominantly midslope positions, harvest or fire treatments favor about 50 percent stand replacement with 2-10 overstory trees per acre of medium or large pine, western larch, Douglas-fir and some grand fir; and 50 percent development of two story stands with 10-50 ponderosa pine, Douglas-fir, western larch, and grand fir per acre in the overstory. Patches vary in size from a few acres to several hundred acres. Relative proportion by size class averaged across both aspects is about 5-20 percent nonforest, 5-30 percent seedling/ sapling, 10-20 percent pole, 20-40 percent medium tree, and 20-40 percent large tree. Old growth is about 15-30 percent on north aspects and 40-60 percent on south aspects, and 20 to 30 percent overall.

Priority - Restoring ponderosa pine is considered a high priority when compared

to other vegetation treatments in the watershed.

Table 6.13 - Restore Ponderosa Pine

Applicable Subwatersheds	Priority	Possible Conflicts
Lower Canyon	High	Complex land ownerships and land management objectives
Main Canyon, Little Van Buren, North Fork, lower portions of Upper Main, Deadhorse, and Little Slate	High	Slope stability, sediment, water yield, and weed expansion

Unique Elements or Conditions Related to this Theme: The No Business Research Natural Area includes Douglas-fir old growth which is one reason for its establishment, but which is outside its fire disturbance interval and increasingly susceptible to Douglas-fir beetle. About 316 acres occur in the RNA, where fire might be used to thin stands that are now more dense than under natural regimes. Integrate restoration and weed management strategies with rare plants in those areas with existing populations.

Theme: Restore Whitebark Pine (Rwbp)
This theme is suited to VRUs 1, 2, and 9. See Treatments 1, 2, 3, 4, and 5 on Map 45. Restore frequent to infrequent, mixed and lethal severity terrestrial disturbance regime to recover seral species in cold harsh climates. This objective should be emphasized in areas containing whitebark pine and lodgepole pine, with less emphasis in areas containing Engelmann spruce, Douglas-fir, and subalpine fir. The frequency of disturbance, roadless character, and low productivity of these sites are highly compatible with Roads Theme 1: Defer new roads. Most work would be done with fire or hand crews, or using existing roads and trails.

In nonwilderness, about 983 acres of open forest on ridges is suited to slashing and burning and planting of whitebark pine (Treatment 1). Emphasize inventory and cone collection to develop rust resistance, and maintain seral whitebark in the stand through reduction of competition from subalpine fir, spruce and lodgepole pine. At elevations of 6200-7000 feet in more closed canopy forest, 6125 acres are potentially suited to provide forest openings for whitebark pine establishment through stand replacement and planting of whitebark pine (Treatment 2). These openings should be large enough to allow for establishment of whitebark pine and to suppress rapid subalpine fir encroachment, perhaps 80 acres or more.

In wilderness, 370 acres of open forest are suited to low severity fire to maintain whitebark pine (Treatment 3). 120 acres of moderate canopy mixed subalpine forest would benefit from mixed severity fire to suppress subalpine fir (Treatment 4). About 2597 acres of subalpine forest suited to stand replacing fire could provide whitebark pine regeneration sites if burned (Treatment 5). Disturbance activities should occur no more often than once every 30-50 years in subwatersheds at lower elevation areas (6000 - 7000 feet). The infrequency of disturbance, the size of disturbance, the erodible soils and harsh climates on which whitebark pine occur, and the proportion of this theme that is in wilderness suggest that roads are often not applicable where this theme is appropriate. In VRU 1, the restore whitebark pine theme is united with the restoring vegetation pattern theme.

Favor treatments that increase size and heterogeneity of patch size (100s to 1000s of acres), provide extensive medium tree and pole snag patches, and provide open areas for caching of whitebark pine seed. Locate and maintain existing whitebark pine through thinning, slashing and burning so

that selection for rust resistance can operate. Patch size is 10s (VRU 9) to 1000s (VRU 1) of acres.

Relative proportion by size class is:

VRU 9: 30-40 percent nonforest, 10-30 percent seedling/ sapling, 15-60 percent pole, 1-10 percent medium tree, and 1 percent or less large tree;

VRU 1: about 5-10 percent nonforest, 20-30 percent seedling/ sapling, 20-30 percent pole, 20-30 percent medium tree, and 5-15 percent large tree; and

VRU 2: 10-25 percent nonforest, 10-30 percent seedling/ sapling, 30-65 percent pole, and 5-15 percent large tree.

Priority - Restoring whitebark pine is considered a very high priority when compared to other vegetation treatments in the watershed.

Table 6.14 - Restore Whitebark Pine

Applicable Subwatersheds	Priority	Possible Conflicts
Van Buren	Very High	Sediment and water yield
Deadhorse	Very High	Sediment and water yield
Little Van Buren	Very High	Sediment and channel stability
Upper Main Slate	Very High	Sediment and water yield
Boulder	Very High	Sediment and water yield

Unique Elements or Conditions Related to this Theme: The extensive areas recommended for whitebark pine restoration in the wilderness and adjacent lands could help document rationale for extension of buffer zones for wildland fire use.

Theme: Restore Vegetation Disturbance Dynamics (Rvd)

This theme is suited to VRUs 6 and 1. It emphasizes landscape pattern at least as much as individual stand composition. Stands identified for Treatments 9, 10, and 16 shown on Map 45 may contribute to implementing this theme, but it is not a theme that relies only on a stand scale approach.

It is an area theme, that provides direction such that projects are desiged to ensure that:

1) frequency of disturbance in 1000-5000 acre areas is reduced from current levels to no more often than once in 30-50 years,

2) that adjacent areas are not disturbed in the same period, and

3) that activities in a project area result in a diverse pattern of tree mortality and patch size, but favoring treatments that result in substantial snag production, open areas for shade intolerant species, and burned areas for species like lodgepole pine or larch that regenerate better on burned substrate.

Projects based on this theme will be designed to reconfigure disturbance patch size and internal heterogeneity within large disturbance patches. This will facilitate road reduction, and make large areas secure from frequent disturbance. It will also recover landscape pattern and seral species in cool and cold climates: lodgepole pine, Douglas-fir, and western larch, with Engelmann spruce, subalpine fir, and occasional whitebark pine.

A primary objective of this theme is to reduce frequency of disturbance in settings where infrequent mixed and lethal fire was typical. Disturbance activities in subwatersheds should occur no more often than every 30-50 years. In VRU 1 this is united with the restore whitebark pine theme. About 7112 acres of lodgepole pine (Treatment 16) and 2026 acres of mixed conifer with lodgepole or larch (Treatments 9 and 10) are potentially appropriate for this treatment. The infrequency of disturbance itself, the disturbance size, low relief terrain, and aquatic resource values are highly compatible with Roads Theme 3: Reduce adverse effects with an emphasis on reducing overall road densities.

