



DEBRIS FLOW HAZARD TECHNICAL MEMORANDUM

Prepared for: Blue River Watershed Group and Colorado Water Conservation Board

Prepared by: JW Associates, Inc.

Date: August 2025

Re: Wildfire Ready Action Plan for Blue River

ABSTRACT

Post-fire debris flow hazards were estimated for the Blue River Wildfire Ready Action Plan. The United States Geological Survey (USGS) created a method for estimating the post-fire debris flow hazards for watersheds before wildfire occurs (Staley et. al., 2018). This is a prediction technique that combines modeled predictions of burn severity from wildfire modeling with other debris-flow indicators including slope and soil erodibility in order to predict the post-fire debris flow hazards in response to a triggering rainfall event.

The analysis was conducted for all 7th Level watersheds across the project area.

METHODS

The following discussion describes the variables used in the debris flow estimation model.

Rainfall events

The model was run for a triggering rainfall event intensity of a 2 and 5-year storm across the watershed analysis area.

Soil Burn Severity and Slope

IFTDSS crown fire activity modeling output was used as a surrogate for assigning predicted burn severity as follows:

Non-burnable - Unburned
Surface Fire - Low Burn Severity
Passive Crown Fire - Moderate Burn Severity
Active Crown Fire - High Burn Severity

Slope is calculated in degrees from a 10-meter digital elevation model (DEM).

The proportion of watershed area burned at high or moderate burn severity with gradient in excess of 23 degrees is used in the model equation.

difference Normalized Burn Ratio (dNBR)

The USGS completes an Emergency Assessment of Post-Fire Debris-Flow Hazards following western US wildfires. This assessment uses the difference Normalized Burn Ratio (dNBR) image from remote sensing and field validated soil burn severity. In lieu of this data for pre-fire estimation of post-fire debris flow hazard, the USGS defined a range of potential fire severities for a given area based on the historical statistical distribution of burn severity metrics in each vegetation class. Therefore, using the LANDFIRE vegetation type, dNBR values were estimated across the area of interest, which is used in the debris-flow hazard model.

Actual burn severity depends on a number of variables in addition to vegetation type, including soil moisture deficit, fuels, wind direction, etc. In order to narrow the range of possible dNBR values calculated, a simple scaling variable (Pdsim, between 0-1) is used to control the severity of the fire simulated (Staley et al., 2018). In our modeling, we use a value of Pdsim = 0.75. The severity of a wildfire can be quite variable depending on conditions, but the intensity and severity of wildfires across the western United States have been increasing since the mid-1980's (Westerling, 2016). A value of 75% on the intensity spectrum produces dNBR values that predict a fire on the more severe end of the spectrum, while maintaining a burn character across the entire area that is similar to what Colorado has experienced in recent years. After simulating dNBR values for the 2020 fires in Colorado, and comparing the values to the actual post-fire remote sensing images, this value for Pdsim produced a dNBR image in line with those large fires.

Soil Erodibility

The soil erodibility factor used in the model is the inherent susceptibility of soil to erosion for just the fine fraction of soils (KF-factor), from the the USDA - Natural Resources Conservation Service (NRCS) SSURGO database. SSURGO data is the highest resolution soils data available across the entire study area (generally ranges in scale from 1:12,000 to 1:63,360). The watershed mean KF-factor was calculated as an input into the model.

15-min rainfall intensity in mm/hr

The National Oceanic and Atmospheric Administration (NOAA) produces point precipitation frequency estimates across the country. These estimates are then used to produce a spatially interpolated GIS grid for precipitation frequency estimates using the Parameter-elevation Regressions on Independent Slopes Model (PRISM) at a 30 arc-seconds resolution (NOAA Atlas, OHD-HDSC- NOAA). These estimates are determined for both a duration (5-min to 60 day) and storm return interval (1 year to 1,000 years). A design storm is needed as input for the USGS post-fire debris flow model. The 15-min storm duration at a 2-year or 5-year return interval, partial duration series, is used for the design storm. In a post-fire situation, a storm with a return interval greater than 2-years will cause most watersheds to produce a debris flow in the model; therefore, in order to attain distinctions between watersheds for the watershed

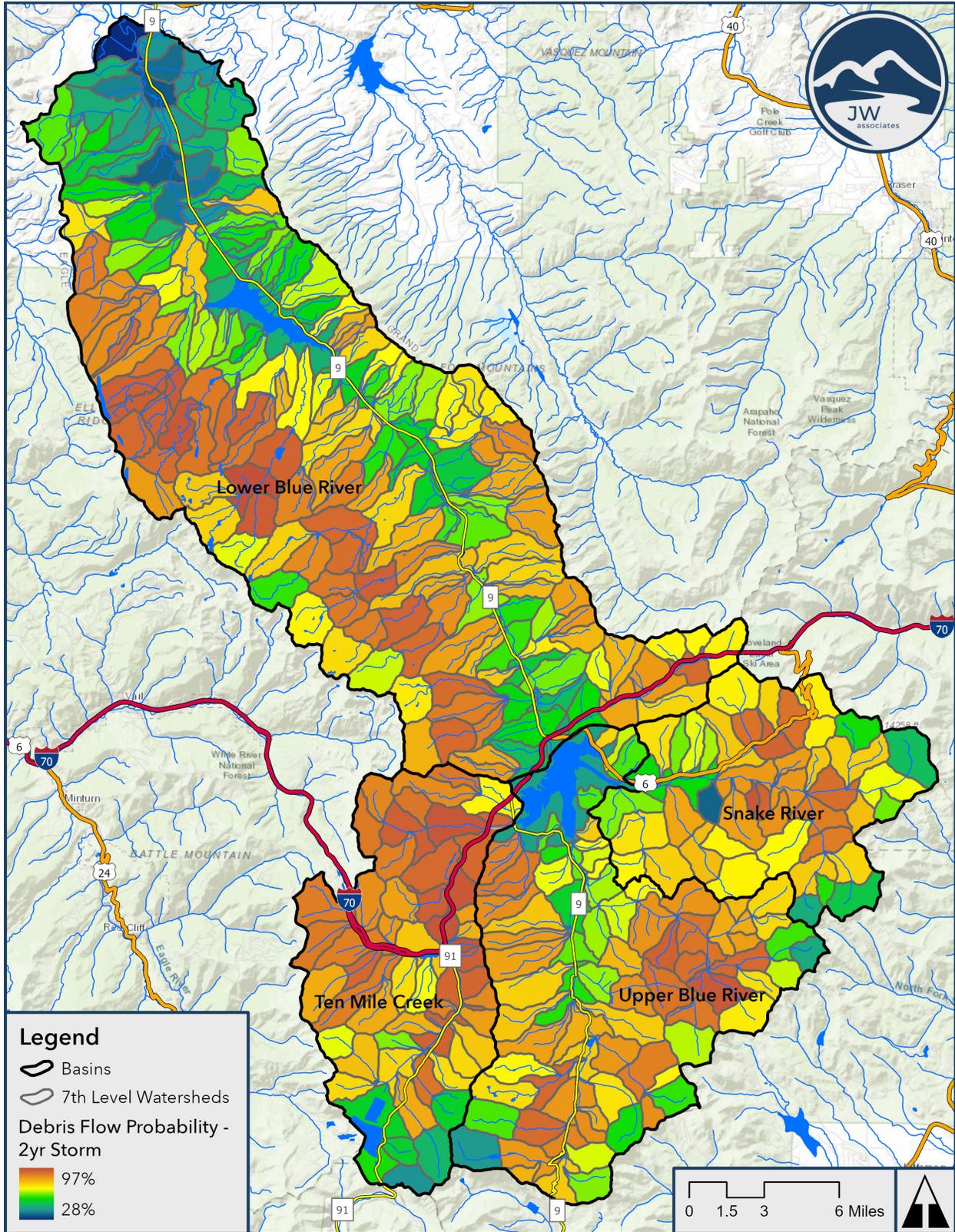
ranking method, the 2-year storm was used for the 7th level watershed hazard analysis. Even though it may not seem like a very large event, this storm has a 50% chance of happening every year and in a post-fire situation is likely to produce debris flows. The results for both storm events are displayed below. The mean of all pixels in the watershed for the partial duration series 15-min duration, 2-year or 5-year return interval storm was calculated from the NOAA precipitation frequency grid data. The mean storm amount in mm/hr was used as the design storm input in the USGS post-fire debris flow model.

Important Note: For this modeling effort, the assumption is that the storm will fall at this peak 15-min intensity across the entire watershed, and that the entire watershed has burned in the modeled fire. Colorado summer thunderstorms tend to be high intensity events that can be very isolated to even just one small drainage, <1 km². It is likely that the post-fire debris flow likelihood and volume estimates are higher than what would occur after a wildfire. However, some post-fire debris flows in Colorado have been catastrophic so, it is best to plan for the worst-case scenario.

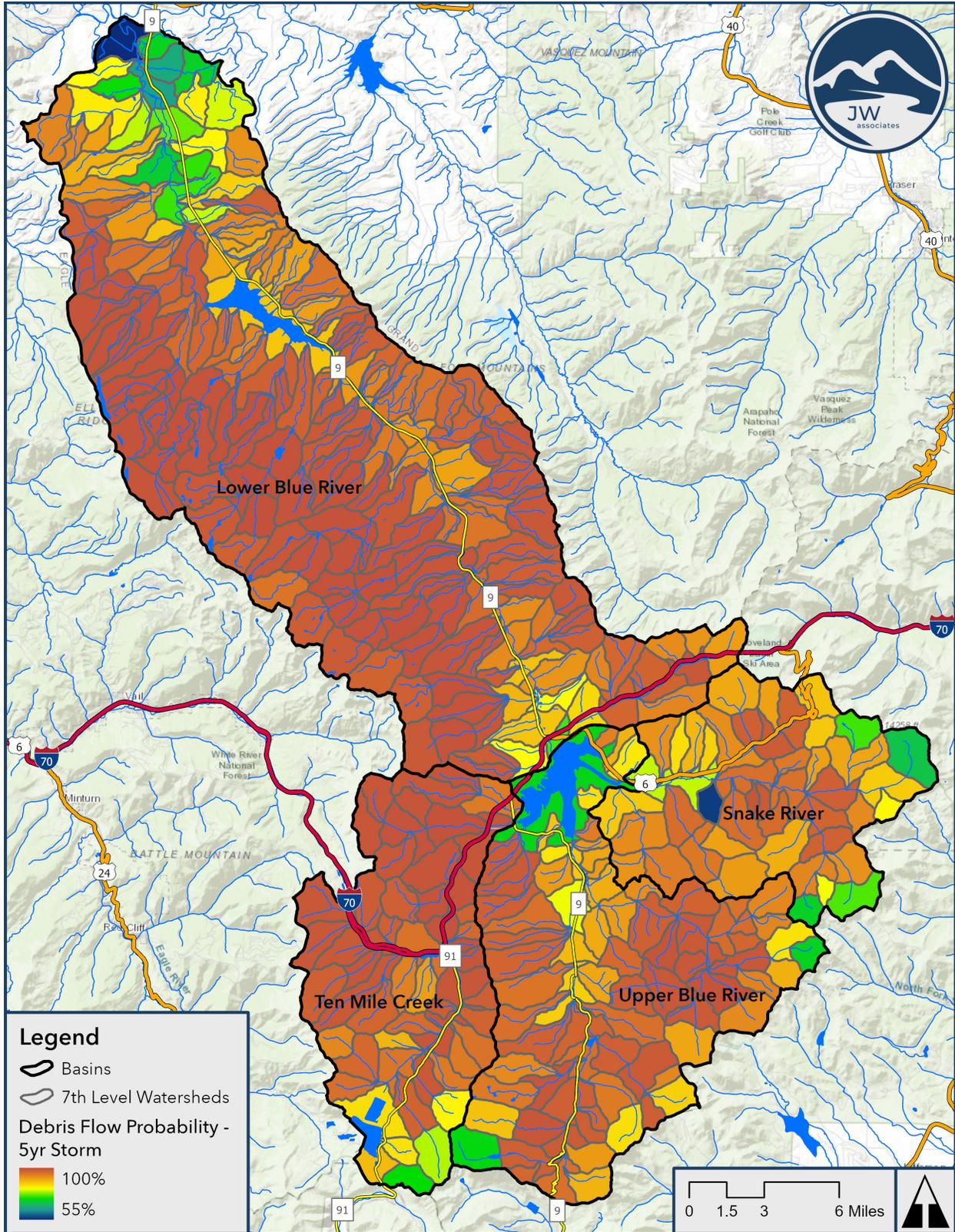
RESULTS

The outputs of the debris flow model are Debris Flow Likelihood (%), H_L (Staley et al., 2016), Total Estimated Debris Flow Volume (H_v , in m^3 , Gartner et al., 2014), and Estimated Rainfall Intensity-Duration Threshold Triggering 50% Debris Flow Likelihood (H_{T15} , $mm\ hr^{-1}$, Staley et al., 2017). The Debris Flow Volume Estimate also includes a Minimum ($H_{v,min}$, in m^3) and Maximum ($H_{v,max}$, in m^3) volume estimate.

