Effects of Large Wood Placement on Channel Morphology and Aquatic Habitat Hallowat Creek, North Fork Flathead River Drainage, Montana

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Montana Fish, Wildlife and Parks (MFWP) documented a substantial reduction in bull trout (*Salvelinus confluentus*), spawning redds in Hallowat Creek, a tributary to Big Creek of the North Fork Flathead River. The Big Creek watershed is an important spawning tributary for fluvial bull trout, a federally-listed threatened species (USDI Fish and Wildlife Service 1998). USDA Forest Service fire suppression efforts undertaken during the 2001 Moose Creek

Fire influenced channel hydraulics and spawning habitat distribution in Hallowat Creek. Fire suppression activities included cutting large woody debris within the active channel and riparian zone. Stable large wood loss resulted in a more simplified channel characterized by coarse substrate, few pools, and infrequent large woody debris. In 2005, River Design Group, Inc. (RDG), MFWP and FNF implemented an in-channel treatment plan for Hallowat Creek. Large wood was imported to the active channel and arranged in stable wood complexes to promote pool development. Reach-specific treatments were developed to either meet or exceed large woody debris counts that were enumerated in a pre-fire, 1998 R1 R4 survey conducted by the FNF. Channel monitoring surveys and annual bull trout redd counts were completed in 2005, 2006 and 2008 to assess spawning and geomorphic response to the structures. Results suggest augmenting existing stable large wood structures with additional wood, and building structures that are anchored to stable floodplain features provide the best opportunity for increasing complex pool habitat in Hallowat Creek. This presentation summarizes the monitoring data and provides recommendations to practitioners engaged in similar habitat restoration projects in forested, mountain streams.