Favor treatments that restore size and heterogeneity of patch size (100s to 1000s of acres), provide extensive medium tree and

pole snag patches, and provide open burned areas for caching of whitebark pine seed, and establishment of lodgepole pine and western larch, or mixed severity disturbance to maintain larch

Individual patch size is 10s to 100s (VRU 6) to 1000s of acres (VRU 1). Internal variability may be low to high in a patch (few to many live trees). Relative proportion by size class is:

VRU 1: about 5-10 percent nonforest, 20-30 percent seedling/sapling, 20-30 percent pole, 20-30 percent medium tree, and 5-15 percent large tree, and

VRU 6: 5-10 percent nonforest, 10-30 percent seedling/sapling, 30-45 percent pole, 20-40 percent medium tree, and 5-20 percent large tree. One to 10 live overstory western larch, Douglas-fir, lodgepole, grand fir, or Engelmann spruce per acre are common.

Priority - Restoring vegetation dynamics is considered a moderate priority at the stand level, but may be a high priority considered at the landscape scale when compared to other vegetation treatments in the watershed.

Table 6.15 - Restore Vegetation Disturbance Dynamics

Applicable Subwatersheds	Priority	Possible Conflicts
Boulder Creek	Moderate	Wildlife security Sediment
Little Slate	Moderate	Wildlife security Sediment

Unique Elements or Conditions Related to this Theme: Success is as contingent on securing large areas from frequent disturbance as it is on reconfiguring disturbance size and complexity. This theme is compatible with the wildlife themes for Little Slate Creek and Boulder Creek which emphasize both conservation of late seral communities and production of early seral communities in large blocks within these subwatersheds. In some cases *Allotropa virgata* habitat is in need of restoring lodgepole pine structure and age classes to reduce the risk of losing suitable habitat condition across a broad area.

6.4 Wildlife

6.4.1 Summary of Management Direction

Habitat restoration is the primary management strategy for conserving at risk species that are associated with fire dependent ecosystems. This includes habitats consisting of snags, low elevation open forests with large trees, and rangeland communities. Retention of closed canopied, late seral forests is also recommended.

6.4.2 Summary and Synthesis of Wildlife Findings

Fire suppression and succession are the main factors believed to influence the amount, distribution, and quality of wildlife habitats within the Slate Creek watershed. Fires have played an important role in providing early-seral nonforest and snag habitats, maintaining open-canopied old growth ponderosa pine communities, and providing diversity in an otherwise homogeneous landscape.

Departures from presettlement composition, structure, and process have occurred in all plant community settings, which in turn affects the quality and availability of habitat for many wildlife species. Patch sizes of early-seral, open and closed canopy late-seral, and snag habitats have decrease in size, extent, and connectivity. Thus, patches of any given structural stage tend to be smaller and more fragmented, and have become somewhat isolated as the distance between patches have increased. Canopy closure has increased as well.

Early-Seral Communities

At low elevations nonforest vegetative communities have changed from presettlement condition. Bunchgrass communities have changed in species composition and the diversity has been lost due to the encroachment of shrubs, conifers,

and invasive nonnative species. The bunchgrass communities in the Lower Canyon subwatershed have been greatly affected. Succession and the lack of fire has contributed to changes in shrub communities. This is especially true in Lower and Main Canyons, Boulder, and Little Slate subwatersheds where shrubs have increased in abundance, but have declined in quality. They have become decadent and the nutritional value and palatability has decreased. The extent of winter range for wild ungulates and the quality of nesting habitat for birds and small mammals has declined.

On the other hand, allowing succession to progress, habitat for species that depend on mid- to late-seral forests has likely increased due to fire suppression and succession at the expense of early-seral habitat.

Seedling/ sapling and pole forest communities have declined in abundance and progressed to mid- and late-seral habitats. This decline in seedling/ sapling- and pole-sized forests has decreased the amount of available foraging areas for species like the lynx who depend on snowshoe hares as their main prey. The current size, distribution, juxtaposition, and structure of openings has changed from presettlement condition and may not be adequate enough to maintain a healthy population of hares for lynx. Current early-seral conifer habitat is being provided by the small, regenerative type harvest units in mixed conifer, lodgepole pine, and spruce/ fir forest communities.

Open Ponderosa Pine Communities

The extent of open canopied ponderosa pine forest has changed due to higher overstory canopy closures and development of dense understories of shade-tolerant Douglas-fir and grand fir associated with the lack of frequent, low intensity fires. These changes have occurred mostly in Main Slate Canyon, Little Van Buren, and the lower elevations of Deadhorse and Upper Main Slate subwatersheds.

Drought stress and competition for resources due to past fire suppression and succession put the remaining large ponderosa pine at risk. Stand densities and fuel levels have increased to a level where the large, old pines may not survive a low intensity fire or they may even stand-replace if a fire were to occur.

The dense stands of younger trees in the understory do not produce favorable conditions for wildlife species dependent on open forest canopies containing large trees for foraging or nesting. Flammulated owls are not able to forage efficiently in the thick midstory and understory vegetation, because it interferes with the owl's ability to capture prey. This type of condition may not provide favorable conditions for prey species either.

White-headed woodpeckers are not found in young, dense ponderosa pine/ Douglas-fir forests because they do not provide the seed source that larger pine trees do. Timber harvests in these types, typically removed the large overstory pine instead of thinning the mid- and understory conifers which favored the development of dense mid-seral conifer stands. The removal of large trees has reduced the availability of nesting habitat for primary and secondary cavity nesters, as well as decreased foraging site for other wildlife species.

Post Fire Communities/Snag Habitat

In the mid and high elevation communities, the forests were shaped by large, mixed and intense fires at moderate to infrequent intervals. This resulted in large blocks of early-seral coniferous forests with or without standing or down woody material.

Standing and down woody material has decreased from presettlement time. This is especially true of Little Slate, Van Buren, Deadhorse, North Fork, Boulder, and Upper Main. Fire suppression has created a relatively homogeneous forest structure consisting of medium-sized trees. Thus, habitat has declined for insectivorous bird species like the black-backed woodpecker that are dependent on large blocks of fire killed trees.

