Wetlands

Goal: Minimize the destruction, loss, or degradation of wetlands, and preserve and enhance wetland functions and values.

Objectives: Avoid alteration of, or new construction on wetlands, wherever there is a practicable, environmental preferred alternative. Implement Best Management Practices (BMPs) and Estuary, Riparian, Soil and Water Standards and Guidelines specific to wetlands.

Wetlands Question: Were wetland conservation practices implemented and effective to avoid and/or minimize impacts to wetlands to the extent practicable?

A monitoring report (Landwehr 2011) based on the 2011 field work was completed in FY2012. Wetland-road monitoring has been on a two-year cycle, one year for field work and the second year for report writing.

Monitoring Results

Six road segments constructed through wetlands were monitored in FY2011. Three of the road segments were constructed as part of the Logjam Timber Sale Project. Three of the road segments were constructed through wetlands more than 30 years ago. The FY2008 wetland monitoring report identified the need to monitor older road segments. The literature cited in the 2006 and 2008 reports indicates that changes to wetland vegetation and soil hydrology may not manifest themselves until several decades after the construction activity.

The Logjam TS EIS did a good job of documenting wetlands avoidance with project activities. In addition to site specific wetland avoidance documented on road cards, this document included a discussion of wetland avoidance at the project scale.

Data summarized in the Landwehr 2011 report indicate wetlands were avoided to the extent practicable while meeting project goals and objectives. The report also indicates that effects to wetlands were minimized to the extent practicable. Minor improvements could be made in the areas of road drainage, grass seeding, and minimizing turnouts and rock pit sizes in wetlands. On one road of the old road segments resurfacing resulted in widening of the road prism (beyond current width specifications) in the wetland.

The 2011 report also summarized the cumulative results from the 2006, 2008 and 2011 monitoring efforts. Physical impacts to wetlands consist of the disturbed soil corridor. Over the 3 monitoring periods 115 cross sections of roads through wetlands were measured and the average width of the disturbed road corridor is 37.2 feet. We have been using 40 feet for our NEPA document estimates and this data validates that 40 feet is still a good estimate.

Hydrologic effects of roads through wetlands are based on literature review and field observations. The hydrologic effects appear to be very limited and typically within 3 to 5 meters of the road. The wetland remains a wetland in this area but the soil moisture status is changed. The hydrologic effect is more evident upslope of the road where the road construction results in a cut slope in a sloping wetland. More permeable soil materials will also increase the “drainage effect”.

Figure1. Newly constructed road through a forested wetland on the Logjam Project Area**.**

Figure 2. This once forested wetland along the decommissioned 30 road segment was converted to sedge wetland by beaver influence following timber harvest and road construction.

Observations along many 30 plus year-old roads through wetlands indicate little change to wetland drainage or vegetation. The low volume timber haul roads are constructed with coarse textured durable materials. Roads constructed from finer textured materials or less durable materials would be less permeable and would have further ranging impacts to wetland drainage. A plugged culvert and beaver dam did increase wetland acreage and change a forested wetland to a sedge wetland along one old road segment through a wetland. (Figure 2)

Along one 30-year old road segment constructed of limestone a maidenhair fern was noted in a muskeg pond downslope of the road. Maidenhair ferns typically grow on near neutral pH substrates. The natural surface pH of the shore pine bog is about 4.5. Informal testing of soil surface pH indicated a pH of more than 7.0 up to ten meters down slope of the road. More formal sampling and testing needs to be completed to understand the magnitude and extent of elevated pH levels associated with limestone roads.

Evaluation of Results

Due to the few miles of road constructed through wetlands in 2010 and recent years in general, there is less impact to wetlands through construction of forest roads. The results from the wetland monitoring over the past 5 years have been shown a consistently high level of wetland avoidance and minimization of impacts. Minor improvements could be made in the areas of road drainage, grass seeding, and minimizing turnouts and rock pit sizes in wetlands.

If the miles of road constructed across wetlands each year remains at a low level the number of road segments sampled could be reduced, or the monitoring frequency lengthened, or the monitoring could be stopped altogether.

Action Plans

The 2011 report recommends reducing the number of road segments monitored if the number of miles of road built through wetlands continues to be low.

The 2011 report recommends a small pilot study to understand the chemical effect of limestone road construction across acidic wetlands. This pilot is funded in 2013.

A retrospective wetland vegetation study similar to Glaser's (2000) work may help elucidate the extent of wetland hydrology and vegetation change associated with roads more than 30 years old.

An examination of wetland soils under old road prisms could identify compaction, crushed soil pipes, subsidence and deformation associated with the road prism and help identify the mechanisms of soil hydrologic change associated with roads across wetlands.