

Step 6: Recommendations

Purpose

To bring the results of the previous steps to conclusion by focusing on management recommendations that are responsive to watershed processes identified in the analysis.

To document logic flow through the analysis, linking issues and key questions from Step 2 with the Step 5 interpretation of ecosystem understandings.

To identify monitoring and research activities that are responsive to the issues and key questions.

To identify data gaps and limitations of the analysis.

Soil Resources

Restoration/Protection for Improving Soil Conditions

- ✓ Restore Sawtell Creek to its native channel when the opportunity occurs and control erosion in the diversions.
- ✓ Close and (where appropriate) obliterate roads and trails that are not identified in travel management analysis as system routes. Consider re-locating and re-designing system roads and trails that are chronic erosion/sediment producers.
- ✓ Restrict recreation use and dispersed camping along identified riparian corridors, where possible, to improve riparian conditions.
- ✓ Control motorized off-road travel and prevent the creation of user-created trails and roads.
- ✓ Update range allotment Annual Operating Instructions to improve livestock management in riparian areas. Implement utilization standards and stream bank disturbance guidelines where possible. Ensure soil quality standards are followed in riparian areas to avoid detrimentally compacted soils. Installation of riparian pastures and additional exclosures should be considered to reduce impacts on wetlands and riparian areas. Follow Revised Forest Plan standards and guides on Bootjack cattle allotment for stubble height.
- ✓ Limit hydrologic disturbances in the watershed to standards and guidelines found on page III-10 of the Targhee National Forest Revised Forest Plan.

- ✓ Maintain existing watershed improvement structures where they exist.
- ✓ Prepare an action plan for watershed improvements to be implemented over the next 5 years.

Inventory and Monitoring Soil Conditions

- ✓ Soil and water improvement projects should be identified in a watershed improvement plan. The plan should include specific projects related to recreation and grazing management and treatments required to improve or maintain soil and watershed resources.
- ✓ Monitor landslide occurrences, and if one occurs, document if it was caused by management actions. Update the landslide inventory map in GIS layer.
- ✓ Monitor ground cover on a variety of ecological sites by establishing nested frequency transects and collecting soil data.
- ✓ Consider a Properly Functioning Condition Assessment of the watershed in the future.

Hydrology

Within the Forest, the watershed and streams are in relatively good condition. Past timber harvesting has affected every stream to one degree or another. The least impacts have been to Coffee Pot and Tyler Creeks. Both of these streams are considered to be in good to excellent condition. Hotel Creek, and its Forks, and Yale Creek are currently carrying substantial sediment loads mostly in the form of fine gravels and sands. Embeddedness is generally greater than 50% in each of these streams. Part of the sediment loading is due to large woody debris that has fallen into the stream, causing debris jams and lateral scouring. However, past timber harvesting and associated roading is also thought to be a substantial contributor. For example, West Fork Hotel Creek has a road paralleling the stream that has washed out, adding hundreds of cubic yards of sediment to the stream. So much sediment has been added to the system that water now subs into the subsurface, leaving over a mile of the channel dry.

- ✓ It is suggested that the road paralleling West Fork Hotel Creek be rehabilitated. The sites where the channel has jumped the streambanks onto the road need to be repaired.

Though these old timber sale areas and associated roads are currently mostly stable, the results of these past activities have reduced overall channel stability and water quality.

- ✓ Because of the sensitivity of the watersheds (see soils section) to intensive management actions, such as timber harvesting and associated roading, it is suggested that any new harvesting proposals be thoroughly evaluated for effects on watershed stability, channel stability and water quality prior to any new activity commencing.

The Sawtell Creeks (North, Middle and South) have been channelized and dammed for stock watering and irrigation. Current downstream water rights limit options for rectifying the problem. However,

- ✓ if opportunities present themselves, it is suggested that channelized reaches of the streams be put back into original channels and/or new channels be constructed that mimic natural conditions.

Livestock grazing is also impacting the streams as well as dispersed camping and off-road vehicle use.

- ✓ It is suggested that livestock grazing standards identified in the Forest Plan be strictly enforced. Dispersed camping and off-road vehicle use needs to be regulated. ORV crossings should be eliminated and dispersed camping sites should be moved away at least 100 feet from streambanks.

Bootjack Creek is in a substantially deteriorated condition. Livestock grazing and off-road vehicle travel appear to be the primary contributors. The District has made an effort to close the road accessing the drainage, which should reduce impacts from this source, although 4-wheelers and motorcycles are still accessing the area.