Black-backed woodpeckers may use ponderosa pine, Douglas-fir, subalpine fir, or mixed conifer forests, lodgepole pine

which provides the highest quality habitat (Goggan et al. 1987:36, Bull et al.1986:13). In the Slate Creek drainage, these are the forest types that are most departed from the natural range of variation with respect to stand replacing fires. Fire suppression and succession has created dense stands of mid- to late-seral stands of climax tree species which are susceptible to insects and disease outbreaks due to drought stress, competition for resources, or other agents. Seral lodgepole stands are at risk of insect outbreaks or stand replacing fires due to dense canopies and current fuel levels. Older Douglas-fir in the lower elevations along Slate Creek are currently under attack from the Douglas-fir bark beetle. Given these conditions, habitat for species like the black-backed woodpecker is not lost; the quality and quantity of habitat has just changed.

Late-Seral/Old Growth Forest Communities

Given the historic range of disturbances within the Slate Creek watershed, late-seral habitats were likely not present except in lower elevations or in protected areas in more moist habitats. As result of fire suppression and succession, late-seral (large tree) habitat for species like the fisher, marten, northern goshawk, and pileated woodpeckers has increased considerably, especially in the mixed conifer, lodgepole, and subalpine fir communities. However, given the needs of the species in terms of structure and heterogeneity within an old growth stand, conditions may not be at optimal levels. These areas may not contain significant amounts of large diameter trees, snags, or down woody debris needed for denning/ nesting or resting sites, or access to subnivean spaces. Given the current state of vegetative conditions, cover along riparian and ridgetop corridors seem to be adequate.

Wildlife Security

Wildlife security levels range from low to high based on existing open road densities. This varies by subwatershed and the species that may inhabit an area and how susceptible they are to harassment and human-induced mortality. Deadhorse and Van Buren subwatershed provide the greatest amount of security, while Little Slate basically does not have any security. Localized problems exist in other subwatersheds. The integrity of secure areas is in question due to OHV use during critical time periods, when wildlife are most vulnerable to human disturbance. Many roads are restricted in the fall through the spring to highway vehicles to provide security during critical time periods. However, many of the roads allow OHV use (trailbikes and snowmobiles) during the restricted season. In addition, OHV trails bisect roads that are restricted during the fall. Because of this security is being greatly reduced. In the Little Slate and North Fork subwatersheds, low relief terrain (gentle rolling topography) makes it ideal conditions for OHV's to roam across the landscape without being on a road or trail. In certain areas of Little Slate, OHV unauthorized trails are being established by OHV users.

6.4.3 Recommended Wildlife Management Direction

Recommendations for changes in management direction are applicable to both the watershed and broader scales, including the Forest Plan. In some cases, this would require a Forest Plan amendment. These recommendations reflect recurrent findings of changed condition and ecological process in this and other watersheds. They are designed to increase the likelihood of sustaining or restoring terrestrial ecosystem composition, structure, and process to levels more closely resembling historical levels. Recommendations at the landscape scale may still need to be amended in practice to address requirements of particular sensitive species. Therefore, both coarse filter landscape dynamics and fine filter, species specific recommendations are discussed below.

Fire

Fires play an important role in sustaining wildlife species and habitat. It is important in maintaining the extent and distribution of important big game winter browse and nesting/ breeding habitat for small mammals and birds in shrub habitats. It is also

important in providing a mosaic of early-seral conifer habitats with or without snags that provide forage and cover for small mammals that are prey for larger predators, as well as insectivorous prey species and their predators.

It is recommended that the Forest develop and adopt plans for increased use of wildland fire to accomplish vegetation and fuels management objectives.

In the Slate Creek watershed, there are several areas where fire is warranted to improve and/or maintain habitats for various wildlife species. In VRU 12 and VRUS 3 and 4 on southerly aspects, fire is critical in providing high quality forage and browse for wildlife ungulates. In VRUs 3 and 4, fire is equally important in sustaining open canopied late-seral/old growth ponderosa pine. Fire is equally important in providing early-seral lynx/snowshoe hare habitat (VRUs 1, 6 2, 4, and 9) and snag habitat for black-backed woodpeckers (all VRUs, except 12).

Restoring the natural mosaic/habitat diversity of age classes and patch sizes that once existed with past fire regimes is merited. The use of fire along with mechanical harvest is needed to improve forage conditions for lynx and snowshoe hares. Care should be given to the arrangement and juxtaposition of foraging habitat to denning. Harvest areas should contain an array of patch shapes, sizes, and tree densities.

Higher retention of snags and down woody material in order to conserve woodpecker populations is needed. The Payette National Forest has drafted guidelines recommendations for snags by forest type in response to salvage logging and large wildfires. It is recommended that the Nez Perce National Forest adopt these guidelines. An adaptation of this was written for the South Fork Landscape Assessment. It is recommended that the Forest adopt these guidelines as proposed in the South Fork Landscape Assessment, Appendix D (USDA Forest Service 1997) and amend the Forest Plan.

Restoration of fire-climax old growth ponderosa pine forests is important for managing flammulated owl and white-headed woodpecker habitat. This can be done by fire, timber harvest, or a combination of both. If timber harvest is employed, care must be given to snag management and must thin the younger, shade tolerant understory to maintain large, old ponderosa pine stands, mixed, large, open ponderosa pine and Douglas-fir stands, or larch overstories where historically present. Maintain or restore complex structures with moderate to high canopy cover and varying age structures on north aspects, along streams, and upper elevation slopes. Maintain ridgetop corridors in open to moderately closed canopies of mid- and large-seral forests.

An effort should be given to maintain all large snags greater than 20 inches in diameter in harvest units, especially snags greater than 27 inches in diameter and in various stages of decay. Because flammulated owls often nest adjacent to forest openings, large snags within 150 feet of forest openings are especially critical (Goggans 1986:45). Depending on the circumstances these areas should be managed as no-harvest buffers.

Overstory canopies should be between 30% and 50-60%, with a rich and varied shrub and grass understory covering approximately 60% of the ground surface area. South aspects should contain single canopied stands of pure ponderosa pine, north aspects can be either single or multi-storied of mixed ponderosa pine and Douglas-fir of trees greater than 20 inches in diameter. Employ North Idaho Old Growth Guidelines when treating ponderosa pine or mixed pine and Douglas-fir late- and/or mid-seral forests.

Old Growth Species Habitat

Old growth in the Slate Creek watershed consists mainly of open canopied, ponderosa pine/Douglas fir communities, especially in the Main Canyon and North Fork subwatersheds. However, mesic and high elevation old growth occurs in other subwatersheds, but in a much smaller

quantity. Current Forest Plan old growth guidelines are not adequate in defining old growth by habitat types. It also does not recognize the different attributes of patch size, terrain setting, and disturbance dynamics of the different types of old forests that can occur in north central Idaho.

