

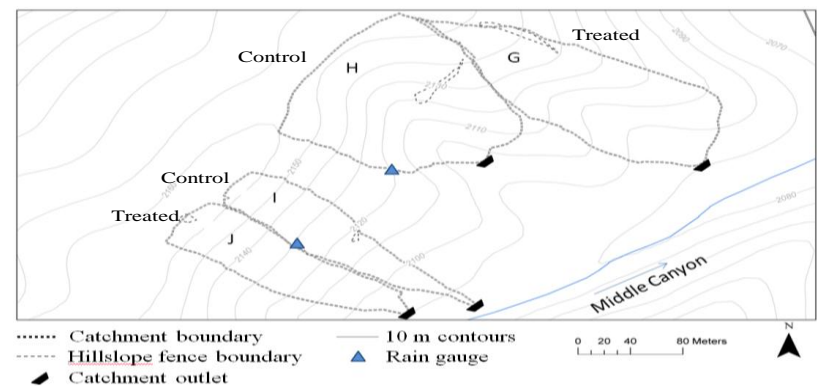
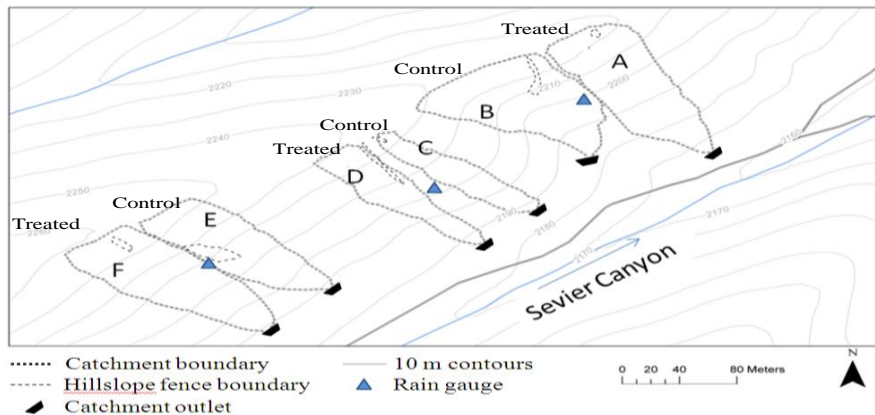
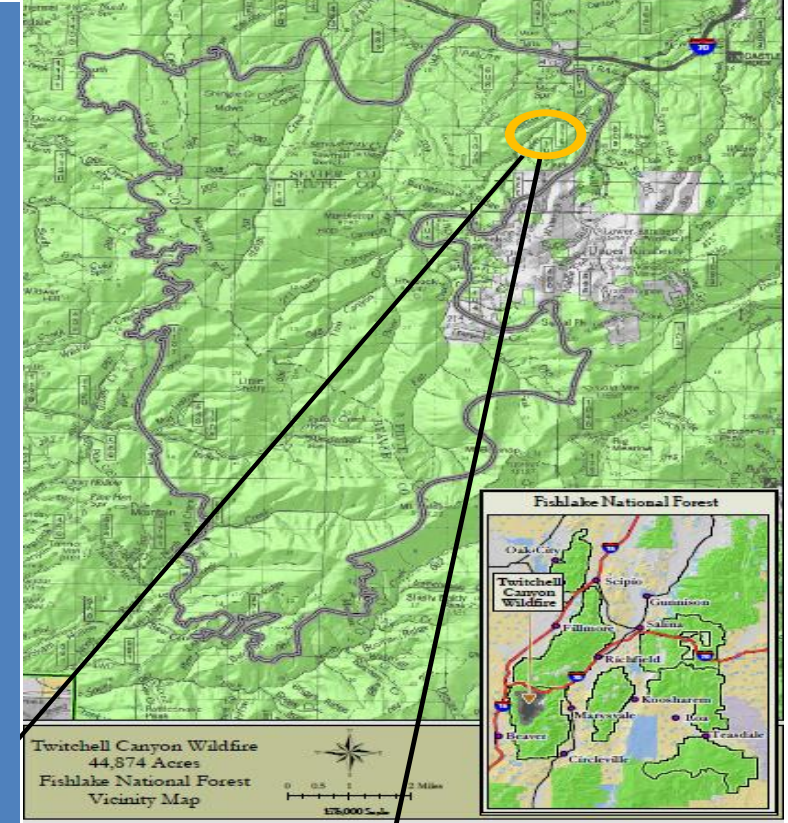
2010 Twitchell Canyon Fire

Fishlake National Forest

Channel Treatment Effectiveness Study

Using Straw bale check dams

- Site elevations: 2070 to 2225 m (6800 to 7300 ft)
- Total rainfall and intensity with 5 tipping bucket rain gauges
- Catchment sediment yields from the 5 pairs
~ 0.2 to 1.6 ha (0.5 to 4 ac)
- Hillslope sediment yields
- Hillslope and channel ground cover (soil, veg, litter...)
- Soil particle size and % Organic matter of sediment
- Channel cross sections for each catchment





Using silt fences to monitor treatment effectiveness
No treatment vs treatment





21% channel gradient

Check dam 1 (upper)-- 3.7 tons

Check dam 2 (lower)-- 2.4 tons

Filled from:

5-year event with an $I_{10} = 2.34$ in hr^{-1}



15% channel gradient.

Sediment discharge: 1.7 tons ac^{-1} per year

Straw bale check dam filled, captured 1.5 tons of sediment, from an I_{10} event (1.08 in hr^{-10}) that was less than a 1-year event.

Confinement of channel greatly reduced storage capacity despite low gradient.



25% channel gradient

Filled to capacity from a 1 year rain event $I_{10} = 1.26 \text{ in hr}^{-1}$, captured 1.1 tons.



Trash rack effect – wooden stakes increasing spillway height