- ✓ It is suggested that more substantial barriers be installed to deter motorized travel, supplemented with signing explaining why the closure is in place.

Livestock grazing is probably the primary reason the channel has degraded.

- ✓ It is suggested that livestock grazing standards identified in the Revised Forest Plan be strictly enforced. If strict enforcement cannot be done, it is suggested that grazing be eliminated in the upper drainage until channel conditions improve to at least Functioning-at-Risk, using the method identified by Prichard, 1998. Grazing may continue within the lower portion of the watershed where the stream parallels FDR 053 (Henry's Lake Road) but, again, standards identified in the Revised Forest Plan need to be strictly administered.

Numerous off-road vehicle trails have been pioneered from the private land adjacent to the Forest.

- ✓ It is suggested the District work with the private land owners to close these roads and ensure new roads do not become established.

- ✓ Additional recommendations and opportunities can be found in the Soils section.

Vegetation

Lodgepole Pine: Recommendations

Vegetation management should provide a diversity of structural stages within the assessment area. Age classes should be distributed evenly to provide sustainability of wildlife and social needs. Vegetation treatments should be in larger patch sizes to mimic natural disturbances. A combination of mechanical and prescribe fire treatments should be used to attain the structural distribution. Approximately 66% of the cover type is within management prescriptions 5.x and outside roadless areas. Mechanical treatments should be considered as the primary vegetation management tool in these areas when it compatible with other resource needs. Within roadless areas and outside management prescriptions 5.x, prescribe fire should be used as the primary tool. Long term vegetation management strategies should be designed to minimize the potential for large epidemic outbreaks of the mountain pine beetle.

Douglas-fir, Mixed Douglas-fir/Lodgepole, and Mixed Conifer: Recommendations

Long Term

Long term vegetation management strategies should be focused to restore a distribution of structural stages consistent with the natural range of variability. Approximately 60% of these cover types should be in the mature age classes and 40% in the seedling/sapling to young forest age classes. Treatments should be in sizes and shapes consistent with natural processes. In the dry, lower elevation sites stand densities should be lowered and small openings should be provided to allow natural regeneration of Douglas-fir. Mechanical treatments should be primarily used to lower stand densities while prescribed fire should be used to prep seedbeds for Douglas-fir and maintain “park-like” condition. In the mixed Douglas-fir/lodgepole and mixed conifer cover types prescribe fire should be primarily used to meet stand structure objectives. Mechanical treatments should be used in areas where implementation of prescribed fire would be difficult mainly next to private lands. Prescribed fire treatments should provide a low to moderate severity burns. Moderate severity burn areas should be concentrated in areas where lodgepole pine and subalpine fir dominate. Openings should be large enough to provide opportunities for natural regeneration of lodgepole pine and Douglas-fir. These type of treatments should provide a clumpy uneven age structure.

Insect Outbreaks and Salvage

Currently, within the Blue Creek Assessment area, a widespread outbreak of Douglas-fir beetle and western spruce budworm is occurring. The majority of stands with Douglas-fir are moderately to highly susceptible to Douglas-fir beetle and western spruce budworm (at least 70%). Approximately 2,500 acres within the assessment area have at

least 70% mortality of Douglas-fir trees greater than 14" DBH. Large, mature Douglas-fir stands are at high risk which could affect the distribution of late seral stands. Wildlife species that prefer large trees and dense forest canopies could be affected by the change. Regeneration of Douglas-fir is at risk due to western spruce budworm outbreak.

To reduce the effects of the current insect outbreaks intensive silvicultural preventive and control treatments should be implemented. However, the amount and size of treatments needed may conflict with current Forest Plan direction. Majority of the assessment area is within grizzly bear management units and 50% of the susceptible stands are in roadless areas. These resource values will need to be weighed against the long term effect of the Douglas-fir beetle and western spruce budworm outbreak. To address reducing stands susceptibility to Douglas-fir beetle and western spruce budworm several steps should be taken. These are:

- ✓ Identify and map susceptible stands to the Douglas-fir beetle and western spruce budworm. Several stand hazard rating systems have been developed using stand exam and other characteristics. Currently most of the stand exam information in the assessment area is 15-20 years old. New stand exam inventory or intensive field reconnaissance should be conducted to determine the hazard rating of stands. Estimating from the quick assessment of the proposed action development for the Centennial Salvage sale approximately 40-50% of these cover types could have stands moderate to high hazard risk.
- ✓ Use forest health protection aerial survey maps or other remote sensing data to identify large pockets of mortality and areas of defoliation. Currently, high resolution satellite imagery is available for about 40-50% of the area. This imagery was taken for the Centennial Salvage sale project area in September 2003.
- ✓ Prescribe treatments based on stand hazard rating and mortality areas. Two main silvicultural treatments should be prescribed in moderate to high hazard stands. The use of prescribe fire should not be used until Douglas-fir beetle populations fall to endemic levels. Thinning to reduce stand basal area and enhance non susceptible host such as aspen. Basal areas should be reduced to 60-80 square feet/acre. Where mortality pockets are occurring salvage and sanitation treatments should be prescribed. Trees that are infested should be removed before overwintering adults emerge from them, which typically occur in late April.
- ✓ Prioritize treatment areas. Due to competing resource values treatments should be prioritized. Highest priority areas to treat should be next to the wildland urban interface and forest boundaries and expand outward from there. Treatments within roadless areas should be considered last priority.

Aspen: Recommendation

A combination of prescribe fire and mechanical harvesting should be used to restore the aspen cover type to its historic range. Treatments should be concentrated in existing patches and a combination of removing conifers and creating opening to expand aspen suckering and prescribe fire to stimulate root suckering. Lower elevations should be treated within or next to the dry Douglas-fir cover type to change species composition to break up large contiguous blocks of Douglas-fir to limit outbreaks of western spruce budworm and Douglas-fir beetle. Approximately 40% of the existing aspen stands should be regenerated and a long term target distribution should be 60% in mature age classes and 40% in the younger age classes.

Subalpine/Whitebark pin: Recommendation

Within the assessment area continue to collect seed from phenotypically resistant trees and continue to support the whitebark pine recovery. Where phenotypically resistant trees are found treatments should be focused to reduce encroaching tree species to maintain tree vigor. Outside of these areas, prescribed fire should be used to create openings to entice the Clark's nutcracker to cache seeds, prepare seedbeds, and reduce conifer encroachment onto suitable whitebark pine sites. Intensive steps should be taken to protect whitebark pine seed trees.

Aquatic Species and Habitat

- ✓ Hotel Creek: Close non-system ATV trails and rehabilitate crossings. Evaluate and reintroduce beaver on the Forest to help control and stabilize the water flow. Rehabilitate areas where road has captured streamflow. Evaluate potential for restoring runs of spawning cutthroat to these streams and implement restoration project.
- ✓ Yale Creek: Close non-system ATV trails and rehabilitate crossings.
- ✓ Mill Creek: Close non-system ATV trails and rehabilitate crossings. Evaluate potential for restoring runs of spawning cutthroat to these streams and implement restoration project.
- ✓ Elk Spring Creek: The ATV trail along and through the stream needs to be relocated or closed. Evaluate potential for restoring runs of spawning cutthroat to these streams and implement restoration project.
- ✓ Coffee Pot: We recommend replacing the existing culvert on the Stamp Meadows road with one that is properly sized and placed to facilitate passage and channel processes. Evaluate road for proper drainage and make corrections. Assist road fill in revegetating. Evaluate potential to reintroduce beaver to create deep pools and warm water to make fishery more productive. If beaver reintroduction is successful evaluate potential for restoring runs of spawning cutthroat to these streams and implement restoration project.

- ✓ Tyler Creek: We recommend replacing the existing culvert on the stamp road with one that is properly sized and placed to facilitate passage and channel processes. Evaluate potential beaver habitat to create deep pools and warm water to make fishery more productive. If beaver reintroduction is successful evaluate potential for restoring runs of spawning cutthroat to these streams and implement restoration project.
- ✓ Un-named stream (South Sawtell Creek): Maintain shallow water for amphibian habitat in backwaters of pond. Monitor for and prosecute trespass cattle. Restore flow to original willow lined channel and stabilize pond levels. Continue with Yellowstone cutthroat restoration project
- ✓ Sawtell Creek: Fence the pond and maintain shallow water for amphibian habitat in backwaters of pond and stabilize pond levels. Graze according to Forest standards and guides. Determine if flow can be restored to original channel. Continue with Yellowstone cutthroat restoration project. Also, work with holder of ditch easement to correct erosion problems that occur during high flows when banks overflow.
- ✓ Un-named stream (South Fork Bootjack Creek): Manage grazing to meet Forest standards and guides. Work with holder of ditch easement to correct erosion problems that occur during high flows when banks overflow.
- ✓ Bootjack: Manage grazing according to Forest Standards and guides. Close non-system roads and trails to unauthorized motorized use.
- ✓ Hope Creek: The owner of the Meadow Lake Ranch remarked that, years ago, large lake running trout would spawn in Hope Creek. He said that the upstream migration has halted due to a weir. Investigate background of weir and opportunities for management improvements. Look for ways to work with landowners to restore connectivity and improve habitat on lower Hope Creek. Close non-system ATV trails and rehabilitate crossings.
- ✓ Rock Creek: Evaluate ways to use water more efficiently and restore stream flows. Look for ways to work with landowners to restore connectivity and improve habitat on Rock Creek. Close non-system roads and trails to unauthorized motorized use.
- ✓ Crooked Creek: Recommend crooked creek be restored to a low flow channel to restore fish habitat to the upper outlet area. Support restoration of the wetland complexes that once abundantly occurred here. Support the re-colonization by beaver once flows are restored.
- ✓ Henrys Lake Outlet: Support efforts underway by the Henrys Fork Foundation to decrease erosion from this stream, which has been greatly altered by irrigation flows. Encourage the use of this channel as a bypass reach for high irrigation flows with stable low flow side channels. Encourage habitat work that will reduce erosion and channel migration.

- ✓ Upper Henrys Fork: Encourage and support efforts to restore historical levels and life history patterns of Yellowstone cutthroat to this river. Concentrate restoration efforts on tributaries to this stream above Mack's Inn where sediment reduction can be realized such as the Outlet and Thirsty Creek.
- ✓ Henrys Lake: Encourage and support management practices that will promote the genetic integrity of the existing Yellowstone cutthroat stock present in the lake. Promote better connectivity of the lake to its tributaries.
- ✓ Island Park Reservoir: Encourage and support efforts to restore historical levels and life history patterns of Yellowstone cutthroat to this river. Where tributaries show some evidence of a connection to the reservoir endeavor to restore spawning runs of Yellowstone cutthroat. Encourage management of Island Park Reservoir as a sport fishery for Yellowstone cutthroat through the stocking of Henrys Lake cutthroat.
- ✓ New Zealand Mudsnailes: Develop an educational program to prevent the spread of the New Zealand Mudsnailes.

Terrestrial Species and Habitat

- ✓ Treat existing aspen stands to encourage sprouting and reduce encroaching conifer. Treat conifer stands to break up seral age classes and provide a greater diversity for wildlife.
- ✓ Use natural and management ignition fires to encourage Whitebark pine regeneration.
- ✓ Continue heavy enforcement patrols and physically close illegal ATV trails within the watershed during the snow-free season.

Range and Livestock

- ✓ Livestock Grazing Standards and Guides from the 1997 Revised Forest Plan must be monitored and strictly enforced.
- ✓ Continue to close out remaining Sheep and Goat (S&G) allotments within Management Prescription 5.3.5 areas for Grizzly Bear Habitat.
- ✓ Complete NEPA and subsequent Allotment Management Plans (AMP's) on Bootjack (Meadow View) C&H, and Icehouse/Willow S&G Allotments.

Fire and Fuels

The following recommendations for restoration and resource protection should be considered in order to improve the ecological balance within the watershed.

- ✓ Use prescribed fire in specific areas of heavy fuel loading to reduce the chance of catastrophic or stand-replacement fire.
- ✓ Reduce the ladder fuels through vegetation management projects within the analysis area where fuel loads are approaching 20 tons/acre in the timber types.
- ✓ When possible and within management constraints, allow fire to spread naturally within fire use guidelines. The fire use plan was completed for the Centennial Subsection in 2005.
- ✓ Develop an aggressive aspen regeneration program in order to restore aspen habitat throughout the watershed.

Human Uses

- ✓ Identify dispersed sites that might require hardening or better delineation on the ground, such as placement of rock barriers and gravel surface.
- ✓ Increase level of Law Enforcement in the area to deal with illegal ATV use.
- ✓ Annual travel plan to close the area currently open to cross-country motorized travel and establish a trail system for ATV's in that same area.