Recommend revising current old growth Forest Plan guidelines to include various old growth conditions based on habitat types, disturbance regimes, and VRU percentages (North Idaho Old Growth Guidelines). It is recommended that the Forest adopt the North Idaho Old Growth standards in identifying old growth communities by habitat types (also see South Fork Landscape Assessment Appendix F, USDA Forest Service 1997). The different wildlife species that depend on various types of growth habitats also need to be incorporated into the revised old growth guidelines. Potential old growth areas (see Maps 49 and 51) need to be inventoried and recommendations made as to which stands to incorporate and designate as "Old Growth". This includes identifying which stands are in need of treatment to maintain or enhance old growth characteristics (i.e. ponderosa pine).

Wildlife Security

Security is important for many wildlife species to escape to when they are being disturbed by humans.

The IDT recommends that road and trail access restrictions be made compatible whenever possible. Roads are restricted at certain times of the year to provide wildlife security. Security in Little Slate, Upper Main, Boulder, and Main Canyon subwatersheds is being greatly compromised due to open OHV trails bisecting closed roads.

Look at the feasibility of seasonal restrictions on all OHV trails to enhance wildlife security areas, especially during the hunting season. This applies mainly to areas where OHV trails do not bisect closed roads in Van Buren, Deadhorse, and Little Van Buren subwatersheds.

Look at the feasibility of area management restrictions, especially in the Little Slate subwatershed and other areas with low relief topography (upper end of North Fork). This is recommended to prevent further unauthorized establishment of OHV trails.

Look at the feasibility of further restriction of roads in the Little Slate drainage during the fall and winter months so as not to allow motorized access during critical time periods, especially during the fall hunting season. If work on the roads recommended and identified for decommissioning was implemented, then road densities would be reduced to 1.5 miles/ square mile for the watershed. This is a decrease of about 62.9 miles over the entire watershed or approximately 0.5 miles/ square mile. If the roads identified as evaluate for decommission were actually obliterated along with the roads identified for decommission, then road densities within the watershed would be reduced to 1.2 miles/ square mile, a reduction of 100.5 miles or 0.8 miles/ square mile (see Table 6.16).

In areas where road construction is needed, design roads away from major ridges and saddles. These areas are travel routes for wildlife species travelling between different habitats or drainages.

Wildlife Inventories

Based on availability of funding and personnel, the IDT recommends conducting wildlife inventories directed at determining presence/ absence of various wildlife species and old growth habitats. Plant communities where wildlife inventories are especially important include:

1) Ponderosa pine dependent species - flammulated owl and white-headed woodpecker,

2) Old growth dependent species - pileated, goshawk, fisher, marten, lynx, and

3) Various old growth communities.

Table 6.16 - Road Miles and Densities by Subwatershed (Miles/Densities) if Roads Identified and Evaluated for Decommissioning were Actually Decommissioned.

Subwatershed	Existing	Miles Decom	Road Densities After Decom Category Implemented	Miles Evaluate Decom	Road Densities After Both Categories Implemented
Boulder	19.1/ 1.4	3.9	15.2/ 1.1	1.4	13.8/ 1.0
Deadhorse	5.2/ 0.9	1.7	3.5/ 0.6	0	3.5/ 0.6
Little Slate	100.4/ 3.2	21.1	79.3/ 2.5	22.4	56.9/ 1.8
Little Van Buren	13.2/ 2.3	0.5	12.7/ 2.3	2.6	10.1/ 1.8
Lower Canyon	20.6/ 2.7				
Main Canyon	59.9/ 2.1	14.7	45.2/ 1.6	3.0	42.2/ 1.5
North Fork	31.4/ 2.4	12.8	18.6/ 1.4	2.9	15.7/ 1.2
Upper Main	25.2/ 1.5	6.2	19.0/ 1.1	1.5	17.5/ 1.1
Van Buren	8.0/ 1.0	2.0	6.0/ 0.7	3.8	2.2/ 0.3
Total	283/ 2.2	62.9/ 0.5	194.5/ 1.5	37.6/ 0.3	156.9/ 1.2

Landscape Composition and Pattern

Retaining landscapes of forest mosaics (patch size and shape) that are created by natural processes of fire and insects and restoring complex structures with varying canopies and age class distributions across the watershed is important in maintaining and improving habitat for many wildlife species. Maintain or schedule regenerative and thinning type harvests, as well as burns to provide a balance of successional stages.

Maintain riparian corridors in moderately closed to closed canopies, pole to large tree of mid- or late-seral species, and ridgetop corridors in open to moderately closed canopies of mid and late-seral forests.

Maintain cover along ridges and saddles of canopies greater than 30% cover or 180 trees/ acre of pole or larger sized trees. This will provide enough cover for species travelling from one drainage to another.

Clearcuts should be irregular in shape, following topographical features instead of cutting cross country, with narrow restrictions in places to facilitate easy movement across openings for many furbearers.

Scattered clumps of trees should be left for future snags and logs, at least five acres in size, consisting of medium- and large-sized trees. Leave substantial amount of woody material in representative size classes regardless of treatment, preference is for the larger size classes. This will provide both nesting and denning sites for many wildlife species.

Where artificial regeneration is needed, cluster planting such that the time of early seral dominance will be spatially variable across a unit. If pre-commercial thinning is considered, leaving doghair thickets and thinning others to allow additional regeneration may be appropriate.

In examining large and medium tree and potential old growth areas, it is recommended that areas along the lower reaches of Van Buren, Little Slate, and Boulder be looked at for no treatment and conservation of late-seral/ old growth and existing vegetation. The upper reaches of Boulder and Upper Main, and the eastern edge of Little Slate as a connection between other drainages for conservation of late-seral/ old growth areas.

6.4.4 Wildlife Themes

Theme: Conserve Late-Seral Habitat and Old Growth Forest (Clsh)

This theme emphasizes retention of late-seral/ old growth forests, which provide vital habitat for several wildlife species. Late-seral forests (large tree forest structure) comprises approximately 11 percent of the watershed and is somewhat scattered across the watershed, except for the north side of Main Canyon and south half of North Fork subwatershed. Potential old growth forest encompasses about 26 percent of total possible forested acres, based on North Idaho Old Growth guidelines (see Map 51). Site specific information is needed to determine which stands and what size of a patch is needed to manage in an old growth state.

In some instances, a stand may need treatment (fire or intermediate timber harvest methods) to restore or maintain old growth structure (i.e. ponderosa pine). This treatment may be compatible with this theme by using intermediate harvest depending on site specific conditions and objectives. A thorough wildlife effects analysis is recommended in such cases. Extra care must be taken to ensure retention of sufficient snag and down woody debris densities.

Other stands may not need treatment and may currently meet all the requirements for old growth. Based on mapping exercises of mesic habitat type groups (Map 50), this amounts to 5,477 acres or 27% of the potential old growth. This relates to approximately 7% across the watershed that would not be treated.

