

ITEM 22

Riparian Area Condition

OBJECTIVE: Ensure compliance with Forest Plan standards for fisheries, water, and wildlife.

DATA SOURCE: Interdisciplinary team reviews and monitoring information from resource specialists.

FREQUENCY: Annually

REPORTING PERIOD: 1997

VARIABILITY: Deviation from riparian area and fisheries objectives.

EVALUATION:

Forest Plan objectives for fish and riparian areas center around preventing adverse effects on fish habitat by maintaining riparian flora, fauna, and water quality. This monitoring item discusses activities and monitoring associated with timber harvest, fire management, construction, and grazing in riparian areas, all of which can affect riparian function. Although fire is a natural process on the landscape, it can have temporary adverse effects on fish habitat and so is considered here. The Forest Plan does not acknowledge the role of fire in riparian areas, or specify the effects of fires and fire suppression on fisheries and riparian areas. These issues need to be analyzed in the Forest Plan revision. Recreation also has the potential to alter riparian areas, and what monitoring did occur is discussed in Items 2, 28, and 29, as well as the wilderness monitoring sections. Restoration of riparian areas is covered in Item 19, Watershed Effects and Restoration.

Previous monitoring reports have documented the need to address various riparian issues, including describing desired conditions for riparian areas, determining how to measure livestock impacts, and establishing thresholds for impacts. A system of assessing riparian health, called "Proper Functioning Condition," was developed by the Bureau of Land Management and is being adopted by the Forest Service nationally. This direction is expected to help us answer some of the questions regarding riparian management that we have identified.

MONITORING RESULTS:

Timber Harvest

Last year's monitoring report mentioned timber harvest that took place in riparian areas on the West Fork District, and indicated a need to follow up these harvests with review by an interdisciplinary team. This year we evaluated the **West Fork Administrative Sale**, part of which involved removing blowdown from a creek. The harvest of blowdown occurred in a riparian area along Swamp Creek. The hydrologist, sale administrator, and logger worked closely together to accomplish this harvest in a way that would minimize impacts to the riparian area. Logs were cabled out to prevent soil compaction and disturbance in the riparian zone. The lower layer of blowdown was left on the site to protect it during harvest operations and for long-term maintenance of woody debris. The review team could detect no detrimental impacts on the riparian resources. The overall result was beneficial in that the canopy was opened up, which will increase shrub production for wildlife.

Another portion of the West Fork Administrative Sale harvested some material from riparian zones in order to reduce hazards along the West Fork Highway and clear space for a power line. Our monitoring team reviewed this work also. A state water quality variance was received to allow removal of trees in the riparian zone along the West Fork. This was needed in order to install a power line on the east side of the highway. After the trees were cut, the power company decided to place the line on the west side of the highway. This resulted in unnecessary removal of some trees from the riparian area. The monitoring group could not see how the situation could have



been avoided under the circumstances. The yarding was done over the snow, and had no visible impact on other riparian vegetation or soils.

***** RESEARCH NOTE *****

We have reported in previous years on a riparian study in ponderosa pine and larch stands along Larry Creek. Overstory thinning and removal of understory conifer thickets have now been completed in the two study blocks. One unit also received an underburn to reduce slash. Shrub and understory vegetation will be measured in coming years to learn the effects of the harvest and burn treatments.

Fire Management

The **Willow Creek Fire Complex**, a 398-acre wildfire, burned in 1996. Rehabilitation was carried out in the burned area to reduce the likelihood of stream sedimentation and flooding which could threaten fisheries. In FY 1997 a Forest team monitored the rehabilitation work to assess its effectiveness. Treatments included drainage crossing improvements, sediment traps in stream channels, sediment traps on severely burned uplands, and seeding. Straw bales were found to be very effective in trapping sediment both on severely burned steep uplands and in intermittent stream channels. They successfully prevented overland flow soil erosion, and compared favorably with the more costly approach of laying logs across the slope. Weed seed free straw was used. Seeding with annual rye was successful, but may not have been necessary because plenty of natural revegetation has taken place. Concern was expressed that the grass might interfere with pine regeneration. The overall conclusion, however, was that it is better to seed than to risk slope failure and massive sediment delivery to streams. The seeding did not appear to be excessive since it was limited to the most severely burned areas. Willow Creek was not monitored for sediment because there is no evidence of overland flow even within the fire perimeter.

