

2008 Addendum to
2007 Angora Wildfire Hydrophobicity Field Monitoring Report
Lake Tahoe Basin Management Unit
August 2008

Authored by Tim Tolley, Hydrologist, and Sue Norman, Hydrologist

Introduction

This addendum presents the second year of data collection for hydrophobicity in the Angora Burn area. In the first year (2007), six transects were measured for hydrophobicity in the Angora Burn, to characterize impacts throughout various slopes within the burn area (see Figure 1). Of these six transects, three were characterized as hydrophobic and three were not hydrophobic, as described below.

Hydrophobic

- Angora Ridge Upper: high intensity burn – SE aspect – upper slope
- Angora Ridge Lower: high intensity burn – SE aspect – lower slope
- Boulder Mtn. Lower: moderate intensity burn – SE aspect – lower slope

Not hydrophobic

- Tahoe Mtn. Upper: moderate intensity burn – NE aspect – upper slope
- Tahoe Mtn. Lower: high intensity burn – NE aspect – lower slope
- High School Site: high intensity burn - NE aspect- lower slope

As was noted in the original report, the variable that seemed to affect level of hydrophobicity the most was aspect, with the hydrophobic slopes all characterized by a southeast facing aspect. The 2007 data report can be obtained from the following webpage, <http://www.fs.fed.us/r5/ltbmu/publications/>.

Only the three sites that were hydrophobic in 2007 were measured again in July 2008. These sites were 1) Angora Ridge – Upper, 2) Angora Ridge – Lower, and 3) Boulder Mountain. A comparison of the 2007 and 2008 summary results are displayed in Table 1.

The results of the 2008 hydrophobic monitoring indicate that these three sites show no signs of recovery yet in terms of hydrophobicity. The data actually show an increase in hydrophobicity compared to 2007, for two of the three sites (Table 1). However this change reflects the inherent variability in data collection for this parameter, rather than a physical change in soil conditions between 2007 and 2008. Soil conditions in both years in terms of soil moisture were also very similar. Visual observations note pronounced regrowth of shrubs in areas that were characterized by Manzanita before the fire. However there is still very little ground cover, in terms of either vegetation or litter, over most of the soils within these south east facing slopes. Much of the SE aspect slopes in the Angora burn remain vulnerable to high intensity rain storms based on soil water repellency and lack of adequate ground cover.

ANGORA FIRE SOIL HYDROPHOBICITY AND SOIL BURN SEVERITY

AUGUST 2007

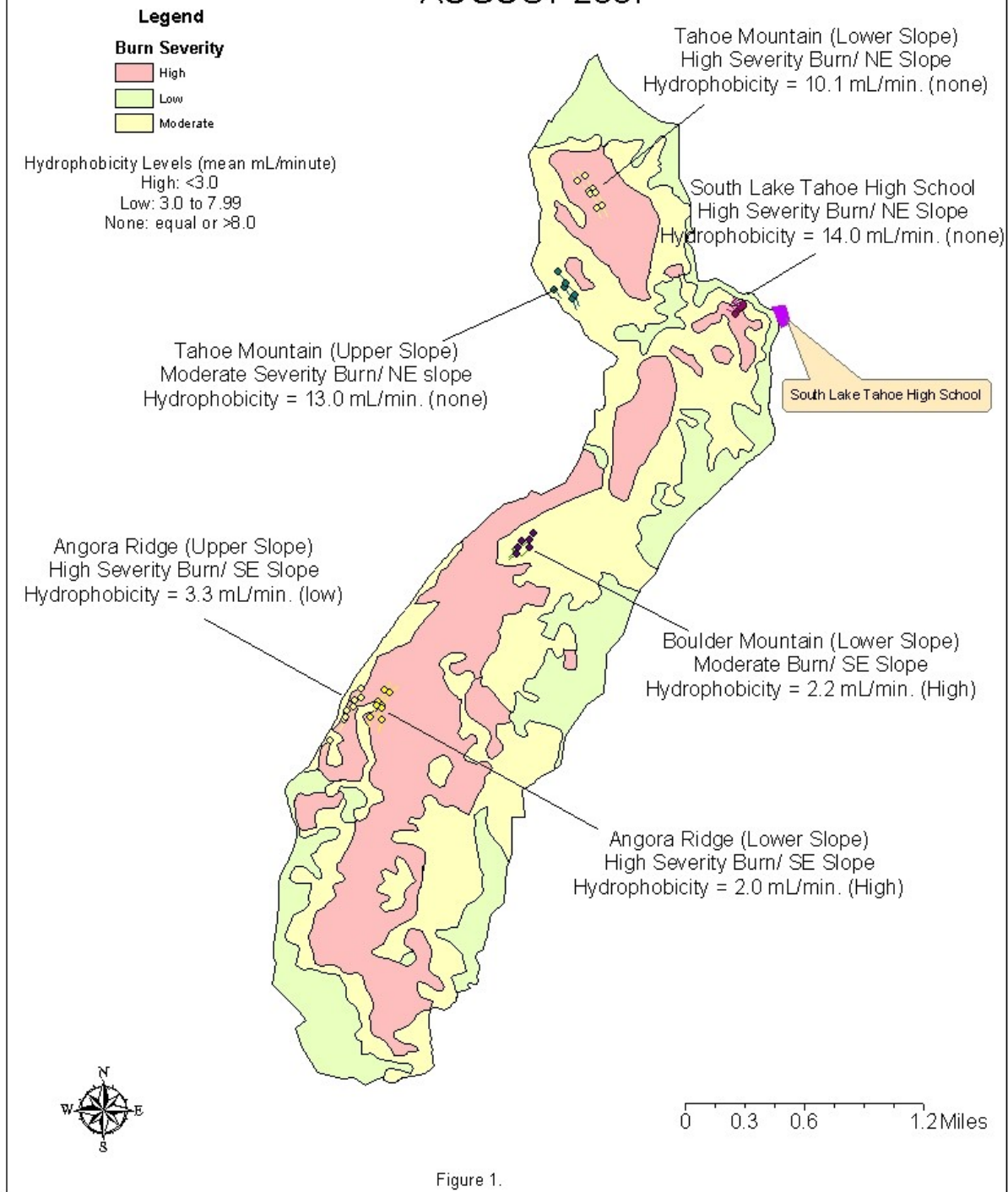


Figure 1 (modified from Weaver, Biddinger and Rust, 2007)

Table 1: Angora Fire Hydrophobicity Results Summary

Site Name	Year	Percentage of samples with:			Class Mean (ml/min) ¹	Hydrophobicity Rating
		High Water Repellency (%)	Low Water Repellency (%)	No Water Repellency (%)		
Angora Ridge - upper	2007	80	9	11	3.3	Low
	2008	95	2.5	2.5	1.1	High
Angora Ridge - lower	2007	85	9	6	2	High
	2008	85	6	9	2.3	High
Boulder Mountain	2007	80	12	8	2.2	High
	2008	96.7	1.7	1.7	0.8	High

¹ Class Mean Rating: No hydrophobicity (≥ 8 ml/min)
 Low hydrophobicity (3 to < 8 ml/min)
 High hydrophobicity (< 3 ml/min)