Table 6.17 - Conserve Late-Seral Habitat and Old Growth Forests

Applicable Subwatersheds	Priority	Possible Conflicts
Boulder, Little Slate, Van Buren, North Fork (mesic sites-no treatment)	Moderate to High	Vegetation Treatments
Main Canyon, North Fork, Little Van Buren (Restore PP old growth)	High	
Van Buren, Little Slate, Boulder, Deadhorse (xeric sites-may or may not need treatment)	Moderate to High	

Unique Elements or Conditions Related to this Theme: *None that are notable.*

Theme: Conserve Existing Vegetation Conditions (Cevc)

This theme is suited to those areas where maintaining the existing vegetative structure is warranted to provide adequate cover for animals travelling from one drainage to another or where past harvest activities have been high. In some cases, intermediate timber harvest (such as commercial thinning, individual tree selection, and group selection) may be compatible with this theme, depending on site specific conditions and objectives. A thorough wildlife effects analysis is recommended in such cases. Extra care must be taken to ensure retention of sufficient snag and down woody debris densities.

Table 6.18 Conserve Existing Vegetation

Applicable Subwatersheds	Priority	Possible Conflicts
Little Slate, and lower reaches of Van Buren and Boulder	Moderate	

Unique Elements or Conditions Related to this Theme: *None that are notable.*

Theme: Produce Early-Seral Habitat (Pesh)

Early-seral forest (deciduous brush and seedling and sapling trees) provides vital habitat for several wildlife species. Such forest is defined as having a disturbance in the last 30 years. Thus, it includes post-fire habitats characterized by recently burned forest with extensive snags. Historically, approximately 74 percent of the watershed would have been in early-seral habitat, as compared to 30 percent today. Historically, 68 percent of early-seral habitat was in conifer habitats (fire oriented) compared to 24% percent today originating primarily from timber harvest. Producing early-seral habitat would require timber harvest and/ or

burning of existing forest. In areas where a Conserve Late-Seral Forest is a companion theme, production of early-seral habitat would be most compatible by concentrating on mid-seral forest (pole and medium sized timber). In areas where Conserve Late-Seral Forest is not a companion theme, production of early-seral habitat could be accomplished by harvest or burning of late-seral forest.

Black-Backed Woodpecker: In the Little Slate subwatershed, there are approximately 5,346 acres that could potentially be either harvested or burned to produce early seral habitat for big game, black-backed woodpecker, and lynx. This theme is compatible with restore vegetative pattern in VRUs 1 and 6 and restore whitebark pine in VRUs 1, 2, and 9.

To improve habitat conditions for black-backed woopeckers, lethal severity prescribed burns should be applied to lodgepole pine forests in VRUs 1 and 6 and possibly 2. Applications might include partial harvest or mid-seral or late-seral forest, followed by burning. The purpose should be to create areas of high snag density, with snag retention for at least five years post-fire.

Table 6.19 - Produce Early-Seral Habitat - black-backed woodpecker

Applicable Subwatersheds	Priority	Possible Conflicts
Little Slate	Moderate	Wildlife Security, Sediment
Van Buren, Boulder, and Upper Main (see Restore Whitebark Pine or Restore Vegetation Disturbance Dynamics Themes)	Low to Moderate	Wildlife Security, Sediment

Unique Elements or Conditions Related to this Theme: *None that are notable.*

Lynx: Habitat management for lynx should focus on creating forest openings by fire or timber harvest in VRUs 1 and 6, and possibly 2. Openings should be 20-40 acres (based on snowshoe hare home range requirements), with the goal being to create dense stands of deciduous brush and young conifers (preferably lodgpole pine), attractive to snowshoe hares.

Table 6.20 - Produce Early-Seral Habitat - lynx

Applicable Subwatersheds	Priority	Possible Conflicts
Little Slate	Moderate	Widlife Security, Sediment
Van Buren and Boulder (see Restore Whitebark Pine or Restore Vegetation Disturbance Dynamics Themes)	Low to Moderate	Wildlife Security, Sediment

Unique Elements or Conditions Related to this Theme: *None that are notable.*

Theme: Maintain or Enhance Wildlife Security (Mwls and Ewls)

Maintain Wildlife Security: Elk, wolverine, fisher, marten, and lynx are all sensitive to human disturbances and therefore need secure areas to retreat to during critical time periods.

The "Maintain Wildlife Security" theme is recommended for areas that provide important security areas with low road densities and very little disturbance throughout most of the year. These areas are important to both big game and furbearers. There may be portions of the watershed that do not meet this criteria at various times of the year due to OHV use on motorized trails. This applies mainly to the fall hunting season and these areas are in need of restrictions during this time period.

Table 6.21 - Maintain Wildlife Security

Applicable Subwatersheds	Priority	Possible Conflicts
Deadhorse and Van Buren	High	Recreation

Unique Elements or Conditions Related to this Theme: *None that are notable.*

Enhance Wildlife Security: The "Enhance Wildlife Security" theme is recommended for areas where wildlife security is greatly compromised and/or lacking due to open

road densities and OHV use behind roads closed to highway vehicles. This applies mainly to the fall hunting season and these areas are in need of additional restrictions during this time period. This theme will require close coordination with recreation, especially in areas where a companion theme of Provide Trail Recreation and Provide Roaded Recreation has been assigned.

Table 6.22 - Enhance Wildlife Security

Applicable Subwatershed(s)	Priority	Possible Conflicts
Upper Main, Boulder, and Little Slate	High	Recreation
North Fork, Main Canyon, and Little Van Buren	Moderate to High	Recreation

Unique Elements or Conditions Related to this Theme: *None that are notable.*

6.5 Recreation

6.5.1 Summary of Management Direction

The Nez Perce Forest Plan called for the general Forest acreage to supply a broad range of recreation opportunities ranging from primitive to roaded natural. Primitive recreation would be provided from classified portions of the Forest (42%). Forest Plan estimates expected decreases in semiprimitive motorized and semi-primitive nonmotorized from 39 to 11 percent, and increases in roaded natural recreation from 21 to 49 percent. However, increases in roaded natural acreage probably have not achieved the predicted Forest Plan estimate of 49 percent.

Developed campgrounds will be managed to reduced service levels, except for fee campgrounds which will be managed to full-service levels. Recreation and trail management will emphasize mitigation of health, safety, and resource problems, and will be at levels commensurate with the public use.

Dispersed recreation opportunities in the general forest environment will be emphasized. Trail development and maintenance by organized user groups and other public agencies will be increased. This includes snow trails used by cross-country skiers and snowmobilers, as well as the trail system used by hikers, horsemen, and motorcyclists.

