Angora Creek Stream and Floodplain Restoration

In 2014 and 2015, the USFS implemented a stream channel/floodplain restoration project on Angora Creek and its tributaries, located upstream of the Lake Tahoe Boulevard stream crossing. The Angora Fire of 2007 had stripped large wood from the channel and adjacent riparian zone. In addition, a legacy man-made pond disrupted historic flow paths from one of the tributaries, and had become a breeding ground for invasive bull frogs. And finally a section of channel was incised due to past urban development.

In 2014, restoration actions included the strategic placement of large wood along 2 miles of head water tributary channels. Large wood was placed to restore fish habitat and encourage sediment storage and sorting. In 2015, 750 feet of new channel was constructed to replace a section of incised channel in the main stem of Angora Creek, and additional strategic placement of large wood was installed for 1000 feet above the newly constructed channel. A total of 208 individual multi-log structures were installed, over the two years. Also in 2015, the legacy Seneca Pond was decommissioned through regrading to restore historic flow paths and topography, converting this 5 acre site to wet meadow habitat.

Restoration was designed to achieve the following two objectives:

1) Restore historic stream flow patterns and geomorphology.

2) Restore in-channel large wood to provide cover for aquatic organisms, structural components for channel stability, and promote sediment storage and sorting.

South Fork of Angora Creek, prior to installation of large wood

Same location on South Fork of Angora Creek, after placement of large wood

Incised Angora Creek channel above Lake Tahoe Boulevard, prior to restoration, 2013

Flooding of meadow adjacent to Angora Creek February, 2016

New channel construction, 2015

Reconstructed Angora Creek Channel, May 2016

POST PROJECT RESPONSE – ANGORA CREEK

Several moderate floods occurred during the winter of 2015-16. A storm in February resulted in flows spreading over the entire meadow near Lake Tahoe Boulevard, resulting in some flooding of the roadway. However beaver dams just upstream of the restored reach are thought to be the main cause of enhanced lateral spread of flood flows. The Forest Service will continue to monitor this situation, and work with El Dorado County to determine if any modification of the placed wood structures is needed to reduce future potential for roadway flooding. As of May 2016, the creek site is stable and functioning as expected.

POST PROJECT RESPONSE – SENECA POND

2015-16 winter snowpack and precipitation were slightly above average in the Angora Watershed. Runoff from side slope springs on the uphill edge of the old pond resulted in shallow ponding with outflow into the South Fork of Angora Creek. Revegetation with grass plugs and additional willow staking was completed in June 2016. In summer the pond dried up but there appears to be enough sub surface flow to support the planted grasses, as well as the emergence of wetland grasses along constructed flow paths in the old pond. Inspection in late summer indicates a willow stake survival rate of 50 to 70 percent. The constructed surfaces are stable and will become more so as vegetation continues to colonize constructed surfaces in the future

Pond removal and regrading – September 2015

Ponding from side-hill spring inflow– May 2016

Emerging shrub and grass vegetation – September 2016