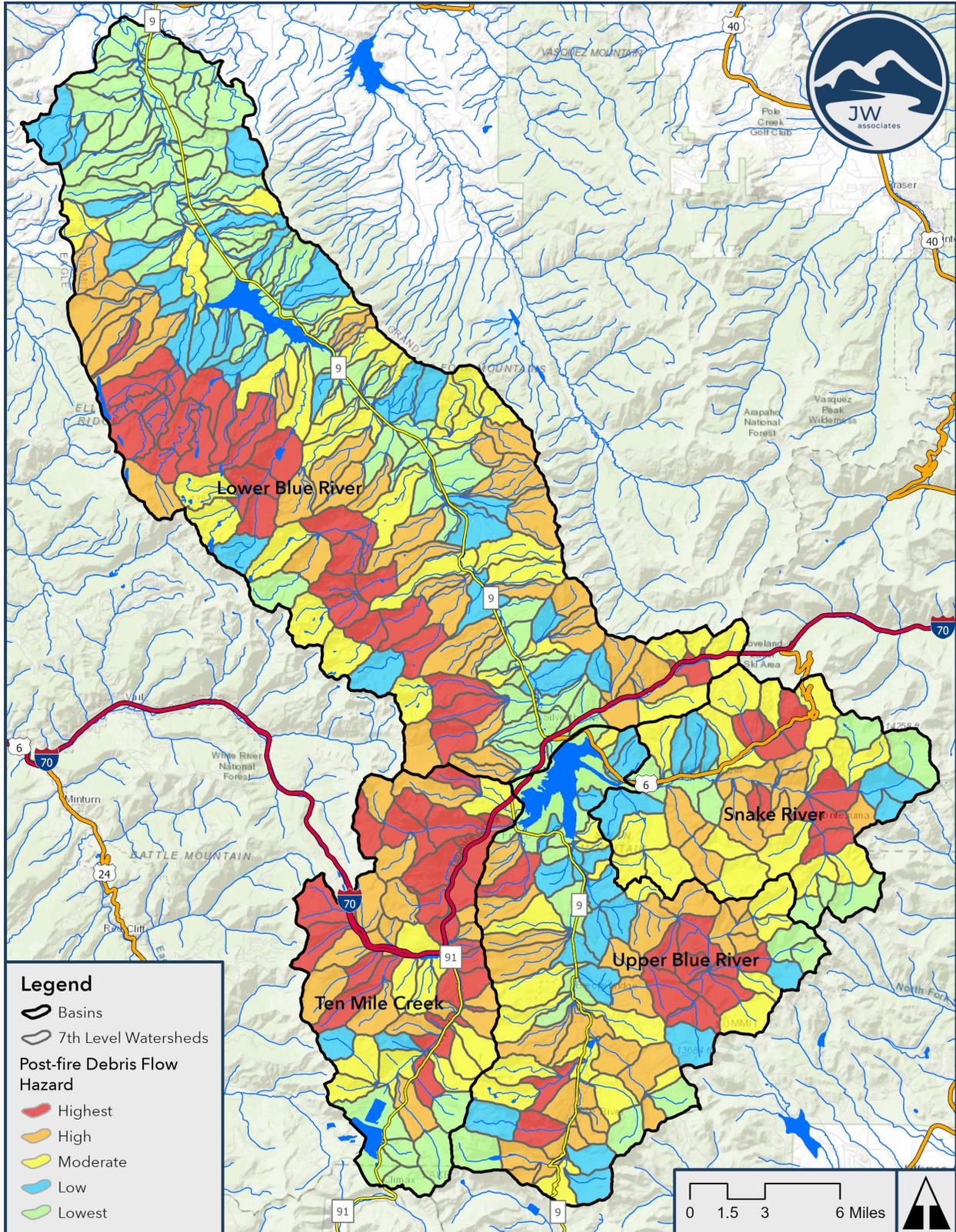
Maps 1 & 2 illustrate the results of the post-fire debris flow modeling for the 7th Level watersheds; the probability of debris flow, or debris flow likelihood (H_L), triggered by the selected storm event is colored on a continuous scale by percent probability. Appendix A lists the results for the debris flow modeling of all analyzed watersheds. The 7th Level watersheds were also ranked categorically on a relative scale from Lowest to Highest Hazard for Post-Fire Debris Flow Likelihood across the entire Blue River project area, using the 2-year return interval design storm results. The watershed ranks are shown in Map 3 and presented in Appendix A. The complete debris flow hazard analysis used by JW Associates combines the Post-fire Debris Flow Hazard Rank (Map 3) with the Ruggedness Rank (Map 4) to give a Combined Debris Flow Hazard Rank (Map 5), explained in the Watershed Hazard Assessment document, pages 14-17. The Highest ranks for Combined Debris Flow Hazard for all 7th Level watersheds are shown in Table 1. Maps 6-9 illustrate the 7th Level watersheds by basin, referenced in Table 1.



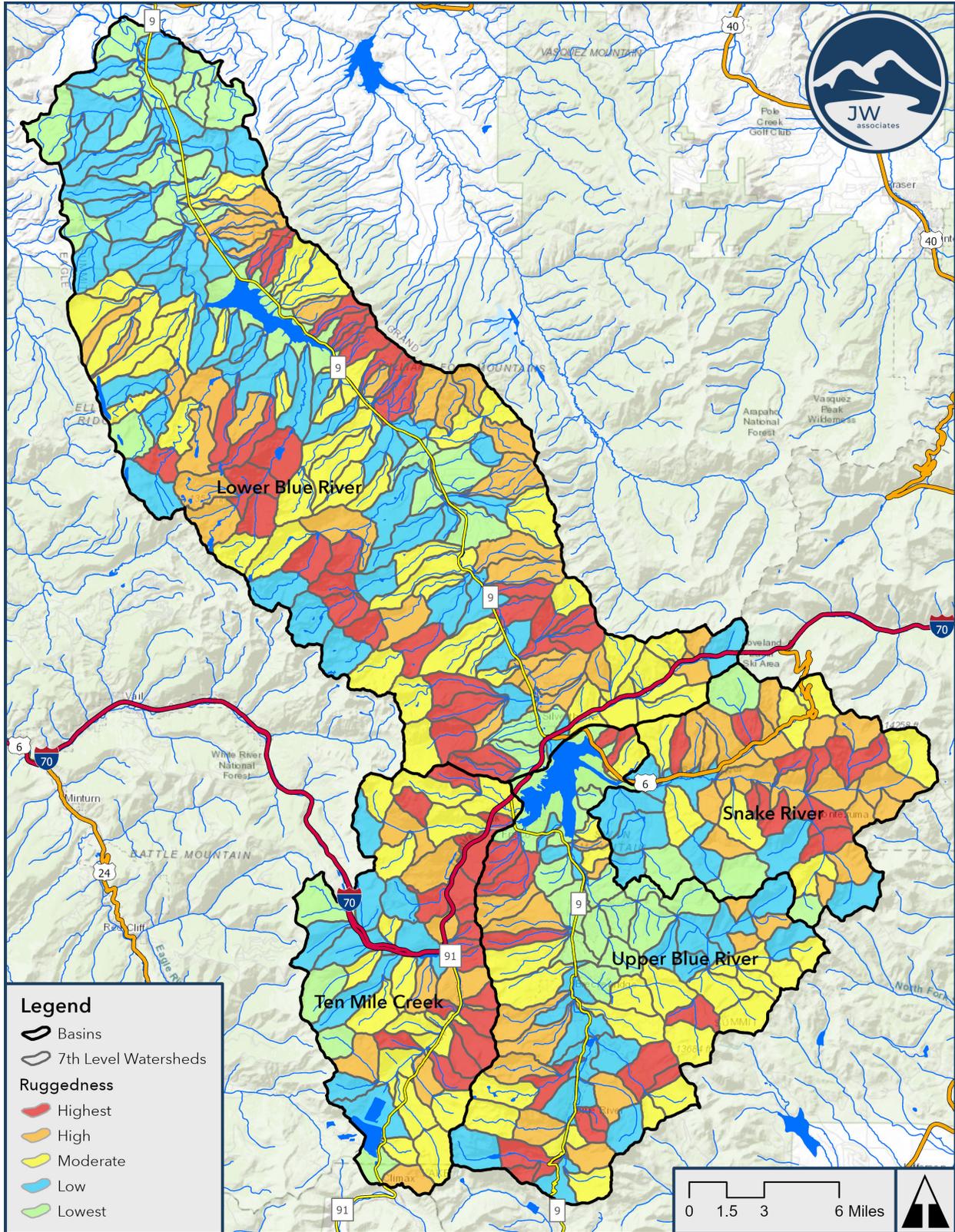
Map 1. Debris Flow Results for 2yr Storm Event in Blue River 7th Level Watersheds



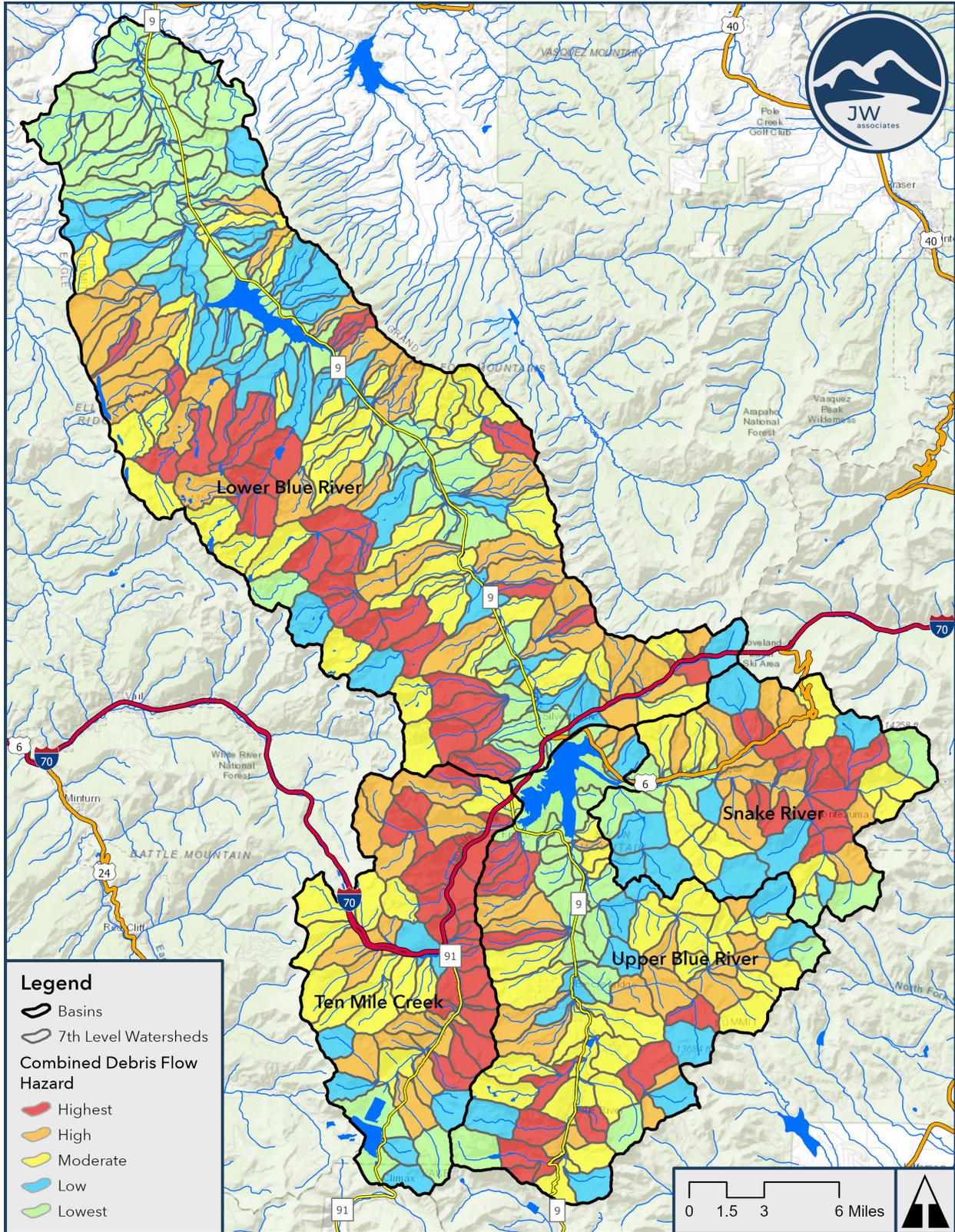
Map 2. Debris Flow Results for 5yr Storm Event in Blue River 7th Level Watersheds



Map 3. Post-fire Debris Flow Ranks from the Watershed Wildfire Hazard Analysis in Blue River 7th Level Watersheds



Map 4. Ruggedness Ranks from the Watershed Wildfire Hazard Analysis in Blue River 7th Level Watersheds

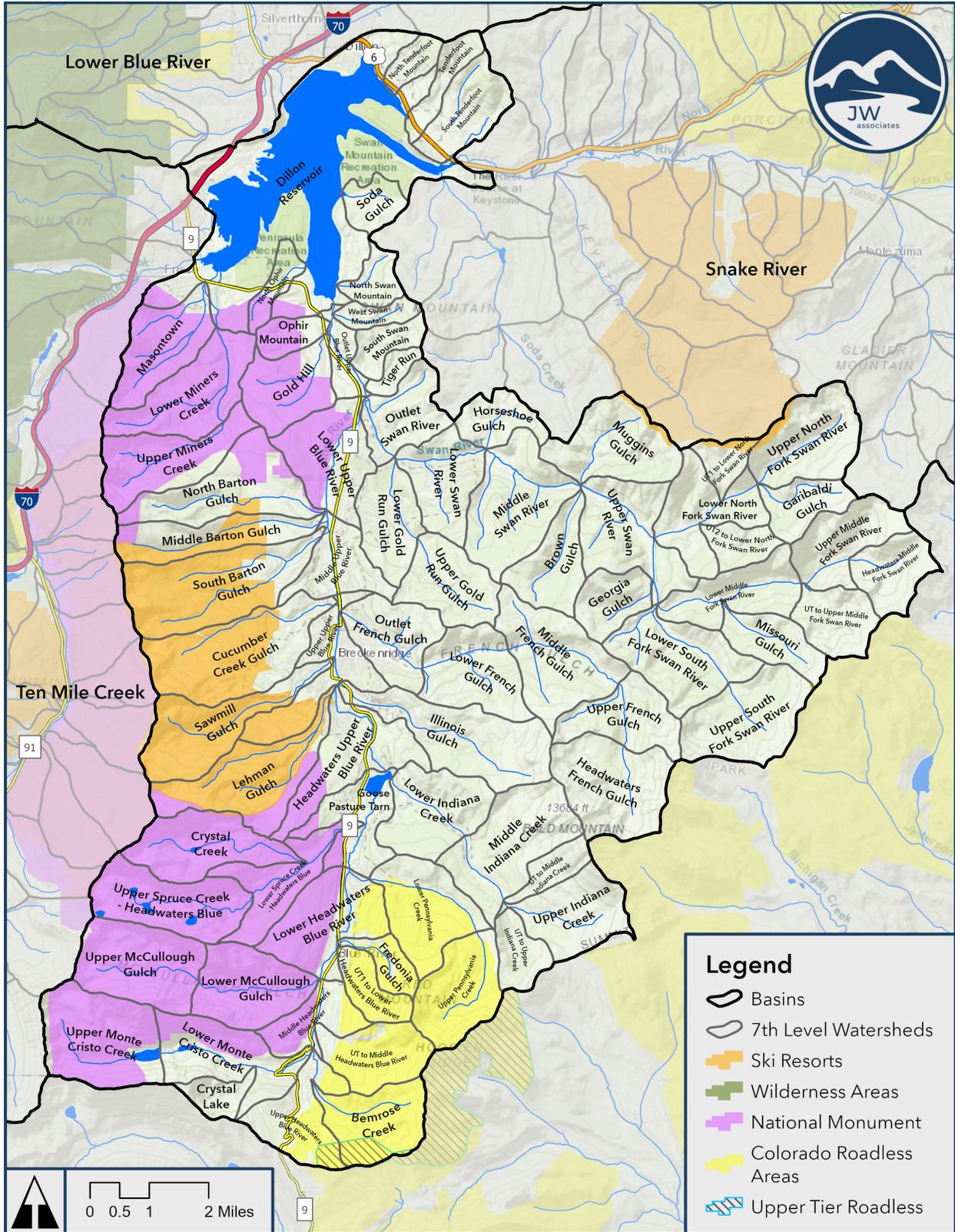


Map 5. Combined Debris Flow Hazard Ranks from the Watershed Wildfire Hazard Analysis in Blue River 7th Level Watersheds