As recreation use exceeds capacity of existing facilities, the Forest will develop additional sites as public pressure dictates and as private facilities are not able to fulfill the need.

6.5.2 Summary and Synthesis of Socioeconomic Findings

- Natural resource-based activities play an important economic role in supporting local communities that have few other available economic alternatives. Opportunities exist to establish locally-based commercial recreation services in the Slate Creek watershed.

- Recreation use of public lands is increasing and the need to maintain scenic integrity is also high. There is an increased demand for motorized and nonmotorized recreational access on and from the existing road system.

- Recreation use is mostly associated with dispersed recreation activities such as hunting, fishing, camping and driving for pleasure. Developed recreation facilities are concentrated along main Slate Creek at North Fork Slate and Rocky Bluff campgrounds. Most dispersed sites are associated with roads, vantage points, and historic features.

- Most of the watershed's recreation users are from Idaho and eastern Washington. Average age of Forest users in the local service areas is increasing, with an increasing proportion of retirement-age people who actively recreate on National Forests, with increasing road-related forms of recreation.

- Public access uses and needs may conflict with some fish and wildlife objectives. The current process for

establishing road and trail closures and restrictions may not be meeting the needs for resource protection or public use. Public motorized trail use is constrained by access prescriptions placed on recreational trail system uses in order to mitigate timber harvest and roadbuilding impacts on wildlife security.

6.5.3 Recommended Recreation Management Direction

Provide as much recreation opportunity from the existing road and trail system as possible, since future opportunities for construction of new roads or trails in the Slate Creek watershed will be very limited. Multiple uses or purposes for existing routes can used to accommodate winter snow recreation as well as other uses in snow-free periods.

Coordinate motorized recreation planning and access prescriptions within the Slate Creek watershed with adjoining watersheds, adjacent wilderness units, and with other watersheds across the Forest to provide a diversity of available recreation opportunity, to ensure consistency and connectivity, and to prevent concentration of displaced uses.

Balance motorized and non-motorized recreation needs and wildlife security concerns relative to the proximity of the 200,000 acre Gospel-Hump Wilderness adjoining Slate Creek on the east and those inventoried roadless areas within and adjacent to Slate Creek on the west.

Where existing recreation sites and motorized recreation opportunities are foregone for road decommissioning actions, relocate and replace lost recreation capacity and/ or opportunities.

In lieu of expanding the capacity of existing developed recreation facilities located in confined and sensitive streamside locations, develop new or expanded recreation facilities on upland locations.

In high-road density areas such as the Florence Mining District, avoid large patch surface harvest treatments that would remove large areas of screening vegetation from areas of high human use; instead, opt for small-scale and low-impact treatments such as personal use houselog sales, fuelwood cutting, etc., in high use areas where it is desirable to retain enough timber cover for screening and cover.

6.5.4 Recreation Themes

The recreation themes are premised on the fact that a variety of recreational opportunities exist in the watershed, and in order to maintain and enhance such opportunities, different management emphasis may be needed in different areas. Recreation themes within the watershed provide opportunities that are part of the overall Forest recreation spectrum, and may include opportunities that are not available or cannot be supplied from other watersheds. In some cases, some recreational pursuits may not be consistent with other themes.

The application of recommended recreation themes is: (1 intended to reduce conflicts where possible, (2 take full advantage of existing developments, uses, and characteristics of the area in order to minimize or defer need for new construction, and (3 to assure that a full range of recreational opportunities is available in the future. Where the characteristics are unique, the themes will help to assure that they persist. Where certain recreation opportunities are in short supply, or are being over used, the themes will address increasing facilities where possible or making necessary improvements to mitigate impacts.

As recreation use levels increase, provide opportunity for private industry to develop and supply needed recreation-related services on a commercial basis on the National Forest as a means of diversifying local dependent economies.

Theme: Conserve Scenic Integrity (Csi

The theme assumes determination of scenic classes and a description of the desired naturally evolving landscape character. Desired landscape character must consider ecosystem dynamics and trends. The overall landscape character is maintained through time by proper management of scenic

attributes. The landscape character goal may indicate the need to create different scenic viewing opportunities within the same landscape unit as vegetation grows and current vistas disappear. When there are considerable differences between existing and desired landscape character, it may be necessary to design a transition strategy. The design should include a reasonable time frame for reaching the goal and exclude excessive increments of change.

Table 6.23 - Conserve Scenic Integrity

Applicable Subwatersheds	Priority	Possible Conflicts
Lower Slate Canyon	High	Regen Harvest
Main Slate Canyon	Very High	Regen Harvest
Little Van Buren Ck.	Moderate	Regen Harvest
Deadhorse Creek	High	Regen Harvest
North Fk Slate Ck	High	Regen Harvest
Upper Main Slate Ck	Very High	Regen Harvest
Boulder Ck	High	Regen Harvest
Little Slate Ck	Moderate	Regen Harvest
Van Buren Ck	High	Regen Harvest

Unique Elements or Conditions Related to this Theme: Slate Creek is tributary to the Salmon River. The vegetation, land and water forms, and geology result in a landscape that is very diverse and highly scenic. Throughout the area, evidence of human occupancy and use is apparent. Timber harvest and road building are the most obvious visible indications. Generally, the landscape appears moderately altered, however, unroaded portions of the watershed, including the breaklands of Main Slate Canyon, Deadhorse, North Fork Slate, Upper Main Slate, Boulder and Van Buren retain an unaltered appearing landscape and these relatively undisturbed areas should be the focus for conserving scenic integrity. Slate Creek is eligible for classification as a Wild River (upper 5 miles) and Recreation River (lower 14 miles) under the Wild and Scenic Rivers Act.

Themes: Conserve and Enhance and Expand Developed Recreation (Cdr, Edr and Exdr)

The theme emphasizes providing and maintaining campgrounds and other permanent developments such as toilets, picnic shelters, trailheads, interpretive displays, dump stations, boat ramps, wells and water distribution systems. Facilities are developed and maintained with high regard for user safety; in response to high use levels and consistent with the national forest settings and uses. Developed recreation facilities are often designed to recognize local historical or significant ecological conditions or events. Developed sites also require assessing and achieving desired landscape character goals and scenic integrity objectives. The following sub-elements are incorporated with the functional theme to provide overall emphasis to the developed recreation program within subwatersheds.

Conserve: Developed facilities will be maintained to at current condition and services.

Enhance: Facilities will be upgraded to provide for increased user convenience, including accessibility, or to address known resource conflicts.

Expand: Existing sites would be enlarged or new sites would be developed.

