Tepee Creek Phase 2 Stewardship Plan

December 16, 2013

David Lindley – YN Habitat Specialist

Monitoring

Photo Documentation: Visit site twice annually to take photos of project elements - constructed riffles, engineered log jams, and vegetation.

Groundwater Monitoring: Conduct at least 5 visits per year to measure instantaneous groundwater depths in six wells. Conduct periodic visits (at least 4 times annually) to download continuous (hourly) data from groundwater wells with dataloggers (INW PT2X). Compile well data in electronic spreadsheet and generate graphs to visually display changes in groundwater elevations through time.

Adult spawning Survey: Minimum of one pass redd count survey through project reach to enumerate adult Steelhead spawning.

Juvenile Steelhead Usage: Multiple-pass electrofishing surveys were conducted seasonally 2010-2013 to capture juvenile steelhead. Fish over 65mm in length were tagged with a PIT and sampled for length and weight. This data will be used to evaluate survival, seasonal movement, out –migration timing, and adult returns.

Residual Pool Depths: Pre-project pool depths were measured in 2011 via the Rapid Aquatic Habitat Assessment Protocol (RAHAP) habitat survey methodology. The reach will re-sampled via the RAHAP methodology, pool depths will be evaluated to determine whether riffle crest elevations are being maintained and to document pool depths over time. RAHAP quantifies both the abiotic and biotic state of aquatic habitat. The abiotic components are: geomorphic reach segments, habitat units, spawn patches, bedrock features, wood pieces, wood jams, and streamflow. These physical parameters are coupled with a separate one-pass fish survey that ties fish abundance to habitat. Pre and post-project surveys conducted via a standardized sampling methodology will facilitate quantification of the change in habitat.

Food Web Study: Conduct post-project sampling under the Tepee and White Creeks Food Web Study Plan. Sampling was conducted three years pre-project (-3,-2,-1) and is planned for five years post-project (+1, +3, +5).

Specific objectives of the study include the following:

- Quantify riparian habitat conditions in treatment and control reach sample sections.
- Compare invertebrate abundance, biomass and composition from benthic, drift, and allochthonous sources among treatment and control reach sample sections.
- Compare fish diet (abundance, biomass and composition) among treatment and control reach sample sections.
- Evaluate seasonal variation in prey availability and diet of *Oncorhynchus mykiss* in sample sections.

Maintenance

Invasive Plant Species Control: Site visits are made throughout the growing season to evaluate and address invasive plant species. In adjacent areas, bull thistle has been the primary species of concern over the past 2-3 years. Bull thistle is pulled by hand. When removal occurs after the plant has gone to seed, plants are bagged and removed from the site.

Fence Maintenance: A four-strand barb wire fence will be constructed around the perimeter of the project in early spring 2014. Each Spring the fence perimeter will be evaluated and places where it has been compromised repaired. Throughout the grazing season the fence will be evaluated periodically and repairs made as necessary. The fence will be maintained for at least five years at which time adjacent grazing pressure will be assessed to determine whether continued maintenance is necessary.

Riffles: There is a stockpile of rock on-site to be used in the event repair of control elevations is necessary. Funding for installation is to be determined in the event such action is necessary.