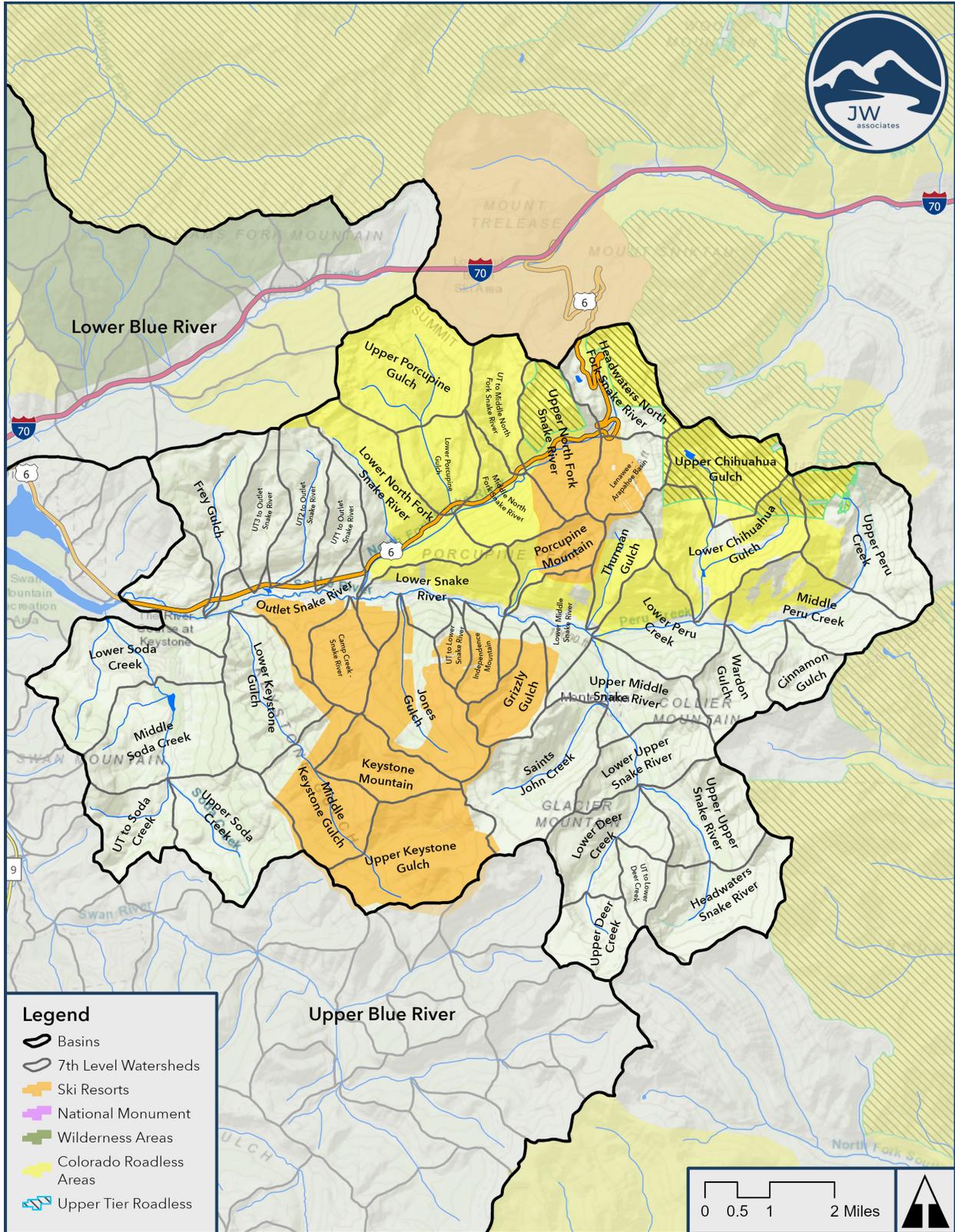
Table 1. Highest Ranked 7th Level Watersheds for Combined Debris Flow Hazard

6 th Level Watershed Name	7 th Level Watershed Name	Post-fire Debris Flow	Ruggedness	Combined Debris Flow Hazard
Upper Blue River	Crystal Lake	High	Highest	Highest
	Lower Monte Cristo Creek	High	Highest	Highest
	Lower McCullough Gulch	Highest	High	Highest
	UT1 to Lower Headwaters Blue River	High	Highest	Highest
	Fredonia Gulch	High	Highest	Highest
	Lower Spruce Creek - Headwaters Blue	Highest	Highest	Highest
	Middle Indiana Creek	High	Highest	Highest
	Upper French Gulch	Highest	Highest	Highest
	Middle Barton Gulch	High	Highest	Highest
	Lower Miners Creek	Highest	Highest	Highest
	Masontown	High	Highest	Highest
	Snake River	Middle North Fork Snake River	Highest	High
Lower Porcupine Gulch		Highest	Highest	Highest
Lower Upper Snake River		Highest	Highest	Highest
Upper Middle Snake River		Highest	Highest	Highest
Lower Chihuahua Gulch		Moderate	Highest	Highest
Lower Peru Creek		Highest	High	Highest
Thurman Gulch		Moderate	Highest	Highest
Grizzly Gulch		High	Highest	Highest
Porcupine Mountain		High	Highest	Highest
Independence Mountain		Highest	Highest	Highest
UT to Lower Snake River		Highest	Highest	Highest
Ten Mile Creek		Humbug Creek	Moderate	Highest
	West Crystal Peak	Moderate	Highest	Highest
	North Crystal Peak	Moderate	Highest	Highest
	Spaulding Gulch	High	Highest	Highest
	Lower Upper Middle Tenmile Creek	High	Highest	Highest
	UT to Middle Middle Tenmile Creek	High	Highest	Highest
	Middle Middle Tenmile Creek	Highest	High	Highest
	Upper Lower Middle Tenmile Creek	Highest	Highest	Highest
	Lower Lower Middle Tenmile Creek	Highest	Highest	Highest
	Outlet Middle Tenmile Creek	High	Highest	Highest
	Curtain Ponds	Highest	High	Highest
	UT to Upper Lower Tenmile Creek	High	Highest	Highest
	Lower Officers Gulch	Highest	Highest	Highest
	Upper Lower Tenmile Creek	Highest	Highest	Highest
	Uneva Lake	Highest	High	Highest
	Middle North Tenmile Creek	Highest	High	Highest

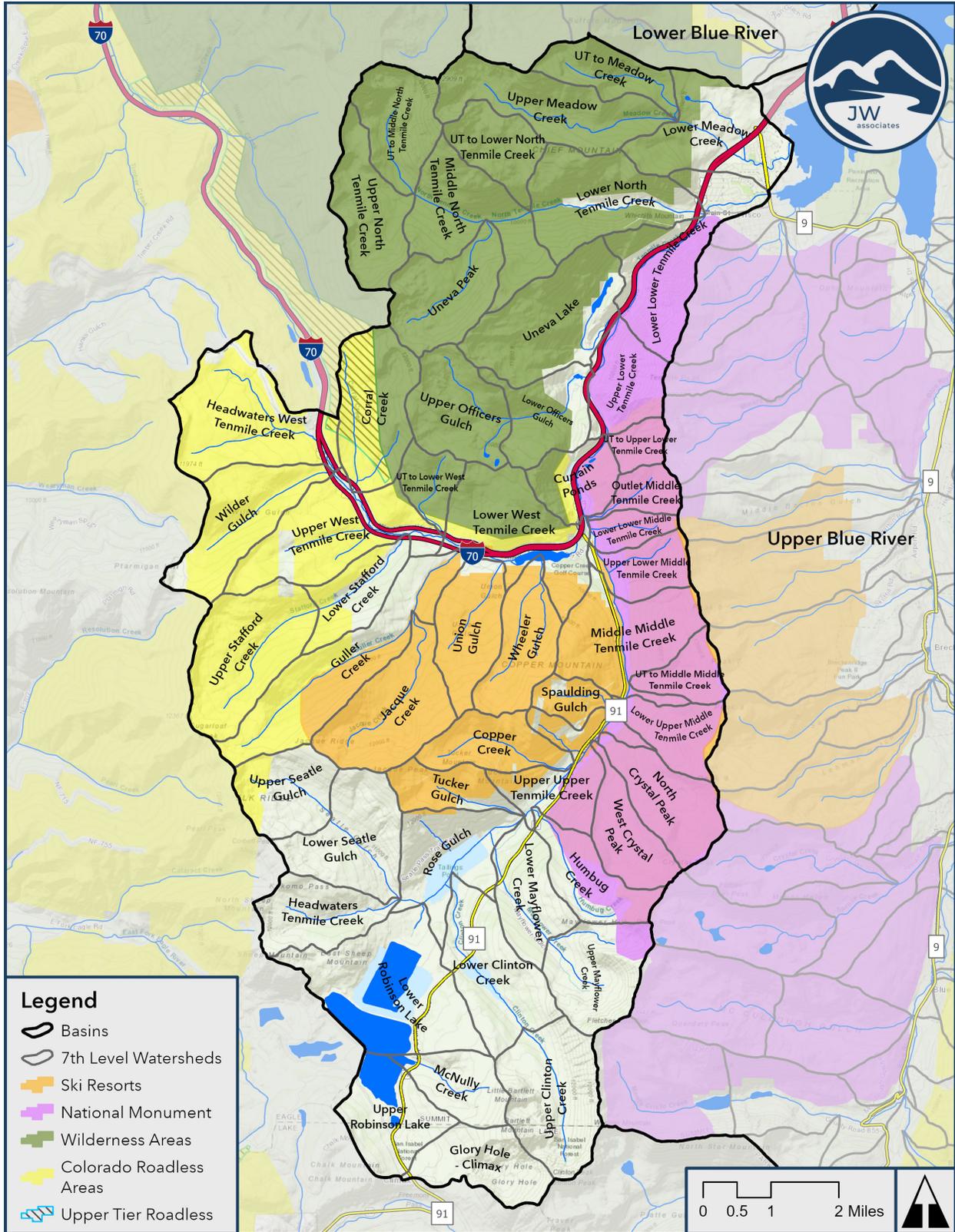
6 th Level Watershed Name	7 th Level Watershed Name	Post-fire Debris Flow	Ruggedness	Combined Debris Flow Hazard
Ten Mile Creek	UT to Lower North Tenmile Creek	Highest	Highest	Highest
	Lower Lower Tenmile Creek	Highest	Highest	Highest
	UT to Meadow Creek	Highest	Highest	Highest
Lower Blue River	Upper Straight Creek	Highest	High	Highest
	Upper Salt Lick Gulch	High	Highest	Highest
	Ryan Gulch	High	Highest	Highest
	Lower North Willow Creek	Highest	Highest	Highest
	Middle Willow Creek	Highest	Highest	Highest
	Middle South Willow Creek	Highest	Highest	Highest
	Lower South Willow Creek	High	High	Highest
	UT1 to Bushee Creek	High	Highest	Highest
	UT2 to Middle Blue River - Rock Creek	High	Highest	Highest
	Middle South Rock Creek	Highest	Highest	Highest
	Upper North Rock Creek	Highest	Highest	Highest
	Middle North Rock Creek	Highest	High	Highest
	UT to Boulder Creek	Highest	Highest	Highest
	Upper Boulder Creek	Highest	Highest	Highest
	Slate Lake	High	Highest	Highest
	UT to Slate Creek	Highest	Highest	Highest
	Middle Slate Creek	Highest	High	Highest
	Berry Gulch	High	High	Highest
	McDonald Gulch	High	Highest	Highest
	Miller Gulch - Green Mountain	High	Highest	Highest
	Lower South Rim Black Creek	Highest	Highest	Highest
	Upper Black Creek	Highest	Highest	Highest
	Middle Black Creek	Highest	Highest	Highest
	Upper Otter Creek	Highest	Highest	Highest
	Surprise Lake	Highest	High	Highest
	Upper Cataract Creek	Highest	Highest	Highest
	Tipperary Lake	Highest	High	Highest
	UT to Cataract Creek	Highest	Highest	Highest
	Middle Elliott Creek - Lower Blue	Highest	High	Highest
	UT1 to South Fork Deep Creek	Highest	High	Highest



Map 6. Upper Blue River Basin 7th Level Watersheds



Map 7. Snake River Basin 7th Level Watersheds



REFERENCES

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- Westerling, A. L., 2016: Increasing western US forest wildfire activity: sensitivity to changes in the timing of spring. *Phil. Trans. R. Soc. B*, 371, 20150178, <https://doi.org/10.1098/rstb.2015.0178>.