Table 6.24 - Provide Developed Recreation

Applicable Subwatersheds	Priority	Possible Conflicts
Lower Slate Canyon	Low	
Main Slate Canyon	Mod	Aquatic Restoration,
Little Van Buren Ck.	Low	
Deadhorse Creek	Low	
North Fk Slate Ck	Low	Aquatic Restoration,
Upper Main Slate Ck	Mod	Conserve Scenic Integrity and Aquatic Restoration,
Boulder Ck	Low	
Little Slate Ck	Mod	Aquatic Restoration
Van Buren Ck	Low	

Unique Elements or Conditions Related to this Theme: Improved recreation facilities are located at North Fork and Rocky Bluff Campgrounds, and Florence Cemetery interpretative site. Each site is experiencing increased use. Replacement of improvements at North Fork Campground is needed including restroom, tables, fire rings, information board and traffic controls. Trailhead improvements are needed at the mouth of North Fork Slate Creek, on Little Slate Creek, Rocky Bluff, and in the Four Corners area. However, improvement of developed sites needs to complement aquatic restoration themes as well as scenic integrity.

Theme: Conserve and Enhance and Expand Trail Recreation (Ctr, Etr and Extr)

The theme emphasizes providing access to the area on trails by means other than highway vehicles, and providing for consistency and connectivity with the Forest trail transportation system. It requires assessing trail uses and needs, public preferences, conflicts with other resources, and planning development and maintenance strategies. It means maintenance and reconstruction of trails to accommodate desired uses and protect trail and other resources. The theme calls for providing convenient and accurate access information and route signing. It means recognition, protection, and enhancement of trail values when implementing other activities or regulatory strategies. Areas with this theme should also emphasize the achievement of desired landscape character goals and scenic integrity objectives.

Conserve: Existing trails will be maintained to at current condition with the focus on eliminating health and safety issues.

Enhance: Existing trails will be upgraded to provide for increased safety, meet standards, or to address know resource conflicts. This may involve relocation of trail segments to more favorable sites.

Expand: Additional trails would be constructed to meet user needs.

Table 6.25 - Provide Trail Recreation

Applicable Subwatersheds	Priority	Possible Conflicts
Lower Slate Canyon	Low	
Main Slate Canyon	High	Aquatic Restoration and Wildlife Security
Little Van Buren Ck.	Low	
Deadhorse Creek	Moderate	Wildlife Security
North Fk Slate Ck	High	Aquatic Restoration and Wildlife Security
Upper Main Slate Ck	High	Aquatic Restoration
Boulder Ck	Moderate	Wildlife Security
Little Slate Ck	High	Aquatic Restoration and Wildlife Security
Van Buren Ck	Moderate	Wildlife Security

Unique Elements or Conditions Related to this Theme: The Slate Creek Watershed provides a trail system that meets the diverse needs of the public, from primitive non-motorized to highly developed motorized uses. Many of the trails follow historic routes. The Idaho Centennial Trail, 88, is a motorized trail that traverses the eastern portion of the watershed following primarily the historic route to the Florence Mining District. The Hump Trail, 313, within the Gospel Hump Wilderness also follows an historic route to mining camps in the Buffalo Hump area. Trail recreation themes as applied to the Main Slate Canyon need to reflect and complement the Outstandingly Remarkable Values that make Slate Creek eligible for classification under the Wild and Scenic Rivers Act. Trail themes applied in the No Business Research Natural Area should continue to reflect its present natural character.

Theme: Conserve and Enhance and Expand Roaded Recreation (Crr, Err and Exrr)

The theme emphasizes accommodating access to the forest to recreationists travelling by highway vehicle. The theme calls for assessing access needs, public preferences, and conflicts with other uses. It includes providing convenient and accurate access information, route signing, safe and maintained roads, parking and trailhead access, and above all, adequate sites to pull off the road for day use or overnight camping. It also stresses recognition of and interpretation of significant historical and ecological conditions or events. Areas with this theme should also emphasize the achievement of desired landscape character goals and scenic integrity objectives.

Conserve: Dispersed and road related recreation opportunities will be maintained at current level.

Enhance: Existing opportunities for dispersed and road related recreation will be upgraded to provide for increased user convenience and safety, or to address known resource conflicts.

Expand: Opportunities for dispersed or road related recreation would increased through modification of access management restrictions. This may include moving gates or barriers to provide additional campsites along existing restricted routes, changing season of use, or removing road restrictions completely.

Table 6.26 - Provide Roaded Recreation

Applicable Subwatersheds	Priority	Possible Conflicts
Lower Slate Canyon	Low	
Main Slate Canyon	High	Aquatic Restoration
Little Van Buren Ck.	Low	
Deadhorse Creek	Low	
North Fk Slate Ck	Low	
Upper Main Slate Ck	Moderate	Aquatic Restoration
Boulder Ck	Low	
Little Slate Ck	High	
Van Buren Ck	Low	

Unique Elements or Conditions Related to this Theme: Many people recreating in the area camp at unimproved sites adjacent to system roads. Popular areas include the driving and camping in the Florence area, along the Gospel-Hump Corridor, the Grangeville-Salmon Road, the Slate Creek and Little Slate Creek roads.

6.6 Cultural Resources Themes

The dominant theme for cultural resources is protect and conserve historic and prehistoric sites and materials. The theme of Conserve Scenic Integrity on Main Slate is compatible with recommendations to minimize modification of areas seen from Nez Perce Tribe interest features such as Patrol Point. Extensive surface vegetative treatments involving heavy equipment use or road construction should be avoided on and around tribal interest areas, prehistoric sites, and in the primary historic mining areas near Florence. Low surface impact activities such as fuelwood and pole product cutting utilizing existing roads in the Florence and Patrol Point areas would support the Conserve Cultural Resources theme. A them of low development should be applied to the core historic Florence area and to the Patrol Point tribal interest area. Continued use of the historic road network may serve to preserve historic route locations, but may not be compatible with some wildlife security recommendations.

6.7 Road Themes

Although road access provides numerous public benefits, roads by themselves are not considered a functional natural resource such as wildlife and vegetation. In spite of the fact that the road themes are not functionally derived, they are presented here for consistency. Thus they are not shown in Table 6.26. The integrated road theme recommendations for each

subwatershed are shown in Chapter 7, Table 7.10.

The road and access management themes and objectives are a direct outcome of the multi-resource integration process. The recommended road themes and objectives are chosen to support and help bring about the swift restoration of a given resource as expressed in the priority resource theme.

In the vast majority of cases, correct road theme application across the landscape is key to assuring successful implementation of the integrated area theme, especially when the area theme favors aquatic restoration. In recommending a road theme for a given area, the IDT must consider maintaining reasonable access for appropriate human uses of the area, while supporting aquatic recovery, and providing wildlife security in key use and movement areas.