Monitoring of aquatic conditions within the **Swet and Warrior Fires** (large 1996 burns) occurred in FY 1997. A spring flight over the burns showed that even intensively burned riparian areas greened up with lush grasses and forbs. As viewed from the air, only a half dozen areas showed evidence of slumps, debris slides, or gullying. Dead standing trees in riparian areas will provide snags and woody debris for several decades. Ground surveys were conducted during the summer to further assess watershed, fishery, and riparian conditions in the Swet burn area. Based on the field surveys, riparian areas generally showed excellent regrowth of vegetation. However, in riparian areas that were intensively burned, vegetation was still sparse. Numerous small, intermittent streams showed evidence of debris flows. Most of the debris flows were small enough that they weren't contributing sediment to the larger, perennial streams. One debris flow on a perennial tributary to Storm Creek did contribute sediment to Storm Creek for several hundred yards. This sediment consisted of gravel sized particles. Seven sites within the burn were monitored using partial stream surveys. The information gathered was compared to information for undisturbed streams in this area. Based on these data, it appears that the fire has not altered the stream channels to a large degree, at least in the first year after the fire. There was some increase in smaller particle sizes in the streambed, but the overall percent fines were comparable to those in undisturbed streams.

Prescribed management-ignited fires were designed to avoid riparian areas, and no effects were observed from this source. Managers have generally avoided running prescribed management-ignited fires through riparian areas to prevent adverse effects on fisheries, but it is becoming clear that many of these areas burned historically. Future fire management on the Bitterroot NF will need to consider using prescribed fire in riparian areas to restore natural disturbance patterns.

Construction

In our FY 1996 report we discussed monitoring of rehabilitation work along the **Bass Creek Trail**. Additional monitoring this year showed that the new drainage structures on the trail are functioning well. Some large sediment trails were seen exiting from the downslope ends of the water bars. This effect was probably greater this year than it will be in the future due to the disturbance associated with drainage work. Future projects like this should place slash at the outlet portion of water bars to trap sediment more effectively. The natural slump that occurred along the trail in November of 1995 is recovering well. A slash filter at the base of the slump is preventing sediment from reaching the stream, and the grass seeding on the scar has taken hold.

The work on the **Bass Creek Dam** itself was also monitored. The spillway was found to be stable and the stream below the outlet pipe has cleared itself of the sediment trapped at the time of construction. Vestiges of sediment are still visible along the slower stream margins and among the large woody debris that trapped fines during construction. The fisheries biologist determined that Bass Creek is nearly fully recovered.

Construction projects on the **Skalkaho Highway** involved replacing four large culverts following damage caused by the 1996 snowmelt runoff. This work was completed by the Montana Department of Transportation and should have long-term benefits to the riparian areas adjacent to the highway. Excessive runoff in the spring of 1997 led to significant sediment input to Daly Creek adjacent to the Skalkaho Highway. The stream overtopped the road in several places during peak runoff. A 300-foot slump occurred, with about 50 feet of the road shoulder sliding directly into Daly Creek. It appears that additional slumping will likely happen in the future, and there is a need to improve this section of road to prevent further sediment inputs. Although Skalkaho Highway was made passable after the spring damage, money was not available to provide a more permanent solution to the slumping problem. The highway is owned and maintained by the Montana Department of Transportation.

Grazing

Meadow-Tolan Allotment. In accordance with an interdisciplinary plan developed in 1995, a fence was constructed to eliminate cattle access to portions of Meadow Creek. This project was monitored several times in 1997. The fence is effectively restricting cattle use to a small area of the creek, and a slight improvement in riparian herbaceous vegetation is evident.

Bass Creek Allotment. The Larry Creek riparian area has been monitored over the past three years. Impacts have consistently been negligible. This year a few hoof prints were observed along a four-foot section of the stream bank, but there was no trampling or sign of cattle using Larry Creek's channels. These observations are similar to those in previous years.

Gold Creek Allotment. Monitoring of riparian conditions in the Muddy Springs Draw and No Name Creek was conducted in the fall of 1997. There were no cows inside the enclosure at Muddy Springs draw. Riparian vegetation was healthy and the stream channel was stable. For the first time since the 1994 grazing season, the fence along the No Name Creek riparian zone was effective. A few cattle did access a small portion of riparian habitat where the fence was damaged. With the exception of this localized breach, the rest of the creek was untouched and significant recovery of the riparian vegetation and stream channel occurred.

Trapper Allotment. Riparian conditions were monitored by a fisheries biologist in the Lick Creek pasture of this allotment. Impacts consisted of some scattered trails and crossings along the creek. Cattle were not causing any significant changes to fish habitat.