APPENDIX A - DEBRIS FLOW HAZARD RESULTS

Technical Memorandum - Debris Flow Hazard - JW Associates 2025

14 code HUC	7th Level Watershed Name	Watershed Area (acres)	Relief (m)	Proportion High/Mod Severity Burn >23*	Mean Annual Precipitation (in)	dNBR	Combined Debris Flow Hazard Rank	Rainfall Triggering 50% Debris Flow Likelihood (H ₁₅ , mm hr ⁻¹)	Storm	15 min Peak Intensity (mm)	Debris Flow Likelihood (H _d)	Debris Flow Volume Estimate (H _v , in m ³)	Debris Flow Volume Estimate (H _v , in acre-ft)	Debris Flow Volume Minimum (H _{vmin} , in m ³)	Debris Flow Volume Maximum (H _{vmax} , in m ³)
14010002010101	Bemrose Creek	1,238	779	3.4%	30	509	Low	29.69	2yr 5yr	10 13	63% 89%	8,753 10,809	9.08 9.29	1,094 1,350	70,066 86,519
14010002010102	Upper Headwaters Blue River	1145	606	3.3%	27	560	Moderate	26.99	2yr 5yr	10 13	77% 95%	7,402 9,130	8.91 9.12	925 1,141	59,246 73,080
14010002010103	Upper Monte Cristo Creek	1834	774	0.5%	31	385	Lowest	31.14	2yr 5yr	9 13	42% 72%	3,312 4,107	8.11 8.32	414 513	26,512 32,877
14010002010104	Crystal Lake	390	772	2.9%	28	523	Highest	28.20	2yr 5yr	10 13	80% 97%	5,287 6,555	8.57 8.79	661 819	42,323 52,471
14010002010105	Lower Monte Cristo Creek	1469	1069	4.1%	26	562	Highest	26.27	2yr 5yr	10 13	84% 98%	16,148 19,987	9.69 9.90	2,017 2,497	129,259 159,987
14010002010106	UT to Middle Headwaters Blue River	1067	895	7.7%	25	522	Moderate	24.72	2yr 5yr	10 13	67% 92%	11,506 14,211	9.35 9.56	1,437 1,775	92,096 113,749
14010002010107	Upper McCullough Gulch	1652	886	0.7%	30	490	Low	29.86	2yr 5yr	9 13	60% 87%	6,492 8,019	8.78 8.99	811 1,002	51,967 64,191
14010002010108	Lower McCullough Gulch	1401	870	7.4%	24	588	Highest	24.30	2yr 5yr	9 13	91% 99%	13,153 16,231	9.48 9.69	1,643 2,028	105,281 129,922
14010002010109	Middle Headwaters Blue River	780	536	14.0%	22	599	High	21.82	2yr 5yr	9 13	87% 98%	5,468 6,746	8.61 8.82	683 843	43,771 54,002
14010002010110	UT1 to Lower Headwaters Blue River	572	921	26.1%	24	622	Highest	23.86	2yr 5yr	9 13	85% 98%	11,695 14,429	9.37 9.58	1,461 1,803	93,611 115,500
14010002010111	Fredonia Gulch	425	862	16.1%	25	627	Highest	24.87	2yr 5yr	9 13	81% 97%	8,936 11,021	9.10 9.31	1,116 1,377	71,526 88,219
14010002010112	Lower Headwaters Blue River	1538	590	11.7%	24	614	Moderate	23.69	2yr 5yr	9 12	84% 98%	8,584 10,581	9.06 9.27	1,072 1,322	68,712 84,698
14010002010113	Upper Pennsylvania Creek	1326	699	1.4%	26	496	Lowest	26.48	2yr 5yr	9 13	56% 85%	6,199 7,643	8.73 8.94	774 955	49,618 61,180
14010002010114	Lower Pennsylvania Creek	1446	747	5.1%	26	650	Moderate	25.77	2yr 5yr	9 13	73% 94%	11,562 14,250	9.36 9.56	1,444 1,780	92,549 114,064
14010002010115	Upper Spruce Creek - Headwaters Blue	1511	913	3.3%	29	520	Moderate	28.79	2yr 5yr	9 13	74% 94%	9,702 11,946	9.18 9.39	1,212 1,492	77,660 95,619
14010002010116	Crystal Creek	1410	1027	1.5%	29	519	Moderate	28.75	2yr 5yr	9 12	70% 93%	12,048 14,805	9.40 9.60	1,505 1,850	96,437 118,508
14010002010117	Lower Spruce Creek - Headwaters Blue	1072	987	13.5%	25	643	Highest	25.09	2yr 5yr	9 12	91% 99%	19,415 23,911	9.87 10.08	2,425 2,987	155,405 191,395
14010002010118	UT to Upper Indiana Creek	570	506	20.4%	25	626	High	25.28	2yr 5yr	9 13	85% 98%	4,719 5,807	8.46 8.67	590 726	37,774 46,486
14010002010119	Upper Indiana Creek	1265	830	1.1%	27	516	Low	26.79	2yr 5yr	9 13	58% 86%	10,218 12,546	9.23 9.44	1,276 1,567	81,786 100,421
14010002010120	UT to Middle Indiana Creek	427	918	1.0%	28	511	High	27.58	2yr 5yr	9 13	71% 93%	6,757 8,298	8.82 9.02	844 1,037	54,087 66,420
14010002010121	Middle Indiana Creek	1854	1031	5.8%	27	639	Highest	26.87	2yr 5yr	9 13	87% 98%	22,003 27,048	10.00 10.21	2,749 3,379	176,122 216,502
14010002010122	Lower Indiana Creek	1405	505	6.3%	24	657	Moderate	24.48	2yr 5yr	9 12	84% 98%	5,916 7,285	8.69 8.89	739 910	47,357 58,314
14010002010123	Goose Pasture Tarn	806	403	12.0%	24	547	Moderate	23.56	2yr 5yr	9 12	76% 96%	3,773 4,653	8.24 8.45	471 581	30,200 37,242
14010002010201	Illinois Gulch	1950	1014	2.3%	25	581	Moderate	25.41	2yr 5yr	9 12	76% 95%	20,980 25,811	9.95 10.16	2,621 3,225	167,933 206,600
14010002010202	Lehman Gulch	1791	1220	6.1%	27	576	High	26.63	2yr 5yr	9 12	83% 97%	28,875 35,441	10.27 10.48	3,607 4,428	231,130 283,686
14010002010203	Headwaters Upper Blue River	1461	522	4.0%	23	583	Moderate	23.03	2yr 5yr	9 12	81% 97%	6,284 7,751	8.75 8.96	785 968	50,304 62,040
14010002010204	Sawmill Gulch	1544	1100	9.9%	28	499	High	28.11	2yr 5yr	9 12	77% 95%	19,391 23,692	9.87 10.07	2,422 2,960	155,211 189,646
14010002010205	Headwaters French Gulch	1728	875	4.1%	29	563	Low	28.60	2yr 5yr	9 13	66% 90%	11,751 14,388	9.37 9.57	1,468 1,797	94,063 115,165
14010002010206	Upper French Gulch	1111	852	17.5%	27	646	Highest	27.22	2yr 5yr	9 12	88% 98%	12,537 15,298	9.44 9.64	1,566 1,911	100,349 122,449
14010002010207	Middle French Gulch	1788	688	12.6%	25	657	High	25.37	2yr 5yr	9 12	89% 99%	10,142 12,390	9.22 9.42	1,267 1,548	81,179 99,174
14010002010208	Lower French Gulch	1376	636	10.7%	25	649	High	24.84	2yr 5yr	9 12	85% 98%	8,493 10,424	9.05 9.25	1,061 1,302	67,984 83,437
14010002010209	Outlet French Gulch	1147	368	4.1%	22	520	Lowest	22.47	2yr 5yr	8 12	64% 90%	3,313 4,073	8.11 8.31	414 509	26,518 32,601
14010002010210	Cucumber Creek Gulch	2173	1070	1.6%	25	515	Moderate	25.33	2yr 5yr	8 12	76% 95%	22,075 26,880	10.00 10.20	2,758 3,358	176,702 215,164
14010002010211	Upper Upper Blue River	1237	545	1.3%	22	417	Low	22.44	2yr 5yr	8 12	57% 86%	4,173 5,125	8.34 8.54	521 640	33,404 41,026
14010002010301	Upper South Fork Swan River	1631	872	3.0%	27	628	Moderate	27.14	2yr 5yr	9 13	72% 93%	16,995 20,634	9.74 9.93	2,123 2,578	136,034 165,164
14010002010302	Lower South Fork Swan River	1629	678	33.0%	25	678	High	24.94	2yr 5yr	9 12	95% 99%	11,304 13,730	9.33 9.53	1,412 1,715	90,486 109,900
14010002010303	Headwaters Middle Fork Swan River	870	593	1.6%	29	416	Lowest	29.12	2yr 5yr	10 13	45% 72%	2,803 3,371	7.94 8.12	350 421	22,435 26,986
14010002010304	UT to Upper Middle Fork Swan River	857	710	9.1%	28	523	Moderate	27.92	2yr 5yr	9 13	66% 89%	7,202 8,699	8.88 9.07	900 1,087	57,646 69,633
14010002010305	Upper Middle Fork Swan River	1145	633	4.7%	28	494	Low	28.17	2yr 5yr	10 13	59% 85%	4,954 5,962	8.51 8.69	619 745	39,653 47,722
14010002010306	Missouri Gulch	795	681	7.2%	26	622	Moderate	26.38	2yr 5yr	9 12	74% 93%	8,796 10,648	9.08 9.27	1,099 1,330	70,408 85,231
14010002010307	Lower Middle Fork Swan River	1167	639	30.8%	24	668	High	24.34	2yr 5yr	9 12	91% 99%	8,664 10,466	9.07 9.26	1,082 1,308	69,350 83,775

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14 code HUC	7th Level Watershed Name	Watershed Area (acres)	Relief (m)	Proportion High/Mod Severity Burn & >23°	Mean Annual Precipitation (in)	dNBR	Combined Debris Flow Hazard Rank	Rainfall Triggering 50% Debris Flow Likelihood (H _{trig} , mm hr ⁻¹)	Storm	15 min Peak Intensity (mm)	Debris Flow Likelihood (H _L)	Debris Flow Volume Estimate (H _v , in m ³)	Debris Flow Volume Estimate (H _v , in acre-ft)	Debris Flow Volume Minimum (H _{v,min} , in m ³)	Debris Flow Volume Maximum (H _{v,max} , in m ³)
14010002010308	Georgia Gulch	725	460	14.4%	23	662	Moderate	23.33	2yr 5yr	9 12	90% 99%	4,203 5,103	8.34 8.54	525 638	33,646 40,846
14010002010309	Upper North Fork Swan River	1470	591	13.9%	28	553	Low	27.79	2yr 5yr	10 13	75% 93%	6,415 7,680	8.77 8.95	801 959	51,352 61,472
14010002010310	Garibaldi Gulch	685	662	13.8%	27	557	Moderate	27.39	2yr 5yr	9 13	74% 93%	6,759 8,124	8.82 9.00	844 1,015	54,105 65,027
14010002010311	UT1 to Lower North Fork Swan River	385	508	6.0%	25	681	High	24.76	2yr 5yr	9 12	79% 95%	3,837 4,609	8.25 8.44	479 576	30,717 36,890
14010002010312	UT2 to Lower North Fork Swan River	473	621	16.4%	24	680	High	24.00	2yr 5yr	9 12	83% 97%	6,449 7,779	8.77 8.96	806 972	51,620 62,269
14010002010313	Lower North Fork Swan River	1309	543	13.6%	23	673	Moderate	22.88	2yr 5yr	9 12	81% 96%	6,902 8,318	8.84 9.03	862 1,039	55,244 66,582
14010002010314	Upper Swan River	1602	546	21.2%	22	648	Moderate	21.51	2yr 5yr	9 12	89% 98%	7,019 8,487	8.86 9.05	877 1,060	56,187 67,931
14010002010315	Brown Gulch	1002	545	24.5%	23	661	High	23.28	2yr 5yr	9 12	93% 99%	6,772 8,234	8.82 9.02	846 1,029	54,207 65,905
14010002010316	Muggins Gulch	1498	523	18.0%	22	650	Moderate	21.53	2yr 5yr	9 12	84% 97%	6,514 7,840	8.78 8.97	814 979	52,145 62,757
14010002010317	Middle Swan River	1828	451	13.4%	22	627	Moderate	21.64	2yr 5yr	8 12	85% 98%	5,743 6,969	8.66 8.85	718 871	45,973 55,780
14010002010318	Horseshoe Gulch	634	314	3.4%	20	593	Low	19.66	2yr 5yr	8 11	71% 92%	2,468 2,972	7.81 8.00	308 371	19,752 23,788
14010002010319	Lower Swan River	1160	390	3.7%	21	524	Low	20.66	2yr 5yr	8 11	67% 91%	3,416 4,142	8.14 8.33	427 518	27,341 33,158
14010002010320	Upper Gold Run Gulch	1160	385	1.1%	23	636	Low	23.45	2yr 5yr	8 12	79% 96%	4,038 4,942	8.30 8.51	505 617	32,326 39,561
14010002010321	Lower Gold Run Gulch	1055	359	3.8%	21	501	Lowest	20.88	2yr 5yr	8 11	64% 90%	3,101 3,775	8.04 8.24	387 472	24,820 30,216
14010002010322	Outlet Swan River	972	359	3.4%	19	550	Lowest	19.29	2yr 5yr	8 11	65% 89%	2,966 3,569	8.00 8.18	371 446	23,743 28,565
14010002010401	South Barton Gulch	2207	981	3.1%	26	596	Moderate	25.62	2yr 5yr	8 11	82% 97%	20,899 25,311	9.95 10.14	2,611 3,162	167,287 202,600
14010002010402	Middle Barton Gulch	1175	1068	8.1%	26	589	Highest	25.65	2yr 5yr	8 11	83% 97%	20,158 24,363	9.91 10.10	2,518 3,044	161,353 195,015
14010002010403	North Barton Gulch	1690	1072	4.1%	24	551	High	23.66	2yr 5yr	8 11	77% 95%	19,580 23,645	9.88 10.07	2,446 2,954	156,725 189,268
14010002010404	Middle Upper Blue River	903	343	4.8%	21	473	Lowest	21.10	2yr 5yr	8 11	61% 88%	2,611 3,185	7.87 8.07	326 398	20,903 25,491
14010002010405	Lower Upper Blue River	1414	339	0.4%	20	443	Lowest	19.99	2yr 5yr	8 11	53% 81%	2,742 3,304	7.92 8.10	343 413	21,946 26,450
14010002010406	Tiger Run	248	393	5.1%	19	617	Moderate	19.20	2yr 5yr	8 11	69% 91%	2,162 2,585	7.68 7.86	270 323	17,306 20,692
14010002010407	South Swan Mountain	474	509	4.8%	19	613	Moderate	19.13	2yr 5yr	8 11	67% 90%	3,775 4,503	8.24 8.41	472 563	30,216 36,042
14010002010408	Gold Hill	1135	374	0.4%	20	553	Lowest	20.42	2yr 5yr	8 11	68% 91%	2,943 3,532	7.99 8.17	368 441	23,555 28,270
14010002010409	Ophir Mountain	406	342	3.2%	20	496	Lowest	19.68	2yr 5yr	8 11	57% 84%	1,814 2,173	7.50 7.68	227 272	14,520 17,396
14010002010410	West Swan Mountain	326	529	7.9%	19	622	High	19.10	2yr 5yr	8 11	70% 91%	3,999 4,756	8.29 8.47	500 594	32,010 38,066
14010002010411	Outlet Upper Blue River	414	243	12.0%	19	483	Lowest	19.00	2yr 5yr	8 11	62% 87%	1,505 1,798	7.32 7.49	188 225	12,045 14,390
14010002020101	Lenawee - Arapahoe Basin	818	735	2.5%	32	535	Moderate	32.40	2yr 5yr	10 13	71% 87%	5,613 6,382	8.63 8.76	701 797	44,930 51,084
14010002020102	Headwaters North Fork Snake River	1294	791	10.5%	33	475	Moderate	33.42	2yr 5yr	11 13	71% 87%	9,295 10,635	9.14 9.27	1,161 1,329	74,398 85,129
14010002020103	Upper North Fork Snake River	1382	718	28.4%	28	594	High	27.58	2yr 5yr	10 12	90% 97%	10,534 12,070	9.26 9.40	1,316 1,508	84,317 96,613
14010002020104	UT to Middle North Fork Snake River	876	771	10.7%	29	536	High	29.46	2yr 5yr	10 13	75% 91%	8,493 9,849	9.05 9.20	1,061 1,230	67,984 78,834
14010002020105	Middle North Fork Snake River	998	737	39.4%	20	665	Highest	20.34	2yr 5yr	9 12	92% 98%	11,473 13,156	9.35 9.48	1,433 1,644	91,836 105,304
14010002020106	Upper Porcupine Gulch	2039	647	9.4%	31	522	Low	30.67	2yr 5yr	10 13	71% 90%	7,999 9,433	8.99 9.15	999 1,179	64,025 75,509
14010002020107	Lower Porcupine Gulch	920	728	29.8%	21	667	Highest	21.00	2yr 5yr	9 12	90% 97%	10,300 11,916	9.24 9.39	1,287 1,489	82,448 95,385
14010002020108	Lower North Fork Snake River	1891	928	15.9%	20	627	High	20.28	2yr 5yr	9 11	77% 93%	19,171 22,281	9.86 10.01	2,395 2,784	153,453 178,351
14010002020201	Upper Deer Creek	817	378	1.2%	30	419	Lowest	29.62	2yr 5yr	10 13	45% 71%	1,655 1,980	7.41 7.59	207 247	13,248 15,849
14010002020202	UT to Lower Deer Creek	422	530	4.9%	29	469	Low	28.64	2yr 5yr	10 13	57% 82%	2,879 3,427	7.97 8.14	360 428	23,045 27,429
14010002020203	Lower Deer Creek	1299	593	15.9%	28	553	Moderate	27.68	2yr 5yr	10 13	76% 93%	7,053 8,378	8.86 9.03	881 1,047	56,456 67,060
14010002020204	Headwaters Snake River	1559	645	2.6%	29	436	Lowest	29.12	2yr 5yr	10 13	51% 76%	5,394 6,413	8.59 8.77	674 801	43,174 51,334
14010002020205	Upper Upper Snake River	1337	824	9.5%	30	562	High	29.53	2yr 5yr	10 13	75% 92%	10,796 12,752	9.29 9.45	1,349 1,593	86,413 102,074
14010002020206	Lower Upper Snake River	1071	845	23.4%	26	630	Highest	26.32	2yr 5yr	10 13	88% 97%	13,431 15,784	9.51 9.67	1,678 1,972	107,505 126,341
14010002020207	Saints John Creek	1935	709	12.2%	27	531	Low	26.62	2yr 5yr	10 12	70% 90%	9,537 11,265	9.16 9.33	1,191 1,407	76,338 90,167