Road themes have been developed to provide road management focus to the subwatersheds within the watershed (see Map 74). This provides the ecological context at the watershed scale. More site specific road management recommendations are described in Chapter 7, as well as a detailed listing by road segment in Appendix J.

The road themes facilitate integration of the resource themes and are themselves an integration product. They do not resolve all road concerns and conflicts between resource themes and uses. However, these themes provide the template to reduce the risks to ecological processes while preserving most of the beneficial uses associated with roads. The continual review, evaluation, and documentation of road management objectives at watershed and project level scales are critical. It is important to remember that notwithstanding the subwatershed road themes, the full range of road treatments available to address adverse road effects applies to all subwatersheds.

This assessment provided an opportunity to review the transportation system at a broader scale than individual project analyses, and still take advantage of site-specific information to develop proposals for local road segment management. Opportunities exist to repattern portions of the road system to improve the efficiency of the road network, while reducing resource effects.

An important concept associated with road system repatterning is the ephemeral road system. In an ephemeral road system, the transportation system consists of a permanent road system that persists through time, that is fed by a network of temporary roads that exist for defined purposes, typically vegetative management. By managing access under this ephemeral concept, some of the long-lived press disturbances (i.e. sedimentation) associated with roads can be avoided.

The ephemeral road system concept is applicable across the watershed for vegetative treatment needs. However, its greatest utility is when applied to VRUs 1 and 6, and to a lesser extent 4 and 5. Typically, subwatersheds with the "reduce road density" theme will employ the ephemeral concept. Roads to be obliterated to achieve reductions in road density are primarily native surface roads. Maps that present recommendations for road reduction and road management that incorporate the ephemeral concept are included in this document (see Maps 58 through 66). The roads theme definitions applicable in this subbasin are shown below.

Theme: Defer New Roads
In general, additional road development is not anticipated in a 10-15 year time frame. This theme applies to subwatersheds where aquatic potential and integrity are high and where there are few existing roads. Opportunities to reduce road related effects will rely heavily on quality road maintenance that will require site specific treatments.

Theme: Maintain a Core Road System and Reduce Adverse Effects Throughout
The existing road system (miles and distribution) is at a level where it generally provides sufficient access for the next 10 -15 years (in some subwatersheds the existing road system may be more than is needed).

Many of the existing routes will be retained, although this theme does not preclude removal of local roads. Conversely, this theme recognizes that construction of local roads, primarily temporary, may also be required. Reconstruction of some road segments may be appropriate to reduce the risks of sedimentation and to address stability hazards. Efforts to adequately document appropriate road management objectives and to develop road maintenance schedules are very important in these subwatersheds.

Theme: Reduce Adverse Effects with an Emphasis on Reducing Overall Densities
In general, in subwatersheds with this theme, fewer roads are needed for the next 10 -15 year timeframe. Road densities can be reduced to reduce risks to both the terrestrial and aquatic resources. Transportation plans should reflect the ephemeral road concept. While some road segments may need to be reconstructed or relocated, the overall goal is a net reduction in road densities (primarily native surfaced roads) over time (up to 50 years per the ICRB Science Assessment (Quigley). Reducing surface erosion on permanent roads through appropriate maintenance or stabilization treatments is also a high priority.

Theme: Develop and Maintain the Road System. Focus on Maintaining the Existing Road System
This theme applies where additional road development may be needed in the 10 -15 year timeframe to treat vegetation. These roads may be either temporary or permanent and should consider the ephemeral transportation concept.

Theme: Wilderness...Roads not Applicable
This theme was applied to subwatersheds where most of the area is within designated Wilderness.

Table 6.27 - Functional Management Themes for the Nine Slate Creek Subwatersheds

Subwatershed Name	Dominant VRUs	Aquatic Theme	Aquatic Priority	Veg Theme	Veg Priority	Wildlife Theme	Wildlife Priority	Rec'n Theme	Rec'n Priority
Lower Slate Canyon	3,12	Rap	H	Rbc Rpp	VH H	Rbc Rpp	VH VH	Csi	H
Main Slate Canyon	3, 12	Rap	H	Rbc Rpp	VH H	Rbc Rpp Ewls	VH VH M	Csi Etr Err Cdr	VH H H M
Little Van Buren Creek	3,1	Rap	H	Rpp Rwbp	VHH	Rpp Rwbp Ewls	VH M-H M		
Deadhorse Creek	3,1	Cap	H	Rpp Rwbp	H VH	Rpp Rwbp Mwls	VH M-H H	Csi Etr	H M
North Fork Slate Creek	3,4	Rap	H	Rpp		Rpp Ewls	M M-H	Csi Etr	H H
Upper Main Slate Creek	1,2,9	Cap	H	Rwbp	VH	Rpp Rwbp Ewls	VH M-H H	Csi Etr Crr Edr	VH H M M
Boulder Creek	1,9	Cap	H	Rwbp	VH	Clsh Rwbp Cevc Ewls	M-H M M H	Csi Etr	H M
Little Slate Creek	6,1	Rap	VH	Rvd	M	Clsh Eesh Ewls	H M VH	Csi Etr Err Cdr	M H H M
Van Buren Creek	1,2,9	Cap	VH	Rwbp	VH	Rwbp Cevc Mwls Clsh	M H VH M-H	Csi Etr	H M

Vegetation and Wildlife Themes	
Rpp	Restore ponderosa pine
Rwbp	Restore whitebark pine
Rvd	Restore vegetation dynamics in areas of long interval mixed and lethal fire regimes
Cevc	Conserve existing vegetation conditions
Clsh	Conserve late seral habitat
Eesh	Expand early seral habitat
Rbc	Restore bunchgrass communities
Mwls	Maintain wildlife security
Ewls	Enhance wildlife security

Aquatics Themes	
Rap	Restore aquatic processes
Cap	Conserve aquatic processes

Recreation Themes	
Csi	Conserve scenic integrity
Cdr	Conserve developed recreation
Edr	Enhance developed recreation
Exdr	Expand developed recreation
Ctr	Conserve trail recreation
Etr	Enhance trail recreation
Extr	Expand trail recreation

Crr	Conserve roaded recreation
Err	Enhance roaded recreation
Exr r	Expand roaded recreation

Theme Action Term Descriptions	
Conser ve	to sustain and keep intact, the current state or condition of a resource or use...protect from decay or loss
Restore	to bring back, or place in a previous, more optimum state, where processes or conditions have degenerated and are not at desired levels
Expand	to increase in quantity or size, a conditon, process or state which is currently functioning properly, but is in short supply
Enhanc e	to increase or improve in measure or degree a condiiton, process or state which is currently functioning at less than desireable levels