

Table1: Summary of Angora Fire Monitoring for USFS Management Needs

Proponent	Project Name	Description of Research Monitoring Activity	Duration/Comments
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Water Quality

What impact will the Angora Fire have on water quality trends (sediment and nutrients concentrations) within Angora Creek? and how will this be attenuated between the Lake Tahoe Blvd Crossing and Lake Tahoe ? (USFS, and partners)

EDOT/USFS/Others	Angora Creek WQ Sampling	Nutrient and sediment sampling on Angora creek. USFS to contribute funding to cover cost of site just above Lake Tahoe Blvd. Two other sites to be funded by others (below EDOT Angora stream restoration project and just above confluence with Upper Truckee River). Sampling conducted through flow weighted Automatic samplers, sediment, turbidity and nutrients in 2003, just sediment and turbidity in 2004 through 2006. Sampling reinitiated after the fire.	One of 3 sites on Angora Creek, multi-agency funded. Intend to seek funding for 5 years post fire monitoring. Begin in spring of 2008, estimated cost \$50K/year for USFS.
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Aquatic Communities

What was the impact of the Angora Fire on aquatic communities and what is the rate of recovery of these communities over time? (USFS)

USFS/Vacirca	Angora Creek Fish Surveys	Two objectives: 1) Electrofish Angora Creek (mouth to headwaters) as a continued effort of the native non-game fish monitoring project and 2) Establish population baseline (post-fire) and monitor fish recovery.	2007 and 2008. Post project to TBD.
USFS/Vacirca	Angora Creek Temperature Monitoring	Establish 2 stream temperature monitoring sites in Angora Creek to correlate fire effects on stream temperature.	2007 and 2008. Post project TBD.
USFS/Vacirca	Angora Creek Aquatic Bio Assessment	Take macroinvertebrate samples to establish community effects from the fire and correlate to samples previously taken in Angora Creek.	2007 and 2008. Post project TBD.

Fuels/Fire

USFS/NIFC/Sexton:Murphy	Angora Fuels Reduction Treatment Effectiveness	Quick assessment of effects of fuel reduction treatments, and other factors on fire behavior. National Interagency Fire Council, funded through Regional/National Program.	Jul-07
USFS/RO/Safford	Angora Fuels Reduction Treatment Effectiveness	Assessment of effects of fuel reduction treatments on fire behavior and tree mortality. Statistically repeatable transects established for 1, 3, and 5 yr post fire monitoring.	July-October 2007

Geomorphology/Erosion

What will be the impacts of the Angora Fire on erosion processes within the burn Area (stream channel erosion, surface erosion, rills, gullies, debris flows, and will additional slope/channel stabilization measures be required post BAER? (USFS)

USFS/Norman	Upslope Erosion/Debris Flow Monitoring	Use of aerial photos in combination with field plots to monitor erosion within the burn area (surface erosion, rill, gullies, debris flows) to determine whether additional treatments post BAER will be required. FS remote sensing.	Begin in August of 2007, and repeat annually or every two years for 5 years. Coordinate with cooperators to expand area to be monitored.
USFS/Vacirca, TRPA/Scoles	Angora Creek Channel Condition Monitoring (above Lake Tahoe Blvd)	Establish representative reaches to assess channel condition, sediment storage and erosion, and recovery through a variety of physical survey measurement techniques.	Begin in September/October of 2007, and repeat annually or every two years for 5 years. Coordinate with cooperators to expand area to be monitored.

Soils

What is the rate of recovery related to soil quality/productivity within the Angora Burn, and will soil restoration treatments be required to promote establishment of successional revegetation?(USFS)

USFS/Norman,SLT High School/Greenough	Angora Fire Soil Quality Monitoring	Monitoring of soil quality parameters affected by fire and fire restoration (cover, hydrophobicity, soil nutrients). Begin soil cover, hydrophobicity measurements this fall, initiate soil nutrient sampling as needed depending on results of successional revegetation monitoring 1st or 2nd year after fire.	August 2007, and repeat annually for 5 years. Coordinate with cooperators.
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Wildlife

How should PACS be redelineated within the Angora Burn Area and will redelineated PACS be reoccupied? How has the fire affected willow flycatcher habitat?(USFS)

USFS/Sanchez:Lyons	Northern Goshawk PAC evaluation	Evaluate habitat conditions within existing PAC, and identify opportunities for re-mapping PAC's in proximity to the affected area.	2007 and 2008, post project TBD
USFS/Sanchez:Lyons	Spotted Owl PAC evaluation	Evaluate habitat conditions within existing PAC, and identify opportunities for re-mapping PAC's in proximity to the affected area.	2007 and 2008, post project TBD
USFS/Sanchez:Lyons	Willow Flycatcher	Evaluate habitat conditions and detect willow flycatcher occupancy.	2008, post project TBD

Vegetation/Forest Health

What is the impacts of the Angora fire to understory and overstory vegetation (including unique communities), what is rate of short and long term recovery in both treated and restored areas? (USFS)

USFS/Gross	Effects of Angora Fire/Suppression on Existing Fen	Assess impacts of fire suppression activity to moss species (meesia) within identified Fen along the Angora Creek Restoration reach.	2007, then every 2 years thereafter.
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USFS/RO/Safford	Long Term Vegetation Monitoring	Five part strategy to monitoring vegetation succession and fuels accumulation, forest regeneration, aspen regeneration, hydromulch effects monitoring, and tree mortality transects. This study and the two studies described below would be combined starting in 2008.	Begin in 2008 for five years. 65K approved for first year.
USFS/Fournier	Post-Angora Fire Common Stand Exam Quick Plot Survey (in collaboration w/ UC Berkeley - Harris, UNR - Kocher study)	Estimates of tree mortality, potential salvageable volumes of timber or biomass, and subsequent reforestation/revegetation possibilities are key questions related to long-term recovery within the burn area for the Lake Tahoe Basin Management Unit. CSE plot information will serve an interdisciplinary team in project design as well as establishing a baseline and a set of monumented plots for monitoring.	2007
UC Berkeley/Harris	Model Effects of Angora Fire treatments on Stand Structure (in collaboration w/USFS-Fournier "Common Stand Exam" study)	Run FVS, Forest Vegetation Simulator to identify how future forests will look after different post burn treatments	2007

BAER (Angora Phase I and II Restoration) Implementation Monitoring

Were BAER treatments implemented according to contract specifications and effective in meeting design criteria?

USFS/Garrett and Street	Implementation Monitoring of BAER restoration	Determine whether BAER treatments implemented in the urban interface (hand mulching) and in high intensity burn area (hydromulching) met contract specifications and were they effective in meeting design criteria?	Fall 2007, and Spring of 2008
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Angora Restoration Phase III Implementation Monitoring

Were Design Features prescribed for the Angora Phase III Project implemented according to contract specifications and effective in meeting design criteria?

USFS	Soil and Water Quality Protection Design Features Implementation Monitoring	Determine whether design features/BMPS prescribed to prevent damage to soils and water quality were implemented and effective. Utilize BMPEP and TBMP monitoring for this evaluation. May also include post project Road Condition assessments.	Year 1 and 2 after project implementation. Pre project road condition assessment conducted in 2008.
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More TBD by Angora Restoration Phase III ID Team