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14 code HUC	7th Level Watershed Name	Watershed Area (acres)	Relief (m)	Proportion High/Mod Severity Burn >23°	Mean Annual Precipitation (in)	dNBR	Combined Debris Flow Hazard Rank	Rainfall Triggering 50% Debris Flow Likelihood (H ₁₅ , mm hr ⁻¹)	Storm	15 min Peak Intensity (mm)	Debris Flow Likelihood (H _L)	Debris Flow Volume Estimate (H _v , in m ³)	Debris Flow Volume Estimate (H _v , in acre-ft)	Debris Flow Volume Minimum (H _{v,min} , in m ³)	Debris Flow Volume Maximum (H _{v,max} , in m ³)
14010002020208	Upper Middle Snake River	1,283.6	910	24.1%	23	647	Highest	23.21	2yr 5yr	10 12	88% 97%	18,263 21,280	9.81 9.97	2,282 2,659	146,182 170,336
14010002020209	Upper Peru Creek	2147	967	1.5%	36	400	Lowest	36.06	2yr 5yr	10 13	49% 70%	7,992 9,239	8.99 9.13	998 1,154	63,970 73,956
14010002020210	Cinnamon Gulch	575	643	3.0%	30	490	Moderate	30.48	2yr 5yr	10 13	62% 82%	4,198 4,884	8.34 8.49	524 610	33,599 39,094
14010002020211	Wardon Gulch	757	788	12.2%	30	567	High	30.01	2yr 5yr	10 13	78% 93%	8,890 10,348	9.09 9.24	1,111 1,293	71,159 82,830
14010002020212	Middle Peru Creek	1772	845	5.9%	30	515	Moderate	30.31	2yr 5yr	10 13	68% 86%	10,501 12,148	9.26 9.40	1,312 1,518	84,051 97,242
14010002020213	Upper Chihuahua Gulch	1258	939	0.8%	39	437	Low	38.76	2yr 5yr	11 13	56% 75%	8,266 9,444	9.02 9.15	1,033 1,180	66,163 75,593
14010002020214	Lower Chihuahua Gulch	1867	1194	7.1%	33	542	Highest	33.12	2yr 5yr	10 13	76% 90%	26,110 29,933	10.17 10.31	3,262 3,740	208,994 239,596
14010002020215	Lower Peru Creek	1398	788	30.1%	24	633	Highest	24.08	2yr 5yr	10 12	91% 98%	13,030 15,044	9.48 9.62	1,628 1,879	104,301 120,420
14010002020216	Thurman Gulch	662	1016	16.5%	28	523	Highest	27.52	2yr 5yr	10 12	77% 91%	13,641 15,596	9.52 9.65	1,704 1,948	109,186 124,838
14010002020217	Grizzly Gulch	794	889	23.5%	24	621	Highest	24.21	2yr 5yr	9 12	85% 96%	13,437 15,722	9.51 9.66	1,679 1,964	107,556 125,844
14010002020218	Porcupine Mountain	668	895	20.9%	23	596	Highest	23.40	2yr 5yr	10 12	83% 95%	12,099 13,854	9.40 9.54	1,512 1,731	96,845 110,890
14010002020219	Lower Middle Snake River	1050	722	24.7%	20	632	High	20.40	2yr 5yr	9 12	84% 95%	10,264 11,853	9.24 9.38	1,282 1,481	82,161 94,878
14010002020220	Independence Mountain	424	940	42.5%	22	658	Highest	22.01	2yr 5yr	9 12	92% 98%	12,455 14,517	9.43 9.58	1,556 1,814	99,696 116,201
14010002020221	UT to Lower Snake River	291	845	61.6%	21	654	Highest	21.15	2yr 5yr	9 12	95% 99%	9,271 10,798	9.13 9.29	1,158 1,349	74,209 86,432
14010002020222	Jones Gulch	1732	982	28.2%	24	603	High	24.36	2yr 5yr	9 12	83% 96%	22,087 25,986	10.00 10.17	2,759 3,246	176,796 208,001
14010002020223	Lower Snake River	1423	748	35.0%	18	614	High	18.00	2yr 5yr	9 11	84% 95%	11,244 13,012	9.33 9.47	1,405 1,626	90,006 104,158
14010002020301	Camp Creek - Snake River	773	710	0.7%	21	454	Low	20.55	2yr 5yr	9 11	34% 56%	5,258 6,163	8.57 8.73	657 770	42,085 49,334
14010002020302	UT1 to Outlet Snake River	597	685	4.2%	20	629	Moderate	19.74	2yr 5yr	9 11	65% 86%	6,355 7,399	8.76 8.91	794 924	50,868 59,227
14010002020303	UT2 to Outlet Snake River	1067	869	8.2%	22	616	Moderate	21.79	2yr 5yr	9 11	68% 88%	11,445 13,405	9.35 9.50	1,430 1,675	91,613 107,303
14010002020304	UT3 to Outlet Snake River	742	871	3.6%	21	620	High	21.02	2yr 5yr	9 11	62% 85%	9,084 10,655	9.11 9.27	1,135 1,331	72,714 85,291
14010002020305	Upper Keystone Gulch	2039	600	6.0%	26	597	Low	26.17	2yr 5yr	9 12	71% 91%	8,807 10,535	9.08 9.26	1,100 1,316	70,493 84,328
14010002020306	Keystone Mountain	908	748	8.9%	25	592	Moderate	25.04	2yr 5yr	9 12	70% 91%	9,215 10,945	9.13 9.30	1,151 1,367	73,763 87,612
14010002020307	Middle Keystone Gulch	1487	574	19.6%	23	654	Moderate	22.89	2yr 5yr	9 12	78% 95%	7,969 9,496	8.98 9.16	996 1,186	63,785 76,011
14010002020308	Lower Keystone Gulch	1619	651	29.3%	19	644	Moderate	19.28	2yr 5yr	8 11	82% 96%	9,448 11,135	9.15 9.32	1,180 1,391	75,625 89,130
14010002020309	Frey Gulch	1490	861	11.8%	22	655	Moderate	21.67	2yr 5yr	9 11	73% 92%	14,949 17,634	9.61 9.78	1,868 2,203	119,658 141,150
14010002020310	Outlet Snake River	2116	599	10.1%	17	487	Lowest	16.79	2yr 5yr	8 11	56% 80%	6,627 7,748	8.80 8.96	828 968	53,046 62,018
14010002030101	Glory Hole - Climax	1042	814	0.0%	29	527	Low	29.48	2yr 5yr	8 11	40% 73%	1,881 2,328	7.54 7.75	235 291	15,059 18,631
14010002030102	McNully Creek	781	653	0.4%	28	470	Low	28.39	2yr 5yr	8 11	53% 85%	3,694 4,546	8.21 8.42	461 568	29,566 36,388
14010002030103	Upper Robinson Lake	969	278	1.8%	28	586	Lowest	27.52	2yr 5yr	7 11	57% 88%	1,833 2,265	7.51 7.73	229 283	14,670 18,134
14010002030104	Lower Robinson Lake	1536	543	0.1%	27	487	Lowest	26.98	2yr 5yr	8 11	53% 85%	4,489 5,529	8.41 8.62	561 691	35,932 44,255
14010002030105	Headwaters Tenmile Creek	1023	529	1.4%	28	512	Low	27.59	2yr 5yr	8 11	74% 96%	3,898 4,830	8.27 8.48	487 603	31,198 38,660
14010002030106	Upper Seattle Gulch	1025	433	0.9%	30	407	Low	29.73	2yr 5yr	8 12	68% 93%	1,801 2,237	7.50 7.71	225 279	14,419 17,908
14010002030107	Lower Seattle Gulch	1461	766	2.9%	29	511	High	28.82	2yr 5yr	8 12	78% 96%	7,638 9,412	8.94 9.15	954 1,176	61,141 75,336
14010002030108	Upper Clinton Creek	1694	825	1.5%	31	455	Lowest	31.36	2yr 5yr	8 12	47% 79%	6,308 7,785	8.75 8.96	788 973	50,491 62,313
14010002030109	Lower Clinton Creek	1432	675	7.4%	28	587	High	27.55	2yr 5yr	8 11	81% 97%	8,907 10,893	9.09 9.30	1,113 1,361	71,300 87,190
14010002030110	Rose Gulch	1059	699	9.1%	27	522	Moderate	27.18	2yr 5yr	8 11	75% 95%	6,962 8,478	8.85 9.05	870 1,059	55,725 67,859
14010002030111	Upper Mayflower Creek	1261	801	0.6%	30	464	Low	30.12	2yr 5yr	9 12	53% 83%	4,981 6,113	8.51 8.72	622 764	39,873 48,931
14010002030112	Lower Mayflower Creek	1019	624	9.0%	28	629	High	27.64	2yr 5yr	8 11	89% 99%	7,613 9,257	8.94 9.13	951 1,156	60,936 74,094
14010002030201	Headwaters West Tenmile Creek	2007	493	0.1%	30	586	Moderate	29.73	2yr 5yr	9 13	88% 99%	4,993 6,326	8.52 8.75	624 790	39,970 50,635
14010002030202	Wilder Gulch	1422	564	4.0%	29	616	Moderate	29.34	2yr 5yr	9 12	88% 99%	6,229 7,827	8.74 8.97	778 978	49,861 62,650
14010002030203	Corral Creek	1477	638	3.0%	29	603	Moderate	29.36	2yr 5yr	8 12	85% 98%	6,962 8,676	8.85 9.07	870 1,084	55,729 69,448

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14010002030204	Upper Stafford Creek	1,831.4	613	3.1%	29	555	Moderate	29.05	2yr 5yr	9 12	81% 97%	7,294 9,107	8.89 9.12	911 1,138	58,387 72,897
14010002030205	Lower Stafford Creek	812	482	12.6%	29	674	High	28.54	2yr 5yr	8 12	91% 99%	5,152 6,322	8.55 8.75	644 790	41,238 50,606
14010002030206	Upper West Tenmile Creek	1848	669	0.4%	28	640	High	28.43	2yr 5yr	8 12	87% 99%	9,558 11,815	9.17 9.38	1,194 1,476	76,504 94,573
14010002030207	UT to Lower West Tenmile Creek	500	510	0.8%	28	630	High	28.42	2yr 5yr	8 11	84% 98%	3,170 3,878	8.06 8.26	396 484	25,373 31,039
14010002030208	Jacque Creek	1606	842	5.4%	31	589	Moderate	30.73	2yr 5yr	8 11	81% 97%	13,219 16,110	9.49 9.69	1,651 2,013	105,809 128,948
14010002030209	Guller Creek	2111	825	8.5%	29	633	Moderate	29.10	2yr 5yr	8 12	88% 99%	15,053 18,504	9.62 9.83	1,881 2,312	120,489 148,118
14010002030210	Union Gulch	1097	753	0.5%	29	547	Moderate	29.06	2yr 5yr	8 11	74% 94%	8,928 10,722	9.10 9.28	1,115 1,339	71,467 85,822
14010002030211	Wheeler Gulch	1086	825	8.3%	29	477	Moderate	29.06	2yr 5yr	8 11	69% 91%	8,837 10,573	9.09 9.27	1,104 1,321	70,739 84,632
14010002030212	Lower West Tenmile Creek	1735	515	4.2%	26	564	Low	26.31	2yr 5yr	8 11	77% 95%	5,527 6,674	8.62 8.81	691 834	44,243 53,418
14010002030301	Tucker Gulch	653	873	6.2%	30	461	High	29.87	2yr 5yr	8 11	63% 89%	6,897 8,360	8.84 9.03	862 1,044	55,205 66,914
14010002030302	Humbug Creek	921	1095	5.8%	29	549	Highest	29.17	2yr 5yr	9 12	74% 94%	15,932 19,410	9.68 9.87	1,990 2,425	127,527 155,365
14010002030303	Copper Creek	900	689	17.3%	31	522	High	30.77	2yr 5yr	8 11	80% 96%	6,642 7,984	8.80 8.99	830 997	53,163 63,905
14010002030304	West Crystal Peak	861	1120	5.2%	30	587	Highest	29.92	2yr 5yr	9 12	74% 94%	15,207 18,523	9.63 9.83	1,900 2,314	121,722 148,268
14010002030305	North Crystal Peak	1112	1128	6.2%	30	592	Highest	30.34	2yr 5yr	9 12	77% 95%	18,438 22,453	9.82 10.02	2,304 2,805	147,589 179,724
14010002030306	Upper Upper Tenmile Creek	1188	721	24.4%	29	623	High	28.95	2yr 5yr	8 11	92% 99%	10,518 12,679	9.26 9.45	1,314 1,584	84,190 101,488
14010002030307	Spaulding Gulch	387	729	19.2%	30	587	Highest	29.52	2yr 5yr	8 11	87% 98%	6,689 8,024	8.81 8.99	836 1,002	53,540 64,229
14010002030308	Lower Upper Middle Tenmile Creek	770	931	18.8%	30	569	Highest	30.43	2yr 5yr	9 12	83% 97%	11,874 14,401	9.38 9.58	1,483 1,799	95,044 115,273
14010002030309	UT to Middle Middle Tenmile Creek	535	915	19.0%	31	589	Highest	30.62	2yr 5yr	8 12	86% 98%	9,466 11,438	9.16 9.34	1,183 1,429	75,768 91,556
14010002030310	Middle Middle Tenmile Creek	1648	869	33.4%	29	605	Highest	28.77	2yr 5yr	8 11	92% 99%	16,143 19,407	9.69 9.87	2,017 2,424	129,219 155,341
14010002030311	Upper Lower Middle Tenmile Creek	659	934	42.7%	29	616	Highest	29.01	2yr 5yr	8 11	94% 99%	12,790 15,402	9.46 9.64	1,598 1,924	102,377 123,281
14010002030312	Lower Lower Middle Tenmile Creek	375	942	42.2%	29	658	Highest	28.59	2yr 5yr	8 11	96% 100%	10,942 13,206	9.30 9.49	1,367 1,650	87,587 105,704
14010002030313	Outlet Middle Tenmile Creek	407	966	19.4%	30	615	Highest	29.96	2yr 5yr	8 11	81% 96%	8,242 9,964	9.02 9.21	1,030 1,245	65,970 79,757
14010002030401	Curtain Ponds	730	622	49.8%	26	610	Highest	26.25	2yr 5yr	8 11	95% 100%	6,925 8,398	8.84 9.04	865 1,049	55,433 67,225
14010002030402	UT to Upper Lower Tenmile Creek	322	978	17.6%	29	662	Highest	29.05	2yr 5yr	8 11	83% 97%	7,379 8,958	8.91 9.10	922 1,119	59,066 71,705
14010002030403	Upper Officers Gulch	1252	626	6.6%	29	606	Moderate	29.45	2yr 5yr	8 12	83% 98%	7,014 8,652	8.86 9.07	876 1,081	56,146 69,258
14010002030404	Lower Officers Gulch	968	771	29.7%	26	638	Highest	26.21	2yr 5yr	8 11	93% 99%	11,093 13,582	9.31 9.52	1,386 1,697	88,794 108,720
14010002030405	Upper Lower Tenmile Creek	923	1105	45.4%	26	634	Highest	26.47	2yr 5yr	8 11	95% 100%	20,082 24,564	9.91 10.11	2,509 3,069	160,746 196,621
14010002030406	Uneva Lake	1872	898	20.5%	26	630	Highest	26.04	2yr 5yr	8 12	91% 99%	17,822 22,101	9.79 10.00	2,227 2,761	142,657 176,906
14010002030407	Upper North Tenmile Creek	1191	628	6.0%	30	636	High	29.61	2yr 5yr	9 13	88% 99%	7,762 10,031	8.96 9.21	970 1,253	62,128 80,296
14010002030408	UT to Middle North Tenmile Creek	1116	779	9.2%	30	604	High	30.01	2yr 5yr	9 14	86% 99%	9,013 11,824	9.11 9.38	1,126 1,477	72,145 94,645
14010002030409	Uneva Peak	1296	772	10.5%	29	629	High	28.78	2yr 5yr	8 12	87% 99%	10,926 13,775	9.30 9.53	1,365 1,721	87,460 110,258
14010002030410	Middle North Tenmile Creek	1611	835	21.6%	27	650	Highest	27.12	2yr 5yr	9 13	93% 100%	15,287 19,478	9.63 9.88	1,910 2,433	122,361 155,913
14010002030411	UT to Lower North Tenmile Creek	812	847	7.7%	28	640	Highest	27.90	2yr 5yr	9 13	89% 99%	11,543 14,873	9.35 9.61	1,442 1,858	92,397 119,050
14010002030412	Lower North Tenmile Creek	1700	688	41.1%	25	649	High	24.83	2yr 5yr	8 12	96% 100%	10,813 13,589	9.29 9.52	1,351 1,698	86,555 108,773
14010002030413	Lower Lower Tenmile Creek	1729	1146	40.0%	23	553	Highest	23.08	2yr 5yr	8 11	92% 99%	25,819 31,841	10.16 10.37	3,226 3,978	206,670 254,874
14010002040101	Upper Miners Creek	1393	936	9.8%	27	643	High	27.05	2yr 5yr	8 11	85% 98%	16,263 19,694	9.70 9.89	2,032 2,460	130,179 157,637
14010002040102	Lower Miners Creek	1559	1120	17.3%	24	640	Highest	23.68	2yr 5yr	8 11	88% 98%	26,975 32,684	10.20 10.39	3,370 4,083	215,918 261,617
14010002040103	Masontown	1248	1128	24.4%	23	609	Highest	23.07	2yr 5yr	8 11	87% 98%	23,422 28,565	10.06 10.26	2,926 3,569	187,481 228,649
14010002040104	Upper Meadow Creek	1650	943	6.4%	28	614	High	27.84	2yr 5yr	9 13	85% 99%	15,877 20,469	9.67 9.93	1,984 2,557	127,091 163,847
14010002040105	UT to Meadow Creek	789	900	20.1%	27	621	Highest	27.26	2yr 5yr	8 13	89% 99%	12,150 15,596	9.41 9.65	1,518 1,948	97,252 124,836
14010002040106	Lower Meadow Creek	1613	645	7.4%	22	534	Moderate	22.15	2yr 5yr	8 11	71% 94%	7,325 9,111	8.90 9.12	915 1,138	58,634 72,931

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14 code HUC	7th Level Watershed Name	Watershed Area (acres)	Relief (m)	Proportion High/Mod Severity Burn & >23°	Mean Annual Precipitation (in)	dNBR	Combined Debris Flow Hazard Rank	Rainfall Triggering 50% Debris Flow Likelihood (H _{ris} , mm hr ⁻¹)	Storm	15 min Peak Intensity (mm)	Debris Flow Likelihood (HL)	Debris Flow Volume Estimate (H _v , in m ³)	Debris Flow Volume Estimate (H _v , in acre-ft)	Debris Flow Volume Minimum (H _{v,min} , in m ³)	Debris Flow Volume Maximum (H _{v,max} , in m ³)
14010002040107	North Ophir Mountain	373.0	319	8.1%	19	491	Lowest	18.59	2yr 5yr	8 11	61% 87%	2,087 2,505	7.64 7.83	261 313	16,706 20,049
14010002040108	North Swan Mountain	431	486	13.7%	18	664	Moderate	18.06	2yr 5yr	8 10	76% 94%	4,113 4,869	8.32 8.49	514 608	32,920 38,975
14010002040109	Soda Gulch	479	301	6.2%	16	520	Lowest	15.79	2yr 5yr	8 10	60% 85%	1,778 2,090	7.48 7.64	222 261	14,231 16,731
14010002040110	Upper Soda Creek	1757	584	11.3%	20	632	Low	20.03	2yr 5yr	8 11	76% 94%	7,966 9,533	8.98 9.16	995 1,191	63,766 76,305
14010002040111	UT to Soda Creek	932	447	5.8%	19	604	Low	19.08	2yr 5yr	8 11	70% 92%	4,469 5,353	8.40 8.59	558 669	35,775 42,850
14010002040112	Middle Soda Creek	1947	531	12.5%	17	565	Low	17.36	2yr 5yr	8 11	73% 93%	6,792 8,048	8.82 8.99	849 1,005	54,365 64,422
14010002040113	Lower Soda Creek	1936	533	10.0%	16	510	Lowest	15.88	2yr 5yr	8 10	63% 87%	6,372 7,498	8.76 8.92	796 937	51,001 60,019
14010002040114	South Tenderfoot Mountain	1014	702	7.1%	17	539	Low	17.47	2yr 5yr	8 10	60% 84%	6,158 7,234	8.73 8.89	769 904	49,294 57,904
14010002040115	Tenderfoot Mountain	500	740	7.5%	19	589	High	18.57	2yr 5yr	8 11	66% 89%	6,357 7,512	8.76 8.92	794 938	50,883 60,130
14010002040116	North Tenderfoot Mountain	338	559	16.5%	18	543	High	17.56	2yr 5yr	8 11	75% 94%	3,649 4,333	8.20 8.37	456 541	29,211 34,687
14010002040117	Dillon Reservoir	4400	473	4.3%	17	392	Lowest	16.90	2yr 5yr	8 10	43% 72%	7,091 8,489	8.87 9.05	886 1,061	56,761 67,949
14010002050101	Headwaters Straight Creek	1583	734	5.4%	33	530	Low	33.30	2yr 5yr	10 13	71% 91%	7,285 8,766	8.89 9.08	910 1,095	58,312 70,167
14010002050102	Coon Hill	576	679	6.1%	30	543	High	29.68	2yr 5yr	10 13	70% 92%	4,194 5,111	8.34 8.54	524 639	33,569 40,914
14010002050103	Hamilton Gulch	929	651	9.3%	28	555	Moderate	28.08	2yr 5yr	9 13	71% 93%	6,329 7,774	8.75 8.96	791 971	50,661 62,227
14010002050104	Upper Straight Creek	921	688	33.3%	28	640	Highest	27.55	2yr 5yr	10 13	91% 99%	9,441 11,401	9.15 9.34	1,179 1,424	75,571 91,256
14010002050105	UT to Straight Creek	1637	816	11.6%	26	616	Moderate	25.56	2yr 5yr	9 12	75% 93%	14,969 17,877	9.61 9.79	1,870 2,233	119,819 143,097
14010002050106	Middle Straight Creek	1875	762	22.0%	25	647	High	25.42	2yr 5yr	9 13	84% 97%	13,645 16,622	9.52 9.72	1,705 2,077	109,220 133,046
14010002050107	UT to Laskey Gulch	833	789	7.7%	26	611	Moderate	26.29	2yr 5yr	9 13	68% 93%	9,209 11,518	9.13 9.35	1,151 1,439	73,715 92,192
14010002050108	Laskey Gulch	1637	965	22.3%	27	596	High	27.41	2yr 5yr	9 13	79% 97%	19,615 24,420	9.88 10.10	2,451 3,051	157,008 195,470
14010002050109	Lower Straight Creek	1325	685	32.3%	21	653	High	21.05	2yr 5yr	9 12	82% 97%	10,314 12,481	9.24 9.43	1,289 1,559	82,559 99,901
14010002050110	Dillon Valley	1329	679	6.7%	18	526	Low	18.27	2yr 5yr	8 11	56% 85%	6,731 8,220	8.81 9.01	841 1,027	53,879 65,800
14010002050111	Outlet Dillon Reservoir	506	284	1.1%	15	405	Lowest	15.26	2yr 5yr	8 11	45% 76%	1,080 1,311	6.98 7.18	135 164	8,642 10,493
14010002050112	Upper Salt Lick Gulch	901	1077	12.2%	25	623	Highest	24.98	2yr 5yr	8 12	84% 98%	19,620 24,872	9.88 10.12	2,451 3,107	157,044 199,088
14010002050113	Ryan Gulch	774	998	8.8%	25	589	Highest	24.52	2yr 5yr	8 12	82% 98%	15,447 19,596	9.65 9.88	1,930 2,448	123,642 156,855
14010002050114	Lower Salt Lick Gulch	1238	369	0.1%	20	459	Lowest	19.58	2yr 5yr	8 11	49% 82%	2,763 3,412	7.92 8.14	345 426	22,114 27,314
14010002050115	Silverthorne	1786	406	0.7%	18	487	Lowest	17.72	2yr 5yr	8 11	55% 87%	3,555 4,422	8.18 8.39	444 552	28,453 35,398
14010002050116	Upper North Willow Creek	1517	822	6.7%	29	571	Moderate	29.29	2yr 5yr	9 14	72% 98%	9,726 13,284	9.18 9.49	1,215 1,660	77,848 106,329
14010002050117	Lower North Willow Creek	1419	1181	12.0%	26	669	Highest	26.25	2yr 5yr	8 13	91% 100%	28,506 38,316	10.26 10.55	3,561 4,787	228,176 306,699
14010002050118	Middle Willow Creek	1541	1205	6.3%	26	647	Highest	25.73	2yr 5yr	8 13	88% 99%	32,222 42,501	10.38 10.66	4,026 5,310	257,924 340,194
14010002050119	Upper South Willow Creek	1666	820	4.3%	29	599	Moderate	28.95	2yr 5yr	9 14	80% 98%	10,750 14,258	9.28 9.57	1,343 1,781	86,045 114,128
14010002050120	Middle South Willow Creek	1441	993	26.2%	27	638	Highest	27.42	2yr 5yr	8 13	91% 100%	18,026 23,657	9.80 10.07	2,252 2,956	144,286 189,365
14010002050121	Lower South Willow Creek	727	600	4.4%	24	655	Highest	23.91	2yr 5yr	8 12	87% 99%	6,697 8,618	8.81 9.06	837 1,077	53,606 68,979
14010002050122	Outlet Willow Creek	948	384	0.5%	18	486	Lowest	17.85	2yr 5yr	8 12	55% 89%	2,515 3,205	7.83 8.07	314 400	20,133 25,654
14010002050123	Blue River Ranch Lakes	865	841	2.5%	17	512	Low	17.46	2yr 5yr	8 11	49% 82%	8,235 10,250	9.02 9.24	1,029 1,281	65,914 82,045
14010002050124	Hamilton Creek	1880	988	9.1%	20	537	Moderate	19.78	2yr 5yr	8 12	62% 92%	16,761 21,212	9.73 9.96	2,094 2,650	134,165 169,794
14010002050125	UT to Middle Blue River - Straight Creek	472	442	5.0%	20	578	Moderate	20.43	2yr 5yr	8 12	77% 98%	2,968 3,884	8.00 8.26	371 485	23,758 31,088
14010002050126	Middle Blue River - Straight Creek	798	613	1.7%	17	476	Low	17.10	2yr 5yr	8 12	52% 88%	4,599 5,914	8.43 8.69	575 739	36,816 47,335
14010002050127	Upper Bushee Creek	1113	728	16.9%	29	659	High	29.17	2yr 5yr	9 14	83% 98%	8,852 11,514	9.09 9.35	1,106 1,438	70,858 92,165
14010002050128	Middle Bushee Creek	806	791	9.5%	24	579	High	23.62	2yr 5yr	9 13	65% 94%	7,473 9,752	8.92 9.19	934 1,218	59,816 78,058
14010002050129	UT1 to Bushee Creek	707	884	23.1%	28	644	Highest	27.55	2yr 5yr	9 13	84% 98%	12,084 15,585	9.40 9.65	1,510 1,947	96,724 124,751
14010002050130	UT2 to Bushee Creek	1024	979	21.1%	28	616	High	27.56	2yr 5yr	9 13	79% 97%	16,545 21,165	9.71 9.96	2,067 2,644	132,433 169,415

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14010002050131	Lower Bushee Creek	623.6	740	10.1%	20	561	High	19.53	2yr 5yr	8 12	72% 96%	6,959 8,982	8.85 9.10	869 1,122	55,705 71,896
14010002050201	Upper Middle Blue River - Rock Creek	1403	497	2.2%	18	493	Lowest	17.95	2yr 5yr	8 12	59% 93%	3,760 4,940	8.23 8.51	470 617	30,095 39,541
14010002050202	UT1 to Middle Blue River - Rock Creek	802	570	0.3%	22	600	Moderate	21.89	2yr 5yr	8 13	78% 99%	5,536 7,403	8.62 8.91	692 925	44,313 59,261
14010002050203	Maryland Creek	2191	1002	1.7%	24	615	High	24.07	2yr 5yr	8 13	83% 99%	21,751 29,665	9.99 10.30	2,717 3,706	174,106 237,450
14010002050204	Middle Middle Blue River - Rock Creek	999	844	6.9%	20	511	Moderate	20.43	2yr 5yr	8 13	57% 92%	9,174 12,139	9.12 9.40	1,146 1,517	73,436 97,167
14010002050205	UT2 to Middle Blue River - Rock Creek	878	1054	26.2%	24	596	Highest	23.66	2yr 5yr	8 13	79% 98%	17,490 23,155	9.77 10.05	2,185 2,893	139,996 185,343
14010002050206	Pioneer Creek	1763	1180	11.9%	24	571	High	24.38	2yr 5yr	9 13	75% 98%	24,940 33,066	10.12 10.41	3,116 4,131	199,630 264,679
14010002050207	Upper South Rock Creek	1801	859	3.1%	30	527	Low	29.86	2yr 5yr	9 15	67% 97%	9,896 13,773	9.20 9.53	1,236 1,721	79,208 110,244
14010002050208	Middle South Rock Creek	1493	913	8.8%	27	663	Highest	27.02	2yr 5yr	8 14	91% 100%	17,735 24,757	9.78 10.12	2,216 3,093	141,960 198,167
14010002050209	Headwaters North Rock Creek	1708	769	3.2%	33	555	Moderate	32.61	2yr 5yr	9 15	74% 98%	8,133 11,388	9.00 9.34	1,016 1,423	65,102 91,153
14010002050210	Upper North Rock Creek	1025	886	15.1%	28	583	Highest	27.83	2yr 5yr	9 15	88% 100%	12,369 17,391	9.42 9.76	1,545 2,173	99,007 139,207
14010002050211	Middle North Rock Creek	1658	821	14.8%	27	660	Highest	26.53	2yr 5yr	8 14	92% 100%	15,498 21,848	9.65 9.99	1,936 2,729	124,054 174,878
14010002050212	Lower North Rock Creek	680	418	1.2%	23	614	Moderate	23.34	2yr 5yr	8 14	81% 99%	2,750 3,851	7.92 8.26	344 481	22,010 30,826
14010002050213	Lower South Rock Creek	1620	580	2.5%	24	646	Moderate	23.55	2yr 5yr	8 13	85% 100%	7,731 10,748	8.95 9.28	966 1,343	61,884 86,031
14010002050214	Lower Middle Blue River - Rock Creek	1435	551	2.1%	19	505	Low	18.77	2yr 5yr	8 13	64% 96%	4,644 6,286	8.44 8.75	580 785	37,170 50,317
14010002050215	Quaking Asp Creek	1908	1188	7.4%	24	565	High	23.72	2yr 5yr	8 13	76% 98%	27,678 36,808	10.23 10.51	3,458 4,598	221,544 294,628
14010002050216	Pebble Creek	2069	921	3.2%	23	568	Moderate	22.87	2yr 5yr	8 13	78% 99%	16,687 23,227	9.72 10.05	2,085 2,902	133,570 185,920
14010002050217	Headwaters Boulder Creek	1826	733	3.6%	36	541	Low	35.81	2yr 5yr	9 15	71% 98%	7,093 9,964	8.87 9.21	886 1,245	56,773 79,755
14010002050218	UT to Boulder Creek	975	968	17.5%	29	626	Highest	29.36	2yr 5yr	9 15	89% 100%	15,375 21,672	9.64 9.98	1,921 2,708	123,071 173,477
14010002050219	Upper Boulder Creek	1116	910	14.4%	29	638	Highest	28.69	2yr 5yr	9 15	88% 100%	13,653 19,244	9.52 9.86	1,706 2,404	109,286 154,036
14010002050220	Middle Boulder Creek	1131	444	17.3%	27	669	High	27.06	2yr 5yr	8 14	93% 100%	5,069 7,147	8.53 8.87	633 893	40,576 57,211
14010002050221	Lower Boulder Creek	1236	556	8.7%	24	613	High	23.69	2yr 5yr	8 13	85% 100%	5,898 8,233	8.68 9.02	737 1,028	47,213 65,897
14010002050301	Upper Middle Blue River - Slate Creek	1874	451	2.6%	18	461	Lowest	18.27	2yr 5yr	8 13	61% 95%	3,448 4,631	8.15 8.44	431 579	27,600 37,071
14010002050302	Harrigan Creek	2121	804	0.3%	23	598	Moderate	23.24	2yr 5yr	8 13	80% 99%	12,637 17,554	9.44 9.77	1,579 2,193	101,152 140,513
14010002050303	Bordoux Gulch	480	355	1.4%	18	506	Lowest	17.97	2yr 5yr	8 13	59% 95%	1,714 2,332	7.45 7.75	214 291	13,722 18,665
14010002050304	North Acorn Creek	2196	1175	20.8%	26	571	High	25.84	2yr 5yr	9 14	81% 99%	28,713 37,967	10.27 10.54	3,587 4,743	229,836 303,902
14010002050305	Upper Acorn Creek	2233	979	21.6%	28	635	Moderate	28.02	2yr 5yr	9 14	82% 99%	22,698 29,964	10.03 10.31	2,836 3,743	181,683 239,846
14010002050306	Lower Acorn Creek	925	420	0.1%	19	502	Low	18.66	2yr 5yr	8 13	63% 95%	2,266 3,022	7.73 8.01	283 378	18,140 24,188
14010002050307	Headwaters Slate Lake	1679	690	2.2%	39	479	Lowest	39.48	2yr 5yr	9 15	58% 95%	4,784 6,709	8.47 8.81	598 838	38,290 53,703
14010002050308	Slate Lake	1430	988	20.0%	30	581	Highest	29.89	2yr 5yr	9 15	86% 100%	15,485 21,796	9.65 9.99	1,935 2,723	123,953 174,463
14010002050309	Upper Slate Creek	1824	1012	8.9%	35	517	Moderate	35.48	2yr 5yr	9 15	76% 99%	14,563 20,415	9.59 9.92	1,819 2,550	116,566 163,412
14010002050310	UT to Slate Creek	1124	1149	18.7%	29	636	Highest	28.56	2yr 5yr	9 14	90% 100%	22,884 32,206	10.04 10.38	2,859 4,023	183,171 257,790
14010002050311	Middle Slate Creek	2132	991	17.6%	28	615	Highest	27.67	2yr 5yr	8 14	91% 100%	21,252 29,778	9.96 10.30	2,655 3,720	170,111 238,359
14010002050312	Lower Slate Creek	2233	604	1.4%	21	551	Low	21.32	2yr 5yr	8 13	75% 99%	7,078 9,765	8.86 9.19	884 1,220	56,660 78,165
14010002050313	Upper Big Gulch	746	438	17.1%	21	537	Moderate	21.26	2yr 5yr	8 13	84% 99%	3,349 4,422	8.12 8.39	418 552	26,806 35,392
14010002050314	Lower Big Gulch	2106	358	0.6%	17	403	Lowest	16.63	2yr 5yr	8 13	52% 91%	1,700 2,268	7.44 7.73	212 283	13,607 18,157
14010002050315	Middle Middle Blue River - Slate Creek	1925	388	0.9%	17	454	Lowest	16.72	2yr 5yr	8 13	53% 92%	2,010 2,724	7.61 7.91	251 340	16,091 21,804
14010002050316	Berry Gulch	1441	1104	24.7%	28	653	Highest	27.72	2yr 5yr	9 14	86% 99%	27,364 35,936	10.22 10.49	3,419 4,490	219,035 287,651
14010002050317	Hole Creek	1031	789	25.4%	26	570	Moderate	26.18	2yr 5yr	9 13	73% 97%	10,346 13,576	9.24 9.52	1,293 1,696	82,812 108,672
14010002050318	Pasture Creek	1087	890	19.3%	23	564	Moderate	22.91	2yr 5yr	9 13	70% 97%	12,595 16,672	9.44 9.72	1,573 2,083	100,815 133,452
14010002050319	Pass Creek	2182	784	16.9%	21	517	Moderate	21.12	2yr 5yr	9 13	72% 97%	12,567 16,563	9.44 9.71	1,570 2,069	100,592 132,578

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14 code HUC	7th Level Watershed Name	Watershed Area (acres)	Relief (m)	Proportion High/Mod Severity Burn & >23°	Mean Annual Precipitation (in)	dNBR	Combined Debris Flow Hazard Rank	Rainfall Triggering 50% Debris Flow Likelihood (H ₁₅ , mm hr ⁻¹)	Storm	15 min Peak Intensity (mm)	Debris Flow Likelihood (H _L)	Debris Flow Volume Estimate (H _v , in m ³)	Debris Flow Volume Estimate (H _v , in acre-ft)	Debris Flow Volume Minimum (H _{v,min} , in m ³)	Debris Flow Volume Maximum (H _{v,max} , in m ³)
14010002050320	Miller Gulch - Middle Blue River	1,358.1	946	16.5%	23	542	Moderate	23.31	2yr 5yr	9 13	65% 95%	14,951 19,881	9.61 9.90	1,868 2,484	119,675 159,139
14010002050321	Lower Middle Blue River - Slate Creek	847	340	6.3%	16	412	Lowest	15.56	2yr 5yr	8 13	54% 92%	1,738 2,329	7.46 7.75	217 291	13,915 18,643
14010002050322	Upper Nuchu Creek	1245	775	1.2%	25	646	High	24.74	2yr 5yr	8 14	87% 100%	12,564 17,398	9.44 9.76	1,570 2,174	100,564 139,263
14010002050323	Hey Camp Creek	986	716	1.7%	21	606	High	21.44	2yr 5yr	8 13	82% 99%	8,673 11,944	9.07 9.39	1,084 1,492	69,425 95,603
14010002050324	Lower Nuchu Creek	1372	474	0.5%	17	445	Lowest	16.72	2yr 5yr	8 13	57% 94%	2,571 3,488	7.85 8.16	321 436	20,579 27,917
14010002050325	Spring Gulch	560	1101	9.7%	23	546	High	23.50	2yr 5yr	9 14	70% 97%	11,844 15,782	9.38 9.67	1,480 1,972	94,805 126,326
14010002050326	Palmer Gulch	1618	1064	8.8%	20	472	High	19.71	2yr 5yr	8 13	63% 95%	15,961 21,314	9.68 9.97	1,994 2,663	127,758 170,607
14010002050401	Upper Brush Creek	1543	941	6.7%	31	669	High	31.17	2yr 5yr	9 15	87% 100%	17,111 23,911	9.75 10.08	2,138 2,987	136,961 191,394
14010002050402	South Brush Creek	2036	904	2.3%	23	596	Moderate	22.74	2yr 5yr	8 14	82% 99%	17,660 24,291	9.78 10.10	2,206 3,035	141,358 194,440
14010002050403	Lower Brush Creek	1746	698	1.7%	20	538	Moderate	19.57	2yr 5yr	8 13	74% 98%	8,628 11,751	9.06 9.37	1,078 1,468	69,062 94,059
14010002050404	Chokecherry Gulch	508	638	2.6%	19	433	Moderate	18.99	2yr 5yr	8 13	59% 93%	2,895 3,864	7.97 8.26	362 483	23,176 30,932
14010002050405	McKinley Gulch	930	542	0.7%	19	558	Moderate	19.30	2yr 5yr	8 13	77% 99%	4,974 6,758	8.51 8.82	621 844	39,814 54,094
14010002050406	Lonesome Gulch	702	1098	7.3%	25	567	High	24.53	2yr 5yr	9 14	69% 96%	13,392 17,811	9.50 9.79	1,673 2,225	107,194 142,570
14010002050407	Dole Gulch	594	492	0.3%	18	547	Moderate	17.96	2yr 5yr	8 13	76% 98%	3,413 4,611	8.14 8.44	426 576	27,319 36,912
14010002050408	Butler Gulch	647	493	0.7%	17	519	Low	17.03	2yr 5yr	8 13	68% 97%	2,877 3,877	7.96 8.26	359 484	23,030 31,030
14010002050409	Inlet Green Mountain Reservoir	1319	654	2.7%	17	400	Low	16.78	2yr 5yr	8 13	53% 91%	4,356 5,825	8.38 8.67	544 728	34,869 46,628
14010002050410	Shane Gulch	1095	1068	18.5%	23	524	High	22.98	2yr 5yr	9 13	75% 98%	17,817 23,624	9.79 10.07	2,226 2,951	142,615 189,100
14010002050411	McDonald Gulch	512	1036	30.8%	24	568	Highest	24.10	2yr 5yr	9 13	83% 99%	15,396 20,344	9.64 9.92	1,923 2,542	123,236 162,845
14010002050412	Miller Gulch - Green Mountain	585	1114	26.9%	24	561	Highest	24.32	2yr 5yr	9 13	80% 98%	18,915 24,951	9.85 10.12	2,363 3,117	151,403 199,718
14010002050413	Headwaters Black Creek	1735	1040	4.5%	44	583	Moderate	44.46	2yr 5yr	9 15	75% 98%	12,201 16,909	9.41 9.74	1,524 2,112	97,660 135,351
14010002050414	Cliff Lake	1619	1160	5.6%	49	585	High	49.00	2yr 5yr	9 15	77% 99%	14,730 20,389	9.60 9.92	1,840 2,547	117,904 163,205
14010002050415	Upper South Rim Black Creek	1394	804	2.8%	42	551	Moderate	42.45	2yr 5yr	9 15	68% 97%	6,237 8,686	8.74 9.07	779 1,085	49,924 69,531
14010002050416	Lower South Rim Black Creek	1368	1068	25.8%	35	667	Highest	34.83	2yr 5yr	9 15	94% 100%	20,599 28,763	9.93 10.27	2,573 3,593	164,887 230,230
14010002050417	Upper Black Creek	1604	1086	39.8%	35	649	Highest	35.14	2yr 5yr	9 15	97% 100%	25,450 35,455	10.14 10.48	3,179 4,429	203,711 283,802
14010002050418	Middle Black Creek	1918	1048	30.2%	27	597	Highest	26.59	2yr 5yr	9 14	92% 100%	25,234 34,988	10.14 10.46	3,153 4,371	201,988 280,059
14010002050419	Lower Black Creek	1673	587	11.2%	19	495	Low	18.85	2yr 5yr	8 13	69% 97%	5,251 7,131	8.57 8.87	656 891	42,033 57,077
14010002050420	Cottonwood Gulch	788	1102	14.9%	24	537	High	23.80	2yr 5yr	9 13	69% 96%	18,176 23,916	9.81 10.08	2,271 2,988	145,487 191,437
14010002050421	Upper Otter Creek	1418	1165	7.8%	33	663	Highest	33.47	2yr 5yr	9 14	89% 100%	27,869 38,556	10.24 10.56	3,482 4,817	223,073 308,619
14010002050422	Surprise Lake	1143	949	10.7%	28	669	Highest	28.28	2yr 5yr	8 14	92% 100%	19,002 26,197	9.85 10.17	2,374 3,273	152,098 209,695
14010002050423	UT to Otter Creek	586	519	0.4%	19	586	Moderate	19.20	2yr 5yr	8 13	79% 99%	3,589 4,888	8.19 8.49	448 611	28,730 39,123
14010002050424	Lower Otter Creek	1789	595	5.0%	18	507	Low	18.25	2yr 5yr	8 13	70% 98%	5,787 7,857	8.66 8.97	723 982	46,325 62,889
14010002050425	Cox Gulch	856	726	4.0%	19	408	Low	18.54	2yr 5yr	8 13	55% 91%	5,268 6,931	8.57 8.84	658 866	42,166 55,482
14010002050426	Headwaters Cataract Creek	1916	806	1.2%	45	633	Moderate	45.19	2yr 5yr	9 15	84% 99%	6,206 8,528	8.73 9.05	775 1,065	49,678 68,259
14010002050427	Upper Cataract Creek	1003	895	6.9%	43	660	Highest	42.93	2yr 5yr	9 15	91% 100%	11,842 16,310	9.38 9.70	1,479 2,038	94,790 130,552
14010002050428	Middle Cataract Creek	1340	630	15.9%	35	673	High	35.10	2yr 5yr	9 14	95% 100%	9,532 13,128	9.16 9.48	1,191 1,640	76,299 105,082
14010002050429	Tipperary Lake	1544	1127	9.7%	41	642	Highest	40.81	2yr 5yr	9 15	89% 100%	25,703 35,497	10.15 10.48	3,211 4,435	205,742 284,138
14010002050430	Lower Cataract Creek	1549	807	12.2%	27	605	High	26.79	2yr 5yr	8 14	88% 100%	14,007 19,240	9.55 9.86	1,750 2,404	112,121 154,005
14010002050431	UT to Cataract Creek	1151	1233	5.7%	34	656	Highest	34.25	2yr 5yr	9 14	90% 100%	29,871 41,274	10.30 10.63	3,732 5,156	239,099 330,380
14010002050432	Outlet Cataract Creek	1141	456	2.0%	18	475	Low	18.41	2yr 5yr	8 13	63% 96%	2,988 4,066	8.00 8.31	373 508	23,917 32,544
14010002050433	UT1 to Green Mountain Reservoir	588	410	0.1%	16	437	Lowest	16.16	2yr 5yr	8 13	55% 93%	1,437 1,942	7.27 7.57	180 243	11,502 15,543
14010002050434	Mumford Gulch	2112	994	10.6%	22	479	Low	21.86	2yr 5yr	8 13	66% 95%	17,531 22,881	9.77 10.04	2,190 2,859	140,328 183,154

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14 code HUC	7th Level Watershed Name	Watershed Area (acres)	Relief (m)	Proportion High/Mod Severity Burn & >23°	Mean Annual Precipitation (in)	dNBR	Combined Debris Flow Hazard Rank	Rainfall Triggering 50% Debris Flow Likelihood (H _{T15} , mm hr ⁻¹)	Storm	15 min Peak Intensity (mm)	Debris Flow Likelihood (H _L)	Debris Flow Volume Estimate (H _v , in m ³)	Debris Flow Volume Estimate (H _v , in acre-ft)	Debris Flow Volume Minimum (H _{vmin} , in m ³)	Debris Flow Volume Maximum (H _{vmax} , in m ³)
14010002050435	Horse Creek	1360	820	0.7%	20	412	Low	20.39	2yr 5yr	8 13	56% 91%	5,655 7,360	8.64 8.90	706 920	45,265 58,915
14010002050436	Cow Camp Creek	779	845	2.4%	19	424	Moderate	18.69	2yr 5yr	8 13	58% 92%	6,287 8,198	8.75 9.01	785 1,024	50,327 65,621
14010002050437	Cow Camp Gulch	682	847	3.3%	19	433	High	18.88	2yr 5yr	8 12	63% 94%	6,023 7,843	8.70 8.97	753 980	48,215 62,775
14010002050438	Heeney - Green Mountain Reservoir	765	515	0.6%	18	503	Low	17.70	2yr 5yr	8 13	62% 96%	3,383 4,588	8.13 8.43	423 573	27,081 36,722
14010002050439	UT2 to Green Mountain Reservoir	506	457	1.8%	17	506	Low	17.26	2yr 5yr	8 13	64% 96%	2,627 3,566	7.87 8.18	328 445	21,025 28,541
14010002050440	Guthrie Gulch	1289	540	0.6%	20	522	Low	19.56	2yr 5yr	8 13	66% 97%	5,008 6,823	8.52 8.83	626 852	40,086 54,615
14010002050441	Green Mountain Reservoir	3853	541	2.7%	14	356	Lowest	14.40	2yr 5yr	8 13	46% 87%	6,066 8,072	8.71 9.00	758 1,008	48,553 64,612
14010002060101	Upper Elliott Creek - Lower Blue	1460	417	2.8%	43	660	Moderate	43.41	2yr 5yr	9 15	91% 100%	3,669 5,038	8.21 8.52	458 629	29,368 40,330
14010002060102	Eaglesmere Lakes	896	358	3.1%	36	677	Moderate	36.09	2yr 5yr	9 14	92% 100%	3,890 5,345	8.27 8.58	486 668	31,140 42,782
14010002060103	Mahan Lake	791	568	5.3%	40	665	High	40.10	2yr 5yr	9 14	93% 100%	5,993 8,213	8.70 9.01	749 1,026	47,974 65,744
14010002060104	North Fork Elliott Creek	1537	727	4.4%	38	670	High	38.04	2yr 5yr	9 14	93% 100%	12,070 16,521	9.40 9.71	1,508 2,064	96,614 132,245
14010002060105	Middle Elliott Creek - Lower Blue	641	538	15.1%	30	675	Highest	29.64	2yr 5yr	9 14	94% 100%	5,901 8,086	8.68 9.00	737 1,010	47,232 64,722
14010002060106	UT to Elliott Creek - Lower Blue	787	600	5.6%	30	629	High	30.00	2yr 5yr	9 14	89% 100%	6,639 9,059	8.80 9.11	829 1,132	53,142 72,516
14010002060107	Martin Creek	1888	1055	1.6%	30	606	High	30.12	2yr 5yr	8 14	84% 99%	23,771 32,363	10.08 10.38	2,970 4,043	190,272 259,049
14010002060108	Lower Elliott Creek - Lower Blue	1440	712	3.9%	20	478	Moderate	20.12	2yr 5yr	8 13	63% 96%	6,640 9,016	8.80 9.11	830 1,126	53,148 72,169
14010002060201	UT1 to South Fork Deep Creek	666	743	4.0%	34	665	Highest	33.81	2yr 5yr	9 14	90% 100%	9,541 12,989	9.16 9.47	1,192 1,623	76,368 103,971
14010002060202	UT2 to South Fork Deep Creek	895	788	0.3%	33	633	High	32.76	2yr 5yr	9 14	85% 99%	10,693 14,511	9.28 9.58	1,336 1,813	85,593 116,150
14010002060203	South Fork Deep Creek	1989	1014	4.0%	30	627	High	30.14	2yr 5yr	8 14	85% 99%	23,658 32,107	10.07 10.38	2,956 4,011	189,368 256,996
14010002060204	UT to North Fork Deep Creek	950	636	8.5%	26	581	High	25.83	2yr 5yr	8 13	85% 99%	6,371 8,568	8.76 9.06	796 1,070	50,994 68,585
14010002060205	North Fork Deep Creek	1818	890	6.9%	32	620	High	31.90	2yr 5yr	9 14	87% 99%	15,785 21,353	9.67 9.97	1,972 2,668	126,354 170,919
14010002060206	Lower Deep Creek	1060	426	8.6%	16	457	Low	16.27	2yr 5yr	8 13	69% 97%	2,863 3,842	7.96 8.25	358 480	22,920 30,752
14010002060207	Haystack Mountain	778	721	2.8%	17	404	Low	16.82	2yr 5yr	8 12	57% 91%	4,637 6,016	8.44 8.70	579 752	37,119 48,154
14010002060208	South Haystack Mountain	427	596	0.1%	16	390	Low	16.20	2yr 5yr	8 12	51% 88%	1,700 2,217	7.44 7.70	212 277	13,609 17,749
14010002060209	Lower Haystack Mountain	1264	521	3.9%	14	395	Lowest	13.65	2yr 5yr	8 12	52% 90%	3,918 5,158	8.27 8.55	490 644	31,364 41,284
14010002060210	North Haystack Mountain	1278	1023	4.6%	17	420	Moderate	16.99	2yr 5yr	8 12	61% 93%	12,717 16,467	9.45 9.71	1,589 2,057	101,790 131,806
14010002060211	UT to Spring Creek	1007	505	0.2%	16	452	Lowest	16.24	2yr 5yr	8 13	58% 94%	2,705 3,604	7.90 8.19	338 450	21,650 28,850
14010002060212	Spring Creek	1373	588	0.0%	19	491	Low	18.98	2yr 5yr	8 13	64% 95%	4,206 5,600	8.34 8.63	525 700	33,664 44,827
14010002060213	Noonan Ditch Gulch	563	339	0.0%	14	359	Lowest	13.66	2yr 5yr	8 12	47% 87%	876 1,155	6.78 7.05	109 144	7,015 9,246
14010002060214	Outlet Green Mountain Reservoir	1934	555	29.0%	14	415	Low	13.88	2yr 5yr	8 12	76% 98%	7,056 9,393	8.86 9.15	881 1,174	56,478 75,189
14010002060215	Miller Gulch - Lower Blue River	727	349	0.1%	13	346	Lowest	13.18	2yr 5yr	8 12	41% 80%	912 1,181	6.82 7.07	114 148	7,299 9,452
14010002060216	UT to King Creek	1118	954	15.0%	20	491	High	19.81	2yr 5yr	8 12	77% 97%	12,954 16,586	9.47 9.72	1,618 2,072	103,687 132,765
14010002060217	King Creek	1423	796	0.6%	15	374	Lowest	15.40	2yr 5yr	8 12	50% 86%	4,835 6,171	8.48 8.73	604 771	38,702 49,396
14010002060218	Upper Spruce Creek - Lower Blue	1649	664	8.7%	26	610	Moderate	25.92	2yr 5yr	8 13	87% 99%	9,366 12,541	9.14 9.44	1,170 1,567	74,972 100,382
14010002060219	Middle Spruce Creek	1419	398	0.3%	23	556	Low	23.29	2yr 5yr	8 13	73% 98%	3,606 4,791	8.19 8.47	450 599	28,864 38,349
14010002060220	UT to North Spruce Creek	762	514	0.0%	18	510	Low	17.59	2yr 5yr	8 12	67% 96%	4,128 5,441	8.33 8.60	516 680	33,039 43,552
14010002060221	North Spruce Creek	1547	684	0.2%	19	452	Lowest	18.70	2yr 5yr	8 12	56% 92%	5,975 7,853	8.70 8.97	746 981	47,828 62,861
14010002060222	Lower Spruce Creek - Lower Blue	1773	515	1.3%	16	426	Lowest	15.51	2yr 5yr	8 12	55% 91%	4,462 5,879	8.40 8.68	557 735	35,715 47,062
14010002060223	Headwaters Lower Blue River	1638	352	0.4%	13	329	Lowest	13.04	2yr 5yr	8 12	37% 75%	1,317 1,702	7.18 7.44	165 213	10,544 13,622
14010002060301	UT1 to Lower Blue River	719	233	0.0%	13	304	Lowest	13.20	2yr 5yr	8 11	38% 75%	433 550	6.07 6.31	54 69	3,465 4,400
14010002060302	Upper Lower Blue River	1566	350	0.2%	13	358	Lowest	13.16	2yr 5yr	8 11	34% 71%	1,291 1,660	7.16 7.41	161 207	10,335 13,286
14010002060303	Camp Creek - Lower Blue	1019	560	0.1%	15	393	Lowest	14.89	2yr 5yr	8 12	48% 86%	2,256 2,926	7.72 7.98	282 366	18,060 23,419

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14010002060304	Upper Harsha Gulch	1,598.1	684	8.0%	16	435	Low	16.02	2yr 5yr	8 11	63% 92%	6,439 8,060	8.77 8.99	804 1,007	51,539 64,516
14010002060305	Lower Harsha Gulch	1282	495	1.7%	14	351	Lowest	13.78	2yr 5yr	8 11	47% 83%	2,329 2,926	7.75 7.98	291 366	18,645 23,423
14010002060306	Way Reservoir	1557	691	0.0%	18	446	Lowest	17.52	2yr 5yr	8 12	52% 89%	5,457 7,094	8.60 8.87	682 886	43,682 56,781
14010002060307	Middle Lower Blue River	1426	510	3.9%	13	350	Lowest	13.07	2yr 5yr	7 11	41% 77%	2,712 3,401	7.91 8.13	339 425	21,710 27,221
14010002060308	Headwaters Beaver Creek	2179	427	2.4%	20	518	Lowest	19.68	2yr 5yr	8 12	60% 93%	4,276 5,574	8.36 8.63	534 696	34,229 44,618
14010002060309	Sheephorn Mountain	690	441	0.7%	19	490	Lowest	18.85	2yr 5yr	8 12	60% 93%	2,300 3,001	7.74 8.01	287 375	18,412 24,019
14010002060310	UT to Beaver Creek	629	418	0.1%	16	447	Lowest	15.88	2yr 5yr	8 12	56% 91%	1,759 2,276	7.47 7.73	220 284	14,080 18,218
14010002060311	Noonan Ranch	1003	362	0.0%	13	392	Lowest	13.30	2yr 5yr	7 11	42% 80%	741 944	6.61 6.85	93 118	5,935 7,559
14010002060312	Beaver Creek	2247	598	0.0%	15	393	Lowest	14.80	2yr 5yr	8 11	46% 83%	3,887 4,965	8.27 8.51	486 620	31,116 39,742
14010002060313	UT to Lower Blue River	938	438	0.0%	13	367	Lowest	13.25	2yr 5yr	7 11	38% 73%	1,013 1,272	6.92 7.15	127 159	8,108 10,181
14010002060314	Upper Elliott Creek - Outlet Blue	1971	384	3.7%	14	367	Lowest	14.13	2yr 5yr	8 11	48% 81%	2,418 2,967	7.79 8.00	302 371	19,355 23,751
14010002060315	Lawson Ridge	982	441	8.8%	14	372	Lowest	13.53	2yr 5yr	7 11	50% 83%	2,993 3,694	8.00 8.21	374 461	23,958 29,569
14010002060316	Middle Elliott Creek - Outlet Blue	1153	300	2.0%	13	321	Lowest	13.27	2yr 5yr	7 10	40% 71%	1,259 1,532	7.14 7.33	157 191	10,076 12,265
14010002060317	Lower Elliott Creek - Outlet Blue	1072	431	0.6%	13	323	Lowest	12.93	2yr 5yr	7 10	35% 66%	1,687 2,063	7.43 7.63	211 258	13,507 16,514
14010002060318	Dry Creek	1081	620	0.0%	14	419	Lowest	14.37	2yr 5yr	7 11	46% 82%	4,021 5,053	8.30 8.53	502 631	32,184 40,450
14010002060319	Lower Lower Blue River	1122	266	2.2%	13	339	Lowest	12.57	2yr 5yr	7 11	33% 65%	1,210 1,501	7.10 7.31	151 188	9,687 12,016
14010002060320	UT to Outlet Lower Blue River	780	437	7.4%	13	343	Lowest	12.53	2yr 5yr	7 10	40% 72%	2,160 2,625	7.68 7.87	270 328	17,291 21,011
14010002060321	Outlet Lower Blue River	1631	227	0.0%	12	337	Lowest	12.06	2yr 5yr	7 10	28% 55%	400 491	5.99 6.20	50 61	